

This Agenda is posted pursuant to Chapter 551, Texas Government Code

**Matters to Come Before a Meeting of the Board of Directors  
of Tarrant Regional Water District**

**To Be Held the 16<sup>th</sup> Day of April 2024 at 9:00 a.m.**

**Front Doors to the Main Admin Building at 800 East Northside Drive Will Open to  
the Public at 8:30am and Close Fifteen (15) Minutes After the Meeting Adjourns**

**TRWD Board Room  
800 East Northside Drive  
Fort Worth, Texas 76102**

**PLEASE BE ADVISED THAT A QUORUM OF THE BOARD OF DIRECTORS OF TRWD  
WILL CONVENE ON THE ABOVE DATE AND TIME FOR THE PURPOSE OF  
CONSIDERING AND ACTING UPON THE MATTERS SET FORTH IN THIS AGENDA.  
THE LINK TO VIEW AND LISTEN TO THE MEETING VIA INTERNET IS  
<HTTPS://WWW.TRWD.COM/BOARDVIDEOS>. A RECORDING OF THE MEETING  
WILL ALSO BE AVAILABLE AT <HTTPS://WWW.TRWD.COM/BOARDVIDEOS>.**

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**1. Pledges of Allegiance**

**2. Public Comment**

**Citizens may present public comment at this time, limited to a total time of  
three (3) minutes per speaker, unless the speaker addresses the Board  
through a translator, in which case the limit is a total time of six (6) minutes.  
Each proposed speaker must have completed and submitted a speaker card  
prior to the commencement of the meeting, identifying any agenda item  
number(s) and topic(s) the speaker wishes to address with the Board. By  
law, the Board may not deliberate, debate, or take action on public comment  
but may place the item on a future agenda.**

**3. Consider Approval of the Minutes from the Meeting Held on March 19, 2024**

**4. Presentation by Iris Bruton, Executive Director of Trinity Collaborative, Inc.**

**5. Consider Approval of Contract with BAR Constructors, Inc. for Dallas Phase  
3 Opencut Pipeline Section 19-2 Part A of the Integrated Pipeline Project - Ed  
Weaver, IPL Program Manager**

**6. Consider Approval of Contract Amendment with HDR Engineering, Inc. for  
Section 19-2 Construction Phase Services of the Integrated Pipeline Project  
- Ed Weaver, IPL Program Manager**

- 7. Consider Approval of Contract Amendment with Black & Veatch Corporation for Engineering Services Related to Procurement and Construction Phases for the Cedar Creek Pipeline Replacement Project in the Mansfield to Waxahachie Area and Additional Transient Analysis Services - Jason Gehrig, Infrastructure Engineering Director**
- 8. Consider Approval of Contract with Freese and Nichols, Inc. for Engineering Design Services for Mary's Creek Indirect Water Reclamation Project and Second Cell of the Eagle Mountain Balancing Reservoir - Jason Gehrig, Infrastructure Engineering Director**
- 9. Consider Approval of Contract with Freese and Nichols, Inc. for Environmental Permitting Services for Mary's Creek Indirect Water Reclamation Project and the Second Cell of the Eagle Mountain Balancing Reservoir - Darrel Andrews, Environmental Director**
- 10. Consider Approval of Contract with HDR Engineering, Inc. to Incorporate Cedar Creek and Richland-Chambers into Aviso Forecasting System - Zachary Huff, Water Resources Engineering Director**
- 11. Consider Approval of Second Amendment to Additional Party Raw Water Supply Contract with Rockett Special Utility District - Zach Huff, Water Resources Engineering Director**
- 12. Consider Approval and Adoption of 2024 Water Conservation and Drought Contingency and Emergency Water Management Plan - Linda Christie, Government Affairs Director**
- 13. Consider Approval of Resolution Authorizing the Issuance, Sale, and Delivery of Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2024, Pledging Revenues for the Payment of the Bonds, Approving an Official Statement, and Authorizing Other Instruments and Procedures Relating Thereto - Sandy Newby, Chief Financial Officer**
- 14. Discussion of Fiscal Year 2025 Budget Goals and Capital Improvement Plan - Dan Buhman, General Manager**
- 15. Staff Updates**
  - Water Resources and Planning Update - Rachel Ickert, Chief Water Resources Officer**
- 16. Executive Session under Texas Government Code:**

**Section 551.071 of the Texas Government Code, for Private Consultation with its Attorney about Pending or Contemplated Litigation or on a Matter in**

**which the Duty of the Attorney to the Governmental Body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas Clearly Conflicts with this Chapter; and**

**Section 551.072 of the Texas Government Code, to Deliberate the Purchase, Exchange, Lease or Value of Real Property; and**

**Section 551.074 of the Texas Government Code, Regarding Personnel Matters**

- 17. Consider Consent to Voluntary Annexation of 5.621 Acres of TRWD-Owned Land Described as 262 CUAD IRR CO; 1280 R M WYATT and Identified by Ellis County Appraisal District Property ID 261510 into the City of Grand Prairie, Texas - Stephen Tatum, General Counsel**
- 18. Consider Approval of Revised Electric Service Agreement with the Navarro County Electric Cooperative related to Settlement of Cause No: D-1-GN-23-003173, *TRWD v. Navarro County Electric Cooperative*, in the 201<sup>st</sup> District Court in Travis County, Texas - Stephen Tatum, General Counsel**
- 19. Future Agenda Items**
- 20. Schedule Next Board Meeting**
- 21. Adjourn**

MINUTES OF A MEETING OF THE BOARD OF DIRECTORS OF  
TARRANT REGIONAL WATER DISTRICT  
HELD ON THE 19<sup>th</sup> DAY OF MARCH 2024 AT 9:00 A.M.

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The call of the roll disclosed the presence of the Directors as follows:

Present  
Leah King  
James Hill  
Mary Kelleher  
C.B. Team  
Paxton Motheral

Also present were Dan Buhman, Alan Thomas, Chris Akers, Airin Barnett, Darrell Beason, Kate Beck, Travis Bird, Banty Blair, Lisa Cabrera, Linda Christie, Tyler DeMelo-Cevallos, Ellie Garcia, Zach Hatton, Zach Huff, Rachel Ickert, Courtney Kelly, Mick Maguire, Sandy Newby, Stephen Tatum, and Ed Weaver of the Tarrant Regional Water District (District or TRWD).

1.

All present were given the opportunity to join in reciting the Pledges of Allegiance to the U.S. and Texas flags.

2.

Public comment was received from Larry Brautigam who spoke regarding “general wishlist.”

3.

Director Hill moved to approve the minutes from the meetings held on February 20, 2024 and March 5, 2024. Director Kelleher seconded the motion, and the votes were 5 in favor, 0 against. It was accordingly ordered that these minutes be placed in the permanent files of the District.

4.

With the recommendation of management, Director Kelleher moved to approve a contract amendment in an amount not-to-exceed \$825,000 with CH2M Hill Engineers Inc. for preliminary site evaluations and final site selection for the Joint Richland-Chambers Lake Pump Station of the Integrated Pipeline Project. The current contract amount is \$35,254,363.37 and the revised not-to-exceed contract amount, including this amendment is \$ 36,079,363.37. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract amendment. Funding for this item is included in the TRWD Bond Fund. Director Hill seconded the motion, and the votes were 5 in favor, 0 against.

5.

With the recommendation of management, Director Kelleher moved to approve a contract amendment in an amount not-to-exceed \$100,000 with AECOM Inc. for pump station preliminary site survey and geotechnical sampling, testing, analyses, and engineering in support of final site selection for the Joint Richland-Chambers Lake Pump Station of the Integrated Pipeline Project. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract amendment. Funding for this item is included in the TRWD Bond Fund. Director Motheral seconded the motion, and the votes were 5 in favor, 0 against.

6.

With the recommendation of management, Director Motheral moved to approve a contract amendment in an amount not-to-exceed \$171,500 with Freese & Nichols Inc. for pump station site environmental evaluations, Richland-Chambers Reservoir dam safety assessments, and program management in support of preliminary and final site selection

for the Joint Richland-Chambers Lake Pump Station of the Integrated Pipeline Project. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract amendment. Funding for this item is included in the TRWD Bond Fund. Director Kelleher seconded the motion, and the votes were 5 in favor, 0 against.

7.

With the recommendation of management, Director Motheral moved to approve a contract amendment in an amount not-to-exceed \$90,000 with Plus Six Engineering, LLC. for program management engineering, constructing management support and administrative services in determining final site selection for the Joint Richland-Chambers Lake Pump Station of the Integrated Pipeline Project. The current contract amount is \$25,907,314.50 and the revised not-to-exceed contract amount, including this amendment will be \$25,997,314.50. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract amendment. Funding for this item is included in the TRWD Bond Fund. Director Hill seconded the motion, and the votes were 5 in favor, 0 against.

8.

With the recommendation of management, Director Team moved to approve a change in the calculation of the retainage being held for Hydro-Resources Mid-Continent, Inc. to 5 percent of the contract price. All remaining contract payments will be made in full, the Board having found that the work is substantially complete, that satisfactory progress is being made, and that the amount retained is in excess of the amount adequate for the protection of the District. However, any changes to the contract price by change order or alternate base bid work for the project will require adjustment to the retainage

schedule. The total current contract price is \$3,453,290 with retainage to be held at 5 percent of the contract price in the amount of \$172,664.50. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract. Funding for this item is included in the Bond Fund. Director Kelleher seconded the motion, and the votes were 5 in favor, 0 against.

9.

With the recommendation of management, Director Team moved to approve approval of a contract amendment in the amount of \$74,470 to Freese & Nichols, Inc. for professional environmental services for operation and maintenance support of Luminant groundwater treatment system. Funding for this item is included in the Bond Fund Fiscal Year 2024 Special Projects/Contingency Fund Budget. Director Motheral seconded the motion, and the votes were 5 in favor, 0 against.

10.

With the recommendation of management, Director Kelleher moved to approve a contract in an amount not-to-exceed \$3,152,920 with Precision Task Group, Inc. for implementation services and licensing of the Workday Enterprise Resource Planning platform and licensing from April 1, 2024 through September 30, 2028. The Board approved an additional 10% contingency to cover any unknown implementation costs for a total budget authorization of \$3,468,212. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract. Director Motheral seconded the motion, and the votes were 5 in favor, 0 against.

11.

With the recommendation of management, Director Kelleher moved to accept a grant in the amount of \$250,000 from Bonneville Environmental Foundation which will

be used for the Aquifer Storage and Recovery Pilot Project. Director Team seconded the motion, and the votes were 5 in favor, 0 against.

12.

With the recommendation of the TRVA Board of Directors, Director Team moved to approve a contract renewal and extension in the amount of \$5,000/month with Mark L. Mazzanti for consulting services which are necessary and appropriate to assist in implementation of the Central City Flood Control Project. Director Hill seconded the motion and the votes were 5 in favor, 0 against.

13.

#### Staff Updates

- Water Resources and Planning Update presented by Rachel Ickert, Chief Water Resources Officer
- Fort Worth's 4<sup>th</sup> Drone vs Fireworks Update presented by Darrell Beason, Chief Operations Officer
- Recognize 50 Years of Service presented by Darrell Beason, Chief Operations Officer

The Board of Directors recessed for a break from 10:24 a.m. to 10:27 a.m.

14.

The Board next held an Executive Session commencing at 10:27 a.m. under Section 551.071 of the Texas Government Code to Consult with Legal Counsel on a Matter in Which the Duty of Counsel Under the Texas Disciplinary Rules of Professional Conduct Clearly Conflicts with Chapter 551, Texas Government Code; and Section 551.072 of the Texas Government Code to Deliberate the Purchase, Exchange, Lease or Value of Real Property.

Upon completion of the executive session at 11:01 a.m., the President reopened



the meeting.

15.

With the recommendation of management, Director Hill moved to approve credit change order 7 in the amount of (\$961,998.18) with IPL Partners, Inc. for reconciliation of extra work and allowance items to the PL19TX Project. IPL Partners, Inc. achieved final completion in March 2024. The current contract amount was \$21,232,463.04 and the revised not-to-exceed contract amount, including this change order, will be \$20,270,464.86. In addition, authority is granted to the General Manager or his designee to execute all documents associated with the contract. Funding for this item is included in the Dallas Bond Fund. Director Kelleher seconded the motion and the votes were 5 in favor, 0 against.

16.

With the recommendation of management, Director Team moved to approve a final change order in the amount of (\$3,500,728.87) and 14 additional project days and contract closeout with IPL Partners, Inc. for Section PL19TX of the Integrated Pipeline Project. The original contract value was \$21,033,560 and with approved change orders to date totaling (\$4,263,824.01) puts the final contract value at \$16,769,735.99, resulting in a final IPL Partners, Inc. payment totaling \$(41,367.06).

IPL Partners, Inc. completed construction of the PL19TX section of the Integrated Pipeline in March 2024 and there are no outstanding issues. Subject to IPL Partners, Inc. providing written consent of its surety to final payment and the required affidavits regarding payment of debts and claims and release of liens, management will obtain a final payment of \$41,367.06 from IPL Partners, Inc. to close the project. The retainage currently held in the amount of \$1,867,900.34 will not be paid out. In addition, authority is

granted to the General Manager or his designee to execute all documents associated with the contract. Funding for this item is included in the Dallas Bond Fund. Director Hill seconded the motion and the votes were 5 in favor, 0 against.

17.

With the recommendation of management, Director Hill moved to continue the revised electric service agreement with the Navarro County Electric Cooperative related to settlement of Cause No: D-1-GN-23-003173, *TRWD v. Navarro County Electric Cooperative*, in the 201<sup>st</sup> District Court in Travis County, Texas to a subsequent meeting of the Board of Directors. Director Team seconded the motion and the votes were 5 in favor, 0 against.

18.

There were no future agenda items approved.

19.

The next board meeting was scheduled for April 16, 2024, at 9:00 a.m.

20.

There being no further business before the Board of Directors, the meeting was adjourned.

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President

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Secretary

# TARRANT REGIONAL WATER DISTRICT

## AGENDA ITEM 5

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Contract with BAR Constructors, Inc. for Dallas Phase 3 Opencut Pipeline Section 19-2 Part A of the Integrated Pipeline Project

**FUNDING:** Dallas Bond Fund

### RECOMMENDATION:

Management recommends approval of a contract in the amount of **\$73,894,960.81** with BAR Constructors, Inc. for construction of the Integrated Pipeline Section 19-2 Part A Project funded 100 percent by Dallas.

### DISCUSSION:

In October 2019 the City of Dallas requested the District proceed with design and construction of Phase 3 of the Integrated Pipeline Project. Phase 3 spans from Lake Palestine to Cedar Creek. There are two Phase 3 projects currently underway – Section 19 Long Tunnel Crossing and Lake Palestine Pump Station Package 1.

Section 19-2 Part A of the Integrated Pipeline Project is part of the system that enables pumping of Dallas’ permitted water from Lake Palestine through the IPL to a Dallas delivery point in Grand Prairie by 2027. This contract includes installation of approximately 10 miles of 84-inch pipeline along the route of Section 19 of the IPL.

Competitive sealed proposals were received from four offerors on March 7, 2024. The IPL Project Selection Team, consisting of three District members and one Dallas member, evaluated and scored the proposals as follows:

IPL Section 19-2 Part A (PL192A) – IPL-CSP-24-041

Offeror Selection Worksheet

Tabulation of Scoring

Item	Criteria	Points	BAR Constructors	Harper Brothers	Michaels Pipeline	Thalle Construction
A	Proposed Contract Price and Contract Time	40	40	29.4	Non-Responsive	27.9
B	Contractor’s Approach to the Project	15	14.3	8.8		9.3
C	Experience / Past Performance of Offeror	15	14.3	11.3		9
D	Experience, Qualifications of Key Personnel	15	14.3	10.8		11.3
E	FOPC Participation	15	6	6		8
<b>Total Points</b>			<b>88.8</b>	<b>66.2</b>		<b>65.4</b>

Following initial scoring, negotiations were opened with top ranked BAR Constructors regarding three items: 1) Alternate 2: utilizing the existing Long Tunnel Project field office, 2) substituting the optional steel casing in lieu of base-bid ribs and lagging tunnel support system for the four short tunnel crossings in base proposal, and 3) adding a tunnel crossing at an existing gas line. BAR's negotiated proposal offers the best value to both the City of Dallas and TRWD. BAR has successfully performed previous pipeline and facility project work for both TRWD and Dallas Water Utilities.

BAR provided a plan for Fair Opportunities in Purchasing and Contracting Program showing 2.0% participation. BAR is also qualified as a DBE/HUB contractor under the Program which puts total diverse business participation at 42.9%.

Management also requests the Board of Directors grant authority to the General Manager or his designee to execute all documents associated with the contract described herein.

Included for reference are staff recommendation, Tabulation of Offers Received, and Fair Opportunity in Purchasing and Contracting Summary.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

**Submitted By:**

Ed Weaver  
IPL Program Manager



# Memo

**TO:** Ed Weaver

**FROM:** Matt Gaughan

**DATE:** April 2, 2024

**SUBJECT:** Recommendation for Award of Contract for Construction of Section 19-2 Part A of the Integrated Pipeline Project to BAR Constructors, Inc.

Four prospective Contractors submitted Competitive Sealed Proposals on March 07, 2024 for the referenced project.

The IPL selection team evaluated the four Proposals. Scoring by the selection team was made based on reviews of the Proposals by the members of the selection team. The selection team was assisted in their evaluation efforts by reports from the review team made up of IPL staff members charged with review of documents and investigation of references submitted by the Offerors. The results of the selection process are shown in the following Offeror Evaluation Worksheet:

IPL Section 19-2 Part A (PL192A) – IPL-CSP-24-041						
Offeror Selection Worksheet						
Tabulation of Scoring						
Criteria	Criteria	Points	BAR Constructors	Harper Brothers	Michaels Pipeline	Thalle Construction
A	Proposed Contract Price and Contract Time				Non-Responsive	
	Proposed Contract Price	40	\$69,782,670	\$95,879,310		\$100,245,505
	Substantial Completion Days		695	600		700
	Point Value		40.0	29.4		27.9
B	Contractor’s Approach to the Project	15	14.3	8.8		9.3
C	Experience / Past Performance of Offeror	15	14.3	11.3		9.0
D	Experience and Qualifications of Proposed Key Personnel	15	14.3	10.8	11.3	
E	FOPC Participation	15	6.0	6.0	8.0	
<b>Total Points</b>			<b>88.8</b>	<b>66.2</b>		<b>65.4</b>

The selection team determined that BAR Constructors, Inc., a local company with offices in Lancaster, Texas, submitted the Proposal that provides the best value to Dallas and the District. BAR proposed the lowest cost proposal and a completion date within the IPL schedule. BAR’s proposal demonstrated an excellent approach to the project and well qualified key personnel.

Following initial scoring, negotiations were opened with top ranked BAR Constructors regarding three items: 1) Alternate 2; utilizing the existing Long Tunnel Project field office location, 2) substituting the optional steel casing in lieu of base-bid ribs and lagging tunnel support system for the four short tunnel crossings in base proposal, and 3) adding a tunnel crossing at an existing gas line. BAR's negotiated proposal offers the best value to both the City of Dallas and TRWD.

BAR has successfully completed five (5) IPL projects (Section 15-2 Pipeline, S2x12 Interconnect, S1x10 Interconnect, JCC1 Pump Station Package 1, and JCC1 Pump Station Package 2). BAR is currently constructing the open cut portion of the IPL Section 19 Long Tunnel Project, the Lake Palestine Pump Station Package 1 project and the KBR Yard Piping and Inlet and Outlet Modifications Project.

It is recommended that a contract be awarded to BAR Constructors, Inc. in the amount of \$73,894,960.81 to construct the Project.

**Fair Opportunity in Purchasing and Contracting**

**Project:** Integrated Pipeline Project – Section 19-2 Part A

BAR Constructors, Inc. with offices in Lancaster, Texas, has signed the IPL Project Fair Opportunity Purchasing documentation, and proposes to use the following subcontractors, suppliers, and sub-consultants:

**Project**                      Construction  
**Category:**

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**LOCAL/NON-LOCAL CONTRACT SUMMARY**

	<b>Amount</b>	<b>Percent</b>
Local Contracts	\$61,744,070.96	83.6%
Non-Local Contracts	\$5,086,689.85	6.9%
Optional Supplemental Services	\$7,064,200.00	9.5%
<b>Total This Agenda</b>	<b>\$73,894,960.81</b>	<b>100.0%</b>

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**LOCAL/NON-LOCAL DBE/HUB PARTICIPATION THIS ACTION**

<b><u>Local</u></b>	<b><u>Certification</u></b>
Champion Fuel Solutions	DBE / HUB
Astro Johnny Waste Management	DBE / HUB
Alliance Geotech Group	DBE / HUB

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DBE/HUB Subcontractor Participation is 2.0%.

BAR Constructors, Inc. is certified as DBE/HUB. With self-performance, the total DBE/HUB participation is 42.9%

**Tabulation of Offers Received****Project:** IPL Section 19-2 Part A (PL192A)**Project Number:****Owner:** Tarrant Regional Water District

IPL-CSP-24-041

**Engineer:** HDR Engineering**Date:** March 07, 2024

<b>Name of Offeror</b>	<b>Addenda Received</b>	<b>Bid Bond Attached</b>	<b>Total Offer Amount</b>	<b>Substantial Completion Days</b>	<b>Final Completion Days</b>
BAR Constructors, Inc.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	\$69,782,670.00	695	754
Harper Brothers Construction, LLC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	\$94,879,310.00	600	640
Michaels Pipeline	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	\$102,102,354.00	233	253
Thalle Construction Co., Inc.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	\$100,245,505.00	700	760



**TARRANT REGIONAL WATER DISTRICT**

**AGENDA ITEM 6**

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Contract Amendment with HDR Engineering, Inc. for Section 19-2 Construction Phase Services of the Integrated Pipeline Project

**FUNDING:** Dallas Bond Fund

**RECOMMENDATION:**

Management recommends approval of a contract amendment **in an amount-not-to-exceed \$3,411,148** with HDR Engineering, Inc. for final construction phase engineering services of Section 19-2 of the Integrated Pipeline. The current not-to-exceed contract amount is \$19,381,907 and the revised not-to-exceed amount, including this proposed amendment, will be \$22,793,055.

**DISCUSSION:**

On January 24, 2011, TRWD executed a contract with HDR Engineering, Inc. (HDR) for preliminary engineering of Section 19-2 of the Integrated Pipeline Project in an amount not-to-exceed \$3,010,000. The contract has been amended three times for pipeline engineering services and seven times for program wide corrosion engineering services for fees not to exceed \$16,371,907. The total current contract amount is \$19,381,907 as shown in table below.

**Section 19-2 Pipeline Engineering Services**

<b>Date</b>	<b>Services</b>	<b>Amount</b>
	<b>Open Cut Engineering Services</b>	
01/24/11	Preliminary Engineering	\$3,010,000
03/20/13	Final Engineering	\$5,398,000
12/15/15	Bid Ready Final Design	\$1,959,400
2/15/22	19TX & 19TUN Const. Phase Engineering	\$4,116,000
	<b>Subtotal Open Cut Engineering</b>	<b>\$14,484,600</b>
	<b>Program-wide Corrosion Engineering Services</b>	
6/22/11	Cathodic Protection Design Services	\$3,381,580
8/19/14	Section 15-1 Bid/Construction Phase Services	\$ 167,000
01/20/15	Section 12-13-MBR and S2x12 Bid/Construction Phase Services	\$ 236,400
07/21/15	Section 14 and 15-2 Bid/Construction Phase Services	\$ 425,527
10/20/15	Section 10-11 Bid/Construction Phase Services	\$ 246,000
4/19/16	Section 17 Tunnel Bid/Construction Phase Services	\$ 186,800
01/17/17	Section 17-18 Bid/Construction Phase Services	\$ 254,000
	<b>Subtotal Program-wide Corrosion Engineering</b>	<b>\$4,897,307</b>
<b>Total</b>		<b>\$19,381,907</b>

Starting in 2020, HDR was authorized to complete final design and conduct construction phase engineering services for Section 19 TXDOT Tunnel Crossing and Section 19TUN Long Tunnel Crossing projects. This amendment includes construction phase engineering services for the PL19-2 Part A and PL19-2 Part B projects. This scope of work includes three tasks plus contingency consisting of

1. \$ 297,428 – Section 19-2 Project Management
2. \$1,689,333 -- Section 19-2 Part A Construction Phase Engineering Services
3. \$1,280,635 -- Section 19-2 Part B Bid Ready, Bid Phase and Construction Phase Engineering Services
4. \$ 143,752 -- Contingency for Optional Supplemental Services to be released at the Project Director's discretion.

HDR's team includes three MWBE/HUB certified sub-consultant firms – JQI for structural engineering, CAS Consultants for civil engineering, Gupta Associates for electrical/instrumentation engineering and Yellow Rose for surveying. Diverse business participation with these four firms is 29 percent of this amendment. Included for reference are the Fair Opportunity in Purchasing and Contracting and task fee summaries.

Management also requests that the General Manager or his designee be granted authority to execute all documents associated with the contract described herein.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

**Submitted By:**

Ed Weaver  
IPL Program Manager



<b>FEE SUMMARY</b>		
<b>Integrated Pipeline Project</b>		
<b>IPL Section 19-2 Construction Phase Services</b>		
<b>HDR Engineering, Inc.</b>		
<b>Task</b>	<b>Description</b>	<b>Estimated Fee</b>
	Basic Services	
1	PL192 Project Management	\$297,428.00
2	PL192A Construction Phase Engineering Services	\$1,689,333.00
3	PL192B Bid Ready, Bid Phase and Construction Phase Engineering Services	\$1,280,635.00
	<b>Subtotal Basic Services</b>	<b>\$3,267,396.00</b>
4	Optional Supplemental Services	\$143,752.00
	<b>Subtotal Optional Supplemental Services</b>	<b>\$143,752.00</b>
	<b>Total</b>	<b>\$3,411,148.00</b>



## Memo

**TO:** Ed Weaver

**FROM:** Matt Gaughan

**DATE:** April 2, 2024

**SUBJECT:** Recommendation for approval of a contract amendment with HDR Engineering, Inc. (HDR) for Construction Phase Engineering Services of Section 19-2 of the Integrated Pipeline (IPL).

On January 24, 2011, TRWD executed a contract with HDR Engineering, Inc. (HDR) for preliminary engineering of Section 19-2 of the Integrated Pipeline Project for a not to exceed \$3,010,000.00. The contract has been amended three times for pipeline engineering services and seven times for program wide corrosion engineering services for fees not to exceed \$16,371,907.00. Total current contract amount is \$19,381,907.00.

The proposed amendment amount of \$3,411,148.00 is for construction phase engineering services Section 19-2 pipeline which is being constructed as two sub-projects 19-2 Part A and 19-2 Part B. The total not to exceed contract value, including this proposed amendment will be \$22,793,055.00.

This scope of work includes three (3) tasks consisting of 1). Section 19-2 Project Management, 2). Section 19-2 Part A Construction Phase Engineering Services and 3). Section 19-2 Part B Bid Ready, Bid Phase and Construction Phase Engineering Services, plus a contingency for Optional Supplemental Services to be released at the Project Director's discretion.

There are requirements for HDR to meet DBE/HUB participation goals under the Fair Opportunities in Purchasing and Contracting Program for IPL Contracts. HDR does not qualify as a DBE/HUB firm under the Fair Opportunities in Purchasing and Contracting Program. HDR's team includes four sub-consultant firms that are MWBE/HUB certified consultants. These firms will provide services amounting to 29% of the total contract amendment.

Included for reference are the Fee Summary and Fair Opportunity in Purchasing and Contracting summaries.

### Fair Opportunity Purchasing

Project: Consider approval of contract amendment to contract with HDR Engineering, Inc. for Section 19-2 Construction Phase Engineering Services of the Integrated Pipeline (IPL ).

Not to Exceed \$3,411,148.00

HDR Engineering, Inc., an Engineering and Consulting company with local offices in Dallas, Texas and Fort Worth, Texas, has signed the IPL Project Fair Opportunity Purchasing documentation, and proposes to use the following sub-consultants:

**Project Category:** Engineering, Bid and Construction Services

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#### LOCAL/NON-LOCAL CONTRACT SUMMARY

	<u>Amount</u>	<u>Percent</u>
Local Contracts	\$2,714,686.00	83.1%
Non-Local Contracts	\$552,710.00	16.9%
Optional Supplemental Services	\$143,752.00	
<b>Total This Agenda</b>	<b>\$3,411,148.00</b>	

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#### LOCAL/NON-LOCAL MWBE/HUB PARTICIPATION THIS ACTION

<u>Local</u>	<u>Certification</u>
JQI	DBE
CAS	DBE
Gupta Associates	DBE
Yellow Rose	DBE

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## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 7

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Contract Amendment with Black & Veatch Corporation for Engineering Services Related to Procurement and Construction Phases for the Cedar Creek Pipeline Replacement Project in the Mansfield to Waxahachie Area and Additional Transient Analysis Services

**FUNDING:** TRWD Bond Fund

#### **RECOMMENDATION:**

Management recommends approval of a contract amendment **in an amount not-to-exceed \$1,301,941** for engineering services with Black & Veatch Corporation for services related to procurement and construction phase services for Phase 1A, construction phase services for Phase 1B, and additional transient services. These engineering services include preparation of issued for bid documents, procurement management, and construction phase engineering services. The transient analysis engineering services include additional transient scenarios to evaluate the impact of alternative system configurations.

#### **DISCUSSION:**

In October of 2019, the District awarded an engineering design services contract for the removal and replacement of approximately ten miles of Cedar Creek pipeline in the Mansfield to Waxahachie area where significant amounts of distressed 72-inch pipe exist. An additional mile of pipe from Walnut Creek Drive to Broad Street and the FM 664 TxDOT crossing was added to the design in 2023. This combined 11-mile replacement will improve the District's reliability in delivering water to customer cities, reduce the risk to the surrounding rapidly urbanizing areas, and increase the District's pipeline capacity for the future.

The District has split the 11-mile project into two phases (Phase 1A and 1B) to accommodate the District's environmental permitting schedule and meet the deadline of the FM 664 TxDOT expansion. Phase 1A includes 1-mile of pipe replacement and the TXDOT FM 664 crossing adjacent to it. Phase 1B includes the remaining 10 miles of pipe replacement from Mouser Way to near Highway 67. This scope of work will include engineering construction phase services for both phases, procurement services for Phase 1A, and Envision sustainability certification support during construction phase implementation.

The current project scope includes modeling multiple operational scenarios that convey water to and from balancing reservoirs and ground storage tanks within the system.

These transient scenarios were modeled to properly size air valves and ensure adequate pressure class for the pipes that will be replaced. With this amendment for additional transient analysis engineering, the District will be able to evaluate the worst-case scenario for surge so that critical air valves in need of additional venting capacity along the Cedar Creek pipeline outside of the construction area can be identified and upgraded in the near future.

Black & Veatch Corporation is a prime, non-certified business that has subcontracted portions of this revised contract to diverse businesses, resulting in an overall diverse business participation commitment of 22.3% including this amendment.

These engineering services will take place over the next two years with construction planned to begin in the fall of 2024. Attached is the scope of services to be provided by Black & Veatch Corporation for this amendment.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

**Submitted By:**

Jason Gehrig, P.E.  
Infrastructure Engineering Director

April 3, 2024

Tarrant Regional Water District  
 808 E. Northside Dr.  
 Fort Worth, Texas 76102

Cedar Creek Section 2 Pipeline Replacement  
 B&V Project 403740  
 B&V File 12.2100

Attention: Courtney Jalbert

Subject: Scope and Fee Proposal for Amendment 6 – Procurement Services for Phase 1A, Engineering Services during Construction for Phases 1A and 1B, and Additional Transient Scenarios

Dear Courtney:

Thank you so much for the opportunity to work with your team providing Engineering Services for the Cedar Creek Pipeline Section 2 Replacement Project (CCRPL-2). It has been our privilege to support the Tarrant Regional Water District (TRWD) on this design. Per TRWD’s request, we have prepared a scope and fee proposal for your consideration.

**Scope:**

Black & Veatch will provide design services for Procurement Services for Phase 1A, Engineering Services during Construction for Phases 1A and 1B, and Additional Transient Scenarios. All proposed services are in accordance with the Prime Agreement executed on October 15, 2019 (Contract No. 19-095). The Work Breakdown Structure includes the tasks listed below which are detailed in Exhibit A.

**Schedule and Fee:**

Black & Veatch anticipates completing these tasks within 36 months from notice to proceed. Our total fee for completing Tasks 1.1 through 1.4 and Additional Services is \$1,301,941. See fee breakdown in table below.

Task	Work Breakdown Structure	Fee
Task 1.1	Phase 1A Early Construction Procurement (CID 5)	\$ 45,036
Task 1.2	Phase 1A Construction Phase Services (CID 5)	\$ 284,027
Task 1.3	Phase 1B Construction Phase Services (CIDs 1, 2, 3, 4, 6)	\$ 854,778
Task 1.4	Additional Transient Scenarios for CCPL Sections 2, 3, and 4	\$ 68,100
Additional Services	Envision Implementation	\$ 50,000
<b>TOTAL FEE</b>		<b>\$ 1,301,941</b>



April 3, 2024

Very truly yours,

  
Elizabeth R. Blackwelder, P.E.  
Black & Veatch Corporation

ERB, IC  
Enclosure(s)

cc: Jason Gehrig, P.E.



# **Exhibit A**

**Scope of Work – Engineering Services for**

**Cedar Creek Section 2 Pipeline Replacement**

**Amendment No. 6 – Phase 1A and 1B Bid & Construction Phase**

**Services and Transient Analysis**

**April 2024**

## PHASE 1A AND 1B BACKGROUND

Tarrant Regional Water District (TRWD) is currently in the process of replacing portions of the Section 2 Cedar Creek Pipeline (CCPL) to address integrity issues and to increase capacity to meet future needs. The Cedar Creek Section 2 Pipeline Replacement Project (CCRPL-2) consists of the replacement of 11 miles of pipeline in Construction ID (CID) segments 1 through 6 as shown in Figure 1-1.

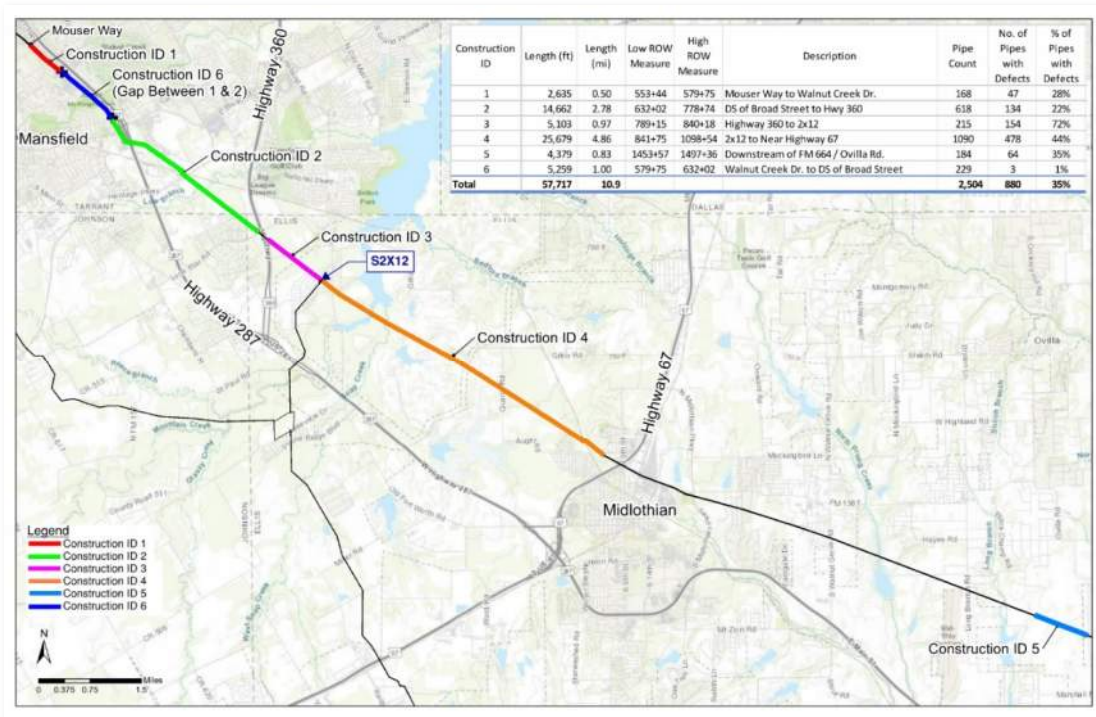


Figure 1-1 Overall CCRPL-2 Project Location Map and CID Segments

TRWD has recently opted to move forward with Early Construction Procurement (ECP) of Construction ID 5 to accommodate TRWD’s environmental permitting schedule for the CCRPL-2, while still meeting the timeline of the Ovilla Road expansion plans by the Texas Department of Transportation’s (TxDOT). These plans required for TRWD’s improvements across the road to be completed by the end of Spring 2025. Ovilla road, designated by TxDOT as Farm to Market road 664 (FM 664) is located on the eastern end of CID5. Therefore, TRWD has decided to break the CCRPL-2 into two construction packages.

- Phase 1A: This phase of the project only includes CID5 which encompasses approximately 4,530 linear feet, starting near STA 1453+57 and ending near STA 1498+89. As part of this phase, the 72-inch CCPL and the 90-inch Richland-Chambers Pipeline (RCPL) are replaced across the expanded TxDOT FM 664 right-of-way (ROW).
- Phase 1B: The procurement for this phase includes CIDs 1, 2, 3, 4, and 6. This phase will advertise for procurement once environmental permitting has been obtained expected in the fall of 2024; these remaining 10 miles of CCRPL-2 extends approximately from STA 553+31 to STA 1098+60.

## ABBREVIATIONS AND ACRONYMS

To clarify the scope of services, the following definitions, abbreviations, and/or acronyms are referenced herein.

BV	Black & Veatch, which may also be referred to herein as either the Consultant or ENGINEER
CCPL	Cedar Creek Pipeline
CCRPL	Cedar Creek Pipeline Replacement
CCRPL-2	Cedar Creek Section 2 Pipeline Replacement
CC1	Cedar Creek Lake Pump Station
CC2	Ennis Booster Pump Station
CD	Construction Documents
CID	Construction ID
CM	Construction Manager
ECPP	Early Construction Procurement Package
ESDC	Engineering Services During Construction
In	Inches
IPL	Integrated Pipeline Project
IFB	Issued for Bid
IFC	Issued for Construction
LOW	Low Capacity System Operation

MGD	Million Gallons per Day
OPCC	Opinion of Probable Construction Cost
OPT	Owner's Project Team
PMIS	Project Manager Information System
PSI	Pounds per square inch
QA	Quality Assurance
RC3H	RC3 Booster Pump Station Operating at High Capacity Mode
RCPL	Richland-Chambers Pipeline
RFI	Request for Information
ROW	Right-of-Way
SOW	Scope of Work
TRWD	Tarrant Regional Water District, OWNER or the District
TxDOT	Texas Department of Transportation
USACE	United States Army Corp of Engineers
WAX	Waxahachie Complex

## **BASIC SERVICES**

Amendment 6 includes services related to procurement services (advertise, bid and award support) for Phase 1A; Engineering Services during Construction (ESDC) for Phases 1A and 1B; and additional transient services.

- Phase 1A – Procurement Services: SOW includes Issued for Bid (IFB) documents, procurement management (advertise, bid, and award services), and ESDC
  - This phase is advanced ahead of Phase 1B to meet the deadline agreed to with TxDOT for completion of improvements across FM 664
- Phase 1B ESDC: ESDC, as originally programmed but not included in the original engineering services for CCRPL-2
- Transient Scenarios: additional transient evaluations for CCPL Section 2 and CCPL Section 4

Advertisement for Phases 1A and 1B will be conducted through OpenGov. TRWD will be the central point of contact between the project team and potential vendors and contractors during the procurement

phase. All questions will be directed to and answered through TRWD. Additionally, TRWD Purchasing will provide relevant front-end documents (IPL standards) for the Competitive Sealed Proposal (CSP) process. Specific tasks for each activity are identified in the following sections.

### **1.1 Phase 1A – Early Construction Procurement (CID 5)**

The services under this section apply to Phase 1A Early Construction Procurement only. Phase 1B procurement services are provided under the original scope of work, Task 5.

- A. BV will prepare IFB submittal based on engineering services provided to date on CID 5. Submittal to include Construction Documents (CDs) including drawings, specifications, and Opinion of Probable Construction Cost (OPCC).
  
- B. BV will provide the following services during the ECPP:
  - 1. Assist TRWD in answering questions and responding to bidder requests for information.
  - 2. Provide input and prepare addenda as required to clarify the design documents.
  - 3. Attend pre-proposal meeting and present project information as required.
  - 4. Attend procurement evaluation conference.
  - 5. Review submitted proposals for technical input and project approach and provide input to advise evaluation team in their review of proposals. BV will not be a voting member of the proposal evaluation team.
  - 1. Review, evaluate and certify bid tabulations.
  - 2. Make recommendation for construction contract award.
  - 3. Prepare and assist in the execution of formal Issued for Construction (IFC) CDs. BV will provide conformed procurement documents incorporating addenda issued during bid. Submit one (1) Full-Size set and six (6) 11-inx17-in sets of hard copy drawings and specifications and upload one electronic copy to the CCRPL-2 SharePoint site.
  
- C. Quality Assurance/Quality Control Reviews
  - 1. Perform reviews for the below deliverables consistent with original Scope of Work (SOW).

Deliverables:

- IFB CDs
- IFC CDs
- OPCC
- Response to bidders questions and agenda
- Recommendation for construction contract award

**1.2 Phase 1A Construction Phase Services (CID 5)**

A. Phase 1A Project Management Services

These services apply to the Phase 1A ECPP. BV shall provide the following services:

1. Perform project management services during the construction phase of the project. Project management will be provided for activities which shall include; but not necessarily be limited to:
  - i. Developing and implementing a construction phase management plan;
  - ii. Tracking and managing internal schedules of work;
  - iii. Monitoring and addressing issues related to the scope of work; budget and deliverables;
  - iv. Preparing and processing progress/monthly billings;
  - v. Providing labor resources necessary to fulfill scoped work;
  - vi. Coordinating, submitting and tracking requests for information; and;
  - vii. Providing updates to the TRWD and Contractor at progress meetings and/or intervals as outlined herein.

BV shall not have authority or responsibility for safety precautions to the Contractor's work or failure of the Contractor to comply with laws, regulations, rules, ordinances, codes or orders applicable to the Contractor furnishing and performing the work. It is assumed that Project Management activities will occur over the full duration of construction (includes total duration of overlapping procurement packages). An estimated construction duration of 12 months from Notice to Proceed is assumed.

- B. Phase 1A Pre-Construction Meetings – Prior to the Pre-Construction Meeting, BV will participate in up to one meeting (2-hour long meeting, plus travel time) with OPT (Owner, Engineer, and CM) and be prepared to discuss agenda. BV will participate in the Pre-Construction meeting (2-hour long meeting plus travel time) and be prepared to discuss submittals and shop drawing requirements. Meetings will be conducted by the Construction Manager (CM) and Contractor.
- C. Phase 1A Monthly Progress Construction Meetings – BV will participate in monthly project progress/coordination meetings (up to twelve 2-hour long each, 6 in-person and 6 to be attended virtually) and be prepared to discuss status of submittals and proposed contract modifications with the OPT and Contractor at designated meeting sites which are assumed to vary from month-to-month. Meetings will be conducted by the CM/Contractor.
- D. Phase 1A Site Visits – BV will make monthly visits (4-hours long each, plus travel time) to the construction site over the construction period to observe progress of the work. During these visits BV will consult with OPT concerning problems and progress of the work. BV will review quality of the work and attempt to determine in general if the work is proceeding according to the CDs. In this effort, BV will endeavor to protect TRWD against defects and deficiencies in the work of the Contractor and will report any observed deficiencies to the CM. In addition, up to three separate site visits (4-hours long each, plus travel time) will be made to resolve field problems relating to construction as required based upon the need. BV will document observations during the site visit and any construction deficiencies observed.
- E. Phase 1A Submittal Review – BV will review and comment on submittals furnished by the Contractor. Shop drawings, samples, record data, operations and maintenance manuals and other submittals specified in CDs will be assigned and made available to BV by the CM.
- BV’s review shall be for general conformity to the requirements of the CDs and shall not relieve the Contractor or Manufacturers of any contractual responsibilities.



- Reviews shall not extend to construction means and methods, or to safety precautions.
- BV shall maintain a log of all submittals. The log shall include the submittal number, title, date received, review comments, date returned, date resubmitted, etc., and will be kept in the PMIS.

The level of effort to review CID5's submittals is based on review of up to:

1. 50 submittals requiring an average of 9-hours review time per submittal
2. 30 re-submittals requiring an average of 4.5-hours review time per re-submittal

- F. Phase 1A Schedule of Values – BV will coordinate with OPT regarding revisions to the Schedule of Values related to CD changes through Change Orders and Field Orders.
- G. Phase 1A Field Orders and Change Orders – BV will review and evaluate changes to the contract, including change orders and field orders (up to three (3) proposed contract changes). This Task requires for BV to:
1. Prepare supporting data and provide other services (including revisions to CDs).
  2. Evaluate the cost and scheduling aspects of all change orders.
  3. Coordinate with OPT for evaluation and agreement on proposed changes during construction.
- H. Phase 1A Review Lab/Material Testing Reports – BV will evaluate material substitutions and recommend to OPT to either approve or disapprove substitution.
- I. Phase 1A Request for Information (RFI) Review – BV will interpret the drawings and specifications and respond when requested by OPT. As part of RFI reviews, BV will provide design clarifications and recommendations to OPT in resolving field problems relating to the construction.
1. RFIs will normally be generated by the construction contractor when a situation or condition is anticipated or encountered in the field that may not be fully addressed in the construction Contract Documents.
  2. BV's response to RFI's concerning proposed modifications or unforeseen conditions will only address the technical and design aspect of the issue.

3. BV will maintain an RFI log to be kept in the PMIS. The log will include the date of the request, a brief description, reviewer, and date of response. The level of effort is based on review of up to:
  - i. Up to five (5) RFIs, at an average review time of 6-hours per RFI, are assumed (site visits associated with RFI reviews are included in 1.2.D – Site Visits)
  
- J. Phase 1A Prove-out Testing of Embedment Material for Open-Cut Pipeline Construction – BV will attend prove-out testing with the CM/Contractor and materials testing lab to verify pipe installation quality and witness material installation and compaction procedures to achieve required installation quality. Level of effort assumes two 8-hour days for each crew, one crew assumed for a total of four 8-hour days total.
  
- K. NOT USED
  
- L. Phase 1A Record Drawings – BV will prepare Record Drawings upon completion of the Project. BV will revise the CDs to conform to the construction records.
  1. Within 30 calendar days of receipt of construction contractor’s “as-built” drawings, BV will prepare and submit the Record Drawings to the CM.
  2. The Record Drawings will become the property of TRWD and will show significant changes made in the Work by the construction contractor during the construction of the Project.
  3. Record Drawings will be prepared based on the IFC CDs. BV will prepare the record documents based solely upon the marked-up “as-built” drawings, field orders, change orders and other pertinent data furnished by the CM/Contractor.
  4. BV will submit an electronic version (.pdf and CAD files) of the Record Drawings
  
- M. Phase 1A Start-Up – At OPT request, assist CM in periodic monitoring of the Contractor’s startup, testing, and commissioning activities. Level of effort assumes assistance for one 8-hour day.

Deliverables:

- Phase 1A Record Drawings (Civil 3D CAD drawings in .DWG and .PDF formats)

**1.3 Phase 1B Construction Phase Services (Construction ID 1, 2, 3, 4 and 6)**

**A. Phase 1B Project Management**

These services apply to the Phase 1B construction procurement packet. BV shall provide the following services for Phase 1B:

1. Perform project management services during the construction phase of the project. Project management will be provided for activities which shall include; but not necessarily be limited to:
  - i. Developing and implementing a construction phase management plan;
  - ii. Tracking and managing internal schedules of work;
  - iii. Monitoring and addressing issues related to the scope of work; budget and deliverables;
  - iv. Preparing and processing progress/monthly billings;
  - v. Providing labor resources necessary to fulfill scoped work;
  - vi. Coordinating, submitting and tracking requests for information; and;
  - vii. Providing updates to the TRWD , CM, and Contractor at progress meetings and/or intervals as outlined herein.

ENGINEER shall not have authority or responsibility for safety precautions to the Contractor's work or failure of the Contractor to comply with laws, regulations, rules, ordinances, codes or orders applicable to the Contractor furnishing and performing the work. It is assumed that Project Management activities will occur over the full duration of construction (includes total duration of overlapping procurement packages). An estimated construction duration of 30 months from Notice to Proceed is assumed.

- B. Phase 1B Pre-Construction Meetings** – Prior to the Pre-Construction Meeting, BV will participate in up to one meeting (2-hour long meeting, plus travel time) with OPT and be prepared to discuss agenda. BV will participate in the Pre-Construction meeting (2-hour long meeting plus travel time) and be prepared to discuss submittals and shop drawing

requires. Meetings will be conducted by CM and Contractor. Monthly Progress Construction Meetings – BV will participate in monthly project progress/coordination meetings (up to twelve 2-hour long each, 6 in-person and 6 to be attended virtually) and be prepared to discuss status of submittals and proposed contract modifications with the OPT and Contractor at designated meeting sites which are assumed to vary from month-to-month. Meetings will be conducted by the CM/Contractor.

- C. Phase 1B Site Visits – Perform monthly visits (4-hours long each, plus travel time) to the construction site over a 24-month construction period to observe progress of the work, and consult with the OPT concerning problems and progress of the work. BV will review quality of the work and attempt to determine in general if the work is proceeding according to the CDs. In this effort BV will endeavor to protect the TRWD against defects and deficiencies in the work of the Contractor and will report any observed deficiencies to the CM. In addition, up to five separate site visits (4-hours long each, plus travel time) will be made to resolve field problems relating to construction as required based upon the need. BV will document observations during the site visit and any construction deficiencies observed.
- D. Phase 1B Submittal Review – BV will review and comment on submittals furnished by the Contractor. Shop drawings, samples, record data, operations and maintenance manuals and other submittals specified in the CDs will be assigned and made available to BV by the CM.
- BV’s review shall be for general conformity to the requirements of the CDs and shall not relieve the Contractor or Manufacturers of any contractual responsibilities.
  - Reviews shall not extend to construction means and methods, or to safety precautions.
  - BV shall maintain a log of all submittals. The log shall include the submittal number, title, date received, review comments, date returned, date resubmitted, etc., and will be kept in the PMIS.

The level of effort to review CIDs 1, 2, 3, 4, and 6 is based on review of up to:

1. 125 submittals requiring an average of 9-hours review time per submittal

2. 62 re-submittals requiring an average of 4.5-hours review time per re-submittal
- E. Phase 1B Schedule of Values – BV will coordinate with OPT regarding revisions to the Schedule of Values related to CD changes through Change Orders and Field Orders.
- F. Phase 1B Field Orders and Change Orders – Review and evaluate changes to the contract, including change orders and field orders (up to twelve (12) proposed contract changes). This Task requires for BV to:
1. Prepare supporting data and provide other services (including revisions to CDs).
  2. Evaluate the cost and scheduling aspects of all change orders.
  3. Coordinate with the OPT for evaluation and agreement on proposed changes during construction.
- G. Phase 1B Review Lab/Material Testing Reports – BV will evaluate material substitutions and recommend to OPT to either approve or disapprove substitution.
- H. Phase 1B Request for Information Review – BV will interpret the drawings and specifications and respond when requested by the OPT. As part of RFI reviews, BV will provide design clarifications and recommendations to assist the OPT in resolving field problems relating to the construction.
1. RFIs will normally be generated by the construction contractor when a situation or condition is anticipated or encountered in the field that may not be fully addressed in the construction Contract Documents.
  2. BV's response to RFI's concerning proposed modifications or unforeseen conditions will only address the technical and design aspect of the issue.
  3. BV will maintain an RFI log to be kept in the PMIS. The log will include the date of the request, a brief description, reviewer, and date of response. The level of effort is based on review of up to:
  4. Up to fifteen (15) RFIs, at an average review time of 6-hours per RFI, are assumed (site visits associated with RFI reviews are included in 1.3.D – Site Visits)

- I. Phase 1B Prove-out Testing of Embedment Material for Open-Cut Pipeline Construction – BV will attend prove-out testing with the CM/Contractor and materials testing lab to verify pipe installation quality and witness material installation and compaction procedures to achieve required installation quality. Level of effort assumes two 8-hour days for each crew, two crews assumed for a total of four 8-hour days total.
- J. Phase 1B Prove-out Removal of Prestress Concrete Cylinder Pipe (PCCP) – BV will attend the prove-out removal of PCCP with the CM/Contractor to verify:
1. Adequate handling of select PCCP joints salvaged for TRWD’s re-use purposes:  
the intent is to witness the PCCP removal process and confirm it does not compromise the quality or integrity of the designated pipe or adjacent piping, Handling, and shipping procedures (from trench to truck) will be observed with the goal to confirm process does not:
    - i. compromise the pipe integrity of the salvaged joints,
    - ii. interfere with pipe laying operations, or
    - iii. interfere with RCPL’s exclusion zone.Level of effort assumes two 8-hour days for each crew, two crews assumed for a total of four 8-hour days total.
  2. Adequate handling of PCCP joints designated for recycling/repurposing/disposal:  
This applies only to pipe joints NOT designated for re-use by TRWD – See K.1 paragraph above. The intent is to witness the PCCP removal and confirm the process does not damage the quality or integrity of adjacent piping. Handling and shipping procedures (from trench to truck) will be observed with the goal to confirm process does not:
    - i. interfere with pipe laying operations, or
    - ii. interfere with RCPL’s exclusion zone.Level of effort assumes two 8-hour days for each crew, one crew assumed for a total of four 8-hour days total.
- K. Phase 1B Record Drawings – BV will prepare Record Drawings upon completion of the Project. Consultant will revise the CDs to conform to the construction records.

1. Within 30 calendar days of receipt of construction contractor's "as-built" drawings, BV will prepare and submit the Record Drawings to the CM.
  2. The Record Drawings will become the property of TRWD and will show significant changes made in the Work by the construction contractor during the construction of the Project.
  3. Record Drawings will be prepared based on the IFC CDs. BV will prepare the record documents based solely upon the marked-up "as-built" drawings, field orders, change orders and other data furnished by the CM/ Contractor.
  4. BV will submit an electronic version (.pdf and CAD files) of the Record Drawings.
- L. Phase 1B Start-Up – At OPT request, assist CM in periodic monitoring of the Contractor's startup, testing, and commissioning activities. Level of effort assumes assistance for one 8-hour day for each crew, two crew assumed for a total of two 8-hour days total.

Deliverables:

- Record Drawings (Civil 3D CAD drawings in .DWG and .PDF formats)

## 1.4 Additional Transient Scenarios for CCPL Sections 2, 3 and 4

- A. CCPL Section 2 - TRWD's goal is to evaluate the worst case scenario for surge. In previous reviews, this was treated as the Max Flow/Max Pressure scenario given any sizes/combination of sizes of pipe.
1. 90-in/102-in Scenario: Max Flows with first ~0.75 miles replaced with higher design pressure class
    - i. WAX Flow=270 MGD with 2X12 Facility Closed
    - ii. WAX Flow=270 MGD with 2X12 Facility Fully Open (adds 20 MGD)
    - iii. These flow rates represent the hydraulic capacity of the pipeline and exceed the flow rate produced by RC3H with 5 pump operating.
    - iv. The pressure should not exceed the 150 psi pressure class in any area that BV is working on under this SOW.

B. CCPL Sections 3 and 4 – Goal 4B

Goal 4B will be accomplished by evaluating the worst case scenario with surge, so that critical air valves (in need of surge checks) may be identified on existing 72-in PCCP upstream of the Ennis Complex. TRWD has decided to move forward with upgrades to critical air valves in Sections 3 and 4 will also be completed in the near future; thereby, increasing pipeline protection in areas with original PCCP.

1. 8.6 Mile Scenario - new 90-in pipe.
  - i. The worst case scenario for Section 4 is Max Flow in a low-capacity system configuration (LOW). This configuration includes CC1 pumping to WAX Tanks while bypassing the Ennis Complex.
  - ii. CC1 Flow= 2LOW Flow = 55 MGD
  - iii. CC1 Flow= 3LOW Flow = 72MGD
2. 8.6 Mile Scenario - new 90-in pipe.
  - i. The CC ultimate flow scenario for Section 4 is 250 MGD. Run scenario for Air Valve sizing
  - ii. CC1 Flow= 250 MGD



Deliverables:

- 2-hour Workshop presenting results
- TMs will not be produced to document scenarios identified in paragraphs 1.4.A and B.

## **SPECIAL SERVICES**

Not Used

## **ADDITIONAL SERVICES**

ADDITIONAL SERVICES are activities not currently anticipated as part of this project but which the TRWD may request. ENGINEER will perform ADDITIONAL SERVICES upon written agreement for compensation of tasks requested by the TRWD and only as authorized in writing by the TRWD .

ADDITIONAL SERVICES for this assignment include any services not specifically outline herein.

- A. Envision Implementation – SOW to be defined at a later date.

## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 8

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Contract with Freese and Nichols, Inc. for Engineering Design Services for Mary's Creek Indirect Water Reclamation Project and Second Cell of the Eagle Mountain Balancing Reservoir

**FUNDING:** TRWD Bond Fund

#### **RECOMMENDATION:**

Management recommends approval of a contract **in an amount not-to-exceed \$8,895,932** with Freese and Nichols, Inc. for engineering design of the Mary's Creek Indirect Water Reclamation Project and the Second Cell of the Eagle Mountain Balancing Reservoir.

#### **DISCUSSION:**

The City of Fort Worth is growing westward, away from their only water reclamation facility on Village Creek, which is in the eastern part of the city. Therefore, the City is building a new Mary's Creek Water Recovery Facility in west Fort Worth. It will discharge treated water into Mary's Creek which eventually flows into the Clear Fork of the Trinity River and through downtown Fort Worth. During the permitting process for the Mary's Creek Water Recovery Facility, the City, the District and a private landowner reached a settlement agreement that includes utilizing the treated water from the Mary's Creek Water Recovery Facility for water supply in the District system.

The Mary's Creek Indirect Water Reclamation Project is planned to be designed for a maximum of 35 million gallons per day. It will be west of loop 820 and north of Interstate 30. It includes a channel dam, intake, pump station, and pipeline that will divert the treated water out of Mary's Creek to the Eagle Mountain Pipeline. The Second Cell of the Eagle Mountain Balancing Reservoir will add 120 million gallons of elevated storage that will increase the resiliency and redundancy to the water transmission system and allow for maintenance in other areas of the system.

Design is planned to be complete in 2026 and construction in late 2028.

These projects align with the District's strategic plan by improving the quality of life, increasing water supply, meeting rapid growth in the area, and being good stewards of our environment.

Request for Statement of Qualifications were solicited per statute (Texas Government Code Chapter 2254) and two submittals were received. The evaluation team determined Freese and Nichols, Inc. (FNI) is the most qualified vendor to complete the project. The scope and fee that were successfully negotiated with FNI are attached. FNI is not a prime certified diverse business but has subcontracted portions of this contract to certified diverse businesses, resulting in diverse business participation commitment of 20.77%.

The Basic Services for this contract are \$6,851,926. The Special Services are \$2,044,006. The following Special Services require written authorization from the District to be performed: Physical Modeling, Land Development Permitting, Additional Meetings, Equipment Bid Packages, and Funding Assistance.

This contract is for engineering services only. The environmental services will be performed under a separate contract.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

**Submitted By:**

Jason Gehrig, P.E.  
Infrastructure Engineering Director



**List of Submitting Firms**

**RFSOQ No. 24-039**

**Engineering Design of the MCIWRP and the Second Cell of the EMBR**

<b>Due Date and Time:</b>	December 22, 2023, at 02:00 p.m. CT
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<b>Name of Firm</b>
Freese and Nichols, Inc.
Kimley-Horn and Associates, Inc.

## ATTACHMENT SC

**SCOPE OF SERVICES AND RESPONSIBILITIES OF OWNER**ARTICLE I

**PROJECT DESCRIPTION:** The Tarrant Regional Water District (Owner) is proceeding with design and construction of the Mary's Creek Indirect Water Reclamation (MCIWR) Project and the Second Cell of the Eagle Mountain Balancing Reservoir (EMBR2) (The Project). The Project will include design and bid phase services for a channel dam, across Mary's Creek, to capture treated effluent discharged from the Fort Worth Water Department (FWWD) Mary's Creek Water Reclamation Facility (MCWRF), an intake pump station to pump the water to Eagle Mountain Lake, and a pipeline to connect the pump station to the Eagle Mountain Pipeline (EMPL), north of the current Eagle Mountain Balancing Reservoir (EMBR) and a second cell of the EMBR to provide additional storage and redundancy to the raw water delivery system. The Project will have the following facilities:

1. An approximate 5' tall, 85' wide channel dam across Mary's Creek,
2. A 35 MGD maximum Intake Structure, near the channel dam, including low flow bypass, screens and gates.
3. A 35 MGD maximum Mary's Creek Pump Station, including pumps, motors, piping, valves, electrical equipment, pump station building, toilet room, electrical room, control/SCADA room. The Pump Station will include HVAC, architectural, structural, plumbing, fire protection, electrical, instrumentation, and controls as required. The pump station site will also include:
  - a. Site improvements including site piping, valves, flowmeter, site power distribution, site lighting, fencing, grading and drainage, detention ponds, roads and parking, landscaping, water utilities (for irrigation, potable water, and fire protection), wastewater utilities, oil-water separators, and field instrumentation. Design of all site improvements is included but only those needed for the project to function, or for a permit, will be designed.
  - b. Off-site utilities include a potable water line and a wastewater line to connect to the nearest utilities (assumed to be approximately 2,000 LF from the pump station site, but up to 3,000 LF if connection point is on Chapin Road.).
  - c. Uninterrupted Power Supply for communications and controls.
  - d. Communication facilities including radio and microwave improvements.
  - e. Security facilities including fencing, crash barriers at gates, access control, cameras, and cybersecurity. This will require coordination with TRWD and their consultant to determine space, power, and spare conduit needs. It is expected that a 100' standalone tower will be needed. Foundation and tower will be designed and constructed by others.
  - f. No chemical facilities will be included in the project.
4. Approximately 19,000 feet of approximately 36-inch diameter pipeline from the proposed Mary's Creek Pump Station to a point on the EMPL north of the EMBR, including air valves, blowoff valves, road crossings, flow control structures, flowmeters, connection to the EMPL, and cathodic protection (if metallic pipe material is used). The diameter of the pipe will be optimized based on a life cycle cost analysis. The connection to the EMPL will require main line valves for isolation and reverse flow devices and/or instrumentation to prevent backflow via operations. The two more-direct routes will consider the potential for a parallel easement and pipeline that will connect WSWTP directly to EMBR.
5. A second EMBR cell with approximately 120 MG of storage immediately north of the current EMBR, including:
  - a. Inlet structure connection to the existing 96-inch Eagle Mountain Pipeline.

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- b. Outlet structure connection to the existing 84-inch Eagle Mountain Pipeline.
- c. Overflow weir that will discharge into the existing reservoir cell.
- d. Flexbase perimeter road around the outside of the reservoir.
- e. Security fencing, lighting and cameras.
- f. Instrumentation (surface reference monuments and piezometers connected to the Canary system).
- g. A building will be needed at the EMBR site to house a compressor system for an aeration mixing system and connections to the existing SCADA system.

The following facilities and services are not part of The Project, and will be provided by others:

1. Off-site SCADA control facilities at Owner's operations center(s).
2. Electric power service to the Project Site(s), which will be provided by the electric utility company. Connection will be on the secondary side of the utility transformer(s). FNI and/or their subconsultant will design site fencing, grading, underground duct banks, and concrete equipment pads for electric utility equipment, if required.
3. Environmental permitting and mitigation required for the project, including Fort Worth Tree Removal Permitting, will be performed by Owner.
4. Easement acquisition will be performed by Owner.

The Project will include the following three construction bid packages:

1. Mary's Creek IWR Channel Dam and Pump Station
2. Mary's Creek IWR Pipeline
3. Second Cell of the Eagle Mountain Balancing Reservoir

If more construction bid packages are included, then additional compensation will be mutually agreed upon. If equipment packages are required, scope is included as an additional service for up to five equipment packages with written authorization from the Owner required to utilize the funds.

The Project will include the conventional design-bid-build delivery method utilizing Competitive Sealed Proposals (CSP) for procurement.

**BASIC SERVICES:** Upon execution of this Agreement, FNI shall provide the following professional services in connection with the Project:

A. PROJECT MANAGEMENT

1. Conduct kickoff meeting to review scope, schedule, and budget; determine any special conditions that may affect design and/or construction; discuss administrative requirements of Owner; and to develop design criteria specific to the project. IPL Design Criteria will be utilized for the project.
2. Manage efforts of internal design team and sub-consultants on the Project and perform Quality Control review of all deliverables. FNI will provide a copy of FNI's Quality Control Plan for the project within 30 days of receiving the signed contract.
3. Prepare meeting agendas, attend and prepare minutes for the following meetings:
  - a. 30 monthly project coordination meetings with Owner
  - b. 12 meetings with third parties, including other consultants providing services to Owner.
  - c. 8 meetings with utility providers.
  - d. 4 workshops for review of milestone design submittals (PDR, 60%, 95%, 100%).

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- e. Public meetings and meetings with the City of Fort Worth are included as an additional service.
4. Prepare a Microsoft Project schedule and provide monthly updates including revisions to bring the Project back on schedule if needed. The project schedule will not be resource loaded.
5. Prepare a plan for cash flow over the life of the project. Update plan with actuals each month and any changes to the plan to reflect amendments.
6. Utilize the Owner's web-based Document Control System (DCS) (TRWD Project Portal – SharePoint Site). Share documents through the DCS including deliverables, minutes, decision logs, action items, reports, construction submittals and other pertinent documents.
7. Prepare monthly reporting including status report, recent activities, upcoming activities, action items log, decisions made log, budget updates, schedule updates, and scope changes. Prepare monthly invoices.
8. Deliverables include the following:
  - a. Quality Control Plan
  - b. Agendas and minutes for all meetings
  - c. Project schedule updated monthly
  - d. Planned cash flow
  - e. Monthly reporting
  - f. Monthly invoices and cash flow updates

B. STUDY PHASE

It is anticipated that the following studies will be required at the beginning of the project to determine infrastructure sizing. The results of these studies will be documented in a series of technical memos. FNI shall provide professional services in this phase as follows:

1. **Data Collection** – Advise and assist Owner in obtaining data or services from others. Collect and review existing data, reports, mapping, and records from Owner. Review documents associated with the project. Provide analyses of Owner's requirements for the Project, including planning, surveys, site evaluations and comparative studies of prospective sites and solutions.
2. **Infrastructure Sizing Study** – The pump station capacity will be a maximum of 35 MGD. The sizing study will confirm the preferred number of pumps. A life cycle analysis will be performed to confirm the pipeline diameter and calculate annual power usage based on assumed pumping rates that match the estimated discharge of the Mary's Creek Water Reclamation Facility. Make a recommendation as to the appropriate size of the intake, pump station and pipeline. Prepare Process Flow Diagrams to demonstrate final recommendations, including essential design criteria.
3. **Pipeline Route Study** - Prepare a desktop route study for the pipelines. Obtain GIS mapping of the route corridors, where available. Up to three routes will be evaluated. Study shall include analysis of hydraulics, pump station and delivery point locations, construction costs, life cycle costs, conflicts with existing infrastructure, land costs (to be provided by Owner), coordination with permitting consultant for environmental considerations, accessibility, proximity to power sources for pumping stations and permitting requirements. Study will include site visits to points of public access. Furnish 11" x 17" map books at 1" = 400 feet scale. Also furnish GIS data in GIS file geodatabase format and PDF or JPEG format.

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4. **EMPL Connection Study** – Study the system hydraulics, valving, and controls necessary to prevent the treated MCIWRF effluent from entering the EMBR.
5. **Channel Dam Configuration Analysis** – Evaluate the configuration of the channel dam including the dam structure, foundation treatment and anchoring system, environmental flow by-pass (if required), public safety and access facilities.
6. **Intake Configuration** – Evaluate up to two alternative intake configurations including an intake integral to the channel dam including bypass facilities and an intake in the bank of the creek channel. These configurations will be evaluated for capital cost, life-cycle cost, sediment management, bank stabilization, O&M cost, public safety, and environmental permitting.
7. **Mary's Creek H&H Analysis** – Collect and summarize recent flood studies on Mary's Creek in the project vicinity including Parker County CTP, FEMA Effective, City of Fort Worth SWS-009, and TRWD UFMA. From the best available data, prepare an existing conditions H&H model of Mary's Creek and run a flood frequency analysis of the basin at the project site including the 2-, 10-, 50-, 100-, and 500-year events. Prepare a second model of proposed conditions with the channel dam and determine impacts to the flood levels based on the proposed infrastructure. Determine design flood level for setting elevations for the intake, pump station and electrical building. Summarize the results of the modeling effort in a technical memo and make recommendation to floodplain permitting needs. The analysis must meet the requirements for a City of Fort Worth Drainage Study, City of Fort Worth Floodplain Development, and Tarrant County Floodplain Development with technical memorandum documenting analysis and results.

In coordination with TRWD, prepare, submit and secure approval of drainage study and floodplain permits. FNI assumes City of Fort Worth floodplain development documentation can also serve as documentation for Tarrant County permit, and that no permit will be required for Parker County under these Basic Services. FNI will revise up to two (2) rounds of comments from the City of Fort Worth and Tarrant County.

8. **EMBR Second Cell Analysis** - It is the intent of the Owner to maximize the storage volume on the proposed site. Analyze the reservoir size, inlet and outlet configuration, probable maximum flood analysis, hydraulics, construction costs, conflicts with existing infrastructure, and environmental considerations.
9. Furnish the Technical Memos referenced above digitally. Present and review the technical memos with the Owner. Receive and address Owner's comments and issue final memos.
10. Deliverables for the Study Phase include the following draft and final technical memos:
  - a. Infrastructure Sizing Study
  - b. Pipeline Route Study
  - c. EMPL Connection Study
  - d. Channel Dam Configuration
  - e. Intake Configuration
  - f. Mary's Creek H&H Analysis
  - g. EMBR Second Cell Analysis

C. PRELIMINARY DESIGN PHASE. After Owner has accepted the Study Phase Technical Memos, FNI shall proceed with preliminary design:

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1. Based upon final location of facilities, prepare the final hydraulic design basis of the system, including intake layout, screens, pipe diameters, pump station capacity, phasing, preliminary pump selection for size and type of pumps (vertical turbine pumps and submersible pumps will be evaluated), preliminary design of flow control valves, pipe and valve selection, flowmeter selection, conceptual flushing system for the pump sump and intake, conceptual surge control method and miscellaneous appurtenances.
2. Conduct a workshop with Owner's staff to discuss layouts, equipment selection, construction materials, operation and maintenance criteria, Owner's preferences, and alternatives to be studied. FNI will bring lead designers from the major disciplines to the workshop.
3. FNI will coordinate and attend a one-day site trip with Owner's staff to view the Somervell County Water Supply Project near Glen Rose, TX.
4. Prepare preliminary site plan and sections for the channel dam and intake structure on Mary's Creek.
5. Prepare preliminary intake and sump layouts, floor plan layouts and sections for pump station, and flow control structures including design criteria. Include conceptual design and layout of structural, electrical, HVAC, and architectural components. Determine system operations protocols in conjunction with the Owner. Prepare a hydraulic model of the pumping station, pipeline, and related facilities.
6. Prepare preliminary one-line diagrams of power systems. Prepare power load studies for facilities to support preliminary design of utility power systems. Meet with electric utility companies and Owner to coordinate electric utility system design and power contracts. Prepare preliminary P&ID's and equipment tagging schedules.
7. Based upon desktop pipeline route study from the Study Phase, proceed with final pipeline alignment selection.
  - a. Provide GIS data for the proposed alignment to surveyor to prepare property boundary information in GIS file database format. Owner will obtain Right of Entry.
  - b. FNI will review alignment in the field and make modifications to avoid conflicts and determine the final pipeline alignment. Final alignment will be based upon property considerations, constructability, hydraulics, pump station and delivery point locations, construction costs, conflicts with existing infrastructure, land costs (to be provided by Owner), environmental considerations, accessibility, proximity to power sources for pumping stations and permitting requirements.
  - c. FNI will meet with TRWD and third party road authorities, utility owners, development review and approval departments, and other agencies having jurisdiction over alignment approval. Meetings will be to coordinate the third-party requirements and seek approval of the final alignment. FNI will gather mapping of existing utilities to assist in route selection and pipeline design.

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- d. FNI will update GIS mapping based upon the field alignment selection and provide copies to Owner. FNI will receive comments from Owner and finalize the pipeline alignment, update GIS data and issue electronic copies of final alignment map books to Owner and Surveyor. Also furnish GIS data in GIS file geodatabase format and PDF or JPEG format.
8. The design team will review the Project against the Envision Rating System Checklist to determine if there are opportunities for increasing the resiliency and sustainability of the project. Discuss findings during a monthly project meeting.
  9. The following studies will be conducted to confirm the preliminary design of the project components. Results of the studies will be presented at the monthly meetings with analysis and decisions documented in a technical memo. The following studies will be conducted:
    - a. Pipeline:
      - i. Final Alignment and Land Acquisition Requirements – a summary of permanent and temporary easement needs. A discussion on temporary staging, haul roads, and access needs will also be included. The easement needs will be shown on a mapbook for approval prior to moving forward with easement preparation.
      - ii. Pipeline Material Selection – a summary of pipeline material options and recommendations for pipe alternative for final design and bidding.
      - iii. Pipeline Permitting Requirements – a summary of the various utility and road crossing requirements.
    - b. Pump Station
      - i. Final Hydraulics and Pump Selection – This study will build upon the infrastructure sizing study. A system curve and HGL will be established based on the preferred pipeline alignment, pipeline diameter and desired flow rates. Pump selections from various vendors will be reviewed with final recommendations for pump type and number of pumps for initial and future phases.
      - ii. Pump Sump and Pump Station Floor Plan – Upon determination of pump type and number of pumps, the pump station floor plan and sump structure, including all piping and valves, will be prepared for review and approval by TRWD. A CFD model of the proposed inlet piping and sump will be used to confirm acceptable hydraulics of the system.
      - iii. Pump Station P&ID's and Operating Protocol – FNI will review preliminary P&ID's and discuss preferred system operating protocols with the Owner's engineering and operations staff.
      - iv. Site Civil Design – Prepare preliminary site layout for pump station, channel dam and flow control facilities, including facilities, roads, parking, fencing, site piping, irrigation systems, and drainage structures. FNI will also determine connection points and routes for off-site water and wastewater utilities.

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- v. Electrical Design – This study will include preliminary one-line diagrams of power systems and power load studies for facilities to support preliminary design of utility power systems. The memo will make recommendations for electrical equipment and electrical room layout.
  - vi. Mechanical Design – This study will include an evaluation of up to three cooling systems for the electrical room and ventilation requirements for the pump room as well as final design criteria, codes and preliminary layouts for the HVAC system and the plumbing system.
  - vii. Pump Station Architecture – The study will include recommendations for building materials, design criteria and Revit renderings for two alternative architectural designs.
- c. Channel Dam
- i. Channel Dam Layout and Access – The study will include an evaluation of the configuration of the channel dam structure based on the hydraulic analysis, the geotechnical evaluation, including stability of the structure, and the integration of a means of by-pass capability. Design considerations for low water dam and intake will also include future public access and public safety. Consideration should include future pedestrian/bike crossings, design to minimize hydraulic jump on future flow conditions, and need for passing environmental flows, if required.
- d. EMBR Second Cell
- i. Preliminary Design – This study will include preliminary site layout including roads, fencing, embankment slopes, and miscellaneous items as well as final design criteria, permitting requirements, alternative evaluations, updated project schedule, opinion of probable construction cost (OPCC), preliminary drawings and outline specifications. The memo will also include results of the breach analysis.
  - ii. Yard Piping Study – This study will include layout of piping from the existing Eagle Mountain pipeline around the existing reservoir cell, and into the EMBR second cell, including valve vault locations/layouts and review of EMPL cut sheets and record drawings to confirm the best tie-in points. The study will also consider what connections may be needed in the future for a direct pipeline to the FWWD Westside WTP.
10. At the conclusion of the preliminary design phase, the technical memos will be assembled into two complete documents (one for MCIWRP, the other for EMBR2) with an Executive Summary for the Project.
11. Furnish electronic copies of the PDR's and present PDR's to Owner. Receive Owner comments, make modifications to the PDR's, and issue an electronic of the final draft of PDR's.
12. Deliverables for the Preliminary Design Phase include the following:
- a. Draft and final technical memos.
  - b. Final Preliminary Design Report for the Mary's Creek IWR Project that includes an executive summary and approved technical memos.
  - c. Draft and Final Pipeline Alignment Map Books

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- D. FINAL DESIGN PHASE: After approval of the PDR for the MCIWRF Project, PDR for the EMBR 2<sup>nd</sup> Cell and final pipeline alignment, FNI shall provide professional services in this phase as follows:
1. Prepare front end documents, including bid documents, general conditions, and special conditions for the three construction packages, based upon Owner's standard documents. Meet with Owner to resolve review comments, and revise documents accordingly.
  2. Advise Owner of need for and recommend scope of additional Special Services, not already included in Article II of this Scope of Work. The cost of such additional Special Services shall be paid by Owner and are not included in the services performed by FNI.
  3. Prepare applications for routine permits such as road and railroad crossing permits, , Handicap accessibility (ADA) permitting, and provide support for Texas Commission on Environmental Quality (TCEQ) Approval. FNI to provide design documents that conform to local codes and meet with code officials as needed during design. Owner shall pay for fees if required.
  4. Furnish such information necessary to utility companies whose facilities may be affected, or services may be required for the Project. Provide site civil design of the facility sites to support the electric utilities site requirements, including site grading, fencing, roads, underground duct banks, and equipment pads if necessary. Easements for utilities companies will be provided as a Special Service.
  5. Prepare revised opinion of probable construction cost at the 60%, 95%, and "Issued for Bid" submittals.
  6. 60% Review: Prepare drawings, specifications (as needed to supplement TRWD Standard Specifications), construction contract documents, designs, and layouts of improvements to be constructed. Prepare bidder's proposal forms (project quantities) of the improvements to be constructed. Furnish Owner digital drawings, 3D models, specifications, and bid proposals marked "60% Submittal" for approval by Owner. FNI will meet with the Owner to present the plans and specifications and receive comments. Review documents will include dimensional layout drawings, plans, sections and elevations for all the trades, typical details, and most special details. The specifications will include major equipment items. Pipeline plans will include plan and profile sheets, pipeline appurtenances, and typical details. FNI will receive comments from Owner and address comments in the set prepared for 95% Review. FNI will coordinate with the Owner and the Environmental Consultant to assist with information needed to submit the 404 Permit.
  7. 95% Review: Furnish Owner digital drawings, specifications, and bid proposals marked "95% Submittal" for approval by Owner. For construction packages with CSP, prepare instructions to proposers, proposal evaluation criteria and proposal submittal requirements. FNI will meet with the Owner to present the plans and specifications and receive comments. Review documents will include all plans and specifications with minor corrections and notes remaining. FNI will receive comments from Owner and address comments in the Final Draft. Upon Owner approval of the 95% set,
  8. 100% Review: FNI will provide Owner "100%" or "Issued for Bid" plans and specifications.

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9. Deliverables for the Final Design Phase include:
  - a. Front end documents for construction
  - b. Routine Permit Applications (Road Crossing, Building Permits, ADA Permit, TCEQ Approval)
  - c. Information to utility companies to acquire utility service (electric, telephone, water, wastewater, gas)
  - d. OPCC at PDR, 60% and 95%
  - e. 60% submittal of Plans and Specifications
  - f. 95% submittal of Plans and Specifications
  - g. 100% submittal of Plans and Specifications
  - h. Final signed and sealed Plans and Specifications
  
- E. BID OR NEGOTIATION PHASE MCIWRF AND EMBR2: Upon completion of the design services and approval of “Final” drawings and specifications by Owner, for each of the three bid packages, FNI will proceed with the performance of services in this phase as follows:
  1. Assist Owner in securing bids. Prepare a Notice to Bidders and provide a copy of the notice to bidders for Owner to use in posting on the Owner’s procurement website. The cost for publications shall be paid by Owner.
  2. Submit electronic copies of plans, specifications and bidding documents to Owner for advertisement on their OpenGov procurement portal. Prospective bidders may download and print documents from OpenGov, who will maintain plan holder list and post addenda. FNI will also list bid projects on the FNI website.
  3. Assist Owner by responding to questions and interpreting bid documents. Prepare and issue addenda to the bid documents to OpenGov if necessary.
  4. Assist the Owner in conducting a pre-bid conference for the construction projects and coordinate responses with Owner. Response to the pre-bid conference will be in the form of addenda issued after the conference. Attend the tour of the project site after the pre-bid conference.
  5. At Owner request, FNI will assist Owner in the opening, tabulating, and analyzing the bids received. Review the qualification information provided by the apparent low bidder to determine if, based on the information available, they appear to be qualified to construct the project. Recommend award of contracts or other actions as appropriate to be taken by Owner.
  6. After receipt of proposals, prepare preliminary tabulation of scoring criteria for the bidders, check references, review qualifications and experience, prepare a summary of observations and meet with Owner to review proposals. If necessary, attend interviews with short-listed proposers and assist Owner with final scoring. Prepare a recommendation of award of contracts or other actions as appropriate.
  7. Assist Owner in the preparation of Construction Contract Documents for each of the construction contracts. An “Issued for Construction” set of Contract Documents will be provided with addendum items posted. Provide a digital PDF version of Construction Contract Documents for each of the construction contracts which include information from the selected bidders’ bid documents, legal documents, and addenda bound in the documents for execution by the Owner and construction contractor. Printed sets of documents can be provided as an additional service.

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8. Furnish contractor digital copies of the drawings and specifications for construction pursuant to the General Conditions of the Construction Contract.
  9. Deliverables for the Bid or Negotiation Phase include:
    - a. Notice to Bidders
    - b. Electronic copies of plans, specifications, bidding documents, and addenda
    - c. Tabulation of selection criteria for Proposers (CSP Only)
    - d. Recommendation of Award with tabulation of bids
    - e. Notice of award to selected bidder
    - f. Conformed contract documents for execution
    - g. Electronic copies of conformed contract documents for Contractor and Owner
- F. CONSTRUCTION PHASE: Not included in this agreement. Construction phase services will be negotiated upon completion of final design.

## ARTICLE II

**SPECIAL SERVICES:** Special Services to be performed by FNI include the following:

- A. **ENVIRONMENTAL PERMITTING SUPPORT:** FNI will coordinate with the Owner and the Owner's Environmental Consultant. As part of this service, FNI will:
  - a. Attend the MCIWRF project kick-off meeting with the Owner.
  - b. Attend the scoping meeting with the selected Environmental Consultant, if requested.
  - c. Attend the kick-off meeting with the selected Environmental Consultant, if requested.
  - d. Attend progress meetings with the Environmental Consultant during the permitting timeframe.
  - e. Discuss with the design engineers the potential environmental permitting requirements associated with a design component and how it could affect project schedule, alternatives analysis, and protected resources. Assist to determine what engineering deliverables are needed for the Environmental Consultant such that they can obtain all environmental permits for the Project.
  - f. Provide data to the Environmental Consultant as requested.
  - g. Review draft environmental commitments from the permit to confirm these commitments are properly identified in the contract documents.
- B. **TOPOGRAPHIC SURVEYING:** Upon written notice to proceed, FNI shall retain (as a subconsultant) and monitor the services of a surveying firm to perform surveying services for the project. The following survey shall be provided:
  1. Establish project control using Global Positioning System (GPS) methodology. Horizontal values will be based on the Texas State Plane Coordinate System, North American Datum of 1983, North Central Zone (4202), and scaled to surface using a surface adjustment factor of 1.00012. The vertical values will be based on GPS derived ellipsoid heights and adjusted to North American Vertical Datum of 1988 (NAVD88) elevations using Geoid18 . Control Points will also be tied into TRWD control monuments.

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2. Research current property owners and obtain copies of subdivision plats, ownership deeds, and existing easements within the project area.
  3. Locate existing property corners and right-of-way corners to establish property lines and street rights-of-way.
  4. Design survey to include pavement edges, curb and gutter, buildings, driveways, culverts, fences and gates, signs, mailboxes, tops and toes of slopes, spot elevations, trees six (6) inches and greater, surface locations of utilities and flowline elevations of sanitary and storm sewer manholes where accessible, and other surface features. Surveyor will also pick-up designations by the SUE sub and boring locations. The design survey will capture the following areas:
    - a. Pipeline route – 150' wide
    - b. Pump Station and channel dam site – approximately 16 acres
    - c. Access roads into the pump station and channel dam site
    - d. Routes for off-site w/ww utilities
    - e. EMBR Second Cell Site – approximately 65 acres
  5. Provide a digital design survey drawing in AutoCAD (.dwg) format prepared to FNI standards showing visible surface features located, an ASCII point file, and a copy of field notes and field sketches. Also provide GIS deliverable in GIS file geodatabase format.
  6. Upon approval of the recommended alignment, stake the proposed easements with wood lathes to allow the TRWD Land team to identify the proposed easements with landowners. After easement preparation, surveyor will stake all easement corners with iron rods.
- C. EASEMENT DOCUMENTS: FNI shall retain (as a subconsultant) and monitor the services of a surveying firm to perform easement document services for the project. The following shall be provided:
1. Prepare up to twenty (20) parcel exhibits with legal descriptions for permanent easements associated with the IWR Pipeline.
  2. Prepare up to twenty (20) parcel exhibits with legal descriptions for temporary easements associated with the IWR Pipeline.
  3. Prepare up to two parcel exhibits with legal descriptions for permanent easements for accessing the pump station and channel dam property.
  4. Prepare up to four parcel exhibits with legal descriptions for permanent easements for off-site water and wastewater utility lines.
  5. Prepare up to three easements parcel exhibits with legal descriptions for permanent easements for electrical facilities (incoming line, access, transformer).
  6. Prepare one parcel exhibit and legal description for the purchase of the pump station and channel dam site.
  7. Prepare documents using the standard TRWD form for review by the TRWD GIS department.

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D. SUBSURFACE UTILITY ENGINEERING SERVICES FNI shall retain (as a subconsultant) and monitor subsurface utility engineering (SUE) services. SUE work required for this project in general accordance with the recommended practices and procedures described in ASCE Publication CI/ASCE 38-02 (Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data):

1. As described in the mentioned ASCE publication, four levels have been established to describe the quality of utility location and attribute information used on plans. The four quality levels are as follows:
  - a. Quality Level D (QL "D") – Information derived from existing records.
  - b. Quality Level C (QL "C") – QL "D" information supplemented with information obtained by surveying visible above-ground utility features (i.e. valves, hydrants, meters, manhole covers, etc.).
  - c. Quality Level B (QL "B") – Two-dimensional (x, y) information obtained through the application and interpretation of non-destructive surface geophysical methods. Also known as "designating" this quality level provides the horizontal position of subsurface utilities within approximately one foot.
  - d. Quality Level A (QL "A") – Also known as "locating", this quality level provides precise three-dimensional (x, y, z) information at critical locations by exposing specific utilities. Non-destructive vacuum excavation equipment is used to expose the utilities at specific points which are then tied down by survey.
2. For this project, QL's "B" and "A" SUE, as previously defined, will be provided. The QL "B" will be included along the entirety of the pipeline. Also provide SUE data in GIS file geodatabase.
3. The QL "A" will consist of up to twenty (20) test holes, along the proposed water line alignment.
4. FNI and subconsultant will attempt to place the test holes outside the paved areas wherever possible. However, some test holes may be needed in areas that may require traffic control measures. Subconsultant will establish routine/ordinary traffic control (cones and free-standing signage, etc.) whenever required as part of this scope. If non-routine traffic control measures are required (barricades, flag person, changeable message board, etc.) these services will be additional to the contract.

E. CORROSION ENGINEERING SERVICES:

- a. FNI will provide a corrosion study and design for the Eagle Mountain Balancing Reservoir 2<sup>nd</sup> Cell and associated piping, the water pipeline and new pump station metallic yard piping associated with this project. The existing corrosion monitoring system for the Eagle Mountain Balancing Reservoir will be inspected and incorporated/replaced in the new cathodic protection design. The first task will include a corrosion assessment of the pipeline route to review soil conditions and complete a preliminary cathodic protection design to support easement procurement. Soil resistivity measurements will be taken, using the Wenner four pin method, at intervals along the pipeline route as required for cathodic protection design alternatives.
- b. A corrosivity review of the pipeline location will also be performed to identify possible corrosive conditions that may affect material selection and corrosion mitigation requirements for the pipelines and other buried structures. The fieldwork will consist of a visual assessment of the proposed pipeline route, with the following tasks being performed:
  - i. Field Evaluation, access to all properties for corrosion investigation is the

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responsibility of the Owner

1. Research – Foreign pipeline crossings, parallel systems, and CP systems
  2. Electrical High Voltage (EHV) transmission lines
  3. Field Survey – Stray DC current interference sources
  4. Research – Changes in soil types, conditions, etc.
  5. Topography
  6. Review - Proposed pipeline design & materials
  7. Conduct in-situ soil resistivity testing (every 1,000 feet) at depths of 20, 10, 5 and 2.5 feet.
  8. Conduct stray current (DC) investigation in prescribed easement. The purpose of performing an investigation during the site visit (along the alignment) is to identify potential sources of stray current and nearby metallic pipelines that may be affected by the proposed cathodic protection.
  9. If soil geotechnical report shows that soils resistivities in proposed easements are less than 1,000 ohm-cm, Corrosion Engineer will direct Geotechnical Engineer to have soil samples from the proposed pipeline depth to be tested for:
    - a. pH
    - b. Chloride ion concentration
    - c. Sulfide ion concentration
    - d. Redox potential
    - e. As-found and saturated soil resistivity
  10. Conduct analysis of collected data and technical prepare technical memo.

The technical memorandum will include the collected field data and provide conclusions on the corrosivity of the soil with respect to buried metallic and reinforced concrete structures. Recommendations will be provided for corrosion mitigation of buried metallic and concrete structures, if required, based on soil corrosivity and other factors which may impact corrosion exposure of the pipeline.
  - ii. The cathodic protection design and corrosion monitoring design for both steel and bar wrapped concrete cylinder pipe (BWCCP) will be included in the bid contract. The cathodic protection will be designed to minimize interference on adjacent utilities and could increase the quantity of cathodic protection stations required depending on foreign pipeline location and orientation. The design will utilize TRWD's cathodic protection standard specifications and details. Specifically, the following tasks will be performed:
    1. Provide 60%, 95% and Issued for Bid cathodic protection design details and specifications.
- F. SURGE PROTECTION ENGINEERING SERVICES: FNI will prepare a hydraulic surge analysis of the proposed pipeline.
1. Collect Data: Engineer will review proposed pipeline alignment sheets prepared for the pipeline from the Mary's Creek PS to the connection to the EMPL and the 84-inch segment of the EMPL down to Eagle Mountain Lake, including the flow control structure. Such data will be reviewed, evaluated, and formatted, as needed, for input to simulation model building. Engineer will review and verify completeness and consistency of pipeline alignment sheet data and record data to ensure that it represents the current design, including pipeline elevation profile, pipeline materials, design pressure, and locations and size of combination air and vacuum valves.

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2. Building of Synergi Pipeline Simulator (SPS) model for the system: FNI will build the surge analysis computer model using Synergi Pipeline Simulator (SPS) Version 10.4. Model will include the proposed pipeline elevation profile, Delivery Pump Station pumps, valves, and piping, and locations and sizes of combination air and vacuum valves. A surge model of the Eagle Mountain System from the EMBR to the Eagle Mountain Lake will be included in the model. The SPS computer model will be calibrated to meet the steady state flow operating conditions established for the system, with target pressures and flowrates based on design parameters. The surge model will include appropriate boundary conditions for characterizing the upstream supply and the downstream delivery.
  3. Transient Case Simulations based on 60% Design Drawings: FNI will model up to three (3) hydraulic transient scenarios including:
    - a. Power failure at the Mary's Creek Pump Station to the pipeline in service. All pumps trip simultaneously.
    - b. Connection butterfly valve closure.
    - c. Closure of the flow control valves at the EML Control Structure.
  4. Base Case Simulations for 60% design plans – The above transient cases shall be simulated for base case conditions as determined for the designed rate of flow. All surge protection devices, including combination air/vacuum valves and pump control valves, shall be included in the analysis.
  5. Surge Resolution Simulations for 60% design plans – If either the maximum allowable surge pressures or the worst-case allowable vacuum conditions are violated under the above simulated transient scenarios, then additional surge protection devices will be sized and added to the model, and the simulations will be re-run to meet the desired conditions.
  6. Technical Memorandum Preparation: Review and interpret results of computer simulations and provide a technical memorandum with graphs and plots of simulation results. The draft technical memorandum will be submitted for review and comments. A virtual meeting or phone conference will be scheduled to review and discuss comments. A final technical memorandum will be issued that includes the resolution of comments. The final approved recommendations for the transient study will be incorporated into the final design of the 36-inch Pipeline by the design engineers.
  7. FNI will convert the model into a file that can be used in INFOSURGE. FNI will deliver a model representing all pipes and valves but not a working surge model.
- G. GEOTECHNICAL ENGINEERING (MCIWRF): FNI will render the following geotechnical engineering professional services in connection with the project for purposes of providing geotechnical data and information on the anticipated subsurface conditions at select locations along the pipeline alignment. The services will include field exploration, laboratory testing, and reporting.
1. Field Exploration

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- a. FNI will select appropriate locations for exploratory borings within the vicinity of the proposed channel dam, intake structure and pump station site and along the pipeline according to the attached boring table.
- b. Travel to the site to physically mark locations for exploratory borings. Engineer will check visually for underground utility markers, other existing construction, and accessibility. Engineer, in coordination with the Surveying subcontractor, will locate and stake the borings.
- c. Call the Texas811 utility system, TRWD, and other appropriate providers to mark utilities within an appropriate radius of the boring locations.
- d. Coordinate with appropriate TRWD and City personnel regarding the removal of trees along both sides of the creek bank for drilling rig access. Subcontract with a brush and clearing subcontractor to remove trees as needed for drill rig access. Clearing will be limited to what is necessary to provide access to the drilling operations.
- e. Subcontract with a drilling contractor to drill a total of 29 borings in accordance with Schedule 1, attached.
- f. Subsurface samples shall be obtained at 2.5-foot intervals within the upper 10 feet and at 5-foot intervals thereafter using 3-inch diameter Shelby tubes for cohesive soils and a 2-inch diameter split-spoon sampler in conjunction with the Standard Penetration Test (SPT) for intermediate and non-cohesive soils. Rock and rock-like materials will be cored using an NX core barrel in a minimum of ten borings. Insitu testing (SPT or the Texas Cone Penetration Test) will be performed between core runs with poor recovery (less than 75 percent) and in borings where coring will not be performed.
- g. Groundwater observations within the borings will be recorded at the time of drilling and at the completion of drilling and sampling.
- h. Perform packer tests in the bedrock in a minimum of two borings to determine the rock permeability.
- i. FNI will provide an engineer or geologist experienced in logging borings to direct the drilling, log the borings, record the blow counts of insitu testing, and handle the samples. Visual classification of the subsurface stratigraphy shall be provided according to the Unified Soil Classification System (USCS).
- j. The borings for the channel dam and intake structure will be backfilled with cement-bentonite grout to the ground surface at the completion of drilling and sampling. The pump station and pipeline borings will be backfilled with auger cuttings and bentonite chips (if needed).
- k. Since the location for the channel dam and intake structure is in an area that is heavily wooded and tree ordinances/permits may be required, we anticipate that mobilization for the drill rig will not coincide with the borings for the pump station and pipeline. The pipeline and pump station borings may not coincide with each other as well so we have assumed three total mobilizations: one for the channel dam and intake structure; one for the pump station and one for the pipeline. Each of these mobilizations will be included in the overall fee. The field investigation for the 2nd Cell for the Eagle Mountain Balancing Reservoir is included in Section H.

## 2. Laboratory Testing

- a. Testing shall be performed by a geotechnical testing subcontractor on samples obtained from the borings to determine soil classification and pertinent engineering properties of the subsurface materials.

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- b. The Engineer will select samples for laboratory testing, assign tests, and review the test results.
- c. Laboratory tests will be appropriately assigned for the specific subsurface materials encountered during exploration, but are expected to include:
  - i. Classification tests (liquid and plastic limits and percent passing the no. 200 sieve)
  - ii. Dry unit weight
  - iii. Crumb dispersion tests
  - iv. Permeability tests
  - v. Strength tests (unconfined compressive strength, UU and CU triaxial tests, direct shear tests and consolidation tests)
  - vi. One-dimensional swell, if needed
  - vii. Corrosion testing

### 3. Engineering Analysis

- a. FNI will prepare a geotechnical report that includes a brief description of the project and the field and laboratory investigation, boring logs and laboratory test results. FNI will also perform the geotechnical engineering analysis and prepare a report summarizing the geotechnical investigation, which will include:
  - i. Appendix with the boring locations, boring logs, laboratory test results, and a key to the symbols used.
  - ii. Discussion of subsurface conditions and soil properties indicated by the field and laboratory work, and the implications for design.
  - iii. Foundation recommendations for the support of the proposed structures, including bearing capacity of soils, suitable bearing material, etc. applicable for the recommended foundation or foundation options.
  - iv. Provide recommendations for subgrade modification, if required to control settlement or expansive soil movement.
  - v. Lateral earth pressures
  - vi. Perform analyses on the channel dam to demonstrate adequate safety factors as required by TCEQ for the following conditions:
    - 1. Sliding Stability
    - 2. Foundation seepage analysis – steady-state conditions
  - vii. General discussion of expected construction related issues.
  - viii. Earthwork and site preparation related recommendations for use during development of plans and specifications.

H. GEOTECHNICAL ENGINEERING (EMBR 2<sup>nd</sup> Cell): FNI will render the following geotechnical engineering professional services in connection with the project for purposes of providing geotechnical data and information on the anticipated subsurface conditions at select locations along the pipeline alignment. The services will include field exploration, laboratory testing, and reporting.

#### 1. Field Exploration

- a. Using Google Earth and other open-source information FNI will make initial selection of appropriate locations for exploratory borings within the vicinity of the proposed site according to the attached boring table.
- b. Travel to the site to physically mark locations for exploratory borings. Engineer will check visually for underground utility markers, other existing construction, and accessibility.

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- Engineer, in coordination with the Surveying subcontractor, will locate and stake the borings.
- c. Call the Texas811 utility system, TRWD, and other appropriate providers to mark utilities within an appropriate radius of the boring locations.
  - d. Subcontract with a drilling contractor to drill 26 borings in accordance with Schedule 2, attached.
  - e. Subsurface samples shall be obtained at 2.5-foot intervals within the upper 10 feet and at 5-foot intervals thereafter using 3-inch diameter Shelby tubes for cohesive soils and a 2-inch diameter split-spoon sampler in conjunction with the Standard Penetration Test (SPT) for intermediate and non-cohesive soils. Rock and rock-like materials will be cored using an NX core barrel in a minimum of twenty-one (21) borings. Insitu testing (SPT or the Texas Cone Penetration Test) will be performed between core runs with poor recovery (less than 75 percent) and in borings where coring will not be performed.
  - f. Groundwater observations within the borings will be recorded at the time of drilling and at the completion of drilling and sampling.
  - g. Perform packer tests in the bedrock in a minimum of four borings to determine the rock permeability.
  - h. Install a minimum of 4 temporary piezometers in selected boring locations. Provide surface completions for each piezometer with upright, lockable steel covers and a 3'x3' concrete pad. A water well driller licensed in the State of Texas will be utilized, the piezometers will be registered with the State of Texas and documentation of same shall be provided to Owner.
  - i. FNI will provide an engineer or geologist, experienced in logging borings, to direct the drilling, log the borings, record the blow counts of insitu testing, and handle the samples. Visual classification of the subsurface stratigraphy shall be provided according to the Unified Soil Classification System (USCS).
  - j. The borings not converted to piezometers will be backfilled with cement-bentonite grout to the ground surface at the completion of drilling and sampling in accordance with TX regulation.
  - k. Since layout for the 2nd EMBR Cell has not been finalized, this scope does not include clearing of any brush or trees to access boring locations. It is not anticipated clearing will be required based on aerial views of the proposed site.

## 2. Laboratory Testing

- a. Testing shall be performed by a geotechnical testing subcontractor on samples obtained from the borings to determine soil classification and pertinent engineering properties of the subsurface materials.
- b. The Engineer will select samples for laboratory testing, assign tests, and review the test results.
- c. Laboratory tests will be assigned for the specific subsurface materials encountered during exploration, and may include:
  - i. Classification tests (liquid and plastic limits and percent passing the no. 200 sieve)
  - ii. Moisture content
  - iii. Dry unit weight
  - iv. Moisture-density tests
  - v. Crumb dispersion tests
  - vi. Permeability tests

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- vii. Strength tests (unconfined compressive strength, UU and CU triaxial tests, direct shear tests and consolidation tests)
- viii. One-dimensional swell

### 3. Engineering Analysis

- a. FNI will prepare a geotechnical report that includes a description of the project and the field and laboratory investigation, boring logs and laboratory test results. FNI will also perform the geotechnical engineering analysis and prepare a report summarizing the geotechnical investigation, which will include:
  - i. Appendix with the boring locations, boring logs, laboratory test results, and a key to the symbols used.
  - ii. Discussion of subsurface conditions and soil properties indicated by the field and laboratory work, and the implications for design.
  - iii. Foundation recommendations for the proposed structures, including bearing capacity of soils, suitable bearing material, etc. applicable for the recommended foundation or foundation options.
  - iv. recommendations for subgrade modification, if required, to control settlement and/or expansive soil movement.
  - v. Lateral earth pressures.
  - vi. Perform analyses on the channel dam design to demonstrate safety factors as required by TCEQ for the following conditions:
    - 1. Embankment slope stability
      - a. End-of-construction
      - b. Steady-state
      - c. Rapid drawdown
      - d. Earthquake under steady-state seepage conditions
    - 2. Embankment seepage analysis – steady-state conditions
    - 3. Dynamic seepage for Rapid Drawdown
  - vii. General discussion of expected construction related issues.
  - viii. Earthwork and site preparation related recommendations for use during development of plans and specifications.

### I. PHYSICAL MODEL OF PUMP SUCTION PIPING/INTAKE – Physical modeling is recommended by the Hydraulic Institute for circular pumps if the pumps are larger than 7.2 MGD. Physical modeling will only be provided if needed and with written approval of the Owner.

- 1. Construct a physical hydraulic model with a geometric scale of approximately 1:7. The model will be constructed by Alden Research Laboratory and housed in one of the Alden model buildings in Holden, Massachusetts. The model will simulate the pump station system by modeling a portion of the river in front of the pump station, intake structures, pump bays, and pump suction bells. The upstream boundary of the model will be within the river as determined by Computational Fluid Dynamics (CFD) modeling. The downstream model boundary will be located in the submersible pump or vertical turbine pump just upstream of the impeller. The upstream boundary may be adjusted depending on the results of the river and pump station intake CFD simulations.
- 2. Perform detailed evaluation of flow conditions in the pump bays and at the pump suction.
- 3. Measurements of flow will be made using venturi and/or orifice plate meters.

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4. Free surface and subsurface vortices will be identified and classified according to Hydraulic Institute Standards (HIS) guidelines. Subsurface vortices will be identified by injecting dye on the walls and floor near the intake of each pump.
5. The swirl will be measured at each pump intake using a swirl meter positioned approximately four diameters from the pump suction flange location, in accordance with HIS guidelines.
6. Acceptance Criteria – Based on Hydraulic Institute Standards, the following acceptance criteria will be used to evaluate the hydraulic performance (as indicated by the model study results) and used to prepare the final design:
  - a. Free Surface Vortices: Type 2 for normal operating conditions, Type 3 <10% of time or for unusual conditions
  - b. Subsurface Vortices: Type 1 for normal operating conditions, Type 2 <10% of time, or for unusual conditions
  - c. Swirl Angles: 30-second and 10-minute (model) Averages <5 degrees for normal operating condition. Higher values (up to 7 degrees) may be allowed, if occurring <10% of time, or for unusual conditions.
  - d. Velocity Distribution: Time-averaged point velocities, taken at the pump suction flange, within 10% of the cross-sectional area average velocity.
7. A test matrix will be developed by Alden and FNI which will include pump combinations with one to eight pumps operating and corresponding water elevations. Up to 15 operating combinations will be tested. The testing will be conducted in three phases:
  - a. Phase 1 - Baseline testing of the initial design for vortices and swirl. Velocity distribution at the bell throat will not be conducted in Phase 1 unless no unacceptable conditions are observed. Test data will be evaluated based on HIS acceptance criteria.
  - b. Phase 2 - Development of modifications. Derive remedial modifications to bring objectionable hydraulic conditions to acceptable levels. Modifications may consist of partition walls, curtain walls, fillets, and/or splitters.
  - c. Phase 3 - Final documentation testing. Based on test results from Phase 2, select a modified design for final testing. The test matrix for Phase 3 will be the same as for Phase 1. Velocity distribution at the bell throat will be conducted for one pump and test condition which indicated the highest swirl angle.
8. Witness testing will be attended by TRWD and FNI staff as necessary for confirming the final physical modeling performance.
9. Upon completion of all tests, a final report will be submitted electronically in draft form for review. The report will include color photographs of the model, typical flow patterns and vortex activity, and drawings of recommended modifications. The report will be revised based on any comments as needed, and three hard copies and one electronic copy of the report will be submitted.

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- J. LAND DEVELOPMENT PERMITTING – The project site is not currently in the City of Fort Worth City Limits, but could be annexed within the project timeline. Effort for meeting(s) with the County and the City of Fort Worth is included for scope associated with a pre-development conference, zoning changes, planning and zoning approvals, platting, site plan approvals, etc. with a reasonable number of review cycles and meetings. This task requires authorization by Owner.
- K. ADDITIONAL MEETINGS – This task is for Public Meetings or meetings with the FWWD or their Water Resource Facility engineer, if needed. This task requires authorization by Owner.
- L. EQUIPMENT PACKAGES – It is anticipated that all pumps, valves and electrical equipment can be part of the construction packages. If it is determined that pre-selection or pre-purchase of equipment is needed, FNI will be due extra compensation for preparation of equipment packages and procurement phase services. This task is for preparation of 5 bid packages for pumps, pump control valves, large diameter valves and electrical equipment with one additional bid package budgeted for contingency. Work on this task requires authorization by the Owner.
- M. FUNDING ASSISTANCE – This task requires authorization by the Owner. Time is budgeted to meet with the entity writing the funding application. FNI will provide technical support for the funding application and attend up to 2 meetings with TRWD and the funding firm.
- N. FEMA COORDINATION AND APPROVAL –
  - a. If required by City and/or County, in coordination with TRWD prepare, submit and secure approval of FEMA No Rise Certification, FEMA CLOMR, FEMA LOMR.
  - b. If required, in coordination with TRWD, prepare, submit and secure approval of Parker County Floodplain Permit.
  - c. If timeline dictates, the design will need to accommodate potential City of Fort Worth ordinance updates regarding valley storage in the floodplain.
- O. GEOMORPHIC AND SEDIMENT ASSESSMENT -

A geomorphic assessment will be performed on approximately 13,500 Linear Feet (LF) of Mary's Creek and tributary. Approximately 8,000 LF of stream progressing upstream from Camp Bowie Boulevard, with a primary focus on the areas adjacent to the proposed location of the Channel Dam and Intake Pump Station will be assessed. Tributary MCS-3 to Mary's Creek to be assessed include: 4,000 LF of stream MCS-3 at the confluence with Mary's Creek and 1,500 LF of MCS-3 headwater stream near Westpoint Blvd. The purpose of this geomorphic assessment is to identify the potential risks related to erosion and geomorphic processes within Mary's Creek.

The following activities will be included in this assessment.

- 1. Desktop Analysis
  - a. Obtain and review available and relevant watershed studies, reports, and record drawings for the study area.
  - b. Obtain and review available GIS data, including topographic maps, LiDAR data, geologic maps, soil maps, and historical aerial photos.

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- c. Historical watershed development and drainage area will be assessed. The riparian setting of Mary's Creek will be identified and, if possible, changes in planform and long-term erosion trends will be identified.
2. Field Assessment
    - a. Professionals from FNI will conduct a site assessment where the length of the study area (approximately 13,500 LF) will be walked to observe and document the existing geomorphic condition of Mary's Creek. This includes, but is not limited to, identifying channel form, bankfull benches, slope instabilities and knickpoints, areas of bank erosion/mass wasting, channel substrate and sediment deposition patterns.
      - i. Special attention will be given to sediment deposition patterns to evaluate whether Mary's Creek is a transport limited or supply limited stream system. These observations will guide later sediment dynamic analyses.
    - b. FNI will photo-document site conditions using GPS geotagged photographs.
    - c. The potential erodibility of the stream banks along Mary's Creek will be evaluated and mapped using the rapid assessment tool, the Bank Erosion Hazard Index (BEHI). A GIS file will then be created to indicate general erosion risk along the stream banks within the project area. Specific erosion threats to potential infrastructure will also be identified.
    - d. If feasible, cross-sections may be measured at up to three (3) locations:
      - i. locations with representative geomorphic conditions,
      - ii. where the channel morphology has potential to change through time,
      - iii. locations where sediment transport analyses will be conducted.
      - iv. Cross-section locations to be determined by assessment team.
    - e. The average water surface slope/longitudinal profile will be evaluated if feasible using a combination of field measurements and desktop data.
    - f. If feasible, photos and/or videos will be taken using an unmanned aerial vehicle to document the visual condition of the stream.
  3. Sediment Transport/Loading Analysis: The sediment dynamics and potential aggradation of material behind the proposed channel dam and intake structure will be analyzed to evaluate future maintenance concerns (e.g., dredging of sediment). This analysis will then be used to provide design recommendations to limit potential issues related to sediment and geomorphic conditions within Mary's Creek main stem near Channel Dam and Intake Pump Station only.
    - a. Existing Analog Dam Evaluation
      - i. Record drawings and maintenance efforts performed on existing channel dams within Mary's will be reviewed if data is available/provided by the client.
      - ii. Field reconnaissance to other existing dam structures within Mary's Creek will be conducted in which the stream bed elevation, dam condition, and sedimentation patterns behind instream structures will be documented.
      - iii. FNI will use the condition and design configuration of these existing structures as analog dams to evaluate the potential conditions of proposed channel dam design. Evaluating the beneficial and detrimental effects of the existing structures can provide lessons learned for the proposed design.
    - b. Sediment Sampling
      - i. During the field efforts, up to three (3) pebble count samples will be collected to evaluate the size distribution of bed material.

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- ii. Up to two (2) bar samples will be collected to be used in sediment transport calculations.
    - c. Sediment Competence, Entrainment, and Capacity Analysis
      - i. Cross-section, stream slope, and sediment size distribution data measured during field reconnaissance efforts will be used to calculate bed shear stress and critical shear stress to evaluate whether the stream is aggradational or degradational, and to determine what size particles are transported during flow events upstream, downstream, and at the location of the proposed channel dam and associate back water.
      - ii. A sediment transport analysis between cross-sections upstream, downstream, and at the site of the proposed channel dam will be performed to compare the amount of sediment that is able to be transported through each segment of the reach. These results in conjunction with field observations will provide insight into whether the stream is a transport or supply limited system.
      - iii. If available, flow data from available USGS gage stations and/or H&H models will be utilized to calculate an estimated sediment rating curve to provide a total annual sediment loading that would be deposited behind the channel dam.
    - d. Recommendations will be provided to address sediment deposition concerns found during this analysis.
4. Erosion Risk Assessment Along Proposed Raw Water Pipeline

The existing geomorphic conditions of streams and flow features adjacent to the proposed raw water pipeline alignment will be evaluated via Desktop Analysis to safeguard the design against future erosion risks. The following activities may be performed during this assessment.

- a. Obtain and review available and relevant watershed studies, reports, and record drawings for the study area.
    - b. Obtain and review available GIS data, including topographic maps, LiDAR data, geologic maps, soil maps, and historical aerial photos.
    - c. Historical and potential future watershed development and drainage area will be assessed. The riparian setting of the drainage features will be identified and, if possible, changes in planform and long-term erosion trends will be identified.
    - d. Review of the proposed design will be evaluated to provide future design recommendations related to potential impacts due to erosion and/or future geomorphic conditions.

5. Results Reporting and Assumptions

- a. Assumptions
    - i. FNI will perform field measurements using an R12 survey grade GPS if feasible. Field measurements of stream geometry will be supplemented with available topographic and GIS data.
    - ii. FNI will utilize all relevant available data including record drawings, models, reports, etc. to help inform the assessment.
    - iii. Field efforts for each of the tasks described will be conducted in a way that most efficiently utilizes personnel.
    - iv. These tasks do not include permitting efforts associated with Waters of the United States or any other environmental regulations.

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- v. No cost evaluation or OPCC's will be provided for potential design recommendations.
- b. Deliverables: FNI will provide a technical report that compiles the data and analyses performed. This technical report(s) will contain the following:
  - i. A description of existing baseline conditions and the geomorphic characteristics Mary's Creek and its Tributary
  - ii. A discussion of potential future geomorphic changes within the study area.
  - iii. Presentation of the results of sediment transport analyses (sediment competency, entrainment, incipient motion and/or shear stress) and the potential sediment deposition concerns behind the proposed channel dam.
  - iv. Identification of areas where erosion could threaten existing infrastructure or cause significant land loss. This will be done through the creation of a map detailing erosion and instability locations.
  - v. Provide the field data, GIS data, and the geotagged photos of the study site.

### ARTICLE III

**ADDITIONAL SERVICES:** Additional Services to be performed by FNI, if authorized by Owner, which are not included in the above Basic Services or Special Services, and described as follows:

- A. Field layouts or the furnishing of construction line and grade surveys.
- B. Providing services to investigate existing conditions or facilities, or to make measured drawings thereof, or to verify the accuracy of drawings or other information furnished by Owner.
- C. Providing renderings, model, and mock-ups requested by the Owner.
- D. Making revisions to drawings, specifications or other documents when such revisions are 1) not consistent with approvals or instructions previously given by Owner or 2) due to other causes not within the control of FNI. This does not exclude revision of work done based upon unverified data or unverified assumptions of Owner's preferences. FNI shall inform Owner of the impact to changing previous decisions before work is done to implement the new decision.
- E. Providing consultation concerning the replacement of any Work damaged by fire or other cause during the Project and providing services as may be required in connection with the replacement of such Work. Performing investigations, studies, and analysis of work proposed by Construction Contractor(s) to correct defective work. Any services required as a result of default of the Contractor(s) or the failure, for any reason, of the Contractor(s) to complete the work within the Contract time. Providing services after the completion of the construction phase not specifically listed in Article II. Visits to the site in excess of the number of trips included in Article II for periodic site visits, coordination meetings, or contract completion activities. Providing services made necessary because of unforeseen, concealed, or differing site conditions or due to the presence of hazardous substances in any form. Providing services to review or evaluate construction contractor(s) claim(s), provided said claims are supported by causes not within the control of FNI. Providing value engineering studies or reviews of cost savings proposed by Construction Contractor(s). Provide professional services during Contractor's warranty period.

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- F. Professional services involving consideration of operation, maintenance and overhead expenses, and the preparation of rate schedules, earnings and expense statements, feasibility studies, appraisals, evaluations, assessment schedules, and material audits or inventories required for certification of force account construction performed by Owner.
- G. Preparing applications and/or supporting documents for government grants, loans, or planning advances and/or providing data for same.
- H. Conducting pilot or bench studies or tests.
- I. Preparing data and reports for assistance to Owner in preparation for hearings before regulatory agencies, courts, arbitration panels or any mediator, giving testimony, personally or by deposition, and preparations therefore before any regulatory agency, court, arbitration panel or mediator.
- J. Assisting Owner in preparing for, or appearing at litigation, mediation, arbitration, dispute review boards, or other legal and/or administrative proceedings in the defense or prosecution of claims disputes with Contractor(s).
- K. Assisting Owner in the defense or prosecution of litigation in connection with or in addition to those services contemplated by this Agreement. Such services, if any, shall be furnished by FNI on a fee basis negotiated by the respective parties outside of and in addition to this Agreement.
- L. Providing environmental support services including the design and implementation of ecological baseline studies, environmental monitoring, impact assessment and analyses, permitting assistance, and other assistance required to address environmental issues.
- M. Design, contract modifications, studies or analysis required to comply with local, State, Federal or other regulatory agencies that become effective after the date of this agreement.
- N. Services required to resolve bid protests or to rebid the Project(s) for any reason.
- O. Providing Basic or Special Services on an accelerated time schedule. The scope of this service includes cost for overtime wages of employees and consultants, inefficiencies in work sequence and plotting or reproduction costs directly attributable to an accelerated time schedule directed by the Owner.
- P. Recreation of existing H&H models if digital files of the effective models are not available.

#### ARTICLE IV

**TIME OF COMPLETION:** FNI is authorized to commence work on the Project upon execution of this Agreement and agrees to complete the services in accordance with the following schedule:

- Study Phase will be completed within 3 months of NTP
- Preliminary Design Phase will be completed within 7 months from NTP
- 60% Design will be completed within 7 months from approval of PDR
- 95% design will be completed within 8 months of approval of 60% design
- 100% design will be completed within 3 months of approval of 95% design

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If FNI's services are delayed through no fault of FNI, FNI shall be entitled to adjust contract schedule consistent with the number of days of delay. These delays may include but are not limited to delays in Owner or regulatory reviews, delays on the flow of information to be provided to FNI, governmental approvals, etc. These delays may result in an adjustment to compensation as outlined on the face of this Agreement and in Attachment CO.

ARTICLE V

**RESPONSIBILITIES OF Owner:** Owner shall perform the following in a timely manner so as not to delay execution of the project and the services of FNI:

- A. Owner recognizes and expects that certain Change Orders may be required. Unless noted otherwise, FNI recommends the Owner budget a minimum of 5% for new construction and a minimum of 10% for construction that includes refurbishing existing structures (values calculated based on the value of the Final OPCC).

Further, Owner recognizes and expects that certain Change Orders may be required to be issued as the result in whole or part of imprecision, incompleteness, errors, omission, ambiguities, or inconsistencies in the Drawings, Specifications, and other design documentation furnished by Engineer or in the other professional services performed or furnished by Engineer under this Agreement ("Covered Change Orders"). Accordingly, Owner agrees to pay for Change Orders and otherwise to make no claim directly or indirectly against Engineer on the basis of professional negligence, breach of contract, or otherwise with respect to the costs of approved Covered Change Orders unless the aggregate costs of all such approved Covered Change Orders exceed 2% for new construction and 4% for reconstruction (calculated against the total Bid price of the selected Contractor). Any responsibility of Engineer for the costs of Covered Change Orders in excess of such percentage will be determined on the basis of applicable contractual obligations and professional liability standards. For purposes of this Contract, the cost of Covered Change Orders will not include:

- any costs that Owner would have incurred if the Covered Change Order work had been included originally in the Contract Documents and without any other error or omission of Engineer related thereto,
- any costs that are due to unforeseen site conditions,
- any costs that are due to regulatory changes,
- any costs that are due to changes made by the Owner, and
- any costs that are due to actions, errors or negligence of the Contractor.

Nothing in this provision creates a presumption that, or changes the professional liability standard for determining if, Engineer is liable for the cost of Covered Change Orders in excess of the percent of Construction Cost stated above or for any other Change Order. Wherever used in this document, the term Engineer includes Engineer's officers, directors, partners, employees, agents, and Engineers Consultants.

- B. Designate in writing a person to act as Owner's representative with respect to the services to be rendered under this Agreement. Such person shall have Contract authority to transmit instructions, receive information, interpret and define Owner's policies and decisions with respect to FNI's services for this Project.
- C. Provide all criteria and full information as to Owner's requirements for the Project, including project objectives, schedule and/or space constraints, capacity and performance requirements, flexibility and

FNI \_\_\_\_\_  
OWNER \_\_\_\_\_

- expandability (current and future) requirements, and any budgetary limitations; and furnish copies of all design and construction standards which Owner will require to be included in the drawings and specifications.
- D. Assist FNI by placing at FNI's disposal all available information pertinent to the Project including previous designs, memos, reports and any other data relative to design or construction of the Project. Some historic information will have been prepared by other engineers, professional consultants or outside agencies, in no case shall such information be withheld due to authorship.
  - E. Arrange for access to and make all provisions for FNI to enter public and private property as required for FNI to perform services under this Agreement.
  - F. Examine all studies, reports, sketches, drawings, specifications, proposals and other documents presented by FNI, obtain advice of an attorney, insurance counselor and other consultants as Owner deems appropriate for such examination and render in writing decisions pertaining thereto within a reasonable time so as not to delay the services of FNI. Specifically, this pertains to timely review of all Technical Memos, the 65%, 90% and 100% Submittals.
  - G. Furnish approvals and permits from all governmental authorities having jurisdiction over the Project and such approvals and consents from others as may be necessary for completion of the Project. Pay all fees for permit applications and for renewals, as required, across the life of the project.
  - H. Provide such accounting, auditing services, independent cost estimating, insurance counseling services and legal services as Owner may require or FNI may reasonably request with regard to issues pertaining to the Project. These may include verification of Contractor(s) activities to ascertain how or for what purpose any Contractor(s) has used the moneys paid under the Construction Contract. Additionally, such services may be needed to determine if Contractor(s) are complying with laws, rules, regulations, ordinances, codes or orders applicable to the Project.
  - I. Owner shall determine, prior to advertisement for construction bids, if FNI is to furnish Resident Project Representative services, so Bidders can be informed.
  - J. Provide the Owners Representative to attend the prebid conference, bid opening, preconstruction conferences, construction progress and other job related meetings and substantial completion inspections and final payment inspections.
  - K. Give prompt written notice to FNI whenever Owner observes or otherwise becomes aware of any development that affects the Scope or Schedule of FNI's services, or any defect or nonconformance of the work of any Contractor.
  - L. Furnish, or direct FNI to provide, Additional Services as stipulated in Attachment SC, Article III of this Agreement or other services as required.
  - M. Bear all costs incident to compliance with the requirements of this Article V.

FNI \_\_\_\_\_  
OWNER \_\_\_\_\_

ARTICLE VI

**DESIGNATED REPRESENTATIVES:** FNI and Owner designate the following representatives:

Owner's Designated Representative – James Johnson, PE, [james.johnson@trwd.com](mailto:james.johnson@trwd.com), 817-720-4253

Owner's Accounting Representative – Veronica Enriquez, [veronica.enriquez@trwd.com](mailto:veronica.enriquez@trwd.com) (817) 720-4436

FNI's Designated Representative – Alan C. Hutson, PE, [ach@freese.com](mailto:ach@freese.com), 405-252-5941.

FNI's Accounting Representative – Stephanie Kirchstein, [stephanie.kirchstein@freese.com](mailto:stephanie.kirchstein@freese.com), 214-217-2212

FNI \_\_\_\_\_  
OWNER \_\_\_\_\_

**Schedule 1**  
**Tarrant Regional Water District**  
**Mary's Creek Indirect Water Reclamation Project**  
**Pipeline, Pump Station and Channel Dam Boring Schedule**

**Pipeline (Assuming Alternate 2)**

Location	Quantity	Depth
South of Old Weatherford Road	6	20
North of Old Weatherford Road	6	20
Gravity Main at Valve	1	70
<b>Total Footage</b>	<b>13</b>	<b>310</b>

**Intake Structure and Pump Station**

Location	Quantity	Depth
Intake Structure	2	40
Pump Station	6	50
Pads/Valves/ETC	3	25
<b>Total Footage</b>	<b>11</b>	<b>455</b>

**Channel Dam**

Location	Quantity	Depth
North Bank	2	40
South Bank	2	40
Middle of Creek (If accessible)	1	30
<b>Total Footage</b>	<b>5</b>	<b>190</b>

**Combined Total Footage**

**955**



**Schedule 2**  
**Tarrant Regional Water District**  
**Mary's Creek Indirect Water Reclamation Project**  
**EMBR Cell #2 Boring Schedule**

<b>Boring Location</b>	<b>Approximate Ground Elevation (Google Earth)</b>	<b>Proposed Boring Depth</b>
Inlet Crest	910	60
Inlet Toe	903	50
South Toe	881	40
SW Toe	895	40
East Crest	913	70
E/N Crest	895	40
East Toe	905	60
E/N Toe	894	40
N/E Crest	890	40
North Crest	854	50
N/W Crest	905	50
North Toe	858	40
Outlet Crest	914	70
Outlet Toe	903	70
West Toe	893	70
West Crest	905	70
SW Crest	905	60
SE Floor	837	40
NE Floor	879	40
NW Floor	890	40
SW Floor	886	40
Mid Floor	871	30
North D/S Slope Berm	884	50
North D/S Slope Berm	874	50
North D/S Toe	844	30
North D/S Toe	847	30

## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 9

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Contract with Freese and Nichols, Inc. for Environmental Permitting Services for Mary's Creek Indirect Water Reclamation Project and the Second Cell of the Eagle Mountain Balancing Reservoir

**FUNDING:** TRWD Bond Fund

**RECOMMENDATION:**

Management recommends approval of a contract **in an amount not-to-exceed \$665,777** to Freese and Nichols, Inc. for environmental permitting services necessary for the construction of the Mary's Creek Indirect Water Reclamation Project and the Second Cell of the Eagle Mountain Balancing Reservoir.

**DISCUSSION:**

The Mary's Creek Indirect Water Reclamation Project will include construction of a new channel dam, intake, pump station, and pipeline that will divert the treated water out of Mary's Creek to the Eagle Mountain Pipeline. The Second Cell of the Eagle Mountain Balancing Reservoir will increase the resiliency and redundancy to the water transmission system. This contract is a separate supporting contract to the engineering design contract. During the design phase, it is necessary to obtain all environmental permits from state and local agencies, including TCEQ and USACE, so as not to delay construction once the design is complete.

The services covered by environmental permitting include environmental considerations for evaluating preliminary design alternatives, aquatic resources delineation, evaluation of threatened/endangered species habitat, water rights support, cultural resources survey and agency coordination, development of Environmental Information Document (EID), USACE 404 permit application and coordination, and support for any additional local permits required for the project.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

**Submitted By:**

Darrel Andrews  
Environmental Director

**ATTACHMENT 1**  
**Scope of Services and Responsibilities of Owner**  
**Mary's Creek IWRP and EMBR 2<sup>nd</sup> Cell – Environmental and Permitting Services**  
**Freese and Nichols, Inc.**  
**April 4, 2024**

**PROJECT UNDERSTANDING:**

The Tarrant Regional Water District (TRWD, District, or Owner) is proceeding with the design of the Mary's Creek Indirect Water Reclamation Project (IWRP) and the Eagle Mountain Balancing Reservoir (EMBR) 2nd Cell Project. Freese and Nichols, Inc. (FNI) assumes that each of these proposed improvements are standalone projects from an environmental permitting perspective. This scope assumes the following primary facilities are being designed and will require environmental permitting:

- Mary's Creek IWRP: This project includes a proposed diversion structure with pumping facilities at Mary's Creek. It also includes approximately 4 miles of new pipeline and appurtenances to connect the proposed intake and pumping facilities at Mary's Creek to existing TRWD facilities north of EMBR.
- EMBR 2nd Cell Project: This project includes a proposed second reservoir cell located adjacent to the existing reservoir cell at EMBR.

**ARTICLE I**

**Basic Services:** Upon execution of this Agreement, FNI shall provide the following professional services in connection with the Project:

**A. Mary's Creek IWRP and Pipeline**

- 1. Project Management – Mary's Creek**
  - a. Conduct kickoff meeting to review scope, schedule, and budget.
  - b. Develop and implement a QA/QC Plan.
  - c. Submit monthly status report to OWNER's Project Manager regarding the status of the project progress to date and upcoming tasks to be accomplished in the coming month, including tasks needed to be accomplished by TRWD staff to assist with project progress and expected cashflow.
  - d. 24 monthly project coordination meetings with Owner.
  - e. Five meetings with third parties, including other consultants providing services to Owner.
  - f. Manage environmental team and sub-consultants on the Project and perform Quality Control review of deliverables.
- 2. Evaluate Preliminary Design Alternatives – Mary's Creek**
  - a. Coordinate with the design team and review existing studies and records related to the project.
  - b. Compare the prior conceptual layouts with new project alternatives, then update data such as aerial photographs, parcel boundaries, and natural resources databases.
  - c. Conduct site visits with the design team to evaluate existing environmental conditions within potential project areas.

- d. Provide summaries of expected environmental permitting impacts associated with various alternatives.
3. **Pedestrian Survey and Initial Meeting with the USACE – Mary's Creek**
    - a. Following the evaluations of alternatives, FNI environmental scientists will conduct a pedestrian survey of the proposed project area to document existing environmental conditions and assess the presence and locations of waters of the U.S. (including the delineation of wetland boundaries) and potential threatened/endangered species habitat. In order to document an opinion on the jurisdictional status of waterbodies and wetlands, the Rapanos Guidance dated December 2, 2008, and guidance from the Fort Worth District U.S. Army Corps of Engineers (USACE) following the 2023 Sackett vs Environmental Protection Agency (EPA) case, are anticipated to both be used during identification of potential waters of the U.S.
    - b. Prepare a draft Delineation Report in accordance with USACE guidance to document potential waters of the US, including wetlands.
    - c. Following collection of data at the project area, contact the Fort Worth District USACE Regulatory Division as directed by TRWD, which could include preparation and submittal of a Pre-Application Meeting Request and other materials describing the project intent. The meeting will be held to discuss the project and potential permitting requirements.
  4. **Water Rights and Hydrological Modeling Guidelines (HMG) – Mary's Creek**
    - a. Coordination with DISTRICT and DISTRICT Consultants
      - i. Participate in kickoff meeting with DISTRICT staff.
      - ii. Coordinate with DISTRICT staff for data collection as necessary to prepare the permit amendment application.
      - iii. Coordinate with DISTRICT consultant for modifications of water right accounting plan. Assume two meetings related to plan updates.
      - iv. Provide for a meeting with the City of Fort Worth as necessary.
      - v. Provide for up to three additional meetings with DISTRICT and various DISTRICT consultants.
      - vi. Other meetings related to development of the application package development described below.
    - b. Data Collection and Analysis
      - i. Coordinate with DISTRICT and design team to identify proposed intake and diversion structure locations.
      - ii. Coordinate with DISTRICT and design team to determine intended diversion volumes and rates for permitting purposes.
      - iii. Propose a reach for permitting diversions from Mary's Creek, including GIS exhibits.
      - iv. Present proposed diversion reach, annual volume, and rate to DISTRICT and receive comment or confirmation prior to development of application package.
    - c. Development of Draft Application Package for Amending Cedar Creek Water Right (Certificate of Adjudication 08-4976).
      - i. Data for Texas Commission on Environmental Quality (TCEQ) administrative forms and technical forms, including information related to:
        1. Administrative information and calculation of fees
        2. Quantity, source, purpose, and place of use

3. Diversion point data
  4. Wastewater discharges and discharge points
  5. Impoundment information for existing and planned facilities
  6. Environmental information
  7. Accounting plan (see Item 3 for details)
  8. Water conservation and drought contingency planning data
  9. Documentation of ownership of the surface water-sourced discharges
- ii. Other considerations
    1. Impact on water quality
    2. Impact on wetlands
    3. Impact on terrestrial habitat
  - iii. Spatial information, exhibits, and photographs
    1. Map of return flow discharge point and proposed diversion reach,
    2. Field collection and compilation of photographs of discharge points – three photographs at each point (at, upstream, and downstream),
    3. Field collection and compilation of photographs of at upstream and downstream points of diversion reach – three photographs (at diversion point, upstream, and downstream), and
    4. Mapbook of topographic maps detailing the extent of the conveyance and diversion reaches using USGS 7.5-minute quadrangles, original Texas land survey, and photo locations for upstream and downstream of discharge and diversion points.
  - iv. Development of a summary document providing additional context and detail related to application form responses and addenda.
  - v. Attend a meeting with DISTRICK and DISTRICK legal counsel to review the draft water right application package upon completion and incorporate comments into revised water right application package.
- d. TCEQ Coordination
- i. As necessary, coordinate with TRWD for communications to TCEQ Dam Safety on the exempt status of the proposed diversion structure.
  - ii. In conjunction with DISTRICK and DISTRICK legal counsel, prepare for and attend a formal pre-submittal meeting with TCEQ to present the application and receive comment.
  - iii. Incorporate TCEQ comments into final water right application package for submittal by DISTRICK and DISTRICK legal counsel.
  - iv. Limited coordination with TCEQ and addressing three initial Requests for Information (RFIs) from TCEQ. Additional effort will require subsequent written authorization.
5. **Cultural Resources Services – Mary's Creek**
- a. Pre-field Preparation and Permit Application: For the cultural resources services, the site is estimated to be 35-acres along Mary's Creek, with an associated 4 miles of pipeline, leading to the existing EMBR. The pipeline easement is estimated to be 150 feet wide. At least three alternative pipeline routes are anticipated for desktop review, but only a single route will be selected and surveyed for potential impacts to significant cultural resources.
    - i. Prepare an Antiquities Permit application for the Mary's Creek IWRP per the requirements of the Antiquities Code of Texas (ACT). This permit application

package will include a summary of the known resources in the vicinity, the proposed field methods, and an application form.

- ii. Submit the permit application package to the USACE for their review for Section 106 compliance sufficiency.
    - b. Archeological Field Survey: If required and after an ACT permit has been issued, archeologists will travel to the survey area to conduct an archeological survey following the Texas Historical Commission (THC)/Council of Texas Archeologist's (CTA's) minimum standards for intensive area surveys for project areas measuring between 25 and 200 acres (ca. 50–55 shovel tests), as well as for linear surveys with shovel tests placed at a minimum of one shovel test every 100 meters of corridor. Since the survey corridor is estimated at 150 feet wide (ca. 45 meters), two survey transects will be required. A total minimum number of 128 shovel tests are estimated for the pipeline portion. Preliminary review of soils and subsurface geology in the project corridor indicates upland soils and a general lack of Holocene deposits, but pockets of alluvium could exist along the margins flanking Mary's Creek. Therefore, backhoe trenching is likely necessary to fully evaluate the potential for deeply buried resources. Observations will be recorded through notes, photographs, field forms, and with hand-held GPS and digital data collection. Archeological sites observed within the survey tract will be documented in accordance with THC standards. Based upon findings from a previous archeological survey adjacent to this tract, this proposal will cover four new archeological sites during their survey.
    - c. Reporting and Curation: After field investigations,
      - i. Prepare TexSite form(s) for any archeological site(s) recorded.
      - ii. Prepare a comprehensive report that details project components, field methods and observations, recorded sites (if any), and regulatory recommendations for the proposed IWRP project.
      - iii. Prepare final reports in accordance with the Antiquities Permit requirements and submit photographs, notes, and forms to a state approved curation facility for permanent curation.
  6. **Tree Ordinance – Mary's Creek**
    - a. If required, identify up to 500 trees greater than 6-inch diameter at breast height (dbh). The species name and dbh will be recorded. The tree will be tagged if the City of Fort Worth requires tagging. The location of the trees will be recorded with a handheld GPS. This information will be used to create a spreadsheet documenting the tree survey results.
    - b. Certified Arborist will prepare an Urban Forestry Permit and related documents for trees to be removed during construction of the project.
  7. **Environmental Information Document (EID) – Mary's Creek**
    - a. Prepare an EID that is consistent with the USACE requirement for National Environmental Policy Act (NEPA).
    - b. Submit EID to the USACE as a supporting document to the Section 404 Application.
  8. **USACE Section 404 Permitting and TCEQ Section 401 WQC – Mary's Creek**
    - a. Conduct supplemental pedestrian surveys necessary to finalize a Delineation Report in accordance with USACE guidance to document potential waters of the US, including wetlands. The delineation report will include the required data forms and maps for submission. The deliverable will include the report identifying waterbodies within the proposed project limits and GIS mapping of waterbodies and ordinary high water mark boundaries of non-wetland waterbodies.
    - b. Conduct function/condition assessments, such as Texas Rapid Assessment methods, at waters of the U.S. proposed to be impacted.

- c. Prepare either a Section 404 PCN Form for Nationwide Permits or a Standard Individual Permit (IP) Application (ENG Form 4345) in accordance with the requirements of the Fort Worth District USACE. The submittal will include the USACE's application, Delineation Report, and required supporting documentation and engineering drawings depicting the proposed impacts to waters of the U.S. This proposal assumes an alternatives analysis could be required. A permittee responsible mitigation plan is not included in this scope of services, but it can be prepared as an additional service.
- d. Prepare and submit a Section 401 Water Quality Certification Request to TCEQ. This scope assumes it will be a Tier I project (which are generally used for projects that affect less than 1,500 linear feet of stream and/or 3 acres of waters of the United States).

**B. EMBR 2<sup>nd</sup> Cell Project**

**1. Project Management - EMBR**

- a. Conduct kickoff meeting to review scope, schedule, and budget.
- b. Develop and implement a QA/QC Plan.
- c. Submit monthly status report to OWNER's Project Manager regarding the status of the project progress to date and upcoming tasks to be accomplished in the coming month, including tasks needed to be accomplished by TRWD staff to assist with project progress.
- d. 12 coordination meetings with Owner.
- e. 2 meetings with third parties, including other consultants providing services to Owner.
- f. Manage environmental team and sub-consultants on the Project and perform Quality Control review of deliverables.

**2. Environmental Permitting - EMBR**

- a. Coordinate with the design team and review existing studies and records related to the project.
- b. Compare the prior conceptual layouts with the proposed project and then update data such as aerial photographs, parcel boundaries, and natural resources databases.
- c. Conduct a pedestrian survey of the proposed construction area to document existing environmental conditions and assess the presence and locations of waters of the U.S. (including the delineation of wetland boundaries) and potential threatened/endangered species habitat. In order to document an opinion on the jurisdictional status of waterbodies and wetlands, the Rapanos Guidance dated December 2, 2008, and guidance from the Fort Worth District USACE following the 2023 Sackett vs Environmental Protection Agency (EPA) case, are anticipated to both be used during identification of potential waters of the U.S.
- d. If required, FNI will prepare and submit a Pre-Application Meeting Request to the Fort Worth District U.S. Army Corps of Engineers (USACE) Regulatory Division. The meeting will be held to discuss the project and potential permitting requirements.
- e. Information gathered during the pedestrian survey, consultation with the THC, and meeting with the USACE will be used to prepare a draft technical memorandum summarizing environmental permitting requirements. The draft memorandum will include discussions of methodologies used to identify and document potential waters of the U.S. and an opinion of their jurisdictional status. This memorandum will also include a Clean Water Act Section 404 permitting evaluation, a discussion regarding threatened/endangered species habitat (if present), a summary of tree survey data, and a summary of archeological survey results. The draft memorandum will be submitted to

TRWD for review and comment. FNI will incorporate comments provided by TRWD and submit a final memorandum to TRWD.

- f. If required, FNI will prepare a Delineation Report in accordance with USACE guidance to document potential waters of the US, including wetlands. The delineation report will include the required data forms and maps for submission. The deliverable will include the report identifying waterbodies within the proposed project limits and GIS mapping of waterbodies and ordinary high water mark boundaries of non-wetland waterbodies.
  - g. If required, FNI will prepare a Section 404 PCN Form in accordance with the requirements of the Fort Worth District USACE. The PCN will include the USACE's application, Delineation Report, and required supporting documentation and engineering drawings depicting the proposed impacts to waters of the U.S.
3. **Tree Ordinance – EMBR**
- a. If required, FNI will identify up to 500 trees greater than 6-inch diameter at breast height (dbh). The species name and dbh will be recorded. The tree will be tagged if the City of Fort Worth requires tagging. The location of the trees will be recorded with a handheld GPS. This information will be used to create a spreadsheet documenting the tree survey results.
  - b. An FNI Certified Arborist will prepare an Urban Forestry Permit and related documents for trees to be removed during construction of the project.
4. **Cultural Resources Services - EMBR**
- a. A cultural resources survey has been conducted as part of previous studies, however, if changes in the project footprint or regulatory requirements, then FNI will prepare an Antiquities Permit application for any supplemental investigations for the EMBR Cell 2 per the requirements of the ACT. This permit application package will include a summary of the known resources in the vicinity, the proposed field methods, and an application form.
  - e. Supplemental Archeology Pedestrian Survey and Reporting: Conduct an archeological survey following the THC/CTA's minimum standards for intensive area surveys for project areas measuring between 25 and 200 acres (ca. 60–65 shovel tests). Preliminary review of soils and subsurface geology in the project corridor indicates upland soils and a general lack of Holocene deposits, thus backhoe trenching is likely not required.
  - f. Reporting and Curation:
    - i. Prepare TexSite form(s) for any archeological site(s) recorded.
    - ii. Update existing report that details project components, field methods and observations, recorded sites (if any), and regulatory recommendations for the proposed IWRP project.
    - iii. Submit photographs, notes, and forms to a state approved curation facility for permanent curation.





ARTICLE II

**ADDITIONAL SERVICES:** Additional Services to be performed by FNI, if authorized by Owner, which are not included in the above Basic Services, and described as follows:

1. Compensatory mitigation plans.
2. Presence/absence surveys for protected species.
3. Preparation of an aquatic resource relocation plan.
4. Assessment of Marshall Criteria factors.
5. Preparation of materials according to the USACE's Hydrologic Modeling Guidelines for Regulatory Permit Actions.
6. Water Availability Model (WAM) modeling or review of existing WAMs.
7. Coordination with the U.S. Fish and Wildlife Service, Texas Parks and Wildlife Department, or other resource agency not specified under Basic Services tasks.
8. Phase I/II Environmental Site Assessment.
9. Preparation of a Storm Water Pollution Prevention Plan (SWPPP).
10. Other environmental services not specifically defined in this scope of services.

ARTICLE III

**TIME OF COMPLETION:** FNI is authorized to commence work on the Project upon execution of this Agreement and agrees to complete the services in accordance with the following schedule:

Table 1: Project Schedule

Evaluation of Alternatives	14 days following receipt of alternatives
Initial Agency Coordination	7 days following receipt of Owner comments on submittal materials
Draft EID submittal	15 days following 60% design submittal
USACE Application Submittals	30 days following receipt of Owner comments on 60% design submittal

If FNI's services are delayed through no fault of FNI, FNI shall be entitled to adjust contract schedule consistent with the number of days of delay. These delays may include but are not limited to delays in Owner or regulatory reviews, delays on the flow of information to be provided to FNI governmental approvals, etc. These delays may result in an adjustment to compensation as outlined on the face of this Agreement.

#### ARTICLE IV

**RESPONSIBILITIES OF Owner:** Owner shall perform the following in a timely manner so as not to delay execution of the project and the services of FNI:

- A. Designate in writing a person to act as Owner's representative with respect to the services to be rendered under this project. Such person shall have contract authority to transmit instructions, receive information, and define Owner 's policies and decisions with respect to FNI's services for the Project.
- B. Provide all criteria and full information as to Owner 's requirements for the Project, including design objectives and constraints, performance requirements, flexibility, and budgetary limitations.
- C. Assist FNI by placing at FNI's disposal all available information pertinent to the Project including previous reports and any other data relative to the Project.
- D. Coordinate and arrange for access to and make all provisions for FNI to enter upon public and private property as required for FNI to perform services.
- E. Perform review and provide comments on draft deliverables as needed.

#### ARTICLE V

**DESIGNATED REPRESENTATIVES:** FNI and Owner designate the following representatives:

Owner's Designated Representative – Jennifer Owens, [jennifer.owens@trwd.com](mailto:jennifer.owens@trwd.com), 817-335-2491

Owner's Accounting Representative – Veronica Enriquez, [veronica.enriquez@trwd.com](mailto:veronica.enriquez@trwd.com) 817-720-4436

FNI's Designated Representative – Kimberly Buckley, PG, [kimberly.buckley@freese.com](mailto:kimberly.buckley@freese.com), 817-735-7332

FNI's Accounting Representative – Lisa Broussard, [lisa.broussard@freese.com](mailto:lisa.broussard@freese.com), 972-331-6021

#### ARTICLE VI

##### **Basic Services Fee**

FNI proposes to provide the basic services (Parts A and B) described above for a not-to-exceed fee of \$665,777.00. The estimated budgets for each Part and Task may not reflect the actual effort needed to complete each task. FNI assumes budget may be re-allocated between Parts and Tasks as needed to cover actual effort.

## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 10

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Contract with HDR Engineering, Inc. to Incorporate Cedar Creek and Richland-Chambers into Aviso Forecasting System

**FUNDING:** Fiscal Year 2024 Revenue Fund Budget - \$125,000  
Fiscal Year 2025 Revenue Fund Budget - \$125,000  
Fiscal Year 2026 Revenue Fund Budget - \$200,000

#### **RECOMMENDATION:**

Management recommends approval of a contract **in an amount not-to-exceed \$450,000** with HDR Engineering, Inc. (HDR) to incorporate the Cedar Creek (CC) and Richland-Chambers (RC) reservoirs and contributing watersheds into the existing Aviso flood model forecasting system (Aviso).

#### **DISCUSSION:**

Since 2013, District engineering staff has maintained a real-time flood forecasting model of the Upper West Fork watershed based on observed rainfall, stream flow, and other factors to simulate hydrologic response at Lake Bridgeport, Eagle Mountain Lake, and the Fort Worth Floodway. Engineering staff refers to this model as “Aviso” and uses the output to evaluate spillway operations, estimate water levels, and inform flood communications, both internally and externally. Engineering staff have been able to provide these services for CC and RC using in-house models and processes instead of Aviso. The purpose of this project is to improve the tools engineering staff use to monitor flood conditions by incorporating CC and RC into Aviso.

Aviso is a proprietary software platform developed by HDR, formerly David Ford Consulting Engineers. Aviso was initially introduced to the District through a three-year project, completed in 2013, managed by Halff Associates with HDR serving as a sub-consultant. Halff Associates built the suite of watershed, reservoir, and river models that are ingested by the Aviso “wrapper” software. The District now contracts directly with HDR for Aviso related work. This contract will be provided as part of the State of Texas Department of Information Resources cooperative purchasing contract DIR-CPO-4694. It is estimated to take three (3) years to complete.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

#### **Submitted By:**

Zachary Huff  
Water Resources Engineering Director



March 19, 2024 Revised April 10, 2023

Craig Ottman  
Tarrant Regional Water District  
804 E Northside Dr.  
Fort Worth, TX 76102

Dear Craig,

HDR is proposing to provide labor and materials for expansion of Aviso Forecasting System (FS) decision support system (DSS) to Tarrant Regional Water District’s (TRWD)’s two Eastern Reservoirs—Richland Chambers and Cedar Creek— at the request of TRWD. This proposal is based upon our understanding of the scope of work (SOW) described below and is valid for 30 days.

## Scope of Work

Table 1 summarizes the tasks required for incorporating Richland Chambers and Cedar Creek reservoirs into Aviso FS. Each task is detailed in the following subsection. These tasks are consistent with the technical memorandum (TM) *Richland Chambers and Cedar Creek Reservoirs Decision Support System Implementation Work Plan* dated September 29, 2023, which is based on the TM *Richland Chambers and Cedar Creek reservoirs decision support system (DSS) requirements and specifications* dated September 15, 2023, both developed by HDR.

**Table 1. Workplan for developing Aviso FS for Eastern Reservoirs**

ID (1)	Task description (2)
1	Enhance available models for use in Aviso FS
2	Configure Aviso control files
3	Configure existing SQL2DSSFetch.dll component to retrieve the requisite observed and forecast data from TRWD servers
4	Configure the existing forecast model to SQL Server component to simulate and publish forecasts to TRWD SQL Server
5	Configure the existing results display and visualization components to retrieve data and produce dynamic maps
6	Integrate and Test
7	Deploy DSS

### Task 1. Enhance available models for use in Aviso FS

To complete this task, HDR will:

1. Review the Trinity River HEC-HMS and HEC-ResSim models provided by the USACE Ft. Worth District (SWF) and identify the enhancements required for inclusion in Aviso FS given the forecast alternatives and hydrometeorological inputs required by the specifications document.
2. Enhance the HEC-HMS model for use in Aviso FS.



3. Enhance the HEC-ResSim model for use in Aviso FS.

### **Task 2. Configure Aviso FS control files**

To complete this task, HDR will:

1. Coordinate with TRWD to obtain relevant shapefiles for inclusion and display in Aviso FS. Modify and adapt data fields as needed for display in the Aviso FS graphical user interface (GUI).
2. Configure control XML files. Here, configuration includes referencing appropriate shapefiles, scripts, models, operations, and results plots.

### **Task 3. Configure existing SQL2DSSFetch.dll component to retrieve Eastern Reservoirs observed and forecast data from TRWD servers**

To complete this task, HDR will:

1. Configure extract XML file to retrieve Multi-sensor Precipitation estimate (MPE) data to the time of forecast (TOF). This is the "lookback period." Includes streamflow data as well.
2. Configure extract XML file to append Quantitative Precipitation Forecast (QPF) data to the starting of TOF. This is the "forecast period." Default configuration uses the first 12 hours of QPF data. Ensure DefaultQPE attribute can edit the extraction period for QPE. Contains streamflow data as well.
3. Configure extract XML to pull reservoir elevations from Hydromart SQL database for Eastern Reservoirs. TRWD will need to ensure data is available from Hydromart SQL server. If data is not available, HEC-HMS model defined values will supplement data gaps.
4. Configure extract XML file to retrieve gate settings for reservoirs from the Surface Water Hydrology Database (SWHD). This data will cover the entire simulation window from the lookback period to the end of the forecast period. Configure ReleaseCalculator.dll to compute releases based on gate settings for Eastern Reservoirs.
5. Configure FetchSQL2DSS.vbs script to fill data gaps. If forecast data does not exist, then the last known value will be held for the forecast period. Ensure the TSMTools.dll modifies the forecast input database.
6. Ensure that the progress notification displays DSS pathname, site ID, and variable code for each time series extraction and is copied to the HEC-DSS cache. Time series data that is missing from SQL databases will display a "MISSING" status message.

### **Task 3. Configure the existing forecast model to SQL Server component to simulate and publish forecasts to TRWD SQL Server**

To complete this task, HDR will edit the following Dynamic-Link Libraries:

- AvisoFlowBlendingEditor.dll
- ReleaseOverrides.dll
- AvisoZoneParameterEditor.dll

Specifically, HDR will:

1. Configure the AvisoFlowBlendingEditor.dll to blend forecast database reservoir releases and flow gages using linear taper or step blending for Eastern Reservoirs. Ability to access HEC-DSS database for Eastern Reservoirs.
2. Configure AvisoZoneParamEditor.dll to change HMS Loss, Baseflow, and Sensitivity parameters for Eastern Reservoir HMS models.
3. Ensure forecast simulations write back to the HEC-DSS Forecast database on the MS SQL Server through the AvisoFSExportAlternatives.dll



4. Develop the forecast model to include the Eastern Reservoirs and perform simulations utilizing the updated USACE CWMS model. The forecast model will be executed by Aviso on the following applications:
  - HEC-HMS: forecast watershed response
  - HEC-ResSim: simulate reservoir operations

The results from the forecast simulation will be stored and published to the TRWD SQL Server.

### **Task 5. Configure the existing results display and visualization component to retrieve data and produce dynamic maps**

To complete this task, HDR will edit the following Dynamic-Link Libraries:

- Observed Time Series Viewer
- Inundation Mapper
- Output Viewer
- MAPViewer.dll

Specifically, HDR will:

1. Ensure the AvisoFSEngine.dll displays tabular observed time series based on Sensor ID and Site ID.
2. Ensure the AvisoFSEngine.dll displays outputs through Plot -> View menu. Ensure the viewer GUI tools work, which include the Scroll and Zoom tools. Ensure plot configuration tools are functioning properly.
3. Configure MAPViwer.dll to pull gridded precipitation data from HEC-DSS database and plot on the Mean Areal Precipitation Viewer. The MAPViewer will visualize the Eastern Reservoir basins overlain with MPE and QPF gridded data.

### **Task 6. Integrate and Test**

To complete this task, HDR will:

1. Develop a testing plan for each component and the DSS overall.
2. Integrate the components developed in previous steps on the TRWD development box.
3. Test components following the plan. Testing will be completed using sample datasets provided by TRWD.
4. Troubleshoot as required a provided final testing documentation.

### **Task 7. Deploy DSS**

To complete this task, HDR will:

1. Compile Aviso and TRWD customization installation packages.
2. Coordinate with TRWD to deploy DSS to TRWD's production machines.

### **Task 8. Hydrologic Ensemble Forecast System (HEFS) Pilot Implementations**

To complete this task, HDR will:

1. Configure the Upper Basin HEC-ResSim model with a HEFS alternative.
2. Coordinate with NWS staff to ensure the appropriate NWS HEFS forecast products for input into the HEC-ResSim model HEFS alternative are made available to TRWD.
3. Develop scripts and to fetch the appropriate NWS HEFS forecast products and convert to HEC-DSS.



4. Coordinate with TRWD to develop mockups of the HEFS simulation results information.
5. Develop scripts to post process the HEFS results to compute the required information identified in Step 5
6. Modify Aviso FS Upper Basin control file for the HEFS run.
7. Integrate the components developed in previous steps on the TRWD development box.
8. Test components following the plan. Testing will be completed using sample datasets provided by TRWD.
9. Compile Aviso and TRWD customization installation packages.
10. Coordinate with TRWD to deploy DSS to TRWD’s production machines.

## Implementation Strategy

The tasks outlined in the previous section are generalized and can be used for implementing an Aviso FS deployment for either reservoir or for incorporating both into one single Avisos FS deployment. HDR proposes the following strategy for implementing Aviso FS at Richland Chamber and Cedar Creek reservoirs is a phased approach as follows:

1. Phase 1. Develop, test, and deploy Aviso FS for Cedar Creek Reservoir and the associated watershed to the confluence with the Trinity River.
2. Phase 2. Develop, test, and deploy Aviso FS for Richland Chambers Reservoir and the associated watershed to the confluence with the Trinity River.
3. Optional Phase 3. Integrate Richland Chambers and Cedar Creek DSS results with the Trinity River reach from the Rosser gage to the Oakwood gage by utilizing existing Trintiy River routing models and a combination of observed streamflow data and West Gulf River Forecast Center forecast information.
4. Optional Phase 4. Develop, test, and deploy HEFS pilot implementation for the Upper Trinity River Watershed.

## Schedule and Rates

HDR will complete tasks described in the scope of work in Phases. A schedule of deliverables by Phase is provided in Table 2. We have assumed that all material to be furnished by TRWD will be made available at receipt of notice to proceed and that all reviews of submittals will be completed by TRWD within 10 calendar days. Any delays will result in corresponding delays in completion. Table 3 provides a breakdown of staff rates by category.

**Table 2. Schedule of deliverables**

<b>Phase (1)</b>	<b>Deliverable Description (2)</b>	<b>Due date (3)</b>
1 - Cedar Creek Reservoir	Initial DSS deployment and draft documentation	August 30, 2024
	Final DSS deployment and final documentation	September 30, 2024
2 – Richland Chambers	Initial DSS deployment and draft documentation	August 29, 2025
	Final DSS deployment and final documentation	September 30, 2025
3 – Integrated DSS (Optional)	Initial DSS deployment and draft documentation	August 31, 2026
	Final DSS deployment and final documentation	September 30, 2026
4 – HEFS Pilot Implementation (Optional)	Initial DSS deployment and draft documentation	August 31, 2026
	Final DSS deployment and final documentation	September 30, 2026



**Table 3. HDR staff rate breakdown**

<b>ID (1)</b>	<b>Team member (2)</b>	<b>Hourly rate<sup>1</sup> (3)</b>
1	Principal hydrologic engineer	\$313.11
2	Sr. hydrologic engineer	\$244.19
3	Hydrologic engineer	\$156.88
4	Sr. computer system analyst	\$200.48
5	Computer system analyst	\$163.26
6	Sr. technical specialist	\$181.28
7	Technical specialist	\$129.86
8	Accountant	\$129.86

1. Staff rates are computed using a 3.21 multiplier.

## Understanding and Clarifications

We note the items below to confirm and clarify our understanding of the proposed work. The cost proposal is based upon this understanding; if any of the items shown below are unacceptable to you, we respectfully reserve the right to revise our cost to be consistent with your requirements.

- TRWD’s Aviso deployment consists of two main software applications: (1) Aviso Forecasting System (FS), and (2) Aviso Watch. Aviso FS is a streamflow and stage forecasting and reservoir operations decision support system (DSS) that uses data from local real-time surface observation and radar systems. Aviso Watch works with real-time hydrometeorological data collection systems to identify flood threats and to disseminate information using user-specified rules. These software applications were originally deployed at TRWD in 2012. Since that time, additional components have been designed, developed, tested, and deployed to meet TRWD’s forecasting and decision-making needs.
- The SOW is consistent with that defined in the HDR TM *Richland Chambers and Cedar Creek Reservoirs Decision Support System Implementation Work Plan* dated September 29, 2023.
- The functional requirements of the Aviso DSS are defined in the HDR TM *Richland Chambers and Cedar Creek reservoirs decision support system (DSS) requirements and specifications* dated September 15, 2023.
- Project deliverables will be in electronic format.

## Fee Summary

HDR proposes to perform the scope of work on a time and materials basis for a total cost not to exceed \$450,000.00. A breakdown of costs by task is provided in Table 4. This proposal is based upon our understanding of the scope of work as described and is valid for 30 days.





**Table 4. Breakdown of costs by Phase**

Phase ID (1)	Phase Description (2)	Original labor cost (3)	Discounted labor cost (4)	Other direct costs (5)	Original total fee (6)	Discounted total fee (7)
1	Develop Cedar Creek Reservoir Aviso FS DSS	\$166,527	\$149,874	\$126	\$166,653	\$150,000
2	Develop Richland Chambers Reservoir Aviso FS DSS	\$166,527	\$149,874	\$126	\$166,653	\$150,000
3	Integrate Eastern Reservoirs into Mainstem Trinity River Aviso FS (Optional)	\$35,796	\$32,216	—	\$35,796	\$32,216
4	HEFS Pilot Implementations (Optional)	\$130,659	\$117,593	\$191	\$130,850	\$117,784
<b>Grand total</b>		<b>\$499,509</b>	<b>\$449,557</b>	<b>\$443</b>	<b>\$449,952</b>	<b>\$450,000</b>

## Contract for Services

This fee proposal is subject to and will be governed by the Standard Terms and Conditions set forth by the State of Texas Department of Information Resources Contract No. DIR-CP0-4694 located at <https://dir.texas.gov/contracts/dir-cpo-4694>

We look forward to the opportunity to continuing working for Tarrant Regional Water District. Please let us know if you have any questions.

Sincerely,  
HDR

Michael Konieczki, PE, BC.WRE  
Project Manager

Lucas Bathurst, PE  
Vice President / Area Manager

# TARRANT REGIONAL WATER DISTRICT

## AGENDA ITEM 11

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Second Amendment to Additional Party Raw Water Supply Contract with Rockett Special Utility District

**FUNDING:** N/A

### **RECOMMENDATION:**

Management recommends approval of a second amendment to the 2015 Additional Party Raw Water Supply Contract-Municipal with Rockett Special Utility District ("Rockett SUD") to **increase the annual not-to-exceed volume by 0.175 MGD** (from 11.85 MGD to 12.025 MGD).

### **DISCUSSION:**

Rockett SUD is an existing District municipal customer with a tap on the Cedar Creek and Richland-Chambers Pipelines. On November 30, 2015, an Additional Party Municipal contract between Rockett SUD and TRWD was executed, titled 2015 Additional Party Raw Water Supply Contract-Municipal ("2015 Contract").

The 2015 Contract authorized an annual not-to-exceed volume of 11,257.43 acre-feet per year (10.05 million gallons per day (MGD)) from the Cedar Creek and Richland-Chambers Pipelines. On November 9, 2022, a First Amendment to the 2015 Contract was executed allowing Rockett SUD to assume the rights of the City of Red Oak for 1.8 MGD, increasing their annual not-to-exceed volume to 11.85 MGD. In February 2024, the District received a request from Rockett SUD to increase their annual not-to-exceed volume again to accommodate an increase in contract quantity with one of their wholesale water customers, Rural Bardwell Water Supply Corporation. The request was evaluated by District staff, found to be justified, and the District's current supplies are sufficient to support this increase. The presented second amendment is to increase Rockett SUD's annual not-to-exceed volume by 0.175 MGD (from 11.85 to 12.025 MGD). The buy-in premium for the additional 0.175 MGD will be \$292,960.68. The remainder of the terms of the 2015 Contract will remain unchanged.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

### **Submitted By:**

Zachary Huff  
Water Resources Engineering Director

**Tarrant Regional Water District**

**Second Amendment to**

**2015 Additional Party Raw Water Supply Contract**

**Municipal**

**Rockett Special Utility District**

**Cedar Creek and Richland Chambers Pipelines**

Tarrant Regional Water District  
Additional Party Raw Water Supply Contract – Second Amendment  
Rockett Special Utility District

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**THE STATE OF TEXAS**  
**COUNTY OF TARRANT**

§  
§  
§

**ADDITIONAL PARTY  
MUNICIPAL  
RAW WATER SUPPLY  
CONTRACT AMENDMENT**

**SECOND AMENDMENT TO THE 2015 ROCKETT SPECIAL UTILITY DISTRICT  
ADDITIONAL PARTY CONTRACT**

Between **TARRANT REGIONAL WATER DISTRICT** ("District") and the **ROCKETT SPECIAL UTILITY DISTRICT** ("Purchaser"), a conservation and reclamation district and a political subdivision of the State of Texas.

**RECITALS**

1. Purchaser and District entered into an Additional Party Raw Water Supply Contract (“2015 Rockett Special Utility District Additional Party Contract”) that was executed on November 30, 2015.
2. On November 9, 2022, the District and Purchaser executed the First Amendment to the 2015 Rockett Special Utility District Additional Party Contract (“First Amendment”), wherein the annual volume of water supply available to Purchaser from the District under the 2015 Rockett Special Utility District Additional Party Contract was increased to 11.85 MGD.
3. Subsequent to the execution of the First Amendment, Purchaser requested on behalf of Rural Bardwell Water Supply Corporation an additional 0.175 million gallons per day (“MGD”) of water from the District.

4. By this Second Amendment to the 2015 Rockett Special Utility District Additional Party Contract (“Second Amendment”), the annual volume of water supply available to Purchaser from the District under the 2015 Rockett Special Utility District Additional Party Contract is increased to 12.025 MGD.

## **AGREEMENT**

For and in consideration of the mutual promises, covenants, obligations, and benefits described in this the 2015 Rockett Special Utility District Additional Party Contract, and the First and Second Amendments to same, District and Purchaser agree to amend the 2015 Rockett Special Utility District Additional Party Contract as follows:

1. Amend Section 4 of the 2015 Rockett Special Utility District Additional Party Contract regarding Volume, as amended by the First Amendment, to read as follows:

### **SECTION 4. VOLUME**

Subject to the limitations and conditions described in this Agreement, the Amendatory Contract, and Certificates of Adjudication Nos. 08-4976 and 08-5035, District agrees to sell Purchaser raw water from the Project at the Point(s) of Delivery described in this Agreement as Exhibit 1. The volume of water actually purchased depends upon Purchaser’s demand, but the average volume to be furnished during the first year in which Purchaser takes water is estimated to be 2,800.3 acre-feet (2.5 million gallons per day (“MGD”)). Based upon past usage and future projections, the average quantity of water to be furnished in succeeding years is estimated to range from 2,800.3 acre-feet to 13,469.37 acre-feet (2.5 to 12.025 MGD). The Maximum Annual Quantity is defined as 13,469.37 acre-feet. Purchaser may not divert more than the Maximum Annual Quantity in an Annual Payment Period, as defined in Section 14, without prior written approval of District.

2. Amend Section 14 of the 2015 Rockett Special Utility District Additional Party Contract regarding Buy-In Premium, as amended by the First Amendment, to read as follows:

**SECTION 14. RATE**

Paragraph 2 - In addition to buy-in premiums previously paid by Purchaser, Purchaser shall pay directly to District an additional \$292,960.68 within sixty (60) days after the execution of this Second Amendment for an additional supply of 0.175 MGD.

IN WITNESS WHEREOF, the undersigned District and Purchaser execute this Second Amendment to the 2015 Rockett Special Utility District Additional Party Contract. Each party represents and warrants that the person or persons executing this Agreement has the legal authority to do so on behalf of their respective party, and that such binding authority has been granted by proper order, resolution, ordinance, or other authorization of the entity. The other party is fully entitled to rely on this warranty and representation in entering into this Agreement.

EFFECTIVE as of the date signed by the authorized representative of District.

TARRANT REGIONAL WATER DISTRICT,  
A Water Control and Improvement District  
800 E Northside Drive  
Fort Worth, TX 76102  
Attn: General Manager

BY: \_\_\_\_\_  
Dan Buhman  
General Manager

DATE: \_\_\_\_\_

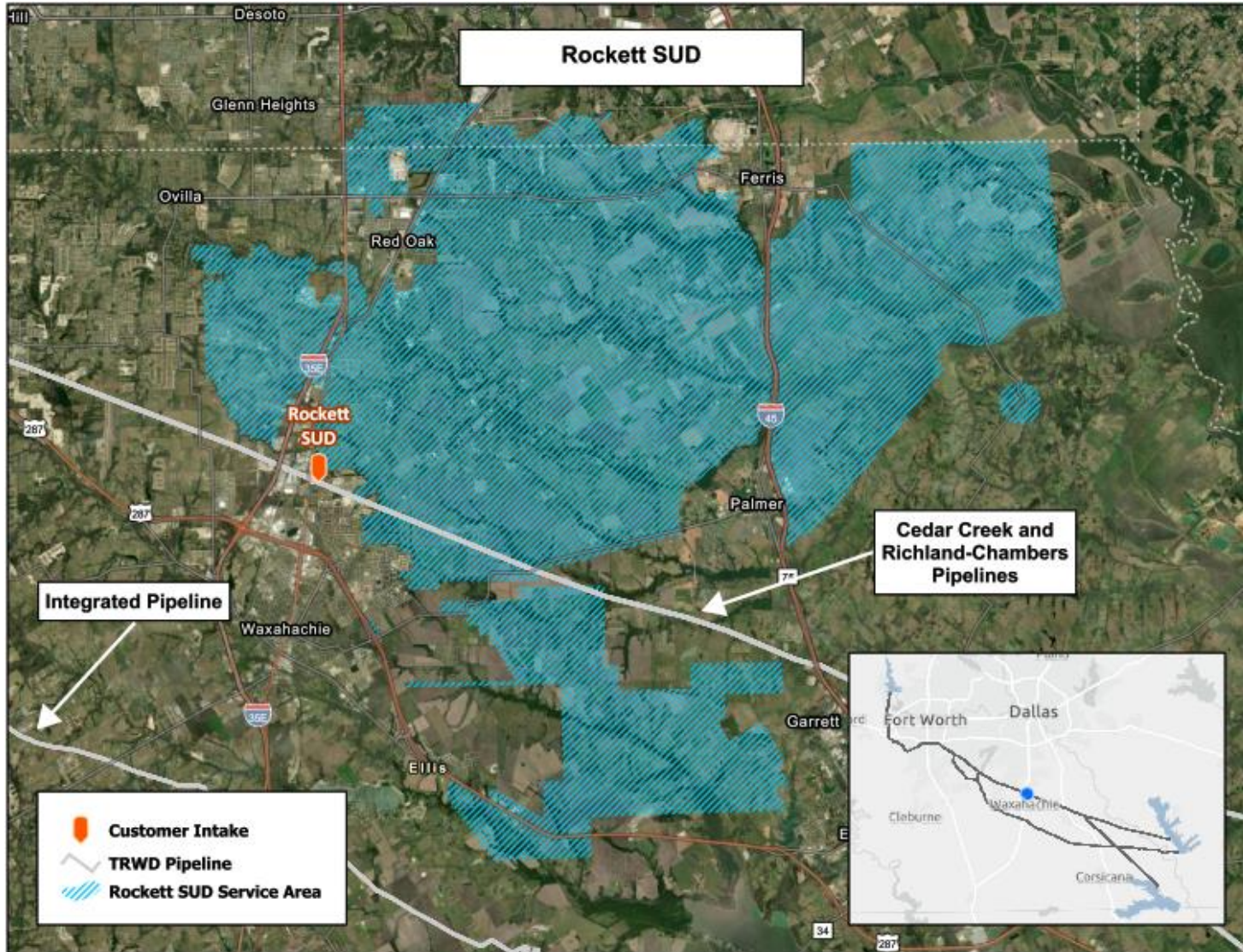
ROCKETT SPECIAL UTILITY DISTRICT  
126 Alton Adams Dr  
Waxahachie, TX 75165  
Attn: Board President

BY: \_\_\_\_\_  
Don Werner  
Board President

DATE: \_\_\_\_\_



**Exhibit 1 Location of Point(s) of Delivery & Service Area**



Tarrant Regional Water District  
Additional Party Raw Water Supply Contract – Second Amendment  
Rockett Special Utility District

## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 12

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval and Adoption of 2024 Water Conservation and Drought Contingency and Emergency Water Management Plan

**FUNDING:** N/A

#### **RECOMMENDATION:**

Management recommends approval of the 2024 Water Conservation and Drought Contingency and Emergency Water Management Plan and adoption by the Board of Directors.

#### **DISCUSSION:**

The Texas Commission on Environmental Quality requires wholesale and public water suppliers to submit water conservation and drought contingency plans every five years. The current plan was last updated in 2019. Chapter 288 of the Texas Administrative Code requires specific five and ten-year goals for water conservation savings, a means for implementation of the plan by resolution and specific criteria for the initiation and termination of drought contingency and emergency water management stages. Highlights of the proposed 2024 plan include:

- Strive for an average gallons per capita per day of 150 by 2028 and 146 by 2033
- Continue effective conservation program related to:
  - Customer city coordination and support
  - Promoting the adoption of ordinances to reduce the waste of water outdoors
  - Regional and local public awareness campaigns
  - Community education and outreach
- With customer city participation, update the Strategic Water Conservation Plan with a cost-benefit analysis and action items for the next ten years
- No significant changes to the existing drought contingency stages or measures

The Resolution and Proposed 2024 Water Conservation and Drought Contingency and Emergency Water Management Plan are attached.

This item was reviewed by the Construction and Operations Committee on April 12, 2024.

#### **Submitted By:**

Linda Christie  
Government Affairs Director

**RESOLUTION  
OF  
THE BOARD OF DIRECTORS OF  
TARRANT REGIONAL WATER DISTRICT  
ADOPTING THE WATER CONSERVATION AND  
DROUGHT CONTINGENCY AND EMERGENCY WATER MANAGEMENT PLAN**

**WHEREAS**, Tarrant Regional Water District, a Water Control and Improvement District (the "District"), as a wholesale water supplier, is required by the Texas Commission on Environmental Quality to develop (a) a water conservation plan pursuant to Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.5 of the Texas Administrative Code and (b) a drought contingency plan pursuant to Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.22 of the Texas Administrative Code; and

**WHEREAS**, the District recognizes the importance of a long-term approach to conserving water supplies by reducing the volume of water withdrawn from its reservoirs, reducing the loss or waste of water, improving water use efficiency, and increasing the recycling and reuse of water; and

**WHEREAS**, the plan provides significant benefits to the District, its customers, and the public they serve through the implementation of year-round water saving strategies to increase District reservoir storage volumes during wet or dry weather conditions; and

**WHEREAS**, as authorized under law, and in the best interests of its customers, the District deems it expedient and necessary to establish certain rules and policies for the orderly and efficient management of limited water supplies during drought and other water supply emergencies.

**NOW, THEREFORE**, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE TARRANT REGIONAL WATER DISTRICT that the Water Conservation and Drought Contingency and Emergency Water Management Plan attached hereto as Exhibit A is adopted as the controlling policy of the District.

Passed and approved this 16<sup>th</sup> day of April, 2024.

By: \_\_\_\_\_  
Leah M. King  
President, Board of Directors

ATTEST:

By: \_\_\_\_\_  
Mary Kelleher  
Secretary, Board of Directors

**WATER CONSERVATION AND  
DROUGHT CONTINGENCY AND  
EMERGENCY WATER MANAGEMENT PLAN**

**MAY 2024**



**Tarrant Regional Water District**  
800 East Northside Drive  
Fort Worth, TX 76102

## ACKNOWLEDGEMENTS

Tarrant Regional Water District (TRWD) has modified this plan to maintain a consistent and regional approach to water conservation, drought response and emergency water management strategies. Certain sections of the plan were customized to meet the needs of TRWD customers. The plan was prepared pursuant to Texas Commission on Environmental Quality rules.

This document was originally approved by the TRWD Board of Directors on April 16, 2024. Questions regarding this Water Conservation and Drought Contingency and Emergency Water Management Plan can be directed to the Governmental Affairs Department at [conservation@trwd.com](mailto:conservation@trwd.com).

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**APPENDIX B**      **Texas Commission on Environmental Quality Rules on Water Conservation and Drought Contingency Plans for Municipal and Wholesale Water Providers**

- Texas Administrative Code Title 30, Part 1, Chapter 288, Subchapter A, Rule §288.1 – Definitions (Page B-1)
- Texas Administrative Code Title 30, Part 1, Chapter 288, Subchapter A, Rule §288.2 – Water Conservation Plans for Municipal Uses by Public Water Suppliers (Page B-4)
- Texas Administrative Code Title 30, Part 1, Chapter 288, Subchapter A, Rule §288.5 – Water Conservation Plans for Wholesale Water Suppliers (Page B-7)
- Texas Administrative Code Title 30, Part 1, Chapter 288, Subchapter B, Rule §288.20 – Drought Contingency Plans for Municipal Uses by Public Water Suppliers (Page B-9)
- Texas Administrative Code Title 30, Part 1, Chapter 288, Subchapter B, Rule §288.22 – Drought Contingency Plans for Wholesale Water Suppliers (Page B-11)

**APPENDIX C**      **Tarrant Regional Water District Utility Profile**

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## **TARRANT REGIONAL WATER DISTRICT**

### **Water Conservation and Drought Contingency and Emergency Water Management Plan**

MAY 2024

#### **1. INTRODUCTION AND OBJECTIVES**

The water supplies upon which we depend on are not endless resources. For one thing, drought conditions are a part of life here in North Texas. Droughts are unpredictable and have a direct impact on our water resources. Without rainfall and runoff, water supply reservoirs are depleted faster than they are replenished. In addition, the number of people living in our region is expected to almost double in the next 50 years. That means the demand for water will certainly rise – and meeting that need will be a challenge.

Growing population and economic development in North Texas has led to an increase in demands for water supplies. At the same time, local and less expensive sources of water supply are largely developed. In planning and developing new water supplies, water conservation strategies play a vital role in meeting TRWD’s projected water needs. The 2022 State Water Plan reports that 20 percent of future water needs in Region C will be met through municipal conservation. Water conservation is the most cost-effective alternative for meeting new water demands. Therefore it is important that we use the water we already have more efficiently.

Over time, conserving water on a daily basis:

- extends the life of existing supplies to meet new water demands
- slows the drain on reservoirs making more water available during times of drought
- reduces peak supply requirements, which reduces wear and tear on existing infrastructure
- defers increases in capital and operating costs for existing systems, and
- delays the need for developing expensive, new water supplies.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has issued guidelines and requirements governing the development of water conservation and drought contingency plans for wholesale water suppliers. TCEQ guidelines and requirements for wholesale suppliers are included in Appendix B.

TRWD is a regional wholesale public water supplier serving four primary customers, the cities of Arlington, Fort Worth, Mansfield and the Trinity River Authority, and numerous

other customers across eleven counties. The service area includes Jack, Wise, Denton, Parker, Tarrant, Johnson, Ellis, Kaufman, Henderson, Navarro and Freestone counties. TRWD currently provides water to more than 2.4 million people. This plan replaces the plan dated May 2019.

The water conservation sections of this plan include measures that are intended to result in ongoing, long-term water savings. The TRWD drought contingency and water emergency response sections of this plan address strategies designed to temporarily reduce water use in response to specific conditions.

The objectives of this water management plan are as follows:

- To reduce water consumption from the levels that would prevail without conservation efforts.
- To reduce the loss and waste of water.
- To improve efficiency in the use of water.
- To document the level of recycling and reuse in the water supply.
- To extend the life of current water supplies by reducing the rate of growth in demand.

This plan includes all the elements required by TCEQ. Some elements go beyond TCEQ requirements. Customers of TRWD wishing to add elements of this plan into their individual plan should coordinate with TRWD. The final adopted versions of customer water conservation and drought contingency plans including appendices, rules, resolutions and ordinances should be provided to TRWD and, if applicable, to TCEQ and the Texas Water Development Board (TWDB).

There are additional water saving measures not specifically mentioned in this plan. TRWD urges all water users to implement the highest level of water saving measures that are feasible. It also encourages all institutional, commercial and industrial entities to further their conservation and reuse efforts to the maximum extent practicable.

## **2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES**

### **2.1 Conservation Plans**

The TCEQ rules governing development of water conservation plans for wholesale water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.5 of the Texas Administrative Code, which is included in Appendix B. For the purpose of these rules, a water conservation plan is defined as, “A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).”<sup>1</sup> The elements in the TCEQ water conservation rules covered in this conservation plan are listed below.

#### Minimum Conservation Plan Requirements for Wholesale Water Suppliers

TRWD is a wholesale water supplier to cities and other customers in North Central Texas. In addition to municipalities, TRWD serves utility districts, water supply corporations, and smaller entities, such as schools and golf courses. The minimum requirements in the Texas Administrative Code for water conservation plans for wholesale water suppliers are covered in this report as follows:

- 288.5(1)(A) – Description of Service Area – Section 3 and Appendix C
- 288.5(1)(B) – Specific, Quantified Five and Ten year Goals – Section 4
- 288.5(1)(C) – Measure and Account Water Diverted – Section 5.1
- 288.5(1)(D) – Monitoring and Record Management System – Sections 5.2 and 7.4
- 288.5(1)(E) – Program of Metering and Leak Detection and Repair – Section 5.3
- 288.5(1)(F) – Requirement for Water Conservation Plans by Wholesale Customers – Section 6.1
- 288.5(1)(G) – Reservoir System Operation Plan – Section 6.2
- 288.5(1)(H) – Means of Implementation and Enforcement – Section 9
- 288.5(1)(I) – Documentation of Coordination with Regional Water Planning Groups – Section 6.3
- 288.5(3) – Review and Update of Plan – Section 10

#### Additional Conservation Strategies

The Texas Administrative Code lists additional water conservation strategies that can be adopted by a wholesale supplier but are not required. Additional strategies adopted by Tarrant Regional Water District include the following:

- 288.5(2)(B) – Program to Assist Customers – Section 7

- 288.5(2)(C) – Program for Reuse and/or Recycling – Section 8.1
- 288.5(2)(D) – Other measures – Sections 8.2 (public education) and 8.3 (in-house conservation measures)

## **2.2 Drought Contingency Plans**

The TCEQ rules governing development of drought contingency plans for wholesale water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.22 of the Texas Administrative Code, which is included in Appendix B.

For the purpose of these rules, a drought contingency plan is defined as, “a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).” The drought contingency plan for TRWD is contained in Section 11 of this water management plan.

### **3. DESCRIPTION OF TRWD SERVICE AREA**

The Tarrant Regional Water District (TRWD) was established in 1924 as a political subdivision of the State of Texas. TRWD is a regional wholesale water supplier located in North Central Texas. It provides untreated surface water to four primary customers in Tarrant County: the cities of Arlington, Fort Worth and Mansfield, and the Trinity River Authority (TRA). TRWD also provides water to some smaller utilities and other water user groups located near its reservoirs and infrastructure.

In addition to providing their own citizens with clean drinking water, Arlington, Fort Worth, Mansfield and TRA supply neighboring municipalities and/or utility districts with treated water and wastewater services. Tables 3.1 and 3.2 lists TRWD's direct customers (direct and indirect). An indirect customer refers to any successive wholesale customers of TRWD's primary customers.

TRWD has a total service area population of over 2.4 million. It is ultimately responsible for serving more than 70 cities across an 11-county area; however, several of those cities are not currently taking water. Figure 3.1 shows the TRWD service area and supply system, which covers 6,028 square miles in Jack, Wise, Denton, Parker, Tarrant, Johnson, Ellis, Kaufman, Henderson, Navarro and Freestone counties. All but one of these counties is located within the Region C Water Planning Group – one of 16 water planning groups established by the Texas Water Development Board (TWDB) to develop and revise comprehensive water plans for the state. Johnson County is part of the Region G Water Planning Group.

TRWD uses a system of reservoirs to meet the water needs of its customers. Most of its raw water supplies originate from reservoirs constructed and managed by TRWD. They include Lake Bridgeport, Eagle Mountain Lake, Cedar Creek Reservoir and Richland-Chambers Reservoir. Two smaller reservoirs in Tarrant County – Lakes Benbrook and Arlington – are used for terminal storage. The total permitted supply currently available to TRWD is 986,800 acre-feet. However, the firm yield of the reservoir system is lower and stands at 658,965 acre-feet. The permitted totals include 100,465 acre-feet from an indirect reuse project at Richland-Chambers Reservoir. The George W. Shannon Wetlands Water Recycling Facility began operation in October 2013. A future similar reuse project at Cedar Creek Reservoir will add 88,059 acre-feet to the system's supply. Additional information on TRWD's reuse and recycling efforts can be found in Section 8.1.

TRWD uses pump stations and approximately 267 miles of pipelines to transport water into Tarrant County from Cedar Creek and Richland-Chambers Reservoirs in East Texas. Total pumping capacity from the East Texas Reservoirs is currently approximately 640 million gallons per day (MGD). The water from Lake Bridgeport and Eagle Mountain Lake on the West Fork of the Trinity River is gravity fed into Lake Worth.

Further details of TRWD's reservoir operations can be found in Section 6.2. Table 3.3 summarizes key facts from the wholesale supplier profile.

**Table 3.1**  
**TRWD Direct Customers**

Arlington, City of	Mansfield, City of
Azle, City of	Martin Marietta Materials Southwest
Benbrook Water Authority	McNarosa Ranch
Benbrook, City of	Midlothian, City of
Bridgeport Country Club	Mira Vista Country Club
Bridgeport, City of	Pinnacle Golf Club
Burnco	Resort Golf Club (Eagle Mountain)
Cedar Creek Country Club	Ridglea Country Club
Clearfork Association, Inc.	River Oaks, City of
Community Water Supply Corporation	Rockett Special Utility District
Constellation	Runaway Bay Golf Club
East Cedar Creek Fresh Water Supply District	Runaway Bay, City of
Elite at Whitestone Golf Club	Shady Oaks Country Club
Ennis, City of	Springtown, City of
Fort Worth, City of	Star Harbor, City of
Fort Worth Country Day School	Texas Water Utilities
Freestone/Calpine	Trinity River Authority
Hawks Creek Golf Club (City of Westworth Village)	Walnut Creek Special Utility District
Heidelberg Materials	Waxahachie, City of (TRA Ellis Co Project)
Jack Power LLC	Weatherford, City of
Jacksboro, City of	West Cedar Creek MUD
Kemp, City of	West Wise Special Utility District
Ke'Ohana Properties, Ltd.	Winkler Water Supply Corp.
Long Cove Development, Inc.	Wise County Power Company, LP
Mabank, City of	Wise County Water Supply District (City of Decatur)
Malakoff, City of	

**Table 3.2**

**Wholesale Water Customers Served by TRWD’s Primary Customers: the cities of Arlington, Fort Worth, Mansfield and the Trinity River Authority**

<b>Arlington</b>	
Bethesda Water Supply Corporation	City of Grand Prairie
City of Dalworthington Gardens	City of Kennedale
<b>Fort Worth</b> (List includes current and future customers)	
City of Aledo	City of Lake Worth
Bethesda Water Supply Corporation	City of Northlake
City of Burleson	City of North Richland Hills
City of Crowley	City of Richland Hills
City of Dalworthington Gardens	City of River Oaks
City of Edgecliff Village	City of Roanoke
City of Everman	City of Saginaw
City of Forest Hill	City of Southlake
City of Grand Prairie	City of Westlake
City of Haltom City	City of Westover Hills
City of Haslet	City of Westworth Village
City of Hudson Oaks	City of White Settlement
City of Hurst	City of Willow Park
City of Keller	Dallas-Fort Worth International Airport
City of Kennedale	Trophy Club Municipal Utility District
<b>Mansfield</b>	
City of Grand Prairie	Mountain Peak SUD
Johnson County Special Utility District	
<b>Trinity River Authority</b>	
<u>Cities served through Tarrant County Water Supply Project:</u>	Buena Vista-Bethel Special Utility District
City of Bedford	City of Ferris



<p>City of Colleyville</p> <p>City of Euless</p> <p>City of Grapevine</p> <p>City of North Richland Hills</p> <p><u>Cities and entities served under the Ellis County contract:</u></p> <p>Avalon Water and Sewer Service Corporation</p>	<p>City of Italy</p> <p>City of Maypearl</p> <p>City of Palmer</p> <p>Ellis County Water Control and Improvement District (City of Waxahachie)</p>
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Figure 3-1

**Tarrant Regional Water District Service Area and Supply System Map**



**Table 3.3**

**Summary of Wholesale Public Water Supplier Profile for TRWD**

<b>TRWD Service Area:</b>	6,028 square miles
<b>Water Supply Sources (Year Impounded):</b>	Lake Bridgeport (1931) Eagle Mountain Lake (1932) Lake Benbrook (1952) Cedar Creek Reservoir (1965) Richland-Chambers Reservoir (1987) George W. Shannon Wetlands (2013)
<b>Distribution System:</b>	<p>Cedar Creek Pump Station &amp; Pipeline: Year completed: 1972 Length: 74.0 miles Diameter: 72-inches and 84-inches Maximum capacity: 120 mgd</p> <p>Richland-Chambers Pump Station &amp; Pipeline: Year completed: 1989 Length: 78.7 miles Diameter: 90-inches and 108-inches Maximum capacity: 240 mgd</p> <p>Benbrook Pipeline: Year completed: 1998 Length: 11.3 miles Diameter: 90-inches Maximum capacity: 200 mgd</p> <p>Eagle Mountain Connection Pipeline: Year completed: 2008 Length: 19.7 miles Diameter: 78, 84, and 96-inches Maximum capacity: 230 mgd</p> <p>Integrated Pipeline: Year completed: Ongoing with significant operations by 2020 Length: 80.6 miles Diameter: 84 and 108-inches Maximum capacity: 220 mgd</p>
<b>Population (2019 plan):</b> Estimated Population in 2018: Projected Population in 2060:	1,997,976 (*actual was 2,137,452) 4,238,822 (*update is 3,907,391)
<b>Population (2024 plan):</b> Estimated Population in 2023: Projected Population in 2070:	2,439,797 4,230,629

\*Since publishing the 2019 plan, a significant population correction occurred to more accurately account for the total number of people that were relying on TRWD water supplies currently and in the future. The estimated current population published in the previous plan underestimated the amount by 140,000 people. In addition, the service area population has grown by approximately 300,000 people over the last five years for an estimated current total of 2,439,797.

The projected population in the future was also reevaluated after the 2019 plan was published. A water demand study now projects the 2060 baseline scenario population to be approximately 330,000 people less than what was previously reported. The projected population served by TRWD in 2070 is estimated to be 4,230,629.

#### **4. SPECIFICATION OF WATER CONSERVATION GOALS**

TCEQ rules require the adoption of specific water conservation goals to be included in this water conservation plan. The goals must include five and ten year targets for water savings, including, where appropriate, target goals for total use in gallons per capita per day across the TRWD service area. However, as a wholesale water supplier, TRWD does not directly control the water use of its customers nor does it have a direct relationship with retail customers who are the consumers of water.

TRWD does control the operation of its water supply and delivery system and takes action to maximize water and energy efficiency. In areas under its direct control, TRWD adopts the following goals for water conservation and efficiency:

- Keep the level of unaccounted water in the system below 5%, as discussed in Section 5.2.
- Maintain universal metering of customers, meter calibration, and meter replacement and repair, as discussed in Section 5.2.
- Maintain a program of leak detection and repair, as discussed on Section 5.3.
- Continue to use indirect reuse as a major source of water supply, as discussed in Section 8.1.
- Continue to implement in-house water conservation efforts, as discussed in Section 8.4.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education program, as discussed in Section 8.2.

As a wholesale provider, TRWD will assist its customers with water conservation. TRWD has developed programs and resources that its customers can use to create their own water conservation and drought contingency plans.

TRWD requests water utility customers to provide annual water conservation reports, modeled after the Utility Profile developed by TWDB. A copy of the report is included in Appendix F. TRWD will review these reports, compile the information and use it to inform water conservation program decisions.

In calculating target goals for per capita water savings among its users, TRWD focuses primarily on water use among its four primary customers in Tarrant County. The cities of Arlington, Fort Worth, Mansfield and the Trinity River Authority and their successive customers (listed in Table 3.2) receive an average of 92 percent of all water deliveries. Table 4.1 summarizes annual water use of all customers from 2019 to 2023. The data shown in the table reflect the following:

- Population estimates (Table 4.2) are based on information provided by the North Central Texas Council of Governments (NCTCOG). The art of estimating population is by no means an exact science. The NCTCOG methodology for

determining population is based on building permits, occupancy factors and household size factors. The figures are reviewed at a regional level for consistency with other indicators of regional population such as labor force estimates and vital statistics.<sup>4</sup>

- Populations of some TRA customers were adjusted to reflect the percentage of water needs it meets within those cities, (Grapevine: 74%; North Richland Hills: 33%). Populations were also adjusted for communities that rely on groundwater to supplement water supplies, (Bedford: 94%; Euless: 78%).
- The TRWD service area covers approximately 98% of Tarrant County. Its four primary customers and the customers they serve represent approximately 94% of the total Tarrant County population.
- The total gallons per capita per day (gpcd) figures represent all water uses among customers and are calculated by dividing total amount of water diverted for potable use by total population. Water use categories include residential, commercial, institutional, and industrial, as well as process-related and municipal system water losses.
- Rainfall data and number of 100-degree days recorded at DFW International Airport is also included to show the correlation between water use and precipitation. Higher water use is usually observed during periods of below average rainfall. This is predominantly due to an increase in the amount of water used for irrigation.

**Table 4.1**

**Water Use among TRWD’s Customers and their Successive Customers 2019-2023, including Rainfall, Number of Days Greater than 100 °F, Total Water Supplied, Estimated Population, and Total Gallons per Capita per Day**

Year	Rainfall at DFW Airport (inches)	# of 100 °F days at DFW Airport	Total Water Supplied (acre-feet)	Estimated Population	Total Gallons per Capita per Day
2019	34.52	14	350,198	2,178,570	144
2020	43.70	9	364,666	2,230,171	146
2021	33.59	8	370,743	2,275,605	145
2022	36.64	47	428,121	2,383,709	160
2023	29.31	55	438,924	2,439,797	161
Current 5-Year Average Per Capita Use among TRWD’s Customers without Credit for Reuse.					151

$$Total\ gpcd = [(total\ acre-feet\ supplied \times 325,851\ gallons/acre-foot) / population] / 365\ days\ per\ year]$$

**Table 4.2**

**Estimated Population Served by TRWD’s Primary Customers and their Successive Customers 2019-2023 based on data from the North Central Texas Council of Governments**

Year	Arlington	Fort Worth	Mansfield	Trinity River Authority
2019	386,180	1,271,542	68,520	183,189
2020	390,540	1,300,829	68,520	185,469
2021	393,420	1,328,437	73,510	188,232
2022	399,560	1,422,165	77,040	190,998
2023	405,420	1,444,733	82,285	192,235
Percent increase 2019-2023	4.98%	13.62%	20.09%	4.94%

In a special report to the 79<sup>th</sup> Legislature, the TWDB recommends a minimum annual reduction of one percent total gpcd, based upon a five-year rolling average until at such time as the entity achieves a total gpcd of 140 or less.<sup>5</sup> Table 4.3 shows projected total per capita water use for TRWD. Table 4.3 also includes TRWD’s targets for reduction to total per capita use due to the implementation of this water conservation and drought contingency plan and the plans developed by its customers. The information shown in the table reflects the following:

- The target five and ten-year gpcd goals presented in the 2019 TRWD Water Conservation Plan were 158 for the five-year average in 2023 and 150 for the ten-year average in 2028. The goals represented a minimum annual reduction of one percent total gpcd based on a five-year average.
- The current five-year gpcd average from 2019-2023 is 151. During this period, mild summers and population growth helped impact a low gpcd from 2019 through 2021. Hot and dry summer conditions were experienced in 2022 and 2023 but mandatory watering restrictions were not activated per the Drought Contingency Plan.
- Looking back further, the 10-year gpcd average from 2014-2023 is 157 and just meets the previous 5-year goal set in 2019. This 10-year average may represent a more accurate gpcd to consider for long-term goals.
- Because of variability in weather, population growth, and customer water use patterns, five-year goals for this plan are a continuation of the goals presented in the 2019 plan through 2028. However, it will likely be a challenge to consistently reduce gpcd by 1% each year for the ten-year goal. A measured approach of reducing gpcd by half-a-percent each year after the next five years is proposed for the ten-year goal.

- The target for the five-year (2028) total per capita water use for TRWD customers and their successive customers is 150 gallons per capita per day in an average climatic year, as shown in Table 4.3.
- The target for the ten-year (2033) total per capita water use for TRWD customers and their successive customers is 146 gallons per capita per day in an average climatic year, as shown in Table 4.3.
- Projected total per capita water use figures are based on average climate conditions. Per capita water use in years with less precipitation, especially during the summer, may be more than projected here. Future goals will include realistic consideration for hotter and drier than average conditions.
- Indirect reuse diversion volumes may be credited against total diversion volumes for the purpose of calculating gpcd for targets and goals. TRWD has averaged 35,618 acre-feet per year of supplies from indirect reuse over the last 5 years. A conservative estimate of 13 gallons per capita per day credit from indirect reuse is presented for future 5 and 10-year goal calculations.

**Table 4.3**

**Five-Year and Ten-Year Total Per Capita Water Use Goals for TRWD’s  
Primary Customers and their Successive Customers  
(Total GPCD)**

<b>Description</b>	<b>Year</b>	<b>Target Per Capita</b>	<b>Per Capita with Reuse</b>
Current 5-Year Average	2019-2023	151	138
Current 10-Year Average	2014-2023	157	
Previous 5-Year Goal	2023	158	149
5-Year Goal	2028	150	137
10-Year Goal	2033	146	133

Verification of annual water savings are from a model of TRWD’s annual water use developed originally in 2013 and updated in 2020. The model was calibrated using water demands among the TRWD’s primary customers prior to 2002 and before water conservation measures were put in place. The model is used to calculate what TRWD annual demands would be without conservation efforts and allows for a comparison with actual demands. The difference between the model’s projected demands and actual consumption is assumed to be water savings. It is important to note that all of the highlighted savings cannot be completely attributed to TRWD conservation programs. Many factors such as inclining water rates, customer city conservation efforts, impact of rainfall amounts, number of days above 100 degrees Fahrenheit, natural toilet replacement, etc. are part of the estimated savings calculation.

Here are some highlights of the savings achieved from ongoing conservation efforts from 2002 through 2023 in Table 4.4:

- A cumulative savings of almost 246 billion gallons or 755,385 acre-feet.
- Over 22 billion gallons in annual average savings over the last five years. Representing an average conservation savings of approximately 61 mgd or almost 69,000 acre-feet per year.

**Table 4.4**

**Estimated Annual Savings Due to Ongoing Water Conservation Efforts and, when activated, Drought Contingency Measures, 2007-2023**

<b>Year</b>	<b>Billion Gallons</b>	<b>Acre-Feet</b>
2007	3.53	10,835
2008	4.76	14,604
2009	5.92	18,180
2010	7.52	23,066
2011	9.35	28,701
2012	10.14	31,113
2013	11.78	36,166
2014	11.96	36,707
2015	14.63	44,907
2016	17.41	53,434
2017	18.45	56,624
2018	18.81	57,739
2019	19.24	59,032
2020	19.55	60,009
2021	20.83	63,928
2022	25.05	76,883
2023	27.19	83,457
<b>Total Savings</b>	<b>246.12</b>	<b>755,385</b>



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## **5. METERING, WATER USE RECORDS, CONTROL OF UNACCOUNTED WATER, AND LEAK DETECTION AND REPAIR**

One of the key elements in water conservation is careful tracking of water use and control of losses. Accurate metering of water deliveries and detection and repair of leaks in the raw water delivery system are essential elements of TRWD's program to control losses.

### **5.1 Practices to Measure and Account for the Amount of Water Diverted**

TRWD uses two different methods to measure raw water diversions from its reservoirs. Water supply releases from Lake Bridgeport are made using either a 48-inch gate valve or a 42-inch gate valve. Releases from Eagle Mountain Lake are made using one of two 48-inch diameter gate valves. A discharge rating curve has been developed for each valve at the lakes. This allows for the volumetric flow rate to be calculated based on the size of the valve opening. Periodic calibration of the rating curves occur as additional discharge data is collected. TRWD measures its raw water diversions from Cedar Creek and Richland-Chambers Reservoirs by meters with accuracy  $\pm 5\%$ . The master meters are calibrated and repaired or replaced as needed.

### **5.2 Monitoring and Record Management Program for Determining Deliveries, Sales, and Losses**

As a wholesale water supplier, TRWD has instituted a monitoring and record management program to assure that its customers are charged appropriately for their water use. The program includes the following elements:

- TRWD performs both scheduled and random readings of customer meters. A minimum of one reading is taken during each of the first three quarters of the year (January through March, April through June, and July through September). One additional reading is taken between September 20 and October 10. In addition, one random reading is performed annually between June 1<sup>st</sup> and September 30<sup>th</sup>.
- All meters are documented and the serial number is verified and recorded at each reading.
- Customers with annual demands less than 7,500 acre-feet are required to document their usage in a monthly raw water report. In addition to usage, the report also includes initiation dates, usage dates, customer name changes and meter status changes.
- Customers with a demand of 7,500 acre-feet or more, or those diverting directly from the pipeline, must provide TRWD with a daily usage total and a monthly reconciliation of usage. Usage volumes are monitored and recorded daily. These data are also verified monthly and annually.
- Customers are required to provide, operate, maintain, and read meters. By contract, meters must have a minimum accuracy of  $\pm 5\%$ . TRWD can access the meters at all reasonable times and, upon written request, can have the meters calibrated once per month. In the event that a meter is not functioning properly, the customer is required to either install a new meter or repair the existing meter within 180 days.

- TRWD has the authority to replace or repair any meter.
- Methods to verify water deliveries include calibration tests, mathematical calculations, and estimations based on historical meter data under similar conditions.
- There are flowmeters located at various pump stations in the TRWD system. There are also full port insertion mag meters at the vertical turbine pumps at Benbrook Lake, Richland-Chambers Reservoir and Cedar Creek Lake. There are 26 thermodynamic sensors at horizontal centrifugal pumps. The thermodynamic flowmeters have proven to be extremely accurate, require much less infrastructure than conventional Venturi meters, and have resulted in reduced costs.
- TRWD reconciles the water deliveries and reservoir diversions into daily hydrologic mass balances. All of TRWD's reservoir levels and local precipitation are monitored from USGS recording stations. Evaporation rates based on data from NOAA are calculated daily with a script that queries real-time data published to the internet. This practice was instituted in 2017. Using all of the above data, daily mass balances of each reservoir are performed to calculate natural inflows.

### **5.3 Metering and Leak Detection and Repair**

The TRWD metering program for raw water is described in Sections 5.1 and 5.2. The following information details TRWD's program to control, detect and repair leaks of its pipeline system:

- All TRWD water transmission pipelines are pre-stressed concrete cylinder pipe or welded steel cylinder pipe with an internal protective liner and an external protective coating. TRWD's commitment to properly operating a cathodic protection system, pressure transient reduction measures, and a pipeline integrity program have greatly extended the useful life of our pipelines, and have reduced the chance of failure.
- Most joints in TRWD pipelines are designed with bell and spigot joint construction including rubber gasket. Some joints are welded. For larger lines, each joint is also sealed with concrete.
- All TRWD water pipelines are constructed within legally defined and identified rights-of-way, properly registered with authorities in each county.
- TRWD conducts annual inspections of prioritized areas of the Cedar Creek and Richland-Chambers pipelines using an advanced technology to assess the condition of pipe segments. The method, which uses remote field eddy current transformer coupling technology (RFEC/TC), is a non-destructive way of detecting broken wires in pre-stressed concrete pipe. Using GIS tools, TRWD updates the risk of the failure of distressed pipes based on these condition assessments, and prioritizes the most critical pipes for replacements and repairs. Most pipeline repairs are conducted during the winter when demands are typically at their lowest. In addition to the internal pipe inspections, TRWD personnel also routinely inspect pumping equipment, facilities, and pipelines for leaks or mechanical problems. Aerial surveillance and ground observations are used to regularly inspect pipeline routes

- for breaks and leaks. Repairs are undertaken as soon as practicable in order to minimize waste.
- TRWD operates a program for right-of-way identification for construction projects adjacent to facilities and pipelines in order to minimize leaks caused by pipeline damage during construction.

TRWD conducts annual water loss audits of its pipeline system using AWWA's Water Loss Control Committee's Free Water Audit Software v4.2. The program compares total pumped volumes to billed metered diversions. The results indicate that TRWD losses do not exceed an accepted standard of meter error of five percent, which is one of the goals of TRWD's water conservation program.

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## **6. OTHER REQUIRED MEASURES**

### **6.1 Requirement for Water Conservation Plans by Wholesale Customers**

Every new, renewed or extended contract for the wholesale sale of water by TRWD includes a requirement that the primary wholesale customer, and any wholesale customers of the primary wholesale customer, develop and implement a water conservation plan meeting the requirements of Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code. This requirement extends to each successive wholesale customer in the resale of water.

### **6.2 Reservoir System Operation**

Water rights granted to TRWD by the TCEQ allow annual diversions from each reservoir as follows:

Lake Bridgeport (local)	15,000 acre-feet per year
Lake Bridgeport (local & downstream releases)*	78,000 acre-feet per year
Eagle Mountain Lake	159,600 acre-feet per year
Eagle Mountain Lake – ExFlo**	63,899 acre-feet per year
Lake Benbrook	72,500 acre-feet per year
Lake Benbrook – ExFlo**	78,653 acre-feet per year
Cedar Creek Reservoir	175,000 acre-feet per year
Cedar Creek Reuse***	88,059 acre-feet per year
Richland-Chambers Reservoir	210,000 acre-feet per year
Richland-Chambers Reuse	100,465 acre-feet per year

\* 78,000 acre-feet per year can be released to Eagle Mountain Lake, of which 12,000 can be used in Jack and Wise County.

\*\* ExFlo permits allow for additional diversions when certain conditions are met, including the reservoir being above conservation storage elevation and Lake Livingston being at or above conservation storage elevation.

\*\*\* The Cedar Creek indirect reuse project represents future water supplies. The wetlands facility associated with this reuse water right is currently under design and is anticipated to be in operation by 2032.

Permitted annual diversions do not reflect the amount of water TRWD can safely deliver to its customers. The following list of sources depicts the 2020 firm yield of TRWD’s reservoir system based on the 2021 Region C Water Plan. Firm yield of a reservoir is typically defined as the maximum water volume that could be delivered without failure during a repeat of the historical drought of record. TRWD currently uses safe yield to depict its supplies in Region C Regional Water Supply Planning. Safe yield is a more conservative calculation of supply than either permitted or firm yield.

West Fork Reservoirs (includes Lake Bridgeport and Eagle Mountain Lake)	115,908 acre-feet per year
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Cedar Creek Reservoir	204,587 acre-feet per year
Richland-Chambers Reservoir	221,565 acre-feet per year
Lake Benbrook	6,740 acre-feet per year
Lake Arlington	9,700 acre-feet per year
Reuse – Richland-Chambers	<u>100,465 acre-feet per year</u>
<b>TOTAL</b>	<b>658,965 acre feet per year</b>

TRWD’s water supply network includes seven major reservoirs – Lake Bridgeport, Eagle Mountain Lake, Lake Worth, Cedar Creek Reservoir, Richland-Chambers Reservoir, Lake Arlington and Lake Benbrook. TRWD’s reservoir system operation plan for its various sources of supply seeks to maximize efficiency of water withdrawals within the constraints of existing water rights. Other priorities include providing flood control benefits, maintaining water quality and minimizing potential impacts to recreational users, fish, and wildlife. Each reservoir is operated based on a policy of flood release above the conservation elevation. Due to the geographic locations of the reservoirs, TRWD’s reservoirs are often referred to as the “West Fork Reservoirs” (Lake Bridgeport and Eagle Mountain Lake), and the “East Texas Reservoirs” (Cedar Creek Reservoir and Richland-Chambers Reservoir).

Lake Bridgeport, Eagle Mountain Lake and Lake Worth are located on the West Fork of the Trinity River; Lake Bridgeport is located in Wise and Jack counties; Eagle Mountain Lake sits downstream in northwest Tarrant County; and Lake Worth is further downstream in Tarrant County. In addition to water supply, these reservoirs are used to regulate floodwaters on the West Fork. Lake Worth is owned and operated by the City of Fort Worth, but is integral to the TRWD water supply system, as some water treatment plants divert water directly out of Lake Worth.

TRWD may divert 93,000 acre-feet per year from Lake Bridgeport: 15,000 ac-ft/yr to Jack & Wise County; 78,000 ac-ft/yr to Eagle Mountain Lake, of which 12,000 can be used in Jack and Wise County. TRWD may divert a maximum of 159,600 acre-feet per year from Eagle Mountain. The combined estimated firm yield of Lake Bridgeport and Eagle Mountain Lake is 115,908 acre-feet per year.

Water is gravity fed from Lake Bridgeport to Eagle Mountain Lake, and from Eagle Mountain to Lake Worth. The City of Fort Worth operates water treatment plants that divert water from Eagle Mountain Lake and Lake Worth, and distribute treated water within the City of Fort Worth, as well as to neighboring cities and industries. One of the objectives of TRWD’s operation of the West Fork reservoirs is to maintain the elevation of Lake Worth to support the intake of Fort Worth’s Holly Water Treatment Plant. TRWD follows a series of operational rules to minimize spills and evaporation, and regulate the elevation in Lake Worth. The TRWD system operation plan calls for a shift in water supply deliveries from the East Texas reservoirs if the combined storage capacity in Lake Bridgeport and Eagle Mountain Lake falls below 50 percent.

In 2008, the Eagle Mountain Connection Project was constructed, which included a 20.5-mile pipeline extension from an existing pipeline at Lake Benbrook to Eagle Mountain

Lake, a booster pump station, and balancing reservoir. The Eagle Mountain Connection allows for water from East Texas Reservoirs to be delivered into Eagle Mountain Lake for terminal storage. The additional water helps to meet the water needs of a rapidly growing northwest Tarrant County, and reduces demand on the West Fork during periods of peak demand (summer) and drought. It also supplies the expanded capacity of the City of Fort Worth's Eagle Mountain and Westside Water Treatment Plants.

Cedar Creek Reservoir is located in Kaufman and Henderson counties; Richland-Chambers Reservoir is located in Navarro and Freestone counties; Lake Arlington is located on Village Creek in Tarrant County; and Lake Benbrook is a U.S. Army Corps of Engineers project in southwest Tarrant County. Lake Arlington is owned and operated by the City of Arlington, and is used primarily for terminal storage by TRWD. The City of Arlington and TRA both have plants that divert water directly from Lake Arlington, and provide treated water to their various customers. Lake Benbrook is also used as terminal storage by TRWD. Water can be released from Lake Benbrook into the Clear Fork of the Trinity River to supply Fort Worth's Holly Water Treatment Plant. Water can be pumped from Lake Benbrook back east to Rolling Hills Water Treatment Plant and several other plants that divert directly off the pipeline. Water is pumped from Lake Benbrook westward to supply Westside Water Treatment Plant. Benbrook Water Authority and the City of Weatherford are also supplied directly from Lake Benbrook.

The permitted use from Cedar Creek Reservoir is 175,000 acre-feet per year. A 70-mile pipeline is used to transport water from Cedar Creek into Tarrant County. An outlet on the Cedar Creek pipeline allows TRWD to discharge water into Village Creek which flows into Lake Arlington. Richland-Chambers Reservoir has a permitted use of 210,000 acre-feet per year. TRWD constructed a 78-mile pipeline to carry water from Richland-Chambers into Tarrant County. Both East Texas pipelines terminate at the City of Fort Worth's Rolling Hills Water Treatment Plant. A pipeline extension from Rolling Hills to Lake Benbrook was completed in 1998. In 2018, the first phases of a new 108" transmission pipeline and large-scale pump station system were completed. This project is known as the Integrated Pipeline (IPL) and is constructed in partnership with City of Dallas (Dallas). Significant operation began in 2020, and TRWD's portion of the completed IPL is anticipated to be complete around 2040. This pipeline provides additional supply capacity from existing East Texas Reservoirs, future connection capability with Dallas reservoir supply, and improved technological and online storage functions that greatly increase the versatility and reliability of the water supply system.

TRWD manages deliveries from its East Texas reservoirs to meet customer needs and to supplement lake volumes in Eagle Mountain Lake, Lake Arlington, and Lake Benbrook during off-peak periods. The yields from the latter two lakes are less than 10,000 acre-feet per year, so most of the supply is by pipeline delivery. Under normal operating conditions, TRWD diverts water in excess of demands into Lake Arlington and Lake Benbrook. The goal is to supplement the reservoirs in conjunction with natural hydrologic inflow to maximize terminal storage and meet peak demands during the summer. Using Lake Arlington and Lake Benbrook to provide summertime water deliveries to customers minimizes energy costs.



TRWD has permits for two indirect reuse projects at Richland-Chambers and Cedar Creek Reservoirs. The projects involve diverting return flows in the Trinity River through constructed wetland systems to remove nutrients and sediment. The water is then routed into the reservoirs to supplement yields by nearly 50 percent. The wetland water reuse facility at Richland-Chambers began full operations in Fall 2013. The wetland facility at Cedar Creek is currently under design with plans to be operational around 2032. Additional details about the water recycling projects can be found in Section 8.1.

### **6.3 Water Conservation Implementation Report**

Appendix D includes the TCEQ required water conservation implementation report. The report is due to the TCEQ by May 1, 2024, and every five years after that date. This report tracks water demands over a five-year period, and provides an overview of TRWD's water conservation programs. The report also calls for the five and ten-year per capita water use goals from the previous water conservation plan. The reporting entity must answer whether or not these goals have been met, and if not, why not. The amount of water savings is also reported.

### **6.4 Coordination with Regional Water Planning Groups**

Appendix I includes a copy of a letter sent to the Chair of Region C water planning group with this water conservation and drought contingency plan.

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## **7. TRWD WATER CONSERVATION MEASURES TO ASSIST CUSTOMERS**

TRWD will implement a number of water conservation measures intended to help direct and indirect customers with their water conservation planning, including:

- Holding water conservation workshops for the staff of customers within its service area.
- Provide water conservation and drought contingency plan support for customers developing their own plans.
- Requiring an annual report on water conservation efforts from customers and developing a TRWD water conservation report.

These measures will allow TRWD to serve as a regional resource for water conservation efforts in its service area.

### **7.1 Water Conservation Workshops**

TRWD will continue to coordinate water conservation workshops for staff of customer cities (direct and indirect) that receive water from TRWD. Past workshops have covered topics related to automated metering infrastructure, leak detection, water loss audits, and effective communication. TRWD will continue to collaborate with customer cities for workshop topic requests.

In 2007, TRWD held the first water conservation symposium for its customer cities and it has been an annual event ever since. Speakers from across the nation are invited to share their experience and expertise. Discussions center on key elements of successful water conservation programs. The symposium's success attracted the attention of other water suppliers. Since 2019, the symposium has been jointly coordinated by the region's four major water providers – TRWD, North Texas Municipal Water District, City of Dallas and Upper Trinity Regional Water District. Last year, the 17<sup>th</sup> Annual North Texas Regional Water Conservation Symposium was held in Coppell, Texas and had over 100 water conservation professionals in attendance.

### **7.2 TRWD Model Water Conservation Plan for TRWD Customers and Model Drought Contingency Plan for TRWD Customers**

In order to assist its cities in the development of their own water conservation and drought contingency plans, TRWD will develop a *Model Water Conservation Plan for TRWD Customers* and a *Model Drought Contingency Plan for TRWD Customers*. The model water conservation plan will address the TCEQ requirements for water conservation plans for municipal use by public water suppliers and include several provisions that go beyond TCEQ requirements. TRWD will work with its customers to develop water conservation and drought contingency plans using the model plan as a guide.

The model water conservation plan will include the following elements addressing TCEQ requirements for water conservation plans for public water suppliers:

- 288.2(a)(1)(A) – Utility Profile
- 288.2(a)(1)(B) – Record Management, Customer Classification
- 288.2(a)(1)(C) – Specification of Goals
- 288.2(a)(1)(D) – Accurate Metering
- 288.2(a)(1)(E) – Universal Metering
- 288.2(a)(1)(F) – Determination and Control of Unaccounted Water
- 288.2(a)(1)(G) – Public Education and Information Program
- 288.2(a)(1)(H) – Non-promotional Water Rate Structure
- 288.2(a)(1)(I) – Reservoir System Operation Plan
- 288.2(a)(1)(J) – Means of Implementation and Enforcement
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group
- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting
- 288.2(a)(2)(B) – Record Management System
- 288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers

TRWD’s model water conservation plan will also include water conservation strategies that go beyond TCEQ’s requirements such as:

- 288.2(a)(3)(A) – Conservation Oriented Water Rates
- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures
- 288.2(a)(3)(D) – Reuse and Recycling of Wastewater
- 288.2(a)(3)(F) – Landscape Water Management Ordinance
- 288.2(a)(3)(G) – Monitoring Method

### **7.3 Annual Reports**

One element of tracking conservation progress is a requirement that all water supply customers (direct and indirect) produce annual conservation reports (Appendix F) by May 1 of the following year and submit them to TRWD. TRWD will compile these reports and use them to help generate its own annual water conservation report. TRWD’s report will be used to review the effectiveness of its water conservation program.

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## **8. ADDITIONAL TRWD WATER CONSERVATION MEASURES**

### **8.1 Indirect Reuse and Recycling of Water**

Indirect and/or direct reuse is a major part of future water supply plans for North Texas. TRWD is taking a lead role in water reuse by recycling return flows in the Trinity River. Return flows are a renewable resource as they are made up of water discharged by area wastewater treatment plants. A large portion of those flows originated from reservoirs managed by TRWD.

Here's how indirect reuse projects work:

- A) Treated water from area lakes is consumed in homes and business.
- B) Water that flows down the drain ends up at a wastewater treatment plant.
- C) Wastewater treatment plants clean the water and release it into the Trinity River. However, discharges from wastewater treatment plants can contain elevated levels of nutrients, such as nitrogen and phosphorus.
- D) As the water flows downstream, it picks up sediments, more nutrients, and other pollutants along the way.
- E) The return flows are captured and pumped into constructed wetlands. The wetlands provide a natural way to remove sediments and nutrients from the river water.
- F) With most of the sediments and nutrients removed, the naturally treated water is returned to area lakes to supplement drinking water supplies.
- G) Water from lakes is pumped to drinking water treatment plants, then back into homes and businesses and reused.

The first of TRWD's two planned indirect reuse projects began supplementing water supplies in fall 2013. The George Shannon Wetlands Water Recycling Facility is a 2,000-acre constructed wetland system adjacent to Richland-Chambers Reservoir. The project is permitted to supply 100,465 acre-feet of treated river water to the reservoir annually, which averages out to more than 89 million gallons per day (MGD).

Another 2,000-acre facility is planned for Cedar Creek Reservoir, as water demands increase. When completed, the second wetland project will add 88,059 acre-feet to the reservoir. These unique projects will ultimately supplement current yields in each reservoir by nearly 50 percent.

### **8.2 Public Outreach Programs**

TRWD will work closely with its customers (direct and indirect) to inform consumers on ways to use water more efficiently. TRWD's public outreach programs are intended to assist and supplement the public outreach efforts of its customers. TRWD's public outreach programs include the following:

### Regional Water Conservation Public Awareness Campaign

TRWD participates in the regional water conservation public awareness campaign with the City of Dallas and North Texas Municipal Water District. The current campaign, “Water is Awesome. Use It. Enjoy It. Just Don’t Waste It,” is entering its 9<sup>th</sup> year and includes television, radio, print and digital media. Media outreach is used to increase public awareness on the value of water and encourage adoption of outdoor water efficient behaviors.

### Twice-per-Week Watering Best Management Practices

Outdoor water use, particularly lawn watering, can account for half or more of annual residential water use – and much more than that during the hot, dry Texas summers. Many homeowners have a tendency to overwater by as much as 2-3 times the amount needed by landscapes. Adopting twice-per-week best management practices on outdoor watering with sprinklers is an effective way to reduce excessive water use and stretch existing supplies.

TRWD fully supports the efforts of its customer cities to adopt year-round twice-per-week watering schedules and strives for participation from all customers. The City of Fort Worth took a lead in this effort by adopting an ordinance in spring 2014. As a result, many of their customer cities have also adopted a similar ordinance.

### Regional Landscape Initiatives Evaluation

In 2021, the North Texas Regional Water Providers published the “Regional Landscape Initiatives – Best Management Practices for North Texas Water Conservation Programs” document. As a guide of proven programs and ordinances that reduce water waste and improve efficiency, customer cities of TRWD are encouraged to review the resource and adopt the measures to advance long-term water conservation goals. This document can be reviewed in Appendix G.

### TRWD Strategic Water Conservation Plan Update

TRWD adopted its first Strategic Water Conservation Plan in 2013. The document included a review of conservation programs throughout the country, evaluation of different conservation measures, selection of effective programs and an implementation plan. TRWD will begin an update of the plan in 2024, anticipates it will take approximately one year to complete and requests that customer cities participate in the process.

### Residential Sprinkler Evaluation Program

The Residential Sprinkler Evaluation Program uses trained licensed irrigators to assess residential sprinkler systems. Upon inspection they make recommendations for improving system performance, identify repair needs, and instruct users on how to schedule controllers to eliminate unnecessary outdoor watering. The evaluation also includes an opportunity to educate residents about their sprinkler systems and offers guidance on how much and how long to water throughout the year. In 2023, over 2,000 evaluations were provided throughout Tarrant County.

### Demonstration Gardens

In 2015, TRWD installed a demonstration landscape garden at its main office location. It has since been incorporated into the “TRWD Rainscapes” project. Landscape features for the project include native and adapted plants, natural materials, a rain garden, pervious surfaces, efficient sprinkler system components, rainwater harvesting cisterns and a constructed wetland. In conjunction with the 2017 creation of the Airfield Falls Trailhead on a tributary of the West Fork of the Trinity River, TRWD built a destination water conservation garden with easy public access. Both gardens are used to educate homeowners, developers, civic groups and landscapers about the benefits of water efficient landscaping practices that conserves and protects water quality.

### Conservation Treasures Program

TRWD created the Conservation Treasures Program in 2020 to promote environmentally responsible landscape features that inspire our community to appreciate and conserve water. The program assists in the creation and development of outdoor spaces that encourage public interest in water conservation, sustainable landscaping practices and local native, drought tolerant plants. Assistance is available for school and community gardens and outdoor features that demonstrate conservation strategies.

### ET Weather Station Support and Weather-based Weekly Watering Advice

TRWD owns and operates four weather stations in Tarrant County. The stations are integrated into the Texas ET Network. Texas ET Network and National Weather Service data is used to calculate accurate weekly watering advice across North Central Texas and the service is map based. Users can sign up to receive weekly emails and/or text messages every Monday for that week’s watering advice. The advice is also shared through social media channels and WaterIsAwesome.com. The program gives residents information to water only when needed and to reduce overwatering. It is a regional program and funded by City of Dallas and TRWD. Across the region, over 17,000 residents have signed up for the weekly watering advice service.

### Drought Outreach and Customer Assistance

With drought potentially looming on the horizon in any given year, TRWD offers regional support to customer cities. The support mainly consists of developing media messages for use on television, radio, web, and in print outlets. The media effort focuses on educating water users on drought stage restrictions and mandatory outdoor watering schedules. In the past, TRWD has covered the cost of printing sign materials for customer use throughout its service area.

### Save Tarrant Water Online Presence

TRWD manages SaveTarrantWater.com as a resource to consumers. Program information, do-it-yourself videos, and Green Pros listing can be found on the website. Save Tarrant Water is also active on social media as a way to promote new information, provide tips,



and support customer efforts. An electronic newsletter, called “Save Tarrant Water Monthly Drop”, was created in 2021 as another means to reach the public.

### Youth Education Program

Educating future water users about water and water conservation is a key responsibility of providers. Since starting a new direction in 2020, TRWD has developed high-quality and effective youth education programs to increase the awareness, knowledge and appreciation of water and their ability and motivation to conserve and protect it. With a mix of contracted and TRWD-led lessons, the program aims to empower our youth to become water champions. Customer cities are encouraged to work with TRWD to participate and promote youth education programs for their community. In 2023 alone, TRWD youth programs participated in over 400 activities and reached 21,145 students.

### Learn and Grow Program

Since 2017, TRWD has had an agreement with the Tarrant County Master Gardener Association to provide education and outreach. Services include community presentations, workshops, event participation and innovative projects. Tarrant County customer cities can request presentations from a pre-approved topic list. Example topics include: basic landscape design, native and adapted plants, vegetable gardening, and rainwater harvesting. At every program presentation, the speaker provides information about TRWD, local water supplies and the importance of water conservation. TRWD outreach materials are also provided at community events. In 2023, the program produced over 200 activities with over 13,000 participants.

### Conservation Coordinators Collaboration

TRWD holds monthly meetings to discuss programs and collaboration opportunities to implement conservation outreach initiatives. The goal is to increase communications, partnerships and program implementation with all customer cities.

### Water Efficient Recognized Green Professional Program

The Water Efficient Recognized Green Professional Program (Green Pros) was developed in 2016 with the Texas A&M AgriLife Extension Service in Tarrant County and TRWD. In 2020, Upper Trinity Regional Water District became a program partner. Held annually during winter, participants attend 5 half-day courses over 5 weeks. Topics include water conservation, low impact design, turfgrass, irrigation and low water-use plants. The target audience of the program are green industry professionals such as landscapers, designers, and irrigators. Completing the program provides the participant the opportunity to be listed on SaveTarrantWater.com as a Green Pro. Over 200 Green Pros have participated in the program since it began.

## **8.3 In-House Water Conservation Efforts**

TRWD has and will continue to implement an in-house water conservation program with the following efforts:

- Wherever possible, landscapes will use native or adapted drought tolerant plants, trees and shrubs.
- Irrigation at TRWD facilities will occur before 10 a.m. and after 6 p.m. year-round in order to lower losses due to evaporation.
- Irrigation will be limited to the amount needed to promote survival and health of plants and lawns.
- Irrigation will be done with untreated source water wherever feasible and reasonable.

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**9. ADOPTION AND AUTHORIZATION TO ENFORCE THE WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN**

Appendix H contains a copy of the resolution approved by the TRWD Board of Directors adopting the amended water conservation and drought contingency plan. The General Manager of TRWD is authorized to implement and enforce, to the extent provided herein, the water conservation and drought contingency plan. As discussed in Section 7.3 TRWD will prepare a water conservation report every year, incorporating the reports required from direct and indirect customers. This report will be used to review the effectiveness of TRWD's water conservation program, and results will be reported to the TRWD Board of Directors.

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**10. REVIEW AND UPDATE OF WATER CONSERVATION PLAN**

TCEQ requires that water conservation plans be updated prior to May 1, 2009, and every five years thereafter. TRWD will review and update this plan as appropriate based on new or updated information.

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## **11. DROUGHT CONTINGENCY AND EMERGENCY WATER MANAGEMENT PLAN**

### **11.1 Introduction**

The purpose of this drought contingency and emergency water management plan is as follows:

- To conserve the available water supply in times of drought and emergency
- To maintain supplies for domestic water use, sanitation, and fire protection
- To protect and preserve public health, welfare, and safety
- To minimize the adverse impacts of water supply shortages
- To minimize the adverse impacts of emergency water supply conditions.

Tarrant Regional Water District (TRWD) and its customer cities experienced Stage 1 drought restrictions from 2011-2012 and 2013-2015. Fortunately, water supply reservoirs have not dropped below 75% capacity since. With that experience, TRWD has taken a more active role in educating the public about the importance of reducing water waste and being prepared for the next drought.

### **11.2 State Requirements for Drought Contingency Plans**

This drought contingency and emergency water management plan is consistent with the Texas Commission on Environmental Quality (TCEQ) guidelines and requirements for the development of drought contingency plans by wholesale water suppliers, contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.22 of the Texas Administrative Code. This rule is included in Appendix B.

#### Minimum Requirements

TCEQ's minimum requirements for drought contingency plans are addressed in the following subsections of this report:

- 288.22(a)(1) – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 11.3
- 288.22(a)(2) – Coordination with the Regional Water Planning Group – Section 11.9
- 288.22(a)(3) – Criteria for Initiation and Termination of Drought Stages – Section 11.4
- 288.22(a)(4) – Drought and Emergency Response Stages – Section 11.5
- 288.22(a)(5) – Procedures for Initiation and Termination of Drought Stages – Section 11.5
- 288.22(a)(6) – Specific, Quantified Targets for Water Use Reductions – Section 11.5



- 288.22(a)(7) – Specific Measures to Be Implemented during Each Drought Stage – Section 11.5
- 288.22(a)(8) – Provision for Wholesale Contracts to Require Water Distribution According to Texas Water Code §11.039 – Sections 11.5 and 11.6.
- 288.22(a)(9) – Procedures for Granting Variances to the Plan – Section 11.7
- 288.22(a)(10) – Procedures for Enforcement of Mandatory Restrictions – Section 11.8
- 288.22(b) – Notification of Implementation of Mandatory Measures – Section 11.4
- 288.22(c) – Review and Update of Plan – Section 11.10

### **11.3 Provisions to Inform the Public and Opportunity for Public Input**

TRWD provided opportunity for public input in the development of this drought contingency and emergency water management plan by the following means:

- Several meetings with customer representatives were held to discuss and coordinate the development of this plan.
- TRWD will provide the draft plan to anyone requesting a copy.
- The proposed plan was posted to SaveTarrantWater.com web site (April 2024) providing the public an opportunity to review and comment on the plan in writing.
- Public comment was available at the Tarrant Regional Water District board meeting held at in Fort Worth at 9:00 a.m. on Tuesday, April 16, 2024.

### **11.4 Initiation and Termination of Drought Response Stages**

#### Initiation of Drought Response Stage

The General Manager may order the implementation of a drought response stage or water emergency when one or more water supply trigger conditions is met. The following actions will be taken when a drought stage is initiated:

- The designated representative(s) of primary wholesale customers will be notified by email, mail, telephone, or fax that provides details of the reasons for initiation of the drought stage.
- The public will be notified through local media following the notification of primary wholesale customers.
- If any mandatory provisions of the drought contingency plan are activated, TRWD will notify TCEQ within five business days.

Notwithstanding the foregoing, the General Manager may decide, under special circumstances, not to order the implementation of a drought response stage or water emergency even though one or more of the trigger criteria for the stage are met. Factors

which could influence such a decision include, but are not limited to, the time of year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs.

The trigger conditions in this plan pertaining to TRWD's system volume were established following an intensive study of the North Texas climate and its impact on water supplies by Hydros Consulting, Inc. (Hydros), an engineering firm based in Boulder, Colorado. The 2007 study projected the effects of simulated weather patterns on the combined storage capacity of TRWD reservoirs. Using computer simulations, Hydros compared the water savings that would be achieved at various trigger points with and without outdoor watering restrictions in place. Under severe drought conditions, the estimated water savings that would be achieved by implementing this plan would extend water supplies by several weeks. In late 2023/early 2024, Hydros completed a sensitivity analysis of TRWD's water supply system to variations in the existing drought triggers. The sensitivity analysis included updated infrastructure, operations, permitting, supplies and demands, and evaluated whether adjusting the existing drought triggers would have a meaningful impact on water supply availability. Based on the results of the analysis, staff has determined the best decision for the system and TRWD water customers at this time is to maintain the same drought trigger conditions as the previous plan.

#### Termination of a Drought Stage

The General Manager will order the termination of a drought response stage or water emergency when the conditions for termination are met. The following actions will be taken when a drought stage is terminated:

- The designated representative(s) of primary wholesale customers will be notified by email, mail, telephone, or fax that provides details of the reasons for termination of the drought stage.
- The public will be notified through local media following the notification of primary wholesale customers.
- When mandatory provisions of the drought contingency plan that have been activated are terminated, TRWD will notify the Executive Director of the TCEQ within five business days.

Notwithstanding the foregoing, the General Manager may decide, under special circumstances, not to order the termination of a drought response stage or water emergency even though conditions for termination of the stage are met. Factors which could influence such a decision include, but are not limited to, the time of year, weather conditions, or the anticipation of potential changes in conditions that warrant the continuation of the drought stage.

### **11.5 Drought and Emergency Response Stages and Measures**

#### **Stage 1, Water Watch**

##### Triggering and Terminating Conditions

- Total combined raw water supply in TRWD water supply reservoirs (Bridgeport, Eagle Mountain, Richland Chambers and Cedar Creek) drops below 75% (25% depleted) of conservation storage capacity.
- Water demand has exceeded or is expected to exceed 80% of maximum sustainable production of delivery capacity for an extended period.
- One or more of TRWD's water supply sources has become limited in availability.
- Water demand is projected to approach the limit of permitted supply.
- Supply source becomes contaminated or unusable for other regulatory reasons (i.e., invasive species).
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- The General Manager finds that conditions warrant the declaration of a Stage 1 drought.

Subject to preceding paragraphs regarding the Termination of a Drought Response stage, Stage 1, Water Watch, will be terminated when the total combined raw water supply in TRWD's West Fork and East Texas reservoirs exceeds 95% of conservation storage or remains above 85% for 90 consecutive days, whichever occurs first.

#### Goal for Use Reduction

The goal for water use reduction under Stage 1, Water Watch, is to decrease use by five percent. If circumstances warrant, the General Manager can set a goal for greater water use reduction.

#### Water Use Reduction Actions under Stage 1, Water Watch

The General Manager may order the implementation of any of the actions listed below, as deemed necessary. Measures imposing mandatory requirements on customers require notification to TCEQ. TRWD must notify TCEQ within five business days if any mandatory measures are implemented.

- Require customers (including indirect customers) to initiate Stage 1 in their drought contingency plans. Indirect customers include any successive wholesale customers of TRWD's primary wholesale customers to the extent provided for in water sales contracts.

#### All Water Users

- Maximum of twice per week watering for hose-end sprinklers and automatic irrigation systems based on odd/even addresses and day of week schedule.

Stage 1, Water Watch, Outdoor Watering Schedules		
Monday	No Outdoor Watering	Water System Recovery Day
Tuesday and Friday	Non-Residential Sites	Apartments, Parks, Common Areas, HOA's, Businesses
Wednesday and Saturday	Residential Addresses Ending in Even Numbers	0,2,4,6,8
Thursday and Sunday	Residential Addresses Ending in Odd Numbers	1,3,5,7,9

Exceptions:

- Watering with a handheld hose, soaker hose or drip irrigation may occur any day and any time.
- Watering of trees and structural foundations may occur any day and any time by means of handheld hose, soaker hose, or drip irrigation.
- The use of water necessary to protect the health, safety, or welfare of the public.
- Water use necessary for the repair of an irrigation system, plumbing line, fountain, etc. in the presence of person making repair.
- Variances may be available for the following:
  - Establishing new turfgrass and/or landscaping. Variances granted for establishing new turfgrass or landscaping will be for a maximum of 30 days from the date of approval then maximum of twice per week watering schedule applies.
  - Variances do not apply to the installation (over seeding) of cool season grasses.
  - Outdoor watering at addresses with large multi-station irrigation systems may take place in accordance with a variance granted by TRWD, if TRWD determines that a property cannot be completely irrigated under the twice per week schedule. Under such variance, no irrigation station will be allowed to water more than twice per week.
  - Areas open to the public and have high-impact from frequent use may be allowed additional watering with a variance granted by TRWD if it is deemed to be beneficial to serve and protect the community facility or amenity.
  - Restrictions do not apply to locations using well water, reclaimed water, or other alternative water sources.
- No watering with hose-end sprinklers and/or automatic spray irrigation systems between the hours of 10 a.m. and 6 p.m.
- Prohibit using water in such a manner as to allow runoff or other waste, including:

- failure to repair a controllable leak, including, broken sprinkler heads, leaking valves, leaking or broken pipes or faucets;
  - operating an irrigation system with: (a) a broken head; (b) a head that is out of adjustment and spraying into the street, parking area, or sidewalk; or (c) a system that is misting/fogging due to excessive water pressure; or
  - allowing any water to: (a) run off property forming a stream of water for a distance of 50 feet or greater; (b) run into a storm drain; or (c) pond to a depth of ¼ inch or greater; or
  - allowing or causing an irrigation system or other lawn watering device to operate during any form of precipitation or when temperatures are at or below 32 degrees Fahrenheit.
- All users are encouraged to use native and adapted drought tolerant plants in landscaping.
  - Discourage hosing of paved areas.
  - Discourage hosing of buildings or other structures for purposes other than fire protection or surface preparation prior to painting or maintenance.
  - Washing of any motor vehicle, motorbike, boat, trailer, airplane, or other vehicle shall be limited to the use of a hand-held bucket or a hand-held hose equipped with a positive-pressure shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the premises of a commercial car wash or commercial service station. Companies with automated on-site vehicle washing facilities may wash its vehicles at any time.
  - Discourage the filling, draining, or refilling of swimming pools, wading pools, hot tubs and Jacuzzi type pools except to maintain adequate water levels for structural integrity, proper operation and maintenance, and/or to alleviate an issue that poses a public safety risk.

#### City and Local Governments

- Review conditions and problems that caused Stage 1. Take corrective action.
- Increase public education efforts on ways to reduce water use.
- Increase enforcement efforts.
- Intensify leak detection and repair efforts.
- Audit all city and local government irrigation systems to ensure proper condition, settings, and operation.
- Identify and encourage voluntary reduction measures by high-volume water users through water use audits.
- Landscape watering of municipal parks, golf courses and athletic fields is restricted to a twice per week watering schedule; or twice per week per irrigation station if a variance is granted by TRWD. (See exceptions to outdoor watering restrictions in

all water users category above for facilities with large multi-station irrigation systems.)

Exceptions:

- Golf courses may water greens and tee boxes as necessary, however, use of spray irrigation may not be done between 10 a.m. and 6 p.m. Encouraged to reduce water use by five percent.
- Watering of athletic fields (field only, does not include surrounding landscaped areas) used for organized sports practice, competition, or exhibition events may occur as necessary to protect the health and safety of the players, staff, or officials present for athletic events. Encouraged to reduce water use by five percent.
- Reduce non-essential water use. As used herein, non-essential water uses are those that do not have a health or safety impact and are not needed to meet the core function of the agency.
- Notify wholesale customers of actions being taken and request them to implement the same drought stage and measures.

Commercial or Industrial

- All actions listed above for all water users apply to commercial and industrial users.
- Landscape watering of parks, golf courses and athletic fields is restricted to the twice per week watering schedule; or twice per week per irrigation station if a variance is granted by the water provider. (See exceptions to outdoor watering restrictions in all water users category above for facilities with large multi-station irrigation systems.)

Exceptions:

- Golf courses may water greens and tee boxes as necessary, however, use of spray irrigation may not be done between 10 a.m. and 6 p.m. Encouraged to reduce water use by five percent.
- Watering of athletic fields (field only, does not include surrounding landscaped areas) used for organized sports practice, competition, or exhibition events may occur as necessary to protect the health and safety of the players, staff, or officials present for athletic events. Encouraged to reduce water use by 5 five percent.
- Stock at commercial plant nurseries is exempt from Stage 1 watering restrictions.
- Hotels, restaurants, and bars are encouraged to serve drinking water to patrons per request only.
- Hotels are encouraged to implement laundry conservation measures by encouraging patrons to reuse linens and towels.

- Car wash facilities must keep equipment in good working order, which should include regular inspections to be sure there are no leaks, broken or misdirected nozzles, and that all equipment is operating efficiently.
- All commercial and industrial customers are encouraged to audit irrigation systems to ensure proper condition, settings, and operation. If irrigation audit or repair occurs during restricted watering times or days, a sign indicating such work is taking place must be placed in public view until job is completed.

## **Stage 2, Water Warning**

### Triggering and Terminating Conditions

- Total raw water supply in TRWD water supply reservoirs (Bridgeport, Eagle Mountain, Richland Chambers and Cedar Creek) drops below 60% (40% depleted) of conservation storage capacity.
- Water demand has exceeded or is expected to exceed 85% of maximum sustainable production of delivery capacity for an extended period.
- One or more of TRWD's water supply sources has become limited in availability.
- Water demand is projected to approach the limit of permitted supply.
- Supply source becomes contaminated or unusable for other regulatory reasons (i.e. invasive species).
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- The General Manager finds that conditions warrant the declaration of a Stage 2 drought.

Subject to preceding paragraphs regarding the Termination of a Drought Response stage, Stage 2, Water Warning, will be terminated when the Total combined raw water supply in TRWD's West Fork and East Texas reservoirs exceeds 75% of conservation storage or remains at or above 70% for 30 consecutive days, whichever occurs first.

### Goal for Use Reduction

The goal for water use reduction under Stage 2, Water Warning, is to decrease use by 10 percent. If circumstances warrant, the General Manager can set a goal for greater water use reduction.

### Water Use Reduction Actions under Stage 2, Water Warning

The General Manager may order the implementation of any of the actions listed below, as deemed necessary. The General Manager may order the implementation of additional actions not listed below, as deemed necessary. Measures imposing mandatory requirements on customers require notification to TCEQ. TRWD must notify TCEQ within five business days if any mandatory measures are implemented.

- Continue actions under Stage 1.
- Require customers (including indirect customers) to initiate Stage 2 in their drought contingency plans. Indirect customers include any wholesale customer of TRWD's primary wholesale customers to the extent provided for in water sales contracts.
- Initiate engineering studies to evaluate water supply alternatives should conditions worsen.

#### All Water Users

- Maximum of once per week watering for hose-end sprinklers and automatic irrigation systems at each service address.
- An effort will be made by TRWD and its primary customers to coordinate once per week watering schedules to simplify messages passed to customers through the news media. However, due to the variation in water storage and delivery systems of TRWD customers, specific watering days per address may vary across TRWD's service area.

#### Exceptions:

- Watering with a handheld hose, soaker hose or drip irrigation may occur any day and any time.
- Watering of trees and structural foundations may occur any day and any time by means of handheld hose, soaker hose, or drip irrigation.
- Variances may be available through TRWD for the following:
  - All users are encouraged to wait until the current drought or emergency situation has passed before establishing new landscaping. Variances granted for establishing new turfgrass or landscaping will be for a maximum of 30 days from the date of approval then maximum of once-per-week watering schedule applies.
  - Variances do not apply to the installation (over seeding) of cool season grasses.
  - Outdoor watering at addresses with large multi-station irrigation systems may take place in accordance with a variance granted by TRWD, if TRWD determines that a property cannot be completely irrigated under the once per week schedule. Under such variance, no irrigation station will be allowed to water more than once per week.
  - Areas open to the public and have high-impact from frequent use may be allowed additional watering with a variance granted by TRWD if it is deemed to be beneficial to serve and protect the community facility or amenity.
  - Restrictions do not apply to well water, reclaimed water, or other alternative water sources.



- Encourage the use of covers for all types of pools, hot tubs, and Jacuzzi type pools when not in use.

### City and Local Governments

#### In addition to the actions listed above:

- Continue actions under Stage 1.
- Review conditions or problems that caused Stage 2. Take corrective action.
- Increase frequency of media releases on water supply conditions.
- Further accelerate public education efforts on ways to reduce water use.
- Landscape watering of municipal parks, golf courses and athletic fields is restricted to a once-per-week schedule; or once-per-week per irrigation station if a variance is granted by the water provider. (See Stage 1 exceptions to outdoor watering restrictions in all water users category for facilities with large multi-station irrigation systems.)

#### Exceptions:

- Golf courses may water greens and tee boxes as necessary, however, use of spray irrigation may not be done between 10 a.m. and 6 p.m. Encouraged to reduce water use by ten percent.
- Watering of athletic fields (field only, does not include surrounding landscaped areas) used for organized sports practice, competition, or exhibition events may occur as necessary to protect the health and safety of the players, staff, or officials present for athletic events. Encouraged to reduce water use by ten percent.
- Eliminate non-essential water use. As used herein, non-essential water uses are those that do not have any health or safety impact and are not needed to meet the core function of the agency.
- Notify wholesale customers of actions being taken and request them to implement the same drought stage and measures.

### Commercial or Industrial

- All actions listed above for all water users apply to commercial and industrial users.
- Landscape watering of municipal parks, golf courses and athletic fields is restricted to a once-per-week schedule; or once-per-week per irrigation station if a variance is granted by the water provider. (See Stage 1 exceptions to outdoor watering restrictions in all water users category for rules that apply to facilities with large multi-station irrigation systems.)

#### Exceptions:

- Golf courses may water greens and tee boxes as necessary, however, use of spray irrigation may not be done between 10 a.m. and 6 p.m. Encouraged to reduce water use by ten percent.
- Watering of athletic fields (field only, does not include surrounding landscaped areas) used for organized sports practice, competition, or exhibition events may occur as necessary to protect the health and safety of the players, staff, or officials present for athletic events. Encouraged to reduce water use by ten percent.

### Stage 3, Water Emergency

#### Triggering and Terminating Conditions

- Total raw water supply in TRWD water supply reservoirs (Bridgeport, Eagle Mountain, Richland Chambers and Cedar Creek) drops below 45% (55% depleted) of conservation storage capacity.
- Water demand has exceeded or is expected to exceed 90% of maximum sustainable production of delivery capacity for an extended period.
- Water demand for all or part of the TRWD delivery system approaches delivery capacity because delivery capacity is inadequate.
- One or more of TRWD's water supply sources has become limited in availability.
- Water demand is projected to approach the limit of permitted supply.
- Supply source becomes contaminated or unusable for other regulatory reasons (i.e., invasive species).
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- The General Manager finds that conditions warrant the declaration of a Stage 3 drought.

Subject to preceding paragraphs regarding the Termination of a Drought Response stage, Stage 3, Water Emergency, will be terminated when the total combined raw water supply in TRWD's West Fork and East Texas reservoirs exceeds 60% of conservation storage or remains at or above 55% for 30 consecutive days, whichever occurs first.

#### Goal for Use Reduction

The goal for water use reduction under Stage 3, Water Emergency, is to decrease use by 20 percent. If circumstances warrant, the General Manager can set a goal for greater water use reduction.

#### Actions Available under Stage 3, Water Emergency

The General Manager can order the implementation of any of the actions listed below, as deemed necessary. The General Manager may order the implementation of additional

actions not listed below, as deemed necessary. Measures imposing mandatory requirements on customers require notification to TCEQ. TRWD must notify TCEQ within five business days if these measures are implemented.

- Continue actions under Stages 1 and 2.
- Require customers (including indirect customers) to initiate Stage 3 in their drought contingency plans. Indirect customers include any wholesale customer of TRWD's primary wholesale customers to the extent provided for in water sales contracts.

#### All Water Users

- Prohibit all outdoor watering with hose-end sprinklers and automatic irrigation systems, including at parks, golf courses, and sports fields.

#### Exceptions:

- Watering with hand-held hose, soaker hose or drip irrigation system may occur any day and any time.
- Watering of trees and structural foundations may occur any day and any time by means of handheld hose, soaker hose, or drip irrigation.
- Restrictions do not apply to well water, reclaimed water, or other alternative water sources.
- Irrigation of new landscapes and/or turfgrass installations is prohibited by means of automatic irrigation system or hose-end sprinkler. Variances may be granted for those landscape projects started prior to the initiation of stage 3 drought restrictions. However, variances will not be granted for the irrigation of new landscape and/or turfgrass installations after the initiation of Stage 3 drought restrictions.
- Prohibit washing of paved areas by any means except where a variance is granted to alleviate a possible public health and safety risk. Any pressure/power washing activities must be performed by a professional pressure/power washing service provider utilizing high efficiency equipment and a vacuum recovery system where possible.
- Prohibit hosing of buildings or other structures for purposes other than fire protection or surface preparation prior to painting with high-pressure equipment. Services must be performed by a professional pressure/power washing service provider utilizing high efficiency equipment and a vacuum recovery system where possible.
- Vehicle washing is restricted to commercial car washes, commercial service stations, or professional washing services only. This includes home and charity car washing. The washing of garbage trucks and vehicles used to transport food and/or other perishables may take place as necessary for health, sanitation, or public safety reasons.

- Prohibit permitting of private pools. Pools already permitted may be completed and filled. Existing private and public pools may add water to maintain pool levels, but may not be drained and refilled.
- Prohibit the operation of ornamental fountains or ponds that use potable water except where necessary to support aquatic life or water quality.

#### City and Local Governments

- Continue actions under Stages 1 and 2.
- Review conditions or problems that caused Stage 3. Take corrective action.
- Increase frequency of media releases explaining emergency situation and/or water supply conditions.
- Landscape watering at municipal parks, golf courses, and sports fields is prohibited. Variances may be granted by the water provider under special circumstances.

#### Exceptions:

- Golf course greens and tee boxes may be watered by hand as necessary.
- Variances may be available for watering of athletic fields (field only, does not include surrounding landscaped areas) used for organized sports practice, competition, or exhibition events to protect the health and safety of the players, staff, or officials present for the athletic event. If granted, encouraged to reduce water use by twenty percent.
- Professional and college sports fields (playing fields with a stadium only – not surrounding landscaping) may be watered as necessary to maintain league standards. Encouraged to reduce water use by twenty percent.
- Institute a mandated reduction in deliveries to all wholesale customers. Such a reduction will be distributed as required by Texas Water Code §11.039.
- If TRWD has imposed a reduction in water available to customers, impose the same percent reduction on wholesale customers.

#### Commercial or Industrial

- All actions listed above for all water users apply to commercial and industrial users. Landscape watering of municipal parks, golf courses and athletic fields is prohibited. Variances may be granted by the water provider under special circumstances.

#### Exceptions:

- Golf course greens and tee boxes may be watered by hand, as necessary.
- Variances may be available for watering of athletic fields (field only, does not include surrounding landscaped areas) used for organized sports practice,

competition, or exhibition events to protect the health and safety of the players, staff, or officials present for the athletic event. If granted, encouraged to reduce water use by twenty percent.

- Professional and college sports fields (playing fields with a stadium only – not surrounding landscaping) may be watered as necessary to maintain league standards. Encouraged to reduce water use by twenty percent.
- Require hotels, restaurant, and bars to serve drinking water to patrons on an “on demand” basis.
- Require hotels to implement laundry conservation measures by encouraging patrons to reuse linens and towels.
- Stock at commercial plant nursery may be watered by hand only with a handheld hose, hand-held watering can, soaker hose, or drip irrigation system.
- Commercial and industrial water users may be required to reduce water use by a set percentage as determined by TRWD.

## **11.6 Procedure for Curtailment of Water Supplies**

Any mandatory reduction to deliveries from TRWD to its customers shall be distributed as required by Texas Water Code §11.039, which is attached as Appendix J. In addition, every wholesale water supply contract entered into or renewed after adoption of this plan, including contract extensions, shall include a provision that water will be distributed in accordance with the Texas Water Code §11.039 in case of a water shortage resulting from drought.

To the extent not prevented by enforcement of provisions in TRWD’s wholesale contracts in effect before November 28, 1999, TRWD will implement pro rata curtailment of water deliveries pursuant to Texas Water Code §11.039.

## **11.7 Procedure for Granting Variances to the Plan**

The General Manager may grant temporary variances for existing water uses otherwise prohibited under this drought contingency and emergency water management plan to a customer if one or more of the following conditions are met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person requesting the variance.
- Compliance with this plan cannot be accomplished due to technical or other limitations.
- Alternative methods that achieve the same level of reduction in water use can be implemented.

Variances shall be granted or denied at the discretion of the General Manager. All petitions for variances should be in writing and should include the following information:

- Name and address of petitioner(s)
- Purpose of water use
- Specific provisions from which relief is requested
- Detailed statement of the adverse effect of the provision from which relief is requested
- Description of the relief requested
- Period of time for which the variance is sought
- Alternative measures that will be taken to reduce water use
- Other pertinent information.

### **11.8 Procedure for Enforcing Mandatory Water Restrictions**

TRWD customers (direct and indirect) shall provide TRWD with an order, ordinance, or resolution to demonstrate adequate enforcement provisions for the customer's own drought contingency plan.

Mandatory water use restrictions may be imposed in Stage 1, Stage 2, and Stage 3 drought stages. These mandatory water use restrictions will be enforced by warnings and penalties as follows:

- On the first violation, the customer will be given a written warning that they have violated one or more of the mandatory water use restrictions.
- After a second violation, TRWD will require the customer to implement a more comprehensive public education and outreach program in a manner that increases the public's awareness about mandatory water use restrictions and the current drought status. The customer will also be required to submit documentation to TRWD of the steps it has taken to ensure compliance with the drought contingency and emergency water management plan within 30 days after receiving the second notice of violation.
- TRWD may petition the Texas Commission on Environmental Quality to initiate formal enforcement action against customers that repeatedly fail to comply with the mandatory water use restrictions implemented during any stage of the drought contingency and emergency water management plan.

### **11.9 Coordination with the Regional Water Planning Groups**

Appendix I includes a copy of a letter sent to the Chair of the Region C water planning group with this water conservation and drought contingency plan.

### **11.10 Review and Update of Drought Contingency Plan**

As required by TCEQ rules, TRWD reviewed this drought contingency and emergency water management plan in 2024 and will do so every five years thereafter. The plan will also be updated as appropriate based on new or updated information.

### 11.11 Drought Contingency Plan Definitions

<b>Term</b>	<b>Definition</b>
Aesthetic Water Use	Water use for ornamental or decorative features, such as fountains, reflecting pools, and water gardens.
Alternative Water Source	Water produced by a source other than a water treatment plant and is not considered potable. These sources can include, but are not limited to: reclaimed/recycled water, collected rain water, collected grey water, private well water.
Athletic field	A sports playing field, the essential feature of which is turf grass, used primarily for organized sports for schools, professional sports, or sanctioned league play.
Automatic Irrigation System	A site specific system of delivering water generally for landscaping via a system of pipes or other conduits installed below ground that automatically cycles water use through water emitters to a preset program, whether on a designated timer or through manual operation.
Aquatic Life	A vertebrate organism dependent upon an aquatic environment to sustain its life.
Conservation	Those practices, techniques, and technologies that reduce water consumption; reduce the loss or waste of water; improve the efficiency in water use; and increase the recycling and reuse of water so that supply is conserved and made available for other or future uses.
Customer	Any person, company, or organization using water supplied by TRWD or through an entity supplied by TRWD.
Drip irrigation	An irrigation system (drip, porous pipe, etc.) that applies water at a predetermined controlled low-flow levels directly to the roots of the plant
Drought Contingency Plan	A strategy or combination of strategies for temporary supply management and demand management responses to temporary or potentially recurring water supply shortages and other water supply emergencies.

<b>Term</b>	<b>Definition</b>
Fountain	An artificially created jet, stream or flow of water, a structure, often decorative, from which a jet, stream or flow of water issues.
Golf Course	An irrigated and landscaped playing area made up of greens, tees, fairways, roughs and related areas used for the playing of golf.
Hand-held hose	A hose physically held by one person, fitted with a manual or automatic shutoff nozzle.
Hose-end Sprinkler	A device through which water flows from a hose to a sprinkler to water any lawn or landscape.
Hosing	To spray, water, or wash with a water hose.
Irrigation system	A system of fixed pipes and water emitters that apply water to landscape plants or turfgrass, including, but not limited to: in-ground and permanent irrigation systems.
Lake, lagoon, or pond	Artificially created body of fresh or salt water.
Landscape irrigation use	Water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, right-of-ways, medians and entry ways.
“New landscape”	A landscape: <ul style="list-style-type: none"><li>a. Installed during construction of a new house, multi-family dwelling, or commercial building;</li><li>b. Installed as part of a governmental entity’s capital improvement project; or</li></ul> Alters more than one-third the area of an existing landscape.



<b>Term</b>	<b>Definition</b>
Non-essential water use	<p>Water uses that are not required for the protection of public health, safety and welfare, such as:</p> <ol style="list-style-type: none"> <li>a. Irrigating landscape areas, including parks, athletic fields, and golf courses, except as otherwise provided under this plan;</li> <li>b. Washing any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas; except to alleviate a public health and safety issue;</li> <li>c. Washing any automobile, motorbike, boat (and/or trailer), airplane, or other vehicle except where required by law for safety and sanitary purposes.</li> <li>d. Washing buildings or structures for purposes other than immediate fire protection, or other uses provided under this plan;</li> <li>e. Filling, refilling, or adding to any swimming pools or Jacuzzi-type pools, except to maintain safe operating levels;</li> <li>f. Filling or operation of a fountain or pond for aesthetic or scenic purposes except when necessary to support aquatic life;</li> <li>g. Failure to repair a controllable leak within a reasonable time period after being directed to do so by formal notice; and</li> <li>h. Drawing from hydrants for construction purposes or any other purpose other than firefighting or protection of public drinking water supplies.</li> </ol>
Park	<p>A non-residential or multifamily tract of land, other than a golf course, maintained by a city, private organization, or individual, as a place of beauty or public recreation and available for use to the general public.</p>
Power/Pressure washer	<p>A machine that uses water or a water-based product applied at high pressure to clean impervious surfaces.</p>
Power/Pressure washer (High-Efficiency)	<p>A machine that uses water or a water-based product applied at 1500 pounds per square inch (PSI) or greater.</p>

<b>Term</b>	<b>Definition</b>
Reclaimed Water	Municipal wastewater effluent that is given additional treatment and distributed for reuse in certain applications. Also referred to as recycled water.
Soaker hose	A flexible hose that is designed to slowly emit water across the entire length and connect directly to a flexible hose or spigot. Does not include hose that by design or use sends a fine spray in the air. It is not considered drip irrigation.
Structural Foundation	The lowest and supporting layer of a structure.
Swimming pool	Any structure, basin, chamber, or tank including hot tubs, containing an artificial body of water for swimming, diving, or recreational bathing, and having a depth of two (2) feet or more at any point.
Well Water	Water that has been, or is, obtained from the ground by digging, boring, or drilling to access an underground aquifer.

**APPENDIX A**  
**LIST OF REFERENCES**

## **Appendix A**

### **List of References**

- (1) Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1, 288.2 and 288.5, downloaded from [https://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac\\_view=5&ti=30&pt=1&ch=288&sch=A&rl=Y](https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=288&sch=A&rl=Y)
- (2) Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter B, Rule 288.20 and 288.22, downloaded from [https://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac\\_view=5&ti=30&pt=1&ch=288&sch=B&rl=Y](https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=288&sch=B&rl=Y)
- (3) Texas Water Development Board, Report 362, “Water Conservation Best Management Practices Guide,” Water Conservation Implementation Task Force, available online at: [http://www.twdb.texas.gov/publications/reports/numbered\\_reports/doc/R362\\_BMPGuide.pdf](http://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R362_BMPGuide.pdf)
- (4) North Central Texas Council of Governments, Regional Data Center, <http://data-nctcoggis.opendata.arcgis.com>, March 2024.
- (5) Texas Water Development Board Special Report and Water Conservation Implementation Task Force, Report to the 79<sup>th</sup> Legislature, [http://www.twdb.texas.gov/conservation/resources/doc/WCITF\\_Leg\\_Report.pdf](http://www.twdb.texas.gov/conservation/resources/doc/WCITF_Leg_Report.pdf)

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**APPENDIX B**

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES  
ON WATER CONSERVATION AND DROUGHT CONTINGENCY  
PLANS FOR MUNICIPAL AND WHOLESALE WATER  
PROVIDERS**

**APPENDIX B**

**Texas Commission on Environmental Quality Rules on Water Conservation and Drought Contingency Plans for Wholesale Water Suppliers**

	<b>Texas Administrative Code</b>
<b>TITLE 30</b>	ENVIRONMENTAL QUALITY
<b>PART 1</b>	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
<b>CHAPTER 288</b>	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
<b>SUBCHAPTER A</b>	WATER CONSERVATION PLANS
<b>RULE §288.1</b>	<b>Definitions</b>

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The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

- (1) Agricultural or Agriculture--Any of the following activities:
  - (A) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;
  - (B) the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;
  - (C) raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;
  - (D) raising or keeping equine animals;
  - (E) wildlife management; and
  - (F) planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.
- (2) Agricultural use--Any use or activity involving agriculture, including irrigation.
- (3) Best management practices--Voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.
- (4) Conservation--Those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.
- (5) Commercial use--The use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multi-family residences or agricultural, industrial, or institutional users.

- (6) Drought contingency plan--A strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).
- (7) Industrial use--The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, and the development of power by means other than hydroelectric, but does not include agricultural use.
- (8) Institutional use--The use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison or government facility. All facilities dedicated to public service are considered institutional regardless of ownership.
- (9) Irrigation--The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water from a public water supplier.
- (10) Irrigation water use efficiency--The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.
- (11) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring.
- (12) Municipal use--The use of potable water provided by a public water supplier as well as the use of sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.
- (13) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.
- (14) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.
- (15) Public water supplier--An individual or entity that supplies water to the public for human consumption.



- (16) Residential use--The use of water that is billed to single and multi-family residences, which applies to indoor and outdoor uses.
- (17) Residential gallons per capita per day--The total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.
- (18) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.
- (19) Retail public water supplier--An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.
- (20) Reuse--The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.
- (21) Total use--The volume of raw or potable water provided by a public water supplier to billed customer sectors or nonrevenue uses and the volume lost during conveyance, treatment, or transmission of that water.
- (22) Total gallons per capita per day (GPCD)--The total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in this chapter shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.
- (23) Water conservation plan--A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).
- (24) Wholesale public water supplier--An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.
- (25) Wholesale use--Water sold from one entity or public water supplier to other retail water purveyors for resale to individual customers.

**Source Note:** The provisions of this §288.1 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective August 15, 2002, 27 TexReg 7146; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective January 10, 2008, 33 TexReg 193; amended to be effective December 6, 2012, 37 TexReg 9515

**Texas Administrative Code**

<b>TITLE 30</b>	ENVIRONMENTAL QUALITY
<b>PART 1</b>	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
<b>CHAPTER 288</b>	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
<b>SUBCHAPTER A</b>	WATER CONSERVATION PLANS
<b>RULE §288.2</b>	<b>Water Conservation Plans for Municipal Uses by Public Water Suppliers</b>

- 
- (a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.
- (1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:
- (A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;
  - (B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) - (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) - (vi) of this subparagraph:
    - (i) residential;
      - (I) single family;
      - (II) multi-family;
    - (ii) commercial;
    - (iii) institutional;
    - (iv) industrial;
    - (v) agricultural; and,
    - (vi) wholesale.
  - (C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;

- (D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;
  - (E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;
  - (F) measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.);
  - (G) a program of continuing public education and information regarding water conservation;
  - (H) a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water;
  - (I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and
  - (J) a means of implementation and enforcement which shall be evidenced by:
    - (i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and
    - (ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and
  - (K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.
- (2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:
- (A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;
  - (B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.
- (3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements

in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:

- (A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
  - (B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;
  - (C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;
  - (D) reuse and/or recycling of wastewater and/or graywater;
  - (E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;
  - (F) a program and/or ordinance(s) for landscape water management;
  - (G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and
  - (H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.
- (b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and the Texas Water Development Board.
- (c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

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**Source Note:** The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

**Texas Administrative Code**

<b><u>TITLE 30</u></b>	ENVIRONMENTAL QUALITY
<b><u>PART 1</u></b>	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
<b><u>CHAPTER 288</u></b>	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
<b><u>SUBCHAPTER A</u></b>	WATER CONSERVATION PLANS
<b>RULE §288.5</b>	<b>Water Conservation Plans for Wholesale Water Suppliers</b>

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A water conservation plan for a wholesale water supplier must provide information in response to each of the following paragraphs. If the plan does not provide information for each requirement, the wholesale water supplier shall include in the plan an explanation of why the requirement is not applicable.

- (1) Minimum requirements. All water conservation plans for wholesale water suppliers must include the following elements:
  - (A) a description of the wholesaler's service area, including population and customer data, water use data, water supply system data, and wastewater data;
  - (B) specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;
  - (C) a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply;
  - (D) a monitoring and record management program for determining water deliveries, sales, and losses;
  - (E) a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;
  - (F) a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of this chapter. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter;

- (G) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan;
  - (H) a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan; and
  - (I) documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.
- (2) Additional conservation strategies. Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of paragraph (1) of this section, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:
- (A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
  - (B) a program to assist agricultural customers in the development of conservation pollution prevention and abatement plans;
  - (C) a program for reuse and/or recycling of wastewater and/or graywater; and
  - (D) any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.
- (3) Review and update requirements. The wholesale water supplier shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

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**Source Note:** The provisions of this §288.5 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

**Texas Administrative Code**

<b>TITLE 30</b>	ENVIRONMENTAL QUALITY
<b>PART 1</b>	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
<b>CHAPTER 288</b>	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
<b>SUBCHAPTER B</b>	DROUGHT CONTINGENCY PLANS
<b>RULE §288.20</b>	<b>Drought Contingency Plans for Municipal Uses by Public Water Suppliers</b>

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(a) A drought contingency plan for a retail public water supplier, where applicable, must include the following minimum elements.

- (1) Minimum requirements. Drought contingency plans must include the following minimum elements.
  - (A) Preparation of the plan shall include provisions to actively inform the public and affirmatively provide opportunity for public input. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.
  - (B) Provisions shall be made for a program of continuing public education and information regarding the drought contingency plan.
  - (C) The drought contingency plan must document coordination with the Regional Water Planning Groups for the service area of the retail public water supplier to insure consistency with the appropriate approved regional water plans.
  - (D) The drought contingency plan must include a description of the information to be monitored by the water supplier, and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.
  - (E) The drought contingency plan must include drought or emergency response stages providing for the implementation of measures in response to at least the following situations:
    - (i) reduction in available water supply up to a repeat of the drought of record;
    - (ii) water production or distribution system limitations;
    - (iii) supply source contamination; or
    - (iv) system outage due to the failure or damage of major water system components (e.g., pumps).
  - (F) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and



drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this subparagraph are not enforceable.

- (G) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:
    - (i) curtailment of non-essential water uses; and
    - (ii) utilization of alternative water sources and/or alternative delivery mechanisms with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).
  - (H) The drought contingency plan must include the procedures to be followed for the initiation or termination of each drought response stage, including procedures for notification of the public.
  - (I) The drought contingency plan must include procedures for granting variances to the plan.
  - (J) The drought contingency plan must include procedures for the enforcement of any mandatory water use restrictions, including specification of penalties (e.g., fines, water rate surcharges, discontinuation of service) for violations of such restrictions.
- (2) Privately-owned water utilities. Privately-owned water utilities shall prepare a drought contingency plan in accordance with this section and incorporate such plan into their tariff.
- (3) Wholesale water customers. Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions for responding to reductions in that water supply.
- (b) A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.
- (c) The retail public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

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**Source Note:** The provisions of this §288.20 adopted to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

**Texas Administrative Code**

<b><u>TITLE 30</u></b>	ENVIRONMENTAL QUALITY
<b><u>PART 1</u></b>	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
<b><u>CHAPTER 288</u></b>	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
<b><u>SUBCHAPTER B</u></b>	DROUGHT CONTINGENCY PLANS
<b>RULE §288.22</b>	<b>Drought Contingency Plans for Wholesale Water Suppliers</b>

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- (a) A drought contingency plan for a wholesale water supplier must include the following minimum elements.
- (1) Preparation of the plan shall include provisions to actively inform the public and to affirmatively provide opportunity for user input in the preparation of the plan and for informing wholesale customers about the plan. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.
  - (2) The drought contingency plan must document coordination with the regional water planning groups for the service area of the wholesale public water supplier to insure consistency with the appropriate approved regional water plans.
  - (3) The drought contingency plan must include a description of the information to be monitored by the water supplier and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.
  - (4) The drought contingency plan must include a minimum of three drought or emergency response stages providing for the implementation of measures in response to water supply conditions during a repeat of the drought-of-record.
  - (5) The drought contingency plan must include the procedures to be followed for the initiation or termination of drought response stages, including procedures for notification of wholesale customers regarding the initiation or termination of drought response stages.
  - (6) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this paragraph are not enforceable.
  - (7) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:
    - (A) pro rata curtailment of water deliveries to or diversions by wholesale water customers as provided in Texas Water Code, §11.039; and

- (B) utilization of alternative water sources with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).
- (8) The drought contingency plan must include a provision in every wholesale water contract entered into or renewed after adoption of the plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code, §11.039.
- (9) The drought contingency plan must include procedures for granting variances to the plan.
- (10) The drought contingency plan must include procedures for the enforcement of any mandatory water use restrictions including specification of penalties (e.g., liquidated damages, water rate surcharges, discontinuation of service) for violations of such restrictions.
- (b) The wholesale public water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.
- (c) The wholesale public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as adoption or revision of the regional water plan.

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**Source Note:** The provisions of this §288.22 adopted to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

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**APPENDIX C**  
**TARRANT REGIONAL WATER DISTRICT WHOLESALE PUBLIC**  
**WATER SUPPLIER UTILITY PROFILE**

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**APPENDIX D**

**TCEQ WATER CONSERVATION  
IMPLEMENTATION REPORT**

**Appendix D**  
**TCEQ Water Conservation Implementation Report**



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**APPENDIX E**

**ANNUAL WATER CONSERVATION REPORTS SUBMITTED TO  
TEXAS WATER DEVELOPMENT BOARD**

**APPENDIX E**  
**Annual Water Conservation Reports Submitted to TWDB**

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**APPENDIX F**  
**TRWD CUSTOMER**  
**WATER CONSERVATION REPORT**

**APPENDIX F**  
**TRWD Customer Water Conservation Report**  
**Due May 1 of Every Year**

**Name of Entity:** \_\_\_\_\_

**Address & Zip:** \_\_\_\_\_

**Telephone Number:** \_\_\_\_\_ **Email:** \_\_\_\_\_

**Form Completed By:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Name and Phone Number of Person/Department responsible for implementing a water conservation program:

\_\_\_\_\_

**UTILITY PROFILE**

**I. POPULATION CUSTOMER DATA**

**A. Population and Service Area Data**

1. Attach a copy of your service area map.
2. Service area size (square miles): \_\_\_\_\_
3. Current population of service area: \_\_\_\_\_
4. Current population served by utility:
  - a: water \_\_\_\_\_
  - b: wastewater \_\_\_\_\_
5. Population served by water utility service area for the previous five years:
6. Projected population for in the following decades:

<u>Year</u>	<u>Population</u>	<u>Year</u>	<u>Population</u>
_____	_____	2030	_____
_____	_____	2040	_____
_____	_____	2050	_____
_____	_____	2060	_____
_____	_____	2070	_____

7. List specific source(s)/method(s) for the calculation of current and projected population:

**B. Customers Data**

1. Current number of active connections by user type. Check whether multi-family service is counted as Residential \_\_\_ or Commercial \_\_\_ .

<b>Treated water users</b>	<b>Metered</b>	<b>Not-metered</b>	<b>Totals</b>
Residential:			
Single Family			
Multi-Family			
Commercial			
Industrial/mining			
Institutional			
Agriculture			
Other/Wholesale			

2. List the new number of new connections per year for most recent three years:

<b>Year</b>			
<b>Treated water users</b>	<b>Metered</b>	<b>Not-metered</b>	<b>Totals</b>
Residential:			
Single Family			
Multi-Family			
Commercial			
Industrial/mining			
Institutional			
Agriculture			
Other/Wholesale			

3. List annual water use for the five highest volume customers.

	<b>Customer</b>	<b>Use (1,000 gallons / year)</b>	<b>Treated / Raw Water</b>
(1)			
(2)			
(3)			
(4)			
(5)			

**II. WATER USE DATA FOR SERVICE AREA**

**A. Water Accounting Data**

1. Amount of water use for previous five years (in 1,000 gal.):

Please indicate: Diverted Water \_\_\_\_\_

Treated Water \_\_\_\_\_

<b>Total Diverted and Treated Water Deliveries and Sales by Month</b>					
<b>Month</b>	<b>Year</b>				
<b>January</b>					
<b>February</b>					
<b>March</b>					
<b>April</b>					
<b>May</b>					
<b>June</b>					
<b>July</b>					
<b>August</b>					
<b>September</b>					
<b>October</b>					
<b>November</b>					
<b>December</b>					
<b>Total</b>					



Describe how the above figures were determined (e.g., from a master meter located at the point of a diversion from the source or located at a point where raw water enters the treatment plant, or from water sales).

2. Amount of water (in 1,000 gallons) delivered (sold) as recorded by the following account types for the past five years.

Account Types	Year				
Residential					
Single Family					
Multi-Family					
Commercial					
Industrial/Mining					
Institutional					
Agricultural					
Other/Wholesale					

3. List previous records for water loss (the difference between water diverted or treated and water delivered or sold). The goal for percent of unaccounted for water is 12%.

<u>Year</u>	<u>Amount (gal.)</u>	<u>% of Total Water Diverted or Treated</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. List previous five years records for water reuse. Reuse is the authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake or other body of state-owned water.

<u>Year</u>	<u>Amount (gal.)</u>	<u>% of Total Water Diverted or Treated</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. Municipal per capita water use (in gallons per day) for previous five years. Municipal per capita water use is the sum total of water diverted into a water supply system for residential, commercial, and public and institutional uses divided by total population served. GPCD includes water losses.

<u>Year</u>	<u>Population</u>	<u>Total Water Diverted (or Treated)(1,000 gal.)</u>	<u>Municipal Per Capita Use (GPCD)</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Source of Population data: \_\_\_\_\_  
 \_\_\_\_\_

**B. Projected Water Demands**

If applicable, attach or cite projected water supply demands for next ten years using information such as population trends, historical water use, and economic growth in the service area and any additional water supply requirement for such growth.

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**APPENDIX G**

**REGIONAL LANDSCAPE INITIATIVES – BEST MANAGEMENT  
PRACTICES FOR NORTH TEXAS WATER CONSERVATION  
PROGRAMS**

# REGIONAL LANDSCAPE INITIATIVES

BEST MANAGEMENT PRACTICES FOR  
NORTH TEXAS WATER CONSERVATION PROGRAMS



## COLLABORATIVE EFFORT BY:

Dallas Water Utilities  
North Texas Municipal Water District  
Tarrant Regional Water District  
Upper Trinity Regional Water District

March 2021

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This document was made in collaboration with the North Texas Regional Water Providers to be a guide of best management practices to reduce water waste and encourage long-term water conservation.

The North Texas Regional Water Providers are comprised of:  
Dallas Water Utilities  
North Texas Municipal Water District  
Tarrant Regional Water District  
Upper Trinity Regional Water District

# INTRODUCTION & BACKGROUND

The four major water suppliers in North Texas developed this document as a resource for municipal staff tasked with developing conservation programs in the region.

These suppliers cover twelve of the sixteen counties included in Region C of the Texas Water Development Board planning groups. The majority of Region C lies in the upper portion of the Trinity River Basin in the North Texas region. There are 34 major reservoirs in Region C with conservation storage in excess of 5-million acre feet.

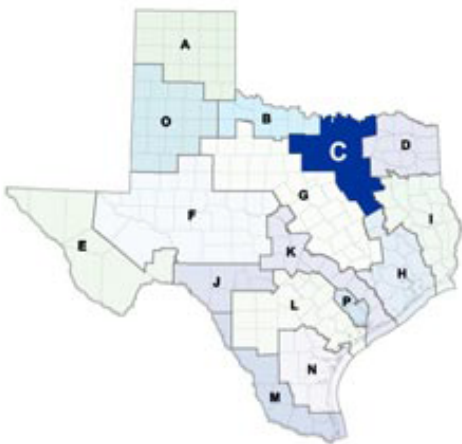
In 2020, Region C is expected to account for over 30 percent of Texas' population but only 9.3 percent of the state's projected water use. These figures are attributed to the region's commitment to water conservation as a water supply strategy.

The region's population is expected to nearly double by 2070, with projected growth of 91 percent in the next fifty years. Ninety percent of water supplies derive from surface water resources, and municipal use makes up 90% of the

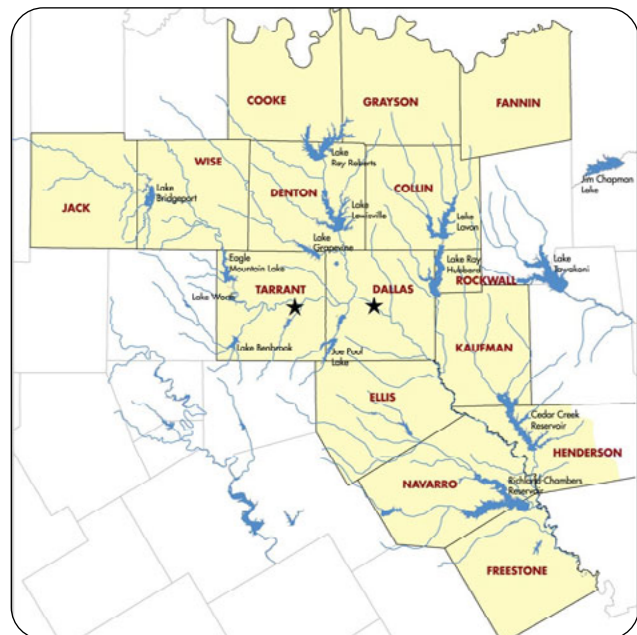


total water used. These increases in population and water demand require significant new water supplies for the region over the next 50 years. Water conservation efforts continue to serve as the most cost-effective solution for both added supply and the delay of costly new supplies.

This initiative is designed to act as a guide for conservation programs in North Texas. Each best management practice (BMP) includes information specific to the North Texas region. Information consists of the background, importance, and benefits of each BMP and key talking points to consider when implementing the strategy. This document also includes case study examples and additional links and resources for each proposed measure.



*Region C (highlighted in dark blue on the map above), image courtesy of Texas Water Development Board.*



*Region C Water Planning Group, image courtesy of Texas Water Development Board.*



## THE NORTH TEXAS REGIONAL WATER PROVIDERS BELIEVE:

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- Waters of the state are of limited supply and are subject to ever-increasing demands.
- The continuation of Texas's economic prosperity depends on the availability of adequate water supplies for future uses.
- The North Texas Regional Water Providers strategy is to promote the conservation and efficient use of water and to prevent the waste of this valuable resource.
- Landscapes are essential to the quality of life in North Texas by providing areas for active and passive recreation.
- Landscapes enhancing to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development.
- Landscape design, installation, maintenance, and management can and should be water efficient.
- The right to use water is limited to the amount reasonably required for the beneficial use to be served, and the right does not and shall not extend to waste or unreasonable methods of use.

## NORTH TEXAS REGIONAL WATER PROVIDERS AGREE TO LANDSCAPE BEST MANAGEMENT PRACTICES THAT:

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- Promote the values and benefits of landscaping practices that integrate and go beyond conservation and efficient water use.
- Establish provisions for water management practices and water waste prevention for existing landscapes.
- Promote the benefits of consistent landscape ordinances and BMPs with neighboring local and regional agencies in North Texas.

# PROMOTION OF ET-BASED WEEKLY WATERING ADVICE AND RECOMMENDATIONS

## BACKGROUND, IMPORTANCE AND BENEFITS

This BMP can be useful for cities with a significant percentage of customers using automated landscape irrigation systems. It applies to single and multi-family residences, commercial, industrial, and institutional customers.

A common practice among these user groups is to set the irrigation controller once, forgetting to make adjustments, and allowing water to be applied whether the landscape needs it or not based on recent rainfall and actual water needs. This leads to substantial overwatering and possible diseases that can be detrimental to plant health.

Water providers in the Dallas-Fort Worth area sponsor weather stations to collect daily weather data and provide the most accurate watering recommendations. Many cities in the Dallas-Fort Worth area can already take advantage of these ET-based recommendations and incorporate them into their water conservation programs, at no cost to the city.

Providing evapotranspiration (ET)-based weekly watering recommendations can reduce the amount of water applied for outdoor watering if customers follow the guidance.

A drawback with this BMP is the adoption rate. Since these recommendations may change every week, it requires customers to adjust their controllers more often.

Some customers may prefer to set their sprinkler controller once and follow a regular schedule. In this scenario, it may be better to encourage them to follow the twice-weekly watering recommendation instead.

### ***Evapotranspiration (ET):***

*The combined amount of water transpired by plants and the water evaporated from the soil.*

It is dependent on several factors, including:

- Temperature
- Humidity
- Wind
- Solar radiation
- Type of plant

The purpose of providing ET-based recommendations is to apply the amount of supplemental irrigation necessary to replace the water lost to ET, which was not met by rainfall.

Example: A weekly potential ET value of 1.5 inches with a warm-season turf coefficient of 0.6 and a normal stress quality factor of 0.6 with no rainfall results in a weekly watering recommendation of 0.5" for the lawn.



# CASE STUDIES

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## *Water My Yard*

The Texas A&M AgriLife Extension Service (AgriLife) and North Texas Municipal Water District (NTMWD) partnered together to create the 'Water My Yard' online tool and app that provides weekly ET-based lawn watering recommendations.

'Water My Yard' is an online platform where homeowners can sign up to receive weekly recommendations based on their location and a few specifications about their sprinkler system. Users can then choose to accept the recommendations by email, text, or both. Local weather data is derived from multiple weather stations that NTMWD sponsors.

Additional sponsors have joined the program to provide 'Water My Yard' to their respective service areas, including the Upper Trinity Regional Water District, Lower Colorado River Authority, and the Cities of Irving, Bryan, and College Station.

## *Weekly Watering Advice*

Tarrant Regional Water District (TRWD) and Dallas Water Utilities (DWU) also provide weekly watering recommendations for most of North Texas, based on data from weather stations scattered throughout the Dallas-Fort Worth area.

These recommendations are distributed by email and text every week from the 'Water Is Awesome' website. These recommendations are provided in inches of water needed and the number of minutes necessary to apply that amount of water for spray, rotor, and multi-stream sprinklers.

## *WaterWise Newsletter*

The City of Frisco provides weekly lawn watering advice on the city's website and through the WaterWise Newsletter distributed to subscribers every Monday. Frisco has a weather station they use to determine how much water is needed for each particular week.

## TALKING POINTS

- Providing ET-based recommendations reduces wasteful watering habits such as overwatering and runoff, and promotes healthy lawn care that reduces diseases from affecting the lawn and plants.
- Weekly watering recommendations are based on the past week's weather conditions and the ET rate of warm-season grass and suggest only applying the amount of water needed to replace what was lost.
- Many local cities already have access to these recommendations through the participation of the major water providers sponsoring local weather stations and programs.
- Weekly recommendations can be distributed through email, text, or Facebook posts.

## ADDITIONAL LINKS AND RESOURCES

[Texas ET Network](#)

[Water My Yard](#)

[Water Is Awesome](#)

[City of Frisco Water Resources](#)

# RECOMMENDED PLANT LIST

## BACKGROUND, IMPORTANCE AND BENEFITS

The North Central Texas region has a history of promoting native and adapted plants in the area through the North Central Texas Council Of Government's (NCTCOG) Texas SmartScape program. Many water conservation educators also handle stormwater pollution prevention, and this BMP straddles messaging related to both water conservation and water quality. Many local master gardener associations and extension agents also have recommended plant lists. These lists can be tailored to various audiences—residents, local nurseries, landscapers, parks and recreation staff, etc. However, merely having a plant list is not enough; it needs to be promoted through public outreach and demonstration gardens or used in public landscapes and right-of-ways.

One key strategy is to partner with other organizations that promote native and drought-tolerant plants. The NCTCOG Public Education Task Force oversees the Texas SmartScape program. Texas SmartScape provides customizable promotional materials, and the website promotes regional events, Texas SmartScape Month materials, and educational information. Local cities can partner with nurseries to use the Texas SmartScape stickers on native and drought-tolerant plants. It is best to do this during specific sales events since it can be a challenge to ensure proper use of the Texas SmartScape stickers during regular business year-round.

Another strategy is to collaborate with city facilities and the departments responsible for their landscapes to promote native and drought-tolerant plants. Highlighting these facility landscapes provides residents with the opportunity to view the plants in action. Signage at these locations is another way to raise awareness amongst the foot traffic at city facilities.

Partnering with local master gardeners, garden clubs, and organizations to host native and adapted plant classes is another great way to raise awareness. March is Texas SmartScape Month in North Texas, which gives many opportunities to partner and promote on a local and regional level. Cities across the region conduct awareness campaigns, plant sales, and classes.



### TALKING POINTS

- Native and adapted landscapes are more than rocks, cactus, and desert. These plants offer rich diversity and variety for landscapes beyond turf grass.
- Native and adapted plants are suited to the climate and soil conditions of North Texas, making them more drought-tolerant and pest/disease resistant.
- Native and adapted plants attract beneficial animals and insects to landscapes such as birds, bees, and butterflies.
- Native and adapted plants require less water, fertilizer, and pesticides which promotes water conservation and reduces polluted runoff to local waterways.

# CASE STUDIES

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## *Newcomer's Guide to Gardening in North Texas*

The Dallas-Fort Worth area is one of the fastest-growing regions in the country. Many people moving to the area are not familiar with the plants, soil, wildlife, and water challenges of the region. In 2017, the City of Allen worked with Texas A&M AgriLife Extension in Collin County to create the Newcomer's Guide to Gardening in North Texas. When the City of McKinney took over the program for the region, its popularity grew significantly. [Newcomer's Guide to Gardening in North Texas](#) program is targeted to new homeowners moving to North Texas. The popularity of the event has grown every year, with hundreds of people attending each event.

## *Texas SmartScape*

The Texas SmartScape program was created in response to new stormwater regulations in 1999 by a task force within the North Central Texas Council of Governments. The program was one tool cities could use to be in compliance with public education and outreach criteria of the MS4 stormwater permit. The program includes an extensive plant database, a calendar of local plant sales and education events, design tips, and resources staff can use to promote native and drought-tolerant plants to customers. The program is a regional effort, which also helps to amplify reach and foster brand recognition.



## ADDITIONAL LINKS AND RESOURCES

[Texas SmartScape](#)

[North Central Texas Council of Governments' Texas SmartScape Program](#)

[Lady Bird Johnson Wildflower Center-North Texas](#)

[Native Plant Society of Texas](#)

[Texas Superstar](#)

[National Wildlife Foundation Native Plant Finder](#)

[City of Richardson Drought Tolerant Plant List](#)

[City of Irving Guide to Using Native Plants](#)

# ADDITIONAL WATER SAVING MEASURES FOR NEW IRRIGATION SYSTEM REQUIREMENTS

## BACKGROUND, IMPORTANCE AND BENEFITS

*In 2007, The 80<sup>th</sup> Texas Legislature passed House Bill 1656, Senate Bill 3, and House Bill 4 related to regulating irrigation systems and irrigators by adopting minimum standards and specifications for designing, installing, and operating irrigation systems.*

The Texas legislation required cities with a population over 20,000 to develop a landscape irrigation program that includes permitting, inspection, and enforcement of water conservation for new irrigation systems. The landscape irrigation rules must have been adopted to comply with the January 1, 2009, effective date.

In 2008, staff from many area cities participated in a regional committee that provided comments to the Texas Commission on Environmental Quality (TCEQ) rule-making process, reviewed the adopted rules, and drafted a recommended ordinance for North Central Texas municipalities.

The regional committee ordinance recommended additional requirements above the minimum standards to increase water conservation in new irrigation systems.

Participating cities included:

- Arlington
- Bedford
- Burleson
- Carrollton
- Dallas
- Denton
- Fort Worth
- Frisco
- Grand Prairie
- Mansfield
- North Richland Hills
- Southlake



### Planning for Growth

The benefit of the irrigation rules is directly related to water conservation and the Region C Water Planning Group Plan.

In the North Central Texas region, the estimated population of 7,504,000 in 2020 will increase to 14,348,000 by 2070.

Region C's long-term water supply strategy states that 27% of the new water supplies will come from conservation and reuse to meet the water demands of 2070.

An estimated 30-60% of treated water is applied to landscapes during the summer months, and up to 50% is wasted due to runoff, overwatering, and evaporation.

# CASE STUDIES

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## *Above and Beyond Standards*

Many cities within the area have adopted irrigation system standards above the minimum state requirements, including:

- Allen
- Arlington
- Dallas
- Fort Worth
- Frisco
- Mansfield

There are many standards above the minimum state requirements that any city can adopt. Here are a few common standards North Texas cities have adopted:

- Requiring all non-turf landscape areas included in the irrigation plan to be designed with:
  - Subsurface irrigation
  - Drip irrigation
  - Pressure compensating tubing
- Requiring a flow control master valve to be installed on the backflow prevention device's discharge side on all new installations.
- Requiring check valves where elevation differences may result in low head drainage.
- Requiring pop-up heads to be installed at grade level and operated to extend above all landscape turfgrass.
- Requiring an "operational" rain and freeze sensor.

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***Find these commonly adopted and additional standards in Appendix B.***



## TALKING POINTS

- State statutes already require minimum irrigation system standards.
- Irrigation efficiency is crucial to meeting long-term water supply goals.
- Irrigation technology has advanced significantly over the last ten years and local ordinances should be reviewed and updated if needed.



## ADDITIONAL LINKS AND RESOURCES

[TCEQ Landscape Irrigation Standards and Requirements](#)

[2017 State Water Plan](#)

# YEAR-ROUND TWICE PER WEEK WATERING SCHEDULES

## BACKGROUND, IMPORTANCE AND BENEFITS

A mandatory maximum twice-weekly watering schedule as a BMP has been gradually gaining acceptance in the North Texas region and the state. Generally, "day of the week" irrigation schedules are based either on even/odd address numbers, trash/recycling pick-up days, or geographic areas related to distribution pressure zones. The assigned watering schedules apply to all customer types: residential (single-family and multi-family) and industrial, commercial, institutional (ICI). The schedules apply to automatic irrigation systems and hose-end landscape sprinklers but usually do not apply to soaker hoses, drip irrigation, or hand watering.

Some cities have considered the implementation of twice-weekly watering without a mandatory schedule. In this scenario, the provider would leave the schedule up to the customer so a twice-weekly schedule could be on whatever days the customer chooses. However, voluntary twice-weekly watering cannot be affordably verified or enforced. Communities with remote read meters are better equipped to consider a voluntary schedule, provided they can run useful reports and effectively communicate with customers.

The benefit of a mandatory maximum watering schedule is to reduce landscape overwatering, which is common with the use of automatic irrigation systems. Overwatering landscapes can also occur using hose-end sprinklers but is less likely due to the additional effort required.

Cities with mandatory twice-weekly watering schedules find that customer resistance usually ends after one growing season. After that experience, customers see that the two-day schedule is ample for healthy landscapes.

**NOTE:** This BMP could be improved with the inclusion of BMP 1 (ET-Based Weekly Watering Advice/Recommendations) since landscapes frequently need less than twice-weekly watering.

### TALKING POINTS

- Automatic irrigation systems have made watering landscapes much more effortless. The American Water Works Association (AWWA) estimates automated systems use 35% more water than those irrigating with a hose-end sprinkler. If those automatic systems routinely use the automatic timer function, they use an additional 47% more water than those who manually operate their in-ground systems. The amount of water wasted with a "set it and forget it" mindset is not sustainable for future population growth and our finite water resources.
- Twice weekly watering can result in 8-10% savings and may be an effective way to manage peaks in watering throughout the summer months.
- Deep and infrequent watering is best for the development of a healthy turfgrass root system. Deep roots make lawns more resistant to heat and winter freezes and prevent erosion.
- Many North Texas horticulturists have endorsed twice-weekly watering as more than sufficient for landscapes in the region, even in the heat of summer.





# CASE STUDIES

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## *Dallas Water Utilities*

Dallas Water Utilities (DWU) was the first city in North Texas to adopt a mandatory maximum twice-weekly watering schedule as a conservation measure in 2012. DWU has experienced an average reduction of 13% of their total pumpage (combined retail and wholesale customers) since 2012, with an average 16% reduction on their non-watering days.

## *North Texas Municipal Water District*

Freese and Nichols, Inc. (FNI) performed an analysis on twice per week watering for the North Texas Municipal Water District (NTMWD) from 2015 to 2017. NTMWD serves 1.7 million customers across multiple north Dallas suburbs. The district invests in conservation education and reuse and currently has a mandatory, twice per week watering restriction in April-October and one time per week November-March. FNI built a model to predict water use during periods without drought restrictions. This model was then used during drought conditions to estimate what water use would have been without restrictions. The savings were calculated by finding the difference between modeled water use and observed water use. The model took the average daily pumping with weather-corrected trends, days since last rainfall, maximum temperature, and precipitation. Ultimately, FNI determined that NTMWD's twice-per-week watering schedule attributed to a 2.5-3% water savings.

## *Texas Water Development Board*

In 2015, the Texas Legislature appropriated funds to the Texas Water Development Board (TWDB) to fund a research project principally charged with determining the savings of municipal water conservation activities being implemented in relation to the recommended municipal conservation water management strategy supply volumes in the 2017 State Water

Plan. The project was also tasked with identifying activities that participating water utilities could pursue to meet future goals.

TWDB interviewed and collected data from 170 utilities that ultimately participated, measuring and quantifying more than 547 individual conservation activities. Percent reduction for twice per week watering measures was between 2.74 percent and 13.47 percent of total demand based on the percentage of outdoor water use by single-family customers.

## ***Terms to know:***

### ***System Impacts:***

Some cities are concerned that their distribution systems can't handle the differing demands of twice-weekly watering schedules. But many systems have successfully resolved that concern by assigning irrigation schedules based on trash pick-up schedules, neighborhoods, or other geographic areas.

### ***Variations:***

Large properties, site-specific soil conditions, etc., may not be feasible for a twice-weekly schedule, so many communities offer variances that can be requested and granted as appropriate.

### ***Cool Season Grasses:***

Allowing variances to grow cool season grasses in winter should be discouraged as an inefficient use of a limited resource. Some cities may allow variances, and some have decided not to. In drought conditions, variances should not be considered for cool-season grasses.

## ADDITIONAL LINKS AND RESOURCES

[TWDB Statewide Water Conservation Quantification Project](#)

[2020 North Texas Outdoor Watering Summit Resources](#)

# TIME OF DAY WATERING SCHEDULES

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## BACKGROUND, IMPORTANCE AND BENEFITS

Although the primary purpose of this best management practice (BMP) is to reduce wind drift and evaporation losses during the active growing season, defined under this BMP as the period from April 1 to October 31, this time of day restriction may apply throughout the year.

Many Texas cities have adopted either year-round time of day watering schedules or period-specific time of day watering schedules tied to growing seasons or drought management stages. Whether year-round or period-specific, these adopted time of day schedules intend to increase efficiencies by eliminating outdoor irrigation use when climatic factors negatively impact irrigation system efficiencies.

In terms of landscape irrigation, midday is not an optimal time to irrigate because evapotranspiration rates are higher, and plants are more susceptible to stress associated with factors such as higher temperatures and lower relative humidity.

**Under normal circumstances, landscape watering with an irrigation system or sprinkler is permitted on authorized watering days, before 10 a.m. or after 6 p.m.**

### TALKING POINTS

- Many cities within the DFW Metroplex adopted a time of date watering schedule over ten years ago, and it has become a community standard for many residents.
- The main reason to consider adopting this BMP is to reduce water waste related to irrigation systems.
- By reducing losses associated with evaporation and wind drift, it is possible to increase irrigation efficiency by 15 percent.
- Evapotranspiration is typically the highest during the hottest hours of the day, generally between 10:00 a.m. and 6:00 p.m.
- The probability of drift from an operating irrigation system is also greater due to typically higher wind speeds during the day.



# CASE STUDIES

The following is a sampling of local Texas cities with either adopted year-round or period-specific time of day watering schedules.

Year-Round Time of Day Watering Schedules
Arlington, TX
Fort Worth, TX
Frisco, TX
Garland, TX
Grapevine, TX
Mansfield, TX
Southlake, TX

Period-Specific Time of Day Watering Schedules	
<b>Apr 1 - Oct 31</b>	<b>Apr 1 - Sept 30</b>
Allen, TX	Irving, TX
Dallas, TX	
Flower Mound, TX	<b>May 1 - Sept 30</b>
McKinney, TX	Lewisville, TX
Mesquite, TX	Highland Village, TX
Plano, TX	
Sachse, TX	<b>June 1 - Sept 30</b>
University Park, TX	Denton, TX

## Terms to know:

### *Evapotranspiration*

Evapotranspiration is the combination of water loss by transpiration of plants and evaporation from soil and plant surfaces.

### *Preventing Stress*

Prevent plant stress by ensuring an adequate supply of water within the root zone to allow the plant to better deal with the day's heat.

### *Relative Humidity*

Relative humidity and evapotranspiration have an inverse relationship. When relative humidity increases, evapotranspiration decreases, and when relative humidity decreases evapotranspiration increases.

### *Drift*

The probability of drift from an operating irrigation system is greater due to typically higher wind speeds during the day.

### *Drift and Evaporation Losses – Day vs. Night*

The best time to begin irrigation is after nightfall and, more specifically, early morning. Night-time temperatures and wind speeds are much lower, which means lower evaporative losses during irrigation. Night-time humidity is higher, which also reduces evaporation. Estimates of water losses attributed to drift and evaporation can range from 20 to 30 percent during the day and five to 15 percent at night, depending on the specific region.

## ADDITIONAL LINKS AND RESOURCES

[Clemson Cooperative Extension: Irrigation Time of Day](#)

[North Texas Outdoor Watering Survey, 2020 North Texas Outdoor Watering Summit Resources](#)

# WATER WASTE PROVISIONS

## BACKGROUND, IMPORTANCE AND BENEFITS

Outdoor irrigation makes up approximately 35-40% of total water use in most North Texas communities. Poorly maintained sprinkler systems result in significant water waste due to runoff, overspray onto impervious surfaces, and evaporation. Many communities have adopted ordinances to address water waste with enforcement measures. But not all communities or water providers have taken this approach.

Included in the 2004 Texas Water Development Board Report 362 "Water Conservation Best Management Practices Guide", the adoption of a water waste ordinance has been supported for some time. Communities with a water waste ordinance can emphasize the principle of reducing water waste and have the ability to administer long-term efficient use of water supplies.

The main purpose of a water waste ordinance is to mandate that water waste is prevented during lawn and landscape irrigation, that water resources are conserved for their most beneficial and vital uses, and that public health is protected. It provides a defined enforcement mechanism for exceptional neglect related to the proper



maintenance and efficient use of water fixtures, pipes, and irrigation systems.

Many utilities and cities are installing meters with electronic communication capabilities. AMI (automated metering infrastructure) and AMR (automatic meter reading) technology allow multiple readings per day and on-demand access to water use data. These new meters can be accompanied by online portals that enable regular communication with residents and customer engagement. Customers and cities can be notified of continuous usage, can easily access and review water bills, set budgets for water use, and proactively manage indoor/outdoor water use.

### Existing water waste ordinance offenses often include:

- Sprinkler runoff from a property greater than 50 feet.
- Operating an irrigation system or other lawn watering device during any form of precipitation or when temperatures are below 32 degrees Fahrenheit.
- Irrigation to pond in a street or parking lot to a depth greater than 1/4 inch.
- Failure to repair a controllable leak, including a broken sprinkler head, a leaking valve, leaking or broken pipes, or a leaking faucet.
- Operating a permanently installed irrigation system with a broken head or a head that is out of adjustment where the arc of the spray head is over a street or parking lot.
- Operating an irrigation system during the hours of 10 am-6 pm either seasonally or year-round when prohibited. Exceptions are provided for testing, auditing, and repair of the system.
- Washing of driveways, sidewalks, parking lots or other impervious surface areas with an open hose or spray nozzle attached to an open hose, except when required to eliminate conditions that threaten public health, safety or welfare.
- Washing vehicles with a hose that lacks an automatic shut-off valve.

# CASE STUDIES

## *City of Dallas*

The City of Dallas implemented its outdoor water conservation ordinance in 2002. The ordinance prohibited wasteful water use, required the first time of day restrictions in North Texas, and mandated working rain and freeze sensors on all automatic irrigation systems. In 2012, Dallas adopted twice-weekly watering requirements as part of the ordinance.

In 2013, Dallas modified enforcement of the water conservation ordinance to allow civil penalties for violations. Civil enforcement reduces the burden on code enforcement and municipal court dockets during peak season or periods of drought because it does not require a court appearance.

## TALKING POINTS

- The overall purpose is to promote water efficiency, gain compliance in order to reduce water waste, and not to write citations on first notifications of violations.
- The ordinance can provide additional assistance or enforcement actions if no corrective action has been taken after a certain number of correspondences.
- Advancement of AMI systems may allow water providers to notify customers of potential leaks.

## *City of Allen*

The City of Allen has a stringent water waste provision included in the water resource management ordinance. Violations include fines that can be up to \$2000 per day per occurrence. Code enforcement issues tickets, and the judge sets the fine amounts.

For commercial properties in violation, the city can access an administrative fee in \$200 increments up to \$2000 directly into the water bill. Customers can appeal through hearings at the water department. In many cases, violators produce enough evidence to have the initial violation waived; however, the administrative fee will be higher if a subsequent violation occurs. During a period of drought, these violations are considered a criminal penalty. If a person accrues multiple offenses, fines can exceed \$2000 and if the customer doesn't show up in court, a warrant could be issued for their arrest.

**Cities should determine the best means of enforcement, be it tickets or administrative fees that work best for their community.**



## ADDITIONAL RESOURCES AND LINKS

[City of Allen's Irrigation Checklist](#)

[City of Richardson Water Conservation](#)

[Texas Water Development Board: Prohibition on Wasting Water](#)

# RAIN AND FREEZE SENSORS FOR COMMERCIAL SPRINKLER SYSTEMS

## BACKGROUND, IMPORTANCE AND BENEFITS

All new irrigation systems in Texas must have a rain or moisture shut-off device—commonly referred to as a rain and freeze sensor in North Texas—or other technology designed to inhibit or interrupt the irrigation system’s operation during periods of moisture rainfall. Any repairs to existing irrigation systems require the installation of a rain or moisture shut-off device. (30 TAC Part 1 Ch 344)

These sensors interrupt an automatic irrigation system controller’s cycle when a specific amount of rainfall has occurred. They are small devices connected to the irrigation system controller and mounted in an open area exposed to rain.

The amount of water that can be saved using rain shut-off devices varies, but savings are usually substantial in a year with average rainfall. Several factors are involved in determining how much a sensor can reduce water usage: how often it rains, whether or not the controller is left on for automatic operation, and the amount of water applied by the system per cycle. If the amount of water applied per watering cycle by the whole system is known, it is easy to calculate how much water is being saved each time the sensor interrupts the watering cycle because of rainfall.

### TALKING POINTS

Advantages of a rain and freeze sensor:

- Conserves water -- prevents irrigation after recent rain events.
- Saves money -- reduces utility bills by interrupting the irrigation system after adequate rainfall.
- The system only runs when necessary, which reduces wear on the irrigation system.
- Reduces disease damage by eliminating unnecessary irrigation events.
- Reduces liability caused by irrigation systems running during a freeze event, which can cause road hazards.

Source: Alliance for Water Efficiency



*Photo courtesy of the City of Lubbock, TX.*

# CASE STUDIES

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## *City of Fort Worth*

The City of Fort Worth requires a rain and freeze sensor on all commercial irrigation systems. An annual inspection is required and can be done in conjunction with the annual backflow inspection.

## *City of Frisco*

The City of Frisco irrigation ordinance requires a rain and freeze sensor that has the capability to set thresholds for both rain and freeze at 40 degrees or above. Proof of compliance requires a letter from the manufacturer stating this capability.

## *City of Allen*

The City of Allen requires all commercial irrigation accounts to be inspected with an audit once every three years. This audit includes testing if the rain and freeze sensor is functioning.

## *City of Dallas*

The City of Dallas mandates working rain and freeze sensors on all automatic irrigation systems in Dallas, both residential and commercial.



## ADDITIONAL LINKS AND RESOURCES

[City of Allen Water Resource Management Ordinance](#)

[City of Frisco Irrigation Ordinance](#)

[City of Fort Worth Irrigation Requirements](#)

# ADOPT A WATER EFFICIENCY OUTREACH PROGRAM

## BACKGROUND, IMPORTANCE AND BENEFITS

Perhaps one of the most important actions a utility can take in increasing water use efficiency among its customers is through public education and outreach programs (E&O).

The goal of E&O programs is to influence behavioral change for short and long-term water savings. Regular and consistent messaging in customer education will provide an overall picture of water resources in the community. Communicating the need for conservation helps manage existing water supplies and avoids or delays the need for expanded or new infrastructure to meet increased water demands.

Customer education also provides valuable information on specific actions they can take in their home or business to meet these community goals while also benefiting from them personally (i.e., managing their water bill).

Each utility should develop an education and outreach plan suited to their community that is adaptable over time. Understanding which messages need to be conveyed regularly and identifying the target audience(s) is key to a successful program. An effective public education program will help develop trust between the community and the utility as relevant, timely, and fact-based information is provided, and customer service is enhanced.

Many cities have dedicated water conservation web pages located within the main city or utility website to find tips and other resources. The Texas Water Development Board is one source that provides publications and other materials that can be placed online or made available in city/utility buildings.

The various education and outreach tools also allow cities to promote other programs offered, such as rebates or events, and to communicate

other important messages, such as drought conditions or water service outages.

Some customers prefer to learn information during a class-type setting or to tour facilities or demonstration areas to understand certain conservation techniques better. Offering in-person or virtual classes or workshops provides an opportunity to connect with these customers and provide hands-on experience and answer questions on a range of conservation issues.

### TALKING POINTS

- An effective Public Education and Outreach program can be an effective and cost-efficient method to produce short and long-term water savings.
- An effective Public Education and Outreach program can build trust in the utility and enhance the its customer service capabilities.
- Integrating educational resources that have been developed by other cities, state and federal agencies, and non-profit groups can significantly expand the cities' efforts at little or no cost.
- When developing a Public Education and Outreach program, cities should identify their target audiences and convey consistent messages.
- The size and scope of the Public Education and Outreach program will be dependent on the capability of the utility to manage the program.



# CASE STUDIES

## *Water Is Awesome Regional Campaign*

In 2016, the City of Dallas, North Texas Municipal Water District, and Tarrant Regional Water District launched a regional outreach campaign called “Water is awesome. Use it. Enjoy it. Just don’t waste it.” It aims to increase the general public’s knowledge of the value of water in their everyday lives and encourages ways not to waste it. The campaign provides simple tips, mixed with a bit of humor, through television, radio, digital, print, outdoor, and social media advertising.

In 2019, an additional tagline, “Keep Texas Water on Tap,” was incorporated to promote the Water is Awesome brand and direct traffic to [waterisawesome.com](http://waterisawesome.com). In 2020, a “customer city toolkit” provided customizable resources allowing cities to incorporate their logos with the campaign brand for their website, social media, and print. Cities are encouraged to use campaign resources to advance conservation efforts.

## *Demonstration Gardens*

Growing popularity in native and adaptive plants for landscaping has led to the establishment of demonstration gardens throughout the Dallas-Fort Worth area. The Upper Trinity Regional Water District and Tarrant Regional Water District, for example, maintain demonstration gardens to provide examples to residents of the different plants that can be utilized and other gardens’ styles.

These demonstration gardens are popular for tours and workshops to convey that water-efficient landscaping is beautiful and uses less water and chemicals. The cities of Dallas and Plano conduct WaterWise Landscape Tours annually, whereby residents can visit homes of

other residents to see how these plants are incorporated into a home’s landscape.

## *Water Efficiency Network of North Texas (WENNT)*

WENNT is a conglomerate of cities and water providers in the Dallas-Fort Worth area that meets monthly to discuss water conservation efforts and highlight specific programs. Attending these monthly meetings allows participants to gain new ideas and learn about new resources that may benefit their program. To learn more contact your water provider conservation coordinator.

## *City of Plano*

To help citizens identify and repair irrigation problems, the City of Plano developed an interactive website, “Water Water Everywhere: A Guide to Sprinkler Repair,” that provides an overview of sprinkler system parts, how to identify sprinkler head problems, and an explanation of the “Cycle and Soak” watering method. This website is one example of resources that other cities can use by linking to their website and promoting on social media channels.



*Demonstration garden found at TRWD.*

## ADDITIONAL LINKS AND RESOURCES

[WaterIQ Statewide Water Education Program](#)

[Save Tarrant Water](#)

[City of Plano WaterWise Landscape Tours](#)

[City of Plano Sprinkler Repair Online Module](#)

[Upper Trinity Regional Water District Demonstration Garden](#)

# OUTREACH ASSISTANCE AVAILABLE FROM WATER PROVIDERS

## BACKGROUND, IMPORTANCE AND BENEFITS

Many cities in the Dallas-Fort Worth area purchase raw or treated water from larger wholesale water providers. Both share a common goal to educate residents about conservation and increase awareness of water resource management. Without direct contact with residents (except for social media), wholesale providers can assist their wholesale customer cities with their communications and provide regional water conservation programs.

Public Outreach and Education is a common element in wholesale water provider and city/ water utility Water Conservation Plans. Therefore, for wholesale providers to assist their customers' outreach efforts, both entities accomplish requirements in their conservation plans.

An additional benefit of wholesale provider outreach assistance is consistent messaging of conservation information across multiple cities. Taking advantage of resources and programs offered by wholesale providers can save money by reducing the expenditures needed to produce materials or coordinate programs.

### TALKING POINTS

- Wholesale and retail water providers benefit from a consistent water conservation message across multiple cities and can enhance their reputation in the community.
- Utilizing resources and programs from wholesale providers allows retail cities to save money by not producing the resources or operating the programs themselves.
- Outreach assistance from wholesale providers accomplishes Public Outreach and Education elements in both the wholesale and retail water providers respective Water Conservation Plans.



# CASE STUDIES

## Wholesale providers

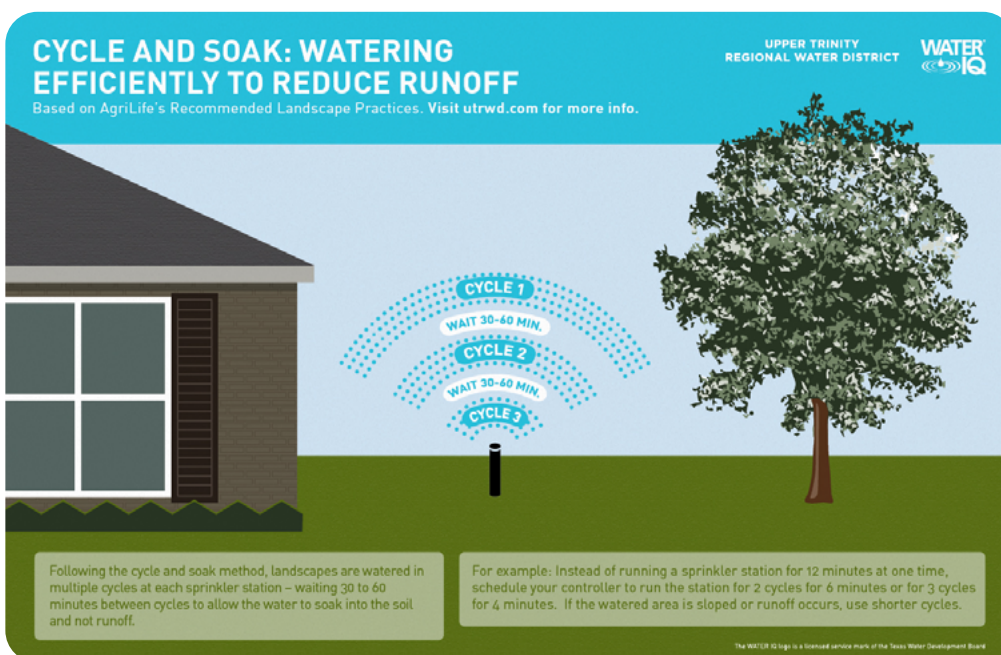
Wholesale providers in the Dallas-Fort Worth area sponsor educational classes taught by Texas A&M AgriLife Extension, Master Gardeners, or others in the area with expertise in many water conservation-related topics. These topics can include water-efficient plant selection and maintenance, rainwater harvesting, sprinkler system maintenance, and more.

Wholesale providers, such as Tarrant Regional Water District (TRWD) and Upper Trinity Regional Water District (UTRWD), offer residential irrigation evaluations to homeowners, at no-charge to the homeowner or the retail city.

TRWD, UTRWD, and Texas A&M AgriLife have partnered together to develop the Water Efficient Recognized Green Professionals

Program for landscape professionals. The purpose of the Green Pros Program is to provide training and resources for professionals to establish and maintain sustainable landscapes. As part of the program, TRWD and AgriLife sponsor a series of five training workshops for landscape professionals on creating water-efficient landscapes, low impact design, native plants, irrigation design, and turfgrass management. After the program, the landscape professionals are recognized as Green Professionals and listed on the 'Save Tarrant Water' website.

Wholesale providers may also produce resources, such as print media, digital online resources, and other materials that can assist a retail provider in promoting of water conservation information. For example, UTRWD and the North Texas Municipal Water District sponsor the 'Water My Yard' program at no charge for their customer cities. UTRWD also produces materials and other resources for their customers to utilize when promoting 'Water My Yard.'



*Example of outreach materials provided by Upper Trinity Regional Water District.*

## ADDITIONAL LINKS AND RESOURCES

[UTRWD Irrigation Check-Up Request](#)

[Water Efficient Recognized Green Professionals](#)

# PARK/ATHLETIC FIELD CONSERVATION

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## BACKGROUND, IMPORTANCE AND BENEFITS

This BMP is intended to address park and athletic field conservation if the water provider manages and/or serves customers with irrigated parks and/or athletic fields. These facilities often face scrutiny by the public for using large amounts of water or being perceived as using excessive amounts. Athletic field and park irrigation conservation practices and the careful use of water in the operation and maintenance of park facilities can effectively reduce water demands. Once a water provider or customer adopts this practice, it should be followed closely in order to achieve maximum water efficiency benefits.

With the dedication of an athletic field manager, athletic field conservation effectively reduces system water demand. A manager will implement a watering regimen that only uses the amount of water necessary to maintain the viability of the turf and health of its users. Water is only applied to areas that are essential for the use of the field.

All park facilities should be metered and water use billed to reinforce the importance of water efficiency.

Before developing an efficient watering program, the water provider should consider meeting with parks irrigation personnel, management, and authorized landscape manager. This discussion should focus on water conservation issues and developing an adequate scope of action for efficiency.

The first key is to understand the performance and capabilities of your irrigation system at these facilities. Requiring automatic irrigation systems and controllers at all facilities is recommended. It's essential to have training in soil management, proper aeration methods, nutrient management, mowing, soil testing, and irrigation management. Determine whether the approach of achieving conservation will be voluntary compliance or regulatory compliance. Determine if there is an opportunity to use reclaimed, reused, or

recycled water for parks to conserve potable water. However, specific uses must meet Texas Commission on Environmental Quality (TCEQ) water quality standards for reclaimed water and human contact. They must be appropriate for the particular use of the park. Reclaimed water should be applied based on the appropriate water budget.

When developing athletic field conservation practices, identify the various stakeholders, including the school district staff, nonprofit athletic associations, private sports complex managers, and city staff. Meeting with them will help achieve long-term results.



*City of Arlington's MLK Sports Complex: the world's first sports facility to achieve the Audubon Signature designation.*

# CASE STUDIES

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## *City of Plano*

Plano's water conservation plan allows the City of Plano Parks and Recreation Department to operate using alternative water conservation methods. City of Plano site irrigation systems are programmed, controlled, and monitored remotely by an advanced computerized control system. Alternative landscape irrigation methods are also used in the community. Pecan Hollow Golf Course uses reclaimed water, and the Legacy Business Park uses private lake water supplied by wells to irrigate their respective sites, rather than treated drinking water.

## *City of Arlington*

Recently, Arlington received the Green Ribbon Grant from the Texas Department of Transportation and was awarded \$550,000 for landscaping using Texas native plants and permanent irrigation system improvements to central medians. Where feasible, native plants reduce potable water consumption at outdoor sports facilities. The Tierra Verde Golf Course (mentioned in BMP 11) and the MLK Sports Complex are the first Audubon sanctioned sports center in the United States dedicated to environmental sensitivity. The 100-acre center features baseball fields maintained with organic pesticides and herbicides, an interpretive nature trail, and a playground made of recycled materials. The park's drainage travels through a filter system before flowing into Sublett Creek.

Arlington uses an IRRINet smart-water monitoring system, which allows staff to make immediate adjustments to irrigation practices by monitoring weather conditions, water usage patterns, and remotely detecting leaks. This technology results in \$53,000 in irrigation savings annually.

## TALKING POINTS

- Park irrigation conservation practices and the careful use of water in the operation and maintenance of park facilities can effectively reduce water demands.
- Athletic field conservation is an effective method of reducing system water demands. It results in the athletic field manager following a watering regimen that uses only the amount of water necessary to maintain the turf's viability and its users' health.
- Implementing conservation practices and communicating them with the public can prevent scrutiny and water demand.
- Improvements in irrigation practices are often very cost-effective to achieve and may yield significant savings in a short period at a low cost.

## ADDITIONAL LINKS AND RESOURCES

[Texas Water Development Board Park Conservation](#)

[TWDB Athletic Field Conservation](#)

[Texas A&M AgriLife Extension: School of Irrigation](#)

[Texas A&M Turfgrass Resources](#)

[City of Plano Current Irrigation Practices](#)

# GOLF COURSE CONSERVATION AND REUSE

## BACKGROUND, IMPORTANCE AND BENEFITS

Golf courses can use a considerable amount of water for irrigation, especially during the summer. The Environmental Institute for Golf found that from 2003-2005, an 18-hole course in the Southeast region of the country (including North Central Texas) applied an average of 29 inches of irrigation water per acre every year. Irrigation of course play areas, such as fairways, is necessary to support healthy turfgrass and landscape plants, which are important for course playability and aesthetics. However, golf courses can employ several practices to reduce water use while maintaining the course's playability and aesthetics. Also, over-watering and over-fertilization can negatively impact the water quality in local streams and lakes.

By adopting a Conservation Plan, golf courses can benefit by:

- Being a good neighbor by conserving local water supplies.
- Saving money by reducing water use.
- Protecting local water quality.
- Maintaining playing conditions on the course.
- Increasing irrigation equipment longevity.

Water providers may take different golf course conservation approaches: encouraging voluntary efforts by the golf courses to conserve water, making it required as part of a contract, or, if possible, passing an ordinance requiring golf courses to develop and implement a conservation plan.

It is important for water providers to work closely with golf courses since they know which practices will have the greatest potential for implementation. The courses may have already completed some best management practices and knowledge which may be effective or not. Water providers should work to coordinate and implement conservation practices on courses that are owned and operated by the local government.

### TALKING POINTS

- Golf courses can implement many practices that reduce water use while maintaining the course's playability and aesthetics.
- Local governments can encourage or require golf courses to reduce water use by developing and implementing a Conservation Plan for the course. It is essential to work closely with golf course staff to identify practices that may save water and evaluate the effectiveness of methods already implemented.
- Golf courses benefit from conservation by saving money on water and maintenance while maintaining high-quality, aesthetically appealing courses.
- Golf courses that are owned and operated by local governments need to implement conservation practices as a way to conserve their water supply.
- Designing a course that reduces irrigated areas and maximizes water use efficiency in the irrigation system also protects water quality in local streams and lakes by reducing runoff and pollutants coming from the courses.
- Golf courses can promote that they are a good neighbor by educating the public on the practices they've implemented and how much water has been saved annually.

*Water conservation and water quality protection measures for golf courses can be found in Appendix C.*

# CASE STUDIES

## *City of Dallas Cedar Crest Golf Course and Stevens Park Golf Course*

Two City of Dallas public golf courses, Cedar Crest and Stevens Park, irrigate with treated effluent (direct reuse) provided by Dallas' Central Wastewater Treatment Plant. Cedar Crest stopped using potable water for irrigation in 2004, and Stevens Park began direct reuse in 2011.



*Hole 6 at Tierra Verde Golf Course.  
More information can be found at  
<https://www.arlingtongolf.com/facts-fees>.*

## *City of Arlington Tierra Verde Golf Course*

Tierra Verde golf course is owned and operated by the City of Arlington. Several measures have saved the golf course an estimated 25-35% on water use compared to ten years ago. Some of the water-saving measures implemented include:

- Replacing the nozzles on almost all of the fairway, rough, and greens sprinkler heads to more efficient brass nozzles.
- Improving irrigation uniformity through careful evaluation of sprinkler head design, nozzle selection, head spacing, pipe size, and pressure selection.
- Replacing smaller rotors (1") in tee areas to part circle and adjustable rotors to eliminate any water hitting non-mowed spots.
- Upgrades to the on-site weather station to give better evapotranspiration data.
- Installing in-ground soil moisture sensors in various course areas to monitor moisture content.
- Utilizing handheld moisture sensors to determine water needs on greens daily.
- Removal of cedar trees and other high water use plants adjacent to turf areas that create dry spots.
- Improving the aerification program to allow more water to infiltrate in high traffic and turf areas.
- Installing an EZFlo fertigation tank to apply wetting agents more easily to the turf.

## ADDITIONAL LINKS AND RESOURCES

[Golf Course Superintendents Association of America](#)

[Environmental Institute for Golf](#)

[Audubon International Cooperative Sanctuary Program for Golf](#)

[Texas Water Development Board – Golf Course Conservation](#)

[United States Golf Association Water Resource Center](#)

[Alliance for Water Efficiency – Golf Course Water Efficiency](#)

# USE OF LICENSED IRRIGATORS TO INSPECT & REVIEW ALL IRRIGATION PERMITS & PLANS

## BACKGROUND, IMPORTANCE AND BENEFITS

This BMP promotes using licensed irrigation inspectors to review and inspect all irrigation system plans and installed components before a permit is released. Many cities use licensed plumbing inspectors, as allowed by TCEQ rules, to perform these duties. However, having dedicated licensed irrigation inspectors to implement all aspects of an irrigation system permitting program provides a certain level of focus for complying with water efficiency standards.

Reviewing irrigation permits and plans before installing allows for changes to be made to the plans and not after the pipe is already in the ground. This ensures the irrigation system's overall quality, promotes irrigation efficiency and guarantees that the system will comply with state and local requirements.

Developing a review and inspection program at the municipal level reduces the chance for unlicensed irrigators to install irrigation systems improperly. Improper installation can waste water, money, cause future maintenance issues, but most importantly, it may contaminate the public water supply. It is crucial to prevent non-potable water in lawn irrigation pipes from flowing into public water supply pipes.

Inspecting the system provides benefits for water conservation. With open-trench inspections, you can check:

- Depth of piping-which protects from freezing temperatures.
- Potential invasion of plant/shrubbery roots.
- Joints are glued appropriately, and no leaks occur.
- Pipe size-to eliminate water hammer.
- Pressure management requirements.
- The overall layout of system.

Keep in mind that staff can hold an irrigators license and inspectors license, but to prevent them from installing and inspecting their work, staff can't have both running concurrently.

In 2011, the 82<sup>nd</sup> Texas Legislature passed House Bill 2507, making it a Class C misdemeanor for an individual to operate as an irrigator in the state of Texas without a valid irrigation license. Therefore, effective September 1, 2011, individuals operating without a license are in direct violation of the Texas Occupational Code, Sec. 1903.256.

Tarrant Regional Water District and Upper Trinity Regional Water District partners with Texas A&M AgriLife Extension to sponsor the Green Pros Program. A training workshop for licensed irrigators that desire to create and maintain environmentally sustainable landscapes. Should you have staff become licensed, this is a great program to meet local contractors and become a water-efficient recognized green professional.

According to the Texas Administrative Code, upon completion of the irrigation system, four items must be completed to inform and educate the owner of the system. These items include a final walk-through, a maintenance checklist, licensed irrigator contact information, and an as-built plan. All irrigation system plans, installation, and review requirements must be followed for long-term water efficiency. Minimum state requirements for Landscape Irrigation can be found in [Chapter 344](#) of the Texas Administrative Code.





# CASE STUDIES

## *City of Frisco*

The City of Frisco uses licensed staff to review irrigation system permits and plans and conduct initial inspections of the irrigation system before backfilling any part of the system. For more information about the irrigation program, visit the [City of Frisco Irrigation](#) website.



## *City of Mansfield*

Since 2012, every new house or building must have an irrigation system in the city of Mansfield. The city has licensed irrigation inspectors on staff to review irrigation system permits and plans before installation. On average, the City of Mansfield inspects and reviews 300-400 plans a year. For more information about the irrigation program, visit the [City of Mansfield Conservation](#) website.



## TALKING POINTS

- Inspections and reviews of permits and plans will optimize the irrigation system's water efficiency and performance, which conserves water, money, and time for the system's owner.
- Inspections and reviews of permits and plans will confirm the proper installation of components, such as a backflow prevention device, isolation valves, and Y-strainers, ensuring public drinking water safety.
- Having an inspection and review process helps water providers know the location and number of systems and who installed them.
- Irrigation systems use a large amount of water. Permit and plan reviews by licensed irrigation inspectors help with the conservation and protection of available water resources.

## ADDITIONAL LINKS AND RESOURCES

[Texas Irrigation Association Best Management Practices](#)

[Irrigation Association Landscape Irrigation Best Management Practices](#)

[Texas Water Development Board: BMPs for Municipal Water Providers](#)

# OFFER FREE OR DISCOUNTED IRRIGATION SYSTEM CHECK-UPS FOR RESIDENTIAL CUSTOMERS

## BACKGROUND, IMPORTANCE AND BENEFITS

The Environmental Protection Agency estimates that up to 70% of the total water used during the summer months is applied as outdoor irrigation. As much as 50% of the water used outdoors is wasted due to overwatering and inefficient or malfunctioning irrigation system components.

Irrigation System Check-Ups (also known as Evaluations or Audits) for residential customers, is a tool that cities can employ to reduce outdoor watering demand. Check-ups are typically offered at no charge to homeowners.

A licensed irrigator will evaluate the irrigation system components and controller settings during a typical check-up to see if the irrigation system can operate more efficiently and identifies needed repairs or adjustments. The licensed irrigator will run the irrigation system to see if the sprinkler heads function correctly and apply water only to the intended areas. They will check the irrigation system's pressure and discuss the controller settings with the homeowner to advise them on the most efficient watering methods.

One valuable aspect of check-ups is the one-on-one assistance and education that a residential customer receives on properly managing the irrigation system. This education can result in long-term water savings because the customer has a better understanding about the system. Water savings may last for multiple years after the evaluation is completed, mainly due to more efficient watering habits. As part of the check-up, the licensed irrigator will identify inefficiencies in the resident's irrigation system and educate them on programming the irrigation controller for more efficient watering practices, such as seasonal adjustment settings and 'Cycle and Soak'. The sponsoring water provider or city can also offer handouts, brochures, and other educational information to residents.

The licensed irrigator can provide a report to the residential customer detailing equipment problems and offer recommendations to change watering habits. Reports can include an estimated water savings amount based on recommended adjustments to the controller run times. The licensed irrigator should also provide a copy of the report to the sponsoring water provider or city.

A drawback of check-ups is that, unlike indoor fixture or appliance replacements, water savings from irrigation system repairs will last a limited number of years. Benefits of check-ups include one-on-one contact with residential customers, providing educational information that may result in greater water savings than irrigation system fixes alone. Check-ups are an excellent customer service tool when managing residents' complaints. When using check-ups, cities can be selective by targeting high water users or those with large lots to maximize budget and water savings.

Water providers or cities should consider conducting a customer satisfaction survey after the check-up is completed to determine how many residents have implemented recommended modifications and gauge satisfaction with the check-up program.



# CASE STUDIES

## *City of Frisco*

The cities of Dallas and Frisco have licensed irrigators on staff who conduct free Irrigation System Check-Ups for their customers upon request by filling out a form online.

The City of Frisco performs check-ups as a conservation program to manage outdoor watering demands. In the first year offered (2006), city staff completed 660 check-ups. Today, the program has evolved to completing about 3,000 check-ups a year and recently began offering the service to commercial properties. The check-ups, which include programming the watering schedule, searching for leaks or damage, and a detailed report for the customer, boast an average of 40-45% in water savings for the irrigation system.

## *City of Mansfield*

The City of Mansfield participates in TRWD's check-up program and employs licensed irrigators who conduct evaluations for residents. This service is offered to help alleviate the frustrations residents have when they complain about their water bills.

## *North Texas cities and water districts*

Other cities and water districts (i.e., Allen, Propser, Southlake, TRWD, and UTRWD) contract with a licensed irrigation company that conducts the check-up. It is essential to be specific about expectations and deliverables when developing the city and irrigation company's agreement.



## TALKING POINTS

- Outdoor irrigation accounts for up to 70% of total water use during the summer months, and as much as half is wasted due to overwatering and inefficient or malfunctioning irrigation systems.
- Irrigation System Check-ups are a valuable conservation tool that can reduce outdoor watering demand by helping residential customers identify inefficiencies or needed repairs with their irrigation system and how to program the irrigation controller properly.
- Irrigation System Check-ups are performed by a licensed irrigator who is either a city employee or contracts with the city to perform the service.
- Irrigation System Check-ups is a valuable education tool for residential customers by providing one-on-one assistance and providing additional conservation information on brochures, handouts, etc.
- Water savings from Irrigation System Check-ups can last for multiple years from both recommended repairs to the system and more efficient watering habits by the customer.

## ADDITIONAL LINKS AND RESOURCES

Shimabuku, M., D. Stellar, and P. Mayer. 2016. Impact Evaluation of Residential Irrigation Audits on Water Conservation in Colorado. Journal AWWA.

[Tarrant Regional Water District Residential Sprinkler System Evaluation Program](#)

[City of Frisco Free Sprinkler System Check-Ups](#)

[City of Dallas Free Sprinkler System Check-Ups](#)

[City of Mansfield Sprinkler System Evaluation Form](#)

# REBATES TO ENCOURAGE IMPROVED EFFICIENCY IN EXISTING IRRIGATION SYSTEMS

## BACKGROUND, IMPORTANCE AND BENEFITS

As the population increases in the North Texas region, so makes the demand for more water, especially because many newer cities require irrigation systems in new developments. Based on a 2012 study conducted by the Texas Water Development Board, outdoor water use accounted for approximately 31% of all residential water use across Texas from 2004 to 2008. For more details, visit Texas Water Development Board's 2012 Technical Note 12-01, [The Grass is Always Greener...Outdoor Residential Water Use in Texas](#). In this report, on page 23, [Table 3](#) illustrates outdoor residential water use for many larger cities across Texas.

Creating a program that encourages residents to become educated on their irrigation system can improve operation and efficiency. Texas AgriLife Extension has developed a presentation titled [Irrigation Efficiency](#), which provides this education.

Furthermore, when it comes to the type of irrigation system and standard efficiencies, the Texas AgriLife Research and Extension Urban Solutions Center provide the following average efficiencies by system type:

- Surface/Subsurface drip – 90%
- Surface micro drip irrigation – 85%
- Large Rotors – 70%
- Small Rotors – 65%
- Spray Heads – 50%

This BMP provides, in conjunction with the sprinkler evaluation (check-up) program, an incentive to have an evaluation done and make recommended changes.

With such a substantial opportunity for efficiency gains, some cities may wish to consider offering rebates to both residential and commercial customers for upgrading their current irrigation system.

By changing out less efficient equipment, this BMP intends to increase the irrigation efficiency by 10 percent or more.

With 31% of all residential water use statewide attributed to irrigation, and most of that conducted using spray heads with an average efficiency of 50%, there is a real benefit for developing a rebate program for irrigation systems.

According to the Texas Water Development Board's "[Water Use of Texas Water Utilities](#)" 2020 report to the 87<sup>th</sup> Texas Legislature, residential per capita water consumption across all analyzed utilities was 82 gpcd. The total residential water use is approximately 868 billion gallons per year, based on the current population of around 29 million people, and 82 gpcd residential water use. Landscape irrigation attributes to 31% or 269 billion gallons per year based on a review of available data.



# CASE STUDIES

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## *City of Dallas*

Dallas revamped the rebate portion of its Industrial, Dallas revamped the rebate portion of its Industrial, Commercial, Institutional (ICI) Program in January 2019 to include a more appropriate calculation for determining potential rebates for the cost of new water-saving equipment and processes, including irrigation systems. For more information about the program, visit the [City of Dallas ICI Program website](#).

## *City of Allen*

The City of Allen offers a rebate program, depending on the annual budget. Through the H2Ome Improvement SMART Irrigation Technology Rebate Program, participants can receive 50% of the cost up to a maximum of \$125.00 to install qualifying SMART irrigation technology equipment. For more information about the program, visit the [City of Allen H2Ome Rebate Program website](#).

There are many North Texas cities with rebate programs that are unique to their community's needs. Here is a list of some North Texas cities with outdoor irrigation rebate programs:

- [City of Plano](#)
- [City of Southlake](#)
- [City of Lewisville](#)
- [City of McKinney](#)
- [City of Carrollton](#)

## TALKING POINTS

- Outdoor water use accounts for approximately 31% of all residential water use across Texas from 2004 to 2008.\*
- 89% of single-family households practice irrigation. 95% is spray irrigation. 92% of the 95% do not understand how an irrigation system runs.\*\*
- Rebates incentivize customers to invest in upgrades they would not typically invest in by reducing the overall payback period.
- A 10 percent reduction in statewide annual residential irrigation would yield potential savings of approximately 23.9 billion gallons per year.

Sources:

\*2012 study conducted by the Texas Water Development Board,

\*\* Texas AgriLife Research and Extension Urban Solutions Center

## ADDITIONAL LINKS AND RESOURCES

[Rebate and Voucher Program Introduction](#)

[TWDB: Best Management Practices for Water Providers](#)

[WaterSense Rebate Finder](#)

[SAWS Residential Irrigation Design Rebate](#)

[City of Round Rock Conservation Rebates](#)

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# COMMUNICATION TOOLKIT

## GENERAL COMMUNICATION TOOLS AND STRATEGIES

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### GENERAL COMMUNICATION TIPS

Before using the tools and strategies, decide what to measure or how you will track success.

Readability matters. The general public reads at an 8th-grade reading level. Use simple words, refrain from using water-related jargon and acronyms.

Translate legalistic terms when required to use regulatory language.

Determine your target audience for each message and event. Defining a niche audience will help you reach more people on a deeper level.

Develop internal and external brand ambassadors. These are community influencers who amplify your message.

Use the same voice and tone across each messaging platform.

Create a content calendar that includes evergreen material—national campaigns and events—or seasonal occurrences, such as frozen pipes or high water bills.

Consistency is the key to establishing the cadence for your posts, blogs, newsletters, etc.

### WATER CONSERVATION AND COMMUNICATION TIPS



Develop your “water story” for all stakeholders. The “story” includes infrastructure needs, water pricing, water sources, how your city fits in the bigger picture, etc.



All water providers are encouraged to understand their water system and communicate the value of conservation measures on current and future infrastructure needs.



Provide graphics to illustrate water use concepts, such as the urban water cycle, rising water rates, and projects.

# COMMUNICATION TOOLKIT

## GENERAL COMMUNICATION TOOLS AND STRATEGIES

### CUSTOMER TOUCH POINTS

Water providers should use a diverse mix of tools and strategies to communicate their water conservation message, including:



Utility/Water Bills



Virtual/Live Events



Newsletters



Local Ambassadors



Educational Classes



Print Media



Customer Portals



Demonstration Gardens



Radio



Social Media



Billboards



Television



Schools



Websites

### SOCIAL MEDIA ETIQUETTE

#### DO'S

Do remember all content is for your audience, not you or your organization.

Do break up big ideas or concepts into smaller points, which creates more content and easier understanding.

Do link to more information (your website) whenever possible.

Do include humor, puns, national calendar days, and interesting facts when appropriate.

Do use trending topics and hashtags when appropriate.

Do retweet or share related appropriate organizations' posts.

Do appropriately credit the photo/video source.

#### DON'TS

Don't assume your audience knows anything about your subject.

Don't post without a visual to support your point.

Don't post an image until you confirmed the platform's photo specs.

Don't post for quantity. Posts should be engaging and purposeful.

Don't use low-quality photos or logos. The minimum high-resolution image is 72 dpi for web use.

Don't create long videos. Keep videos 30 seconds to 90 seconds and include captions.

Don't create complicated graphics or infographics. Simplicity is key.



# ADDITIONAL WATER SAVING MEASURES FOR NEW IRRIGATION SYSTEM REQUIREMENTS

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Many cities within Region C have adopted irrigation system standards above the minimum state requirements. Some of these standards include:

- Require property owners that install their irrigation system to also comply with the adopted city ordinance.
- Require submission of the irrigation plan in conjunction with the permit application to the applicable city official/department.
- Require all new irrigation systems to include an automatic controller.
- Require all new irrigation systems to not utilize above-ground spray in landscapes that are less than 60 inches in either length or width and which contain impervious pedestrian or vehicular traffic surfaces along two or more perimeters. The use of subsurface or drip irrigation and pressure compensating tubing is permitted if the qualifying area will be irrigated.
- Require all non-turf landscape areas included in the irrigation plan to be designed with subsurface irrigation, drip irrigation, and/or pressure compensating tubing. If the irrigation plan includes a foundation watering system, require a separate station be dedicated for drip irrigation for the purpose of watering a structure's foundation.
- Require a flow control master valve to be installed on the discharge side of the backflow prevention device on all new installations.
- Require check valves where elevation differences may result in low head drainage. Check valves may be located at the sprinkler head(s) or on the lateral line.
- Require that pop-up heads shall be installed at grade level and operated to extend above all landscape turfgrass.
- Require that all new irrigation systems must include an automatic controller capable of providing the following features:
  1. Multiple irrigation programs with at least three start times per program.
  2. Limiting the irrigation frequency to once every 7 days and once every 14 days
  3. Water budgeting feature
- Require additional information and description for the required "walk-through."
- Require an "operational" rain and freeze sensor.
- Require the signed maintenance checklist be submitted to the applicable city official/department. Require the irrigator's name, license number, company name, telephone number, and the dates of the warranty period to be on the maintenance checklist.
- Require the irrigation plan indicating the actual installation of the system and the associated seasonal watering schedule be submitted to the applicable city official/department.
- Require the irrigation plan and maintenance checklist be transferred from the new home builder to the first home buyer with documentation confirming the transaction provided to the applicable city official/department.

# ADDITIONAL GOLF COURSE CONSERVATION REUSE

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## WATER CONSERVATION AND WATER QUALITY PROTECTION MEASURES

Water conservation and water quality protection measures for golf courses may include, but are not limited to, the following:

### Golf Course Landscape Design and Water Sources

- When feasible, use alternative water sources, such as reclaimed or reuse water from wastewater treatment facilities, to supplement or replace potable water sources. Monitor reclaimed water tests regularly for salinity. Rainwater harvesting and on-site pond storage are additional alternative water sources to consider.
- Select drought-tolerant turfgrass varieties to minimize water use while maintaining a high-quality playing surface.
- Reduce the number of irrigated acres on the course by converting non-play and rough areas to native grasses and other drought-tolerant plants. These plants will provide an attractive and low-maintenance landscape.
- Develop a Drought Management Plan that can be implemented when water supplies are low enough to enact local drought mitigation efforts.

### Irrigation System Design and Maintenance

- Irrigation systems should be properly designed and installed to maximize water use efficiency while reducing operational costs and maintaining a healthy and playable course.
- Utilize new technology, such as soil moisture sensors, evapotranspiration data, and computer-controlled systems that maximize water efficiency by irrigating based on the turfgrass's moisture needs.
- Hand watering greens or other smaller areas will save water compared to running the entire zone in that area.
- Design the irrigation system to ensure that the irrigation water is distributed evenly and efficiently, with a Distribution Uniformity of 80% or better.
- Frequently inspect all sprinkler heads and other components of the irrigation system and make any adjustments or repairs as needed to improve water use efficiency. Conducting a system-wide audit by a licensed irrigation professional annually can help identify inefficiencies in the system.
- Fix leaks in the system immediately.
- Rain sensors can shut off the irrigation system when an adequate amount of rainfall is received.
- Irrigating in the early morning hours before temperatures rise and when wind speeds are low will reduce the amount of water lost to evaporation.
- Use mowing, aeration, nutrients, and soil amendments to improve soil condition and increase water infiltration.

### Water Quality Protection

- Apply fertilizers and chemicals according to the directions on the label. Do not overapply.
- Do not overwater fertilizers when applying, resulting in runoff that could carry fertilizers into a nearby stream or pond.
- Maintain vegetated buffers at least 15 feet from the edge of a stream or pond to capture pollutants that may runoff from the course.

The water savings should be simple to quantify for golf courses with meters or computer-controlled irrigation systems if records existed before implementing any practices.

This document was made in collaboration with the North Texas Regional Water Providers to be a guide of best management practices to reduce water waste and encourage long-term water conservation.

The North Texas Regional Water Providers are comprised of:  
Dallas Water Utilities  
North Texas Municipal Water District  
Tarrant Regional Water District  
Upper Trinity Regional Water District

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**APPENDIX H**

**TARRANT REGIONAL WATER DISTRICT BOARD RESOLUTION  
ADOPTING THE WATER CONSERVATION AND DROUGHT  
CONTINGENCY AND EMERGENCY WATER MANAGEMENT  
PLAN**

**Appendix H**

**Tarrant Regional Water District Board Resolution Adopting the Water Conservation and Drought Contingency and Water Management Plan**

**RESOLUTION  
OF  
THE BOARD OF DIRECTORS OF  
TARRANT REGIONAL WATER DISTRICT  
ADOPTING THE WATER CONSERVATION AND  
DROUGHT CONTINGENCY AND EMERGENCY WATER MANAGEMENT PLAN**

**WHEREAS**, Tarrant Regional Water District, a Water Control and Improvement District (the “District”), as a wholesale water supplier, is required by the Texas Commission on Environmental Quality to develop (a) a water conservation plan pursuant to Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.5 of the Texas Administrative Code and (b) a drought contingency plan pursuant to Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.22 of the Texas Administrative Code; and

**WHEREAS**, the District recognizes the importance of a long-term approach to conserving water supplies by reducing the volume of water withdrawn from its reservoirs, reducing the loss or waste of water, improving water use efficiency, and increasing the recycling and reuse of water; and

**WHEREAS**, the plan provides significant benefits to the District, its customers, and the public they serve through the implementation of year-round water saving strategies to increase District reservoir storage volumes during wet or dry weather conditions; and

**WHEREAS**, as authorized under law, and in the best interests of its customers, the District deems it expedient and necessary to establish certain rules and policies for the orderly and efficient management of limited water supplies during drought and other water supply emergencies.

**NOW, THEREFORE**, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE TARRANT REGIONAL WATER DISTRICT that the Water Conservation and Drought Contingency and Emergency Water Management Plan attached hereto as Exhibit A is adopted as the controlling policy of the District.

Passed and approved this 16<sup>th</sup> day of April, 2024.

By: \_\_\_\_\_

Leah M. King  
President, Board of Directors

ATTEST:

By: \_\_\_\_\_

Mary Kelleher  
Secretary, Board of Directors

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**APPENDIX I**  
**LETTER TO REGION C**  
**WATER PLANNING GROUP**



**APPENDIX I**

**Letter to Region C Water Planning Group**

May 1, 2024

Mr. Kevin Ward  
Chair, Region C Water Planning Group  
Trinity River Authority  
P.O. Box 60  
Arlington, TX 76004

Dear Mr. Ward:

Enclosed please find a copy of the recently adopted water conservation and drought contingency and emergency water management plan for the Tarrant Regional Water District. I am submitting a copy of this plan to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The Board of the Tarrant Regional Water District adopted the attached plan on April 16, 2024.

Sincerely,

Dan Buhman  
General Manager  
Tarrant Regional Water District

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**APPENDIX J**

**TEXAS WATER CODE  
SECTION 11.039**

**APPENDIX J**

**Texas Water Code Section 11.039**

**§ 11.039. Distribution of Water During Shortage**

(a) If a shortage of water in a water supply not covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, accident, or other cause, the water to be distributed shall be divided among all customers pro rata, according to the amount each may be entitled to, so that preference is given to no one and everyone suffers alike.

(b) If a shortage of water in a water supply covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, accident, or other cause, the person, association of persons, or corporation owning or controlling the water shall divide the water to be distributed among all customers pro rata, according to:

(1) the amount of water to which each customer may be entitled; or

(2) the amount of water to which each customer may be entitled, less the amount of water the customer would have saved if the customer had operated its water system in compliance with the water conservation plan.

(c) Nothing in Subsection (a) or (b) precludes the person, association of persons, or corporation owning or controlling the water from supplying water to a person who has a prior vested right to the water under the laws of this state.

Amended by Acts 1977, 65th Leg., p. 2207, ch. 870, § 1, eff. Sept. 1, 1977.

Amended by Acts 2001, 77th Leg., ch. 1126, § 1, eff. June 15, 2001.

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## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 13

**DATE:** April 16, 2024

**SUBJECT: CONSIDER APPROVAL OF RESOLUTION AUTHORIZING THE ISSUANCE, SALE, AND DELIVERY OF TARRANT REGIONAL WATER DISTRICT, A WATER CONTROL AND IMPROVEMENT DISTRICT, WATER REVENUE REFUNDING AND IMPROVEMENT BONDS, SERIES 2024, PLEDGING REVENUES FOR THE PAYMENT OF THE BONDS, APPROVING AN OFFICIAL STATEMENT, AND AUTHORIZING OTHER INSTRUMENTS AND PROCEDURES RELATING THERETO**

**FUNDING:** N/A

#### **RECOMMENDATION:**

Management and the Finance Committee recommend approval of a resolution authorizing the issuance, sale, and delivery of the Tarrant Regional Water District, a Water Control and Improvement District, Water System Revenue Refunding and Improvement Bonds, Series 2024, pledging revenues for the payment of the bonds, approving an official statement, and authorizing other instruments and procedures relating thereto.

#### **DISCUSSION:**

The Finance Committee reviewed the issuance of the Water System Revenue Bonds at the March 18, 2024 Finance Committee Meeting. These bonds are being issued to (i) pay for design and construction costs related to the District's Water System, including new and replacement pipeline projects, the new operations building, employee and public safety projects, the Kennedale Balancing Reservoir, Cedar Creek Wetlands, and other construction, improvements, and repairs to the District's Water System; (ii) to refund on a current basis for debt service savings through purchase by means of a tender offer and cancellation, all or a portion of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B, (iii) to defease for debt service savings all or a portion of the aggregate principal amount of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B; (iv) to fund a debt service reserve fund; and (v) to pay costs of issuance for the Series 2024 Bonds. The total needed for design and construction costs is approximately \$100 million, and the remaining amount is related to the refunding bonds, reserve fund, and issuance costs. In addition to funding the capital projects listed above, management is requesting approval to refinance all of the outstanding bonds mentioned above (up to \$477.79 million) for savings, but the actual amount refunded is expected to be less than that amount. The actual amount refinanced will not be known until the time of pricing as it is dependent on the number of investors/bond holders that

accept the tender offer made and market conditions. Pricing is anticipated in mid-May and management will report back on the outcome.

The District's Advisory Committee reviewed this matter at the March 28, 2024 meeting and recommended proceeding with this issue.

Representatives of Hilltop Securities, Inc. and The RSI Group, LLC, the District's Co-Financial Advisors, and McCall, Parkhurst and Horton, LLP and Escamilla & Poneck, LLP, the District's Co-Bond Counsel, will be available should there be any questions. Please see attached the draft Preliminary Official Statement, the current timeline for issuing the bonds and the Resolution.

**Submitted By:**

Sandy Newby  
Chief Financial Officer

This Preliminary Official Statement and the information contained herein are subject to completion or amendment. These securities may not be sold nor may offers to buy be accepted prior to the time the Preliminary Official Statement is delivered in final form. Under no circumstances shall the Preliminary Official Statement constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction.

**DRAFT**



**PRELIMINARY OFFICIAL STATEMENT**

Dated April 16, 2024

**Ratings:**  
**S&P:** "BBB"  
**Fitch:** "BBB"  
 (See "OTHER INFORMATION - Ratings" herein)

**NEW ISSUE - Book-Entry-Only**

In the opinion of Co-Bond Counsel, interest on the Bonds will be excludable from gross income for purposes of federal income taxation under statutes, regulations, published rulings and court decisions existing on the date of such opinion, subject to the matters described herein including the alternative minimum tax on certain corporations. See "TAX MATTERS" herein for a discussion of the opinion of Co-Bond Counsel.



**TARRANT REGIONAL WATER DISTRICT,  
 A WATER CONTROL AND IMPROVEMENT DISTRICT,  
 WATER REVENUE REFUNDING AND IMPROVEMENT BONDS, SERIES 2024**

**Dated: May 1, 2024**

**Due: March 1, as shown below**

**Interest Accrues from Delivery Date**

**PAYMENT TERMS** . . . Interest on the \$\_\_\_\_\_ Tarrant Regional Water District, A Water Control and Improvement District (the "District"), Water Revenue Refunding and Improvement Bonds, Series 2024 (the "Bonds") will accrue from the date of initial delivery to the purchasers thereof (the "Delivery Date"), will be payable on September 1 and March 1 of each year, commencing September 1, 2024, until maturity or prior redemption, and will be calculated on the basis of a 360-day year consisting of twelve 30-day months. The definitive Bonds will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC") pursuant to the Book-Entry-Only System described herein. Beneficial ownership of the Bonds may be acquired in denominations of \$5,000 or integral multiples thereof. **No physical delivery of the Bonds will be made to the owners thereof.** Principal of and interest on the Bonds will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the beneficial owners of the Bonds. See "The Bonds - Book-Entry-Only System" herein. The initial Paying Agent/Registrar is BOKF, NA, Dallas, Texas (see "The Bonds - Paying Agent/Registrar").

**SECURITY AND SOURCE OF PAYMENT** . . . The Bonds are and shall be secured by and payable from a first lien on and pledge of the Pledged Revenues of the District. Pledged Revenues consist of the Net Revenues of the District's raw water supply system (the "System"), which include amounts payable by the Cities of Fort Worth, Arlington and Mansfield, and the Trinity River Authority of Texas pursuant to the Contract (as defined herein) and by other customers, and any additional revenues, income, receipts, grants, donations, or other resources, received or to be received from any public or private source, which in the future may, at the option of the District, be pledged to the payment of the Parity Bonds (as defined herein) or any Additional Bonds (see "Selected Provisions of the Resolution").

**AUTHORITY FOR ISSUANCE** . . . The Bonds are issued pursuant to the general laws of the State of Texas, including Chapters 49 and 51, Texas Water Code, as amended, pursuant to the provisions of Chapters 1207 and 1371, Texas Government Code, as amended, Chapter 268, Acts of 1957, 55th Legislature of Texas, Regular Session, as amended, and pursuant to a resolution adopted by the Board of Directors of the District. In the resolution adopted on April 16, 2024 authorizing the issuance of the Bonds, the District delegated pricing of the Bonds and certain other matters to an "Authorized Officer" and authorized the Authorized Officer to execute an "Approval Certificate" (the resolution and the Approval Certificate are collectively referred to herein as the "Resolution" or a "Bond Resolution").

**PURPOSE** . . . Proceeds from the sale of the Bonds will be used (i) to pay for planning, design, construction and right of way costs related to the System, including the design and construction of a new operations facility, design and construction of various employee and public safety projects, design of Phase 4 of the Integrated Pipeline Project, construction of Kennedale Balancing Reservoir cell modifications, continued design of Cedar Creek Wetlands, and other construction, improvements and repairs to the System; (ii) to refund on a current basis for debt service savings through purchase and cancellation by means of a tender offer, as described herein, \$\_\_\_\_\_ aggregate principal amount of the District's Water Revenue Refunding Bonds, Taxable Series 2020 (the "Series 2020 Bonds") and Water Revenue Refunding Bonds, Taxable Series 2020B (the "Series 2020B Bonds") (in aggregate, the "Purchased Bonds") as set forth in Schedule I - "SCHEDULE OF REFUNDED BONDS" attached hereto; (iii) to defease for debt service savings \$\_\_\_\_\_ aggregate principal amount of Series 2020 Bonds and Series 2020B Bonds (the "Defeased Bonds" and together with the Purchased Bonds, the "Refunded Bonds") as set forth in Schedule I - "SCHEDULE OF REFUNDED BONDS" attached hereto; (iv) to fund a debt service reserve fund; and (v) to pay costs of issuance for the Bonds.

**MATURITY SCHEDULE\***

**CUSIP Prefix: 876443<sup>(1)</sup>**

Amount	March 1 Maturity	Rate	Yield	CUSIP Suffix <sup>(1)</sup>	Amount	March 1 Maturity	Rate	Yield	CUSIP Suffix <sup>(1)</sup>
	2025					2040			
	2026					2041			
	2027					2042			
	2028					2043			
	2029					2044			
	2030					2045			
	2031					2046			
	2032					2047			
	2033					2048			
	2034					2049			
	2035					2050			
	2036					2051			
	2037					2052			
	2038					2053			
	2039					2054			

(1) CUSIP® is a registered trademark of the American Bankers Association. CUSIP data herein is provided by CUSIP Global Services ("CGS") managed on behalf of the American Bankers Association by FactSet Research Systems Inc. This data is not intended to create a database and does not serve in any way as a substitute for the CGS database. CUSIP® numbers are provided for convenience of reference only. None of the District, the Financial Advisor, or the Underwriters of the Bonds shall be responsible for the selection or correctness of the CUSIP numbers set forth herein.

**REDEMPTION OPTION** . . . The District reserves the right, at its option, to redeem Bonds having stated maturities on and after March 1, 2035, in whole or in part, in principal amounts of \$5,000 or any integral multiple thereof, on March 1, 2034, or any date thereafter, at a price equal to the principal amount thereof plus accrued interest to the date of redemption (see "The Bonds - Optional Redemption").

**LEGALITY** . . . The Bonds are offered for delivery when, as and if issued and received by the Underwriters and subject to the approving opinion of the Attorney General of Texas and the opinion of McCall, Parkhurst & Horton L.L.P., Dallas, Texas, and Escamilla & Poneck, LLP, Fort Worth, Texas, Co-Bond Counsel (see Appendix C, "Forms of Co-Bond Counsel's Opinions"). Certain legal matters will be passed upon for the Underwriters of the Bonds by their counsel Kelly Hart & Hallman LLP, Fort Worth, Texas.

**DELIVERY** . . . It is expected that the Bonds will be available for delivery through The Depository Trust Company on June 6, 2024.

**JEFFERIES**

**SIEBERT WILLIAMS SHANK & Co., LLC**

**WELLS FARGO BANK, N.A.**



For purposes of compliance with Rule 15c2-12 of the United States Securities and Exchange Commission (the "Rule"), this document constitutes an "official statement" of the District with respect to the Bonds that has been "deemed final" by the District as of its date except for the omission of no more than the information permitted by the Rule.

This Official Statement, which includes the cover page, Schedule I and the Appendices hereto, does not constitute an offer to sell or the solicitation of an offer to buy in any jurisdiction to any person to whom it is unlawful to make such offer, solicitation or sale.

No dealer, broker, salesperson or other person has been authorized to give information or to make any representation other than those contained in this Official Statement, and, if given or made, such other information or representations must not be relied upon.

Certain information set forth herein has been obtained from the District and other sources considered by the District to be reliable, but such information is not guaranteed as to accuracy or completeness and is not to be construed as the promise or guarantee of the Co-Financial Advisors or the Underwriters. This Official Statement contains, in part, estimates and matters of opinion which are not intended as statements of fact, and no representation is made as to the correctness of such estimates and opinions, or that they will be realized.

The Underwriters have provided the following sentence for inclusion in this Official Statement: The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their respective responsibilities to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

Any information and expressions of opinion herein contained are subject to change without notice, and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the District or other matters described herein since the date hereof. See "CONTINUING DISCLOSURE OF INFORMATION" for a description of the District's undertaking to provide certain information on a continuing basis.

None of the District, the Co-Financial Advisors or the Underwriters makes any representation or warranty regarding the information in this Official Statement describing DTC or the DTC Book-Entry-Only System. CUSIP numbers have been assigned to this issue by the CUSIP Global Services and are included solely for the convenience of the owners of the Bonds. None of the District, the Co-Financial Advisors, or the Underwriters shall be responsible for the selection or correctness of the CUSIP numbers shown herein.

THIS OFFICIAL STATEMENT CONTAINS "FORWARD-LOOKING" STATEMENTS WITHIN THE MEANING OF SECTION 21E OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED. SUCH STATEMENTS MAY INVOLVE KNOWN AND UNKNOWN RISKS, UNCERTAINTIES AND OTHER FACTORS WHICH MAY CAUSE THE ACTUAL RESULTS, PERFORMANCE AND ACHIEVEMENTS TO BE DIFFERENT FROM FUTURE RESULTS, PERFORMANCE AND ACHIEVEMENTS EXPRESSED OR IMPLIED BY SUCH FORWARD-LOOKING STATEMENTS. INVESTORS ARE CAUTIONED THAT THE ACTUAL RESULTS COULD DIFFER MATERIALLY FROM THOSE SET FORTH IN THE FORWARD-LOOKING STATEMENTS.

IN CONNECTION WITH THE OFFERING OF THE BONDS, THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICES OF THE BONDS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

THE BONDS ARE EXEMPT FROM REGISTRATION WITH THE UNITED STATES SECURITIES AND EXCHANGE COMMISSION AND CONSEQUENTLY HAVE NOT BEEN REGISTERED THEREWITH. THE REGISTRATION, QUALIFICATION, OR EXEMPTION OF THE BONDS IN ACCORDANCE WITH APPLICABLE SECURITIES LAW PROVISIONS OF THE JURISDICTIONS IN WHICH THE BONDS HAVE BEEN REGISTERED, QUALIFIED, OR EXEMPTED SHOULD NOT BE REGARDED AS A RECOMMENDATION THEREOF.

Neither the United States Securities and Exchange Commission nor any state securities commission has approved or disapproved of the Bonds or passed upon the adequacy or accuracy of this document. Any representation to the contrary is a criminal offense.

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The cover page hereof, this page, the schedule and appendices included herein and any addenda, supplement or amendment hereto, are part of the Official Statement.

**TARRANT REGIONAL WATER DISTRICT  
A WATER CONTROL AND IMPROVEMENT DISTRICT**

**BOARD OF DIRECTORS**

Leah M. King ..... President  
James Hill ..... Vice-President  
Mary Kelleher ..... Secretary  
C.B. Team ..... Director  
Paxton Motheral ..... Director

**MANAGEMENT OFFICERS**

Dan Buhman ..... General Manager  
R. Alan Thomas ..... Deputy General Manager  
Sandra Newby ..... Chief Financial Officer

**CONSULTANTS, ADVISORS, AND INDEPENDENT AUDITORS**

Independent Auditors ..... Deloitte & Touche LLP  
Dallas, Texas  
Co-Bond Counsel ..... McCall, Parkhurst & Horton L.L.P.  
Dallas, Texas  
Escamilla & Poneck, LLP  
Fort Worth, Texas  
Co-Financial Advisors ..... Hilltop Securities, Inc.  
Fort Worth, Texas  
The RSI Group, LLC  
Fort Worth, Texas

For additional information regarding the District, please contact:

Sandra Newby  
Tarrant Regional Water District  
800 East Northside Drive  
Fort Worth, Texas 76102-1097  
(817) 335-2491

or

Laura Alexander  
Hilltop Securities, Inc.  
777 Main Street, Suite 1525  
Fort Worth, Texas 76102  
(817) 332-9710

or

Pamela Mobley  
The RSI Group, LLC  
1617 Park Place Ave, Suite 110  
Fort Worth, TX 76110  
(817) 945-4072

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## OFFICIAL STATEMENT

### RELATING TO

§ \_\_\_\_\_  
**TARRANT REGIONAL WATER DISTRICT,  
A WATER CONTROL AND IMPROVEMENT DISTRICT,  
WATER REVENUE REFUNDING AND IMPROVEMENT BONDS, SERIES 2024**

### INTRODUCTION

This Official Statement, which includes the Schedule I and Appendices hereto, provides certain information regarding the issuance of § \_\_\_\_\_ Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2024 (the "Bonds"). In the resolution adopted on April 16, 2024 authorizing the issuance of the Bonds, the District delegated, pursuant to certain provisions of Chapters 1207 and 1371, Texas Government Code, pricing of the Bonds and certain other matters to an "Authorized Officer" and authorized the Authorized Officer to execute an "Approval Certificate" (the resolution and the Approval Certificate are collectively referred to herein as the "Bond Resolution" or "Resolution"). Capitalized terms used in this Official Statement have the same meanings assigned to such terms in the Resolution, except as otherwise indicated herein.

There follows in this Official Statement descriptions of the Bonds and certain information regarding the Tarrant Regional Water District, a Water Control and Improvement District (the "District") and its finances. All descriptions of documents contained herein are only summaries and are qualified in their entirety by reference to each such document. Copies of such documents may be obtained from the District's Co-Financial Advisor, Hilltop Securities, Inc. ("HilltopSecurities"), Fort Worth, Texas.

**DESCRIPTION OF THE DISTRICT** . . The District is a conservation and reclamation district, functioning under Article 16, Section 59, of the Texas Constitution, pursuant to the general laws of the State of Texas, including Chapters 49 and 51, Texas Water Code, as amended, and pursuant to the provisions of Chapter 268, Acts of 1957, 55<sup>th</sup> Legislature of Texas, Regular Session, as amended (the "District Act").

### PLAN OF FINANCING

**PURPOSE** . . . Proceeds from the sale of the Bonds will be used (i) to pay for planning, design, construction and right of way costs related to the System, including the design and construction of a new operations facility, design and construction of various employee and public safety projects, design of Phase 4 of the Integrated Pipeline Project, construction of Kennedale Balancing Reservoir cell modifications, continued design of Cedar Creek Wetlands, and other construction, improvements and repairs to the System; (ii) to refund on a current basis for debt service savings through purchase and cancellation by means of a tender offer, as described herein, § \_\_\_\_\_ aggregate principal amount of the District's Water Revenue Refunding Bonds, Taxable Series 2020 (the "Series 2020 Bonds") and Water Revenue Refunding Bonds, Taxable Series 2020B (the "Series 2020B Bonds") (in aggregate, the "Purchased Bonds") as set forth in Schedule I - "SCHEDULE OF REFUNDED BONDS" attached hereto; (iii) to defease for debt service savings § \_\_\_\_\_ aggregate principal amount of Series 2020 Bonds and Series 2020B Bonds (the "Defeased Bonds" and together with the Purchased Bonds, the "Refunded Bonds") as set forth in Schedule I - "SCHEDULE OF REFUNDED BONDS" attached hereto; (iv) to fund a debt service reserve fund; and (v) to pay costs of issuance for the Bonds.

**PURCHASED BONDS** . . . The District is releasing an Invitation to Offer Bonds for Purchase, dated \_\_\_\_\_ (the "Invitation"), to the beneficial owners of the District's Series 2020 Bonds and Series 2020B Bonds (the "Target Bonds") on the terms set forth in the Invitation. Subject to the terms, limitation on amount of Target Bonds to be purchased for cancellation by the District set forth in and other conditions of the Invitation, on the date of delivery of the Bonds (the "Settlement Date") the District will purchase for cash the Target Bonds validly tendered and accepted for purchase (in the principal amounts comprising the Purchased Bonds, as set forth in Schedule I - "SCHEDULE OF REFUNDED BONDS"). The District is expected to pay for such Purchased Bonds, together with the costs related thereto, from (x) proceeds of the Bonds and (y) certain available funds of the District held in trust for the beneficial owners of the Target Bonds. The Purchased Bonds will be canceled on the Settlement Date and will no longer be deemed outstanding. Target Bonds not so purchased will, however, remain outstanding.

This description is not intended to summarize the terms of the Invitation, or to solicit offers to tender Target Bonds. See "ESTIMATED SOURCES AND USES OF FUNDS" and Schedule I "SCHEDULE OF REFUNDED BONDS".

On the Settlement Date, the Paying Agent for the Purchased Bonds will provide a sufficiency certificate verifying the sufficiency of cash deposited to pay the purchase price of the Purchased Bonds, plus costs related thereto.

Jefferies LLC ("Jefferies") is acting as the sole dealer manager for the Invitation (the "Dealer Manager"). Jefferies will receive a fee for its services and will be reimbursed for any expenses it incurs as Dealer Manager. Jefferies is also the book-running senior manager of the Bonds. See "OTHER INFORMATION – Underwriting."

**DEFEASED BONDS** . . . The District plans to defease for debt service savings \$ \_\_\_\_\_ in aggregate principal amount of Defeased Bonds as set forth in Schedule I - "SCHEDULE OF REFUNDED BONDS". The Resolution authorizes the execution and delivery of an Escrow Agreement. The principal and interest due on the Defeased Bonds are to be paid on the interest payment dates and the respective redemption dates of the Defeased Bonds from funds to be deposited pursuant to the Escrow Agreement between the District and BOKF, NA, Dallas, Texas (the "Escrow Agent"). The Resolution provides that from the proceeds of the sale of the Bonds and other available funds of the District, if necessary, the District will deposit with the Escrow Agent the amount necessary to accomplish the discharge and final payment of the Defeased Bonds on the redemption date. Such funds will be held by the Escrow Agent in a special escrow account (the "Escrow Fund") and used to purchase obligations permitted under the resolution authorizing the Defeased Bonds for defeasance deposits (the "Federal Securities"). Under the Escrow Agreement, the Escrow Fund is irrevocably pledged to the payment of the principal of and interest on the applicable Defeased Bonds.

Public Finance Partners LLC (the "Verification Agent") will verify at the time of delivery of the Bonds to the Underwriters the mathematical accuracy of the schedules that demonstrate the Federal Securities will mature and pay interest in such amounts which, together with uninvested funds, if any, in the Escrow Fund, will be sufficient to pay, when due, the principal of and interest on the Defeased Bonds. See "OTHER INFORMAITON – Verification of Arithmetical and Mathematical Computations".

Such maturing principal of and interest on the Federal Securities will not be available to pay the Bonds. By the deposit of the Federal Securities and cash, if necessary, with the Escrow Agent pursuant to the Escrow Agreement, the District will have effected the defeasance of the Defeased Bonds in accordance with the law and the resolution authorizing the Defeased Bonds (hereinafter defined), and the Defeased Bonds will be outstanding only for the purpose of receiving payments from the Federal Securities and any cash held for such purpose by the Escrow Agent and such Defeased Bonds will not be deemed as being outstanding obligations of the District payable from Pledged Revenues (as defined herein). The District will have no further responsibility with respect to amounts available in the Escrow Fund for the payment of the Defeased Bonds, including insufficiency therein caused by the failure to receive payments when due on the Federal Securities.

**ESTIMATED SOURCES AND USES OF PROCEEDS** . . . The proceeds from the sale of the Bonds will originate and be applied as follows:

<u>Sources of Funds</u> <sup>(1)</sup>	
Par Amount of Bonds	\$ -
Cash Premium	-
Transfer from Debt Service Fund	-
Total Sources of Funds	<u>\$ -</u>
 <u>Uses of Funds</u> <sup>(1)</sup>	
Deposit to Project Fund	\$ -
Purchase of Purchased Bonds	-
Deposit to Defeasance Escrow	-
Deposit to Debt Service Reserve Fund	-
Costs of Issuance <sup>(2)</sup>	-
Total Uses of Funds	<u>\$ -</u>

(1) Preliminary, subject to change.

(2) Includes the Underwriters' Discount.

**THE BONDS**

**DESCRIPTION OF THE BONDS** . . . The Bonds are dated May 1, 2024, and mature on March 1 in each of the years and in the amounts shown on the cover page hereof. Interest will accrue from the date of initial delivery thereof (the "Delivery Date"), will be computed on the basis of a 360-day year of twelve 30-day months, and will be payable on March 1 and September 1 of each year, commencing September 1, 2024, until maturity or prior redemption. The definitive Bonds will be issued only in fully registered form in any integral multiple of \$5,000 for any one maturity and will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC"), New York, New York, pursuant to the Book-Entry-Only System described herein. **No physical delivery of the Bonds will be made to the owners thereof.** Principal of and interest on the Bonds will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Bonds. See "Book-Entry-Only System" herein.

**AUTHORITY FOR ISSUANCE** . . . The Bonds are issued pursuant to the general laws of the State of Texas, including Chapters 49 and 51, Texas Water Code, as amended, and Chapters 1207 and 1371, Texas Government Code, as amended, pursuant to the provisions of the District Act, and pursuant to the Bond Resolution.

**SECURITY AND SOURCE OF PAYMENT** . . . The Bonds are and shall be secured by and payable from a first lien on and pledge of the Pledged Revenues of the District. Pledged Revenues consist of the Net Revenues (hereinafter defined) of the System (hereinafter defined), including amounts payable by the Contracting Parties (hereinafter defined) pursuant to the Contract (hereinafter defined) and by other customers, and any additional revenues, income, receipts, grants, donations, or other resources, received or to be received from any public or private source, which in the future may, at the option of the District, be pledged to the payment of the Parity Bonds (hereinafter defined) or the Additional Bonds (hereinafter defined) (see "SELECTED PROVISIONS OF THE RESOLUTION"). The District has outstanding bonds payable from Pledged Revenues (the "Outstanding Bonds") as follows:

Dated Date	Original Issue Amount	Outstanding Bonds <sup>(1)(2)</sup>	Issue Description
2/1/2015	\$ 156,470,000	\$ 71,710,000	Water Revenue Refunding Bonds, Series 2015
11/1/2015	300,000,000	237,630,000	Water Revenue Bonds, Series 2015A
2/1/2016	28,530,000	23,420,000	Water Revenue Bonds, Series 2016
4/1/2016	61,910,000	43,680,000	Water Revenue Refunding Bonds, Series 2016A
8/1/2017	52,765,000	50,000,000	Water Revenue Refunding Bonds, Series 2017
2/1/2020	129,570,000	125,435,000	Water Revenue Refunding Bonds, Taxable Series 2020
11/1/2020	386,680,000	352,355,000	Water Revenue Refunding Bonds, Taxable Series 2020B
11/1/2020	38,105,000	26,750,000	Water Revenue Refunding Bonds, Series 2020C
7/1/2022	46,510,000	45,180,000	Water Revenue Bonds, Series 2022
		<u>\$ 976,160,000</u>	

(1) The Dallas Contract Revenue Bonds shown on the District's Financial Statement are not reflected herein because the District has no obligation to make payments thereof out of District funds.

(2) As of March 1, 2024.

The Outstanding Bonds and the Bonds are referred to herein as the "Parity Bonds".

**WATER CONTRACTS . . .** The principal source of Pledged Revenues are payments derived from contracts for the sale of raw water. The District has entered into raw water supply contracts with approximately 55 municipal and non-municipal entities. The major water supply contracts are with the Cities of Fort Worth, Arlington, and Mansfield, Texas, and Trinity River Authority of Texas ("TRA").

The Cities of Fort Worth, Arlington and Mansfield (the "Cities") and the TRA (collectively, the "Contracting Parties") and the District have entered into a Tarrant County Regional Water Supply Facilities Amendatory Contract (the "Contract"), effective September 1, 1982, which provides that such Contracting Parties will, with certain minor exceptions, take all their raw water requirements from the District's System. Such Contracting Parties are obligated thereunder to pay their share, as computed in accordance with the Contract, of the District's annual operation and maintenance expenses and debt service on the Parity Bonds and any Additional Bonds after application of amounts, if any, received by the District from its other customers. Such obligation is unconditional and such payments shall be made whether or not the District is actually delivering water from the System or whether or not such Contracting Parties actually receive or use water from the System. The Contract provides that payments by such Contracting Parties thereunder constitute operating expenses of each respective waterworks and sewer systems in the case of the Cities and its Tarrant County Water Project in the case of the TRA, payable prior to any obligation to make any payments from system or project revenues with respect to all bonds issued by such Contracting Parties. Under the Contract, the District is entitled to revise the payments from the Contracting Parties for a number of reasons, including receipt by the District of significantly more or significantly less revenues or other amounts than anticipated (see "THE CONTRACTS").

**RATE COVENANT . . .** The District has covenanted in the Resolution to charge rates sufficient, together with other available funds, to meet operation and maintenance expenses of the System and to produce Pledged Revenues adequate to provide for all payments and deposits required to be made into the Interest and Redemption Fund, the Reserve Fund and the Contingency Fund (hereinafter defined) established by the Resolution.

The District is subject to continuing supervision by the Texas Public Utility Commission ("TPUC"), which has power to fix reasonable rates for the furnishing of raw water. In fixing such rates, the TPUC may use any reasonable basis it determines to be appropriate under the circumstances, but may not fix a rate which is less than the amount required to meet debt service.

**CONTINGENCY FUND AND RESERVE FUND . . .** The District established the Contingency Fund and there is presently on deposit in such fund at least \$1,100,000. The moneys on deposit in such fund shall be used solely for the purpose of paying the costs of improvements, enlargements, extensions, additions or other capital expenditures relating to the System, extraordinary operation and maintenance expenses or for paying principal of and interest on any Parity Bonds and any Additional Bonds when and to the extent money in the Interest and Redemption Fund is insufficient. If and when such amount is reduced below \$1,100,000 then, subject and subordinate to making the required deposits to the credit of the Interest and Redemption Fund and the Reserve Fund, such reduction shall be restored from amounts provided in the District's annual budget, provided that the District is not required to budget more than \$100,000 for such purpose in any one fiscal year.

There has been created and established and there shall be maintained at an official depository bank of the District, a separate fund to be entitled the "Tarrant Regional Water District Water Revenue Refunding and Improvement Bonds Reserve Fund" (hereinafter called the "Reserve Fund"), solely for the further security and benefit of the Parity Bonds and any Additional Bonds. The Reserve Fund shall be used solely for the purpose of (i) finally retiring the last of the Parity Bonds and any Additional Bonds, and (ii) paying principal of and interest on the Parity Bonds or any Additional Bonds when and to the extent the amounts in the Interest and Redemption Fund and Contingency Fund are insufficient for such purpose. When and so long as the money and investments in the Reserve Fund are not less than the "Required Amount," equal to the principal and interest requirements on the Parity Bonds and any Additional Bonds during the fiscal year in which such requirements are scheduled to be the greatest, no deposits shall be made to the credit of the Reserve Fund; but when and if the Reserve Fund at any time thereafter contains less than the "Required Amount," then, subject and subordinate to making the required deposits to the credit of the Interest and Redemption Fund, the District shall transfer from Pledged Revenues and deposit to the credit of the Reserve Fund, semiannually on or before the 25th day of each February and each August of each year, a sum equal to 1/10th of the "Required Amount" until the Reserve Fund is restored to said "Required Amount." So long as the Reserve Fund contains said "Required Amount," all amounts in excess of said "Required Amount," if any, shall, at least annually, on or before the 25th day of February of each year, be deposited to the credit of the Interest and Redemption Fund.

**ADDITIONAL BONDS . . .** The District may issue additional parity bonds ("Additional Bonds") payable from the Pledged Revenues which together with the Bonds and the Outstanding Bonds shall be equally and ratably secured by a parity lien on and pledge of the Pledged Revenues, subject to complying with certain conditions in the Resolution. See "SELECTED PROVISIONS OF THE RESOLUTION – Additional Bonds" and "Further Requirements for Additional Bonds" herein).

**OPTIONAL REDEMPTION . . .** The District reserves the right, at its option, to redeem Bonds having stated maturities on and after March 1, 2035, in whole or in part, in principal amounts of \$5,000 or any integral multiple thereof, on March 1, 2034, or any date thereafter, at a price equal to the principal amount thereof plus accrued interest to the date of redemption. If fewer than all of the Bonds are to be redeemed, the District shall select the maturities and amounts of Bonds to be redeemed. If less than a whole maturity is called, the Bonds to be redeemed (only in integral multiples of \$5,000) shall be selected by the Paying Agent/Registrar by lot or other customary method of random selection (or by DTC in accordance with its procedures while the Bonds are in book-entry-only form). If a Bond (or any portion of the principal sum thereof) shall have been called for redemption and notice of such redemption shall have been given, such Bond (or the principal amount thereof to be redeemed) shall become due and payable on such redemption date and interest thereon shall cease to accrue from and after the redemption date, provided funds for the payment of the redemption price and accrued interest thereon are held by the Paying Agent/Registrar on the redemption date.

**NOTICE OF REDEMPTION** . . . Not less than 30 days prior to a redemption date for the Bonds, the District shall cause a notice of redemption to be sent by United States mail, first class, postage prepaid, to the registered owners of the Bonds to be redeemed, in whole or in part, at the address of the registered owner appearing on the registration books of the Paying Agent/Registrar at the close of business on the business day next preceding the date of mailing such notice. ANY NOTICE SO MAILED SHALL BE CONCLUSIVELY PRESUMED TO HAVE BEEN DULY GIVEN, WHETHER OR NOT THE REGISTERED OWNER RECEIVES SUCH NOTICE. NOTICE HAVING BEEN SO GIVEN, THE BONDS CALLED FOR REDEMPTION SHALL BECOME DUE AND PAYABLE ON THE SPECIFIED REDEMPTION DATE, AND NOTWITHSTANDING THAT ANY BOND OR PORTION THEREOF HAS NOT BEEN SURRENDERED FOR PAYMENT, INTEREST ON SUCH BOND OR PORTION THEREOF SHALL CEASE TO ACCRUE, PROVIDED FUNDS FOR THE PAYMENT OF THE REDEMPTION PRICE AND ACCRUED INTEREST THEREON ARE HELD BY THE PAYING AGENT/REGISTRAR ON THE REDEMPTION DATE.

**DEFEASANCE** . . . The Resolution provides for the defeasance of Bonds when the payment of the principal of such Bonds, plus interest thereon to the due date thereof (whether such due date be by reason of maturity, redemption, or otherwise), is provided by irrevocably depositing with a paying agent or other authorized entity, in trust (1) money sufficient to make such payment and/or (2) Government Obligations which mature as to principal and interest in such amounts and at such times to ensure the availability, without reinvestment, of sufficient money to make such payment, and all necessary and proper fees, compensation and expenses of the Paying Agent/Registrar for the Bonds. The Resolution provides that "Government Obligations" means (a) direct, noncallable obligations of the United States of America, including obligations that are unconditionally guaranteed by the United States of America and (b) noncallable obligations of an agency or instrumentality of the United States of America, including obligations that are unconditionally guaranteed or insured by the agency or instrumentality and that, on the date the Board of Directors adopts or approves proceedings authorizing the issuance of refunding bonds or otherwise provide for the funding of an escrow to effect the defeasance of the Bonds, are rated as to investment quality by a nationally recognized investment rating firm not less than "AAA" or its equivalent.

Upon such deposit as described above, such Bonds shall no longer be regarded to be outstanding or unpaid. Provided, however, the District has the option, to be exercised at the time of the defeasance of the Bonds, to call for redemption, at an earlier date, those Bonds which have been defeased to their maturity date, if the District (i) in the proceedings providing the firm banking and financial arrangements, expressly reserves the right to call the Bonds for redemption; (ii) gives notice of the reservation of that right to the owners of the Bonds immediately following the making of the firm banking and financial arrangements; and (iii) directs that notice of the reservation be included in any redemption notices that it authorizes.

**BOOK-ENTRY-ONLY SYSTEM** . . . *This section describes how ownership of the Bonds is to be transferred and how the principal of and interest on the Bonds are to be paid to and credited by the Depository Trust Company ("DTC") while the Bonds are registered in its nominee name. The information in this section concerning DTC and the Book-Entry-Only System has been provided by DTC for use in disclosure documents such as this Official Statement. The District, the Co-Financial Advisors, and the Underwriters (hereinafter defined) consider the source of such information to be reliable, but take no responsibility for the accuracy or completeness thereof and make no representation with respect thereto.*

*The District cannot and does not give any assurance that (1) DTC will distribute payments of debt service on the Bonds, or redemption or other notices, to DTC Participants, (2) DTC Participants or others will distribute debt service payments paid to DTC or its nominee (as the registered owner of the Bonds), or redemption or other notices, to the Beneficial Owners, or that they will do so on a timely basis, or (3) DTC will serve and act in the manner described in this Official Statement. The current rules applicable to DTC are on file with the United States Securities and Exchange Commission, and the current procedures of DTC to be followed in dealing with DTC Participants are on file with DTC.*

The Depository Trust Company ("DTC"), New York, New York, will act as securities depository for the Bonds. The Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered security certificate will be issued for the Bonds in the aggregate principal amount thereof and will be deposited with DTC.

DTC, the world's largest depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). DTC has a Standard & Poor's rating of "AA+". The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at [www.dtcc.com](http://www.dtcc.com).



Purchases of Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Bonds on DTC's records. The ownership interest of each actual purchaser of each Bond ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transactions, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owners entered into the transaction. Transfers of ownership interest in the Bonds are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Bonds, except in the event that use of the book-entry system for the Bonds is discontinued.

To facilitate subsequent transfers, all Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Bonds; DTC's records reflect only the identity of the Direct Participant to whose account such Bonds are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Redemption notices shall be sent to DTC. If less than all of the Bonds within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. will consent or vote with respect to the Bonds unless authorized by a Direct Participant in accordance with DTC's procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the District as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Payments on the Bonds will be made to DTC. DTC's practice is to credit Direct Participants' accounts, upon DTC's receipt of funds and corresponding detail information from the District or the Paying Agent/Registrar on payable dates in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as in the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Paying Agent or the District, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment to DTC is the responsibility of the District, disbursement of such payments to Direct Participants shall be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as securities depository with respect to the Bonds at any time by giving reasonable notice to the District and the Paying Agent/Registrar. Under such circumstances, in the event that a successor securities depository is not obtained, Bond certificates are required to be printed and delivered.

The District may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, Bonds will be printed and delivered.

***Use of Certain Terms in Other Sections of this Official Statement.*** In reading this Official Statement it should be understood that while the Bonds are in the Book-Entry-Only System, references in other sections of this Official Statement to registered owners should be read to include the person for which the Participant acquires an interest in the Bonds, but (i) all rights of ownership must be exercised through DTC and the Book-Entry-Only System, and (ii) except as described above, notices that are to be given to registered owners under the Resolution will be given only to DTC.

**Effect of Termination of Book-Entry-Only System.** In the event the Book-Entry-Only System with respect to the Bonds is discontinued by DTC, or the use of the Book-Entry-Only System with respect to the Bonds is discontinued by the District, printed bond certificates will be issued to the respective holders of the Bonds, as the case may be, and the respective Bonds will be subject to transfer, exchange, and registration provisions as set forth in the Resolution, summarized under "Transfer, Exchange, and Registration" below.

**PAYING AGENT/REGISTRAR . . .** The initial paying agent/registrar is BOKF, NA, Dallas, Texas (the "Paying Agent/Registrar"). In the Resolution, the District retains the right to replace the Paying Agent/Registrar. The District covenants to maintain and provide a Paying Agent/Registrar at all times until the Bonds are duly paid and any successor Paying Agent/Registrar shall be a commercial bank or trust company organized under the laws of the State of Texas or other entity duly qualified and legally authorized to serve as and perform the duties and services of Paying Agent/Registrar for the Bonds. Upon any change in the Paying Agent/Registrar for the Bonds, the District agrees to promptly cause a written notice thereof to be sent to each registered owner of the Bonds by United States mail, first class, postage prepaid, which notice shall also give the address of the new Paying Agent/Registrar.

**TRANSFER, EXCHANGE AND REGISTRATION . . .** In the event the Book-Entry-Only System should be discontinued, the Bonds may be transferred and exchanged on the registration books of the Paying Agent/Registrar only upon presentation and surrender to the Paying Agent/Registrar and such transfer or exchange shall be without expense or service charge to the registered owner, except for any tax or other governmental charges required to be paid with respect to such registration, exchange and transfer. Bonds may be assigned by the execution of an assignment form on the respective Bonds or by other instrument of transfer and assignment acceptable to the Paying Agent/Registrar. New Bonds will be delivered by the Paying Agent/Registrar, in lieu of the Bonds being transferred or exchanged, at the designated office of the Paying Agent/Registrar, or sent by United States mail, first class, postage prepaid, to the new registered owner or his designee. To the extent possible, new Bonds issued in an exchange or transfer of Bonds will be delivered to the registered owner or assignee of the registered owner in not more than three business days after the receipt of the Bonds to be canceled, and the written instrument of transfer or request for exchange duly executed by the registered owner or his duly authorized agent, in form satisfactory to the Paying Agent/Registrar. New Bonds registered and delivered in an exchange or transfer shall be in any integral multiple of \$5,000 for any one maturity and for a like aggregate principal amount as the Bonds surrendered for exchange or transfer. See "Book-Entry-Only System" herein for a description of the system to be utilized initially in regard to ownership and transferability of the Bonds. Neither the District nor the Paying Agent/Registrar shall be required to transfer or exchange any Bond called for redemption (i) during the period commencing with the close of business on any Record Date and ending with the opening of business on the next following principal or interest payment date, or by (ii) with respect to any Bond or portion thereof called for redemption within 45 days prior to its redemption date.

**RECORD DATE FOR INTEREST PAYMENT . . .** The record date ("Record Date") for the interest payable on the Bonds on any interest payment date means the close of business on the 15th day of the preceding month.

**REMEDIES . . .** The Resolution does not establish specific events of default with respect to the respective Bonds. Under State law and the Resolution, there is no right to the acceleration of maturity of the Bonds upon the failure of the District to observe any covenant under the Resolution. No assurance can be given that a mandamus or other legal action to enforce a remedy under the Resolution would be successful. The enforcement of any such remedy may be difficult and time consuming. The Resolution does not provide for the appointment of a trustee to represent the interests of the bondholders upon any failure of the District to perform in accordance with the terms of the Resolution, or upon any other condition. Furthermore, the District is eligible to seek relief from its creditors under Chapter 9 of the U.S. Bankruptcy Code. Texas law requires a conservation and reclamation district such as the District to obtain the approval of the Texas Commission on Environmental Quality as a condition to seeking relief under the U.S. Bankruptcy Code. Although Chapter 9 provides for the recognition of a security interest represented by a specifically pledged source of revenues, the pledge of contract revenues of a bankrupt entity is not specifically recognized as a security interest under Chapter 9. Chapter 9 also includes an automatic stay provision that would prohibit, without Bankruptcy Court approval, the prosecution of any other legal action by creditors or bondholders of an entity which has sought protection under Chapter 9. Therefore, should the District avail itself of Chapter 9 protection from creditors, the ability to enforce the remedies under the Resolution would be subject to the approval of the Bankruptcy Court (which could require that the action be heard in Bankruptcy Court instead of other federal or state courts); and the Bankruptcy Code provides for broad discretionary powers of a Bankruptcy Court in administering any proceeding brought before it. The District may not be placed into bankruptcy involuntarily. The opinion of Co-Bond Counsel will note that all opinions relative to the enforceability of the Resolution and the Bonds are qualified with respect to the customary rights of debtors relative to their creditors. Statutory language authorizing local governments such as the District to sue and be sued does not waive the local government's immunity from suits for money damages, so that in the absence of other waivers of such immunity by the Texas Legislature, a default by the District in its covenants in the Resolution may not be redeemed to a judgment for money damages.

## THE DISTRICT

**CREATION . . .** The Tarrant Regional Water District, formerly the Tarrant County Water Control and Improvement District Number One, is a water control and improvement district and political subdivision of the State of Texas created in October 1924 pursuant to Article 16, Section 59 of the Texas Constitution. The District is presently functioning under the general laws of the State of Texas, including Chapters 49 and 51, Texas Water Code, and pursuant to the provisions of Chapter 268, Acts of 1957, 55th Legislature of Texas, as amended, Regular Session (the "District Act"), and is authorized by the District Act to issue bonds and finance public works projects.

The District was created for the purpose of providing water supply and flood control and developing and providing a sufficient supply of raw water for the City of Fort Worth. The District's functions have expanded and now encompass the development of a raw water supply system to meet the needs of major municipal and industrial users within and outside its boundaries, flood control protection, recreation and water conservation activities.

**TERRITORY SERVED BY THE DISTRICT . . .** The District is the primary supplier for raw water used by a total of approximately 55 municipal and non-municipal entities located both within and outside Tarrant County. Among the major municipal customers of the District are the Cities of Fort Worth, Arlington, Mansfield and the TRA. The total area serviced by the District through these four major municipal entities includes nearly all the populated regions within Tarrant County. The remainder of Tarrant County is supplied from ground water and reservoir sources.

**POWERS . . .** For the purpose of carrying out any power or authority conferred upon it by law, the District is empowered, among other things, to impound the storm and flood waters and the flow of the West Fork of the Trinity River and the tributaries of the Trinity River by the construction of dams. The District is also empowered to construct and otherwise acquire all pipelines, pump stations and other facilities necessary for the purpose of transporting the raw water so impounded to its users.

In furtherance of its express public purpose, the District also has the right to acquire land and easements within and without its boundaries (including land above the probable high water line around the reservoirs) through the exercise of its power of eminent domain.

The District is authorized by law to finance its public works projects by the issuance of bonds payable from either revenues, ad valorem taxes or both revenues and ad valorem taxes of the District. However, in the Resolution, it is specifically provided that the District is not authorized to, and shall not levy, collect, or use any tax of any nature to pay the principal of or interest on any of the Parity Bonds or Additional Bonds.

**ANNEXATIONS . . .** Other territory may be annexed to the District by order of the Board of Directors under conditions specified in Texas Water Code Sections 49.301 – 49.302 either by petition of all landowners or by petition of less than all landowners. The Board of Directors shall hear the petition(s) and may add to the territory of the District all or part of the land described in such petition(s) if it is feasible, practicable and to the advantage of the District. If the annexation is by petition of less than all landowners, the Board shall order an election to be held in the District, as enlarged, on the question of the assumption of bonds, notes, obligations and taxes by the area to be annexed.

**BOUNDARIES . . .** The District consists of approximately 302 square miles comprising approximately one-half of Tarrant County and is nearly coterminous with the City of Fort Worth. Additionally, the District owns land, not within the boundaries of the District, in Tarrant, Wise, Jack, Henderson, Ellis, Navarro, Freestone, Anderson, Johnson and Kaufman Counties.

**OTHER ACTIVITIES OF THE DISTRICT . . .** The District engages in and receives certain revenues from non-water supply activities including the ownership of oil, gas and mineral rights, land sales and lease rentals, none of which is pledged to assist the District in meeting its obligations, including obligations relating to the Bonds.

**TRINITY RIVER VISION/CENTRAL CITY FLOOD CONTROL PROJECT . . .** The Trinity River Vision Master Plan ("the Master Plan") is the result of a process which commenced approximately 23 years ago through a collaboration of community volunteers, elected officials, administrators and urban planners. The Master Plan encompasses 88 miles of the Trinity River and its greenbelts and tributaries throughout the Fort Worth area. The purpose of the "vision" is to advocate for this natural resource, keeping the river beautiful, accessible, enjoyable and productive and to ensure that it remains a valuable asset for the entire community. The Master Plan addresses such issues as flood protection, the environment, ecosystems, recreational opportunities, access to the waterfront, preserving green space and revitalization based around the Trinity River at a cost of \$1.2 billion dollars. The Trinity River Vision Project will be financed with federal funds, captured property taxes on the development of property benefited by the Trinity River Vision Project and funds to be provided by the District, the City of Fort Worth and Tarrant County. On January 19, 2022, the Central City Flood Control Project received \$403 million in funding for the U.S. Army Corps of Engineers ("USACE") to complete the final design of all project components and construction of the bypass channel. The District and the other participants are continuing to complete the project components they are responsible for in order to stay ahead of the USACE. The District has committed to provide \$64.4 million for the Trinity River Vision Project, which it has provided in full. **The District's share of the costs of the Trinity River Vision Project is not secured by or payable from Pledged Revenues.** The District has used the production royalties it received from its mineral interests within the Barnett Shale to meet its financial obligations on the Trinity River Vision Project.

**TABLE 1 - RAW WATER SALES CONTRACT SUMMARY**

Customer and Source	2023/24	2023/24	Maximum Usage Acre Feet <sup>(2)</sup>	
	Budgeted Rate Per 1,000 Gallons <sup>(1)</sup> In-District	Budgeted Rate Per 1,000 Gallons <sup>(1)</sup> Out-of District		
<b>LAKE BRIDGEPORT</b>				
City of Bridgeport		\$ 1.35479	1,700	A.F./Yr.
City of Runaway Bay		1.35479	1,120	A.F./Yr.
Martin Marietta Materials, Inc.		1.35479	1,200	A.F./Yr.
West Wise Special Utility District		1.35479	986	A.F./Yr.
Wise County Water Supply District		1.35479	4,000	A.F./Yr.
RB Golf		1.35479	124	A.F./Yr.
Jack County LLC		1.35479	5,429	A.F./Yr.
Vistra Energy/Wise County Power Co		1.35479	5,772	A.F./Yr.
Walnut Creek Water Supply Corp.		1.35479	3,600	A.F./Yr.
City of Jacksboro		1.35479	263	A.F./Yr.
Bridgeport Country Club		1.35479	40	A.F./Yr.
Burnco		1.35479	800	A.F./Yr.
<b>EAGLE MOUNTAIN LAKE</b>				
City of River Oaks	\$ 1.35479	1.35479	1,344	A.F./Yr.
Community Water Supply	1.35479	1.35479	1,851	A.F./Yr.
City of Springtown		1.35479	1,344	A.F./Yr.
City of Azle	1.35479	1.35479	1,680	A.F./Yr.
Hawks Creek Golf Club	1.35479		550	A.F./Yr.
The Resort at Eagle Mountain Lake		1.35479	350	A.F./Yr.
Shady Oaks Country Club	1.35479		375	A.F./Yr.
<b>LAKE BENBROOK</b>				
Fort Worth Country Day	1.35479		153	A.F./Yr.
Mira Vista Golf Club	1.35479		568	A.F./Yr.
Ridglea Country Club	1.35479		476	A.F./Yr.
Benbrook Water Authority		1.35479	All Customer Requirements	
City of Weatherford		1.35479	All Customer Requirements	
Whitestone Golf Club		1.35479	400	A.F./Yr.
City of Benbrook-Dutch Branch Park	1.35479		77	A.F./Yr.
Cassco Development Company, Inc.	1.35479		60	A.F./Yr.
<b>CEDAR CREEK LAKE</b>				
East Cedar Creek FWSD		1.35479	1,155	A.F./Yr.
Cedar Creek Country Club		1.35479	125	A.F./Yr.
City of Kemp		1.35479	600	A.F./Yr.
McNarosa Ranch		1.35479	30	A.F./Yr.
Long Cove Owners Association		1.35479	77	A.F./Yr.
City of Mabank		1.35479	1,870	A.F./Yr.
City of Malakoff		1.35479	560	A.F./Yr.
Texas Water Utilities		1.35479	1,656	A.F./Yr.
City of Star Harbor		1.35479	168	A.F./Yr.
West Cedar Creek MUD		1.35479	1,164	A.F./Yr.
<b>RICHLAND CHAMBERS</b>				
TRA / Freestone Power		1.35479	6,722	A.F./Yr.
Winkler Water Supply Corp		1.35479	560	A.F./Yr.

(1) Rates effective October 1, 2023.  
(2) Acre-Feet/Yr. = 325,851 gallons.

**TABLE 2 - MULTIPLE SOURCE CUSTOMERS**

Cedar Creek/Richland-Chambers/West Fork (combination through pipeline)

These customers are subject to making diversions from either pipeline(s) or Reservoirs.

	2023/24	2023/24	
	In-District	Out of District	
	<u>(per 1,000 gallons)</u>	<u>(per 1,000 gallons)</u>	
City of Fort Worth	\$1.35479	\$1.35479	All City's Requirements
City of Mansfield		1.35479	All City's Requirements
City of Arlington		1.35479	All City's Requirements
Trinity River Authority		1.35479	All Requirements
Trinity River Authority - Ellis County		1.35479	
Regional Water Supply Project		1.35479	8,972 A.F./Yr. (1)
City of Midlothian		1.35479	20,839 A.F./Yr. (1)
Trinity River Authority - Ennis		1.35479	3,988 A.F./Yr. (1)
Rocket Special Utility District		1.35479	11,257 A.F./Yr. (1)
Constellation - Handley	1.35479		Electrical Generation Requirements

(1) Acre-Feet/Yr. = 325,851 gallons

**TABLE 3 - WATER CONSUMPTION AND SALES (FISCAL YEAR ENDED SEPTEMBER 30, 2023)**

	Water Consumption		Water Payments	
	Gallons	% of Total	Amount	% of Total
Fort Worth, City of	\$ 75,648,519,147	56.19%	\$ 88,035,990	59.24%
Arlington, City of	20,887,751,000	15.51%	21,945,090	14.77%
Trinity River Authority	13,344,656,000	9.91%	14,315,858	9.63%
Mansfield, City of	6,490,665,000	4.82%	7,837,944	5.27%
Freestone/Calpine	1,968,900,000	1.46%	2,572,160	1.73%
Midlothian, City of	1,769,573,000	1.31%	1,315,976	0.89%
Rockett Special Utility District	1,557,666,000	1.16%	1,925,305	1.30%
Walnut Creek Special Utility District	1,357,654,000	1.01%	1,322,132	0.89%
Jack County LLC	1,342,523,000	1.00%	1,584,337	1.07%
Benbrook Water and Sewer <sup>(1)</sup>	1,271,908,000	0.94%	226,591	0.15%
Azle, City of	717,054,000	0.53%	800,133	0.54%
East Cedar Creek Fresh Water Supply District	625,306,000	0.46%	358,779	0.24%
Vistra Energy/Wise County Power Co	608,810,000	0.45%	561,559	0.38%
West Cedar Creek MUD	566,515,000	0.42%	597,980	0.40%
Other Customers	6,481,518,162	4.81%	5,199,948	3.51%
Total	<u>134,639,018,309</u>	100.00%	<u>\$ 148,599,782</u>	100.00%

Note: Source: The District.

(1) The Cities of Weatherford and Benbrook have rights to a limited amount of water in Lake Benbrook and pay the District only for usage above that amount.

**TABLE 4 - WATER RATES**

The District has budgeted usage and rates for the Contracting Parties for fiscal year 2023/24 as follows:

<u>Contracting Party</u>	<u>Usage (000) gallons</u>	<u>Adjusted Rate (per 1,000 gallons)</u>
City of Fort Worth	72,796,920	1.35479
Trinity River Authority	11,670,485	1.35479
City of Mansfield	6,163,193	1.35479
City of Arlington	19,064,016	1.35479

## THE WATER RIGHTS OF THE DISTRICT

The District holds numerous water rights within its area of operation. The following is a brief description of the water rights presently held by the District.

**LAKE BRIDGEPORT . . .** The Texas Water Commission (now the TCEQ) issued to the District Certificate of Adjudication Number 08-3808, as amended, covering all rights to water in Lake Bridgeport. The District is allowed to impound up to 387,000 acre-feet of water. Under this water right, which was last amended August 16, 2018, the District is authorized to release up to 78,000 acre-feet of water per annum from Lake Bridgeport and transport the stored water to Eagle Mountain Lake for subsequent diversion for municipal, industrial, and irrigation purposes in the District's service area. An additional 15,000 acre-feet of water per annum, plus up to 12,000 acre-feet of the 78,000 acre-foot authorization, may be diverted by the District for municipal, industrial, and irrigation purposes in Jack and Wise Counties, Texas. Of the 12,000 acre-feet that may be either diverted for use in Jack and Wise Counties, or released downstream to Eagle Mountain, up to 8,000 acre-feet may be used for mining purposes. The time priority for the initial impoundment and the 93,000 acre-foot use is July 6, 1926. Recreation use was added July 12, 1937, and the priority date for the additional impoundment of 97,000 acre-feet is September 9, 1968.

**EAGLE MOUNTAIN LAKE . . .** Situated downstream from Lake Bridgeport, Eagle Mountain Lake is located principally in Tarrant County, Texas. The District holds Certificate of Adjudication Number 08-3809, as amended, covering all rights to water in Eagle Mountain Lake. The District is allowed to impound up to 210,000 acre-feet of water. Under this water right, which was last amended August 16, 2018, the District is authorized to divert and use up to 159,600 acre-feet of water per annum for municipal, industrial and irrigation purposes in the District's service area. Up to 4,000 acre-feet of the 159,600 acre feet may be used for mining purposes. The time priority of this water right is July 13, 1925. Water is released downstream for subsequent use by the Cities of Fort Worth and River Oaks. Diversions also are made by a number of municipal and private entities. In February, 2005, the District was granted the right to use Eagle Mountain Lake for terminal storage of water conveyed by the pipeline from Cedar Creek and Richland Chambers Reservoirs. It should be noted that Certificate of Adjudication Number 08-3808, as amended (Lake Bridgeport), authorizes release of water to Eagle Mountain Lake for diversion under the terms of Certificate of Adjudication Number 08-3809, as amended.

**CEDAR CREEK RESERVOIR . . .** The District holds Certificate of Adjudication Number 08-4976, as amended, covering all rights to water in Cedar Creek Reservoir located in Henderson and Kaufman Counties, Texas. The District is allowed to impound up to 678,900 acre-feet of water. Under this water right, which was last amended August 16, 2018, the District is authorized to divert and use up to 263,059 acre-feet of water per annum for municipal, industrial and irrigation purposes in the District's service area. This total volume includes up to 88,059 acre-feet of District Return Flows. Up to 4,000 acre-feet of the 263,059 acre-feet may be used for mining purposes. The time priority of this water right is May 28, 1956. While some diversions are made by District customers directly from the reservoir, the majority of this water is conveyed to Tarrant County, Texas, through the Cedar Creek, Richland Chambers and Integrated Pipelines and supplies water to the Cities of Fort Worth, Arlington, Mansfield, TRA, and others, through contractual agreements.

**RICHLAND-CHAMBERS RESERVOIR . . .** The District holds Certificate of Adjudication Number 08-5035, as amended, covering rights to water in Richland-Chambers Reservoir located in Freestone and Navarro Counties, Texas. The District is allowed to impound up to 1,135,000 acre-feet. Under this water right, which was last amended August 16, 2018, the District is authorized to divert and use up to 310,465 acre-feet of water per annum for municipal, industrial and irrigation purposes in the District's service area. This total volume includes up to 100,465 acre-feet of District Return Flows. Up to 4,000 acre-feet of the 263,059 acre-feet may be used for mining purposes. The time priority of this water right is October 18, 1954. While some diversions are made by District customers directly from the reservoir, the majority of this water is conveyed to Tarrant County, Texas, through the Cedar Creek, Richland-Chambers and Integrated Pipelines, and supplies water to the Cities of Fort Worth, Arlington, Mansfield, TRA, and others, through contractual agreements.

**BENBROOK RESERVOIR . . .** The District holds Permit Number 5157, as amended, authorizing impoundment of not to exceed 72,500 acre-feet of water in this U.S. Army Corps of Engineers (the "Corps of Engineers") constructed and maintained reservoir. Under this water right, which was last amended September 4, 1998, the District is allowed an annual diversion of up to 6,833 acre-feet of water on a priority basis for municipal and irrigation purposes.

The District also is authorized to use 72,500 acre-feet of Benbrook Reservoir storage space for terminal storage of water diverted from Cedar Creek and Richland-Chambers Reservoirs for subsequent storage and use by District customers in Tarrant County, Texas, and by Benbrook Water Authority and the City of Weatherford, Texas. The District is further authorized to overdraft Benbrook Reservoir on a non-priority basis for municipal purposes whether or not terminal storage operations have commenced. Combined total annual diversions from Benbrook Reservoir are not to exceed 72,500 acre-feet.

The District, the City of Fort Worth and Benbrook Water Authority each individually contract with the Corps of Engineers for storage rights in Benbrook Reservoir. A 90-inch pipeline and pump station connects the District's pipelines from Cedar Creek and Richland-Chambers to Benbrook Reservoir. The Benbrook connection allows the District to provide water from Cedar Creek and Richland-Chambers Reservoirs to the City of Fort Worth Rolling Hills Water Treatment Plant, Fort Worth's Holly Water Treatment Plant, as well as to Benbrook Water Authority and the City of Weatherford.

**WEST FORK OF THE TRINITY RIVER – NUTT DAM . . .** In August 2007, the District acquired Certificate of Adjudication Number 08-3375. This water right was previously owned by Texas Utilities. Certificate of adjudication Number 08-3375, as amended, allows an existing 673 acre-feet impoundment of the West Fork of the Trinity River and the diversion and use of 11,210 acre-feet of water per annum of which 1,121 acre-feet maybe consumptively used. The transferred Certificate of Adjudication is dated December 13, 2007 with a time priority of June 29, 1914.

**EAGLE MOUNTAIN LAKE EXFLO** . . . The District holds Permit Number 12806, which allows the diversion and use of up to 63,899 acre-feet of water per year from Eagle Mountain Lake for municipal, industrial, and irrigation purposes within the District's service area. Diversions are limited to times when the water surface elevation of Eagle Mountain Lake is above 649.1 ft-msl and when the water surface elevation of Lake Livingston is at or above 131.0 ft-msl. Permit Number 12806 also authorizes the District to use the bed and banks of a portion of the reach of the West Fork Trinity River to convey this water downstream for subsequent diversion and use. The time priority for this water right is February 20, 2014.

**LAKE BENBROOK EXFLO** . . . The District holds Permit Number 12805, which allows the diversion and use of up to 78,653 acre-feet of water per year from Lake Benbrook for municipal, industrial, and irrigation purposes within the District's service area. Diversions are limited to times when the water surface elevation of Lake Benbrook is above 694.0 ft-msl and when the water surface elevation of Lake Livingston is at or above 131.0 ft-msl. Permit Number 12805 also authorizes the District to use the bed and banks of a portion the reach of the Clear Fork Trinity River to convey this water downstream for subsequent diversion and use. The time priority for this water right is February 20, 2014.

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## DEBT INFORMATION

**TABLE 5 – PRO FORMA DEBT SERVICE REQUIREMENTS <sup>(1)</sup>**

Fiscal Year Ending 9/30	Outstanding Debt <sup>(2)</sup>			The Bonds <sup>(3)</sup>		Total Outstanding Debt	% of Principal Retired
	Principal	Interest	Total	Principal	Interest		
2024	\$ 41,150,000	\$ 31,580,168	\$ 72,730,168	\$ -	\$ 1,056,585	\$ 73,786,754	
2025	41,030,000	30,132,291	71,162,291	1,500,000	4,437,450	77,099,741	
2026	42,520,000	28,625,912	71,145,912	1,580,000	4,360,450	77,086,362	
2027	44,195,000	26,999,146	71,194,146	1,660,000	4,279,450	77,133,596	
2028	45,840,000	25,248,080	71,088,080	1,745,000	4,194,325	77,027,405	19.81%
2029	47,640,000	23,393,423	71,033,423	1,835,000	4,104,825	76,973,248	
2030	46,145,000	21,843,315	67,988,315	1,930,000	4,010,700	73,929,015	
2031	47,160,000	20,685,719	67,845,719	2,025,000	3,911,825	73,782,544	
2032	48,330,000	19,511,060	67,841,060	2,130,000	3,807,950	73,779,010	
2033	49,125,000	18,276,583	67,401,583	2,240,000	3,698,700	73,340,283	42.07%
2034	50,165,000	17,004,081	67,169,081	2,355,000	3,583,825	73,107,906	
2035	37,165,000	15,827,186	52,992,186	2,475,000	3,463,075	58,930,261	
2036	38,255,000	14,736,007	52,991,007	2,605,000	3,336,075	58,932,082	
2037	39,420,000	13,574,631	52,994,631	2,735,000	3,202,575	58,932,206	
2038	31,965,000	12,443,480	44,408,480	2,875,000	3,062,325	50,345,805	60.88%
2039	33,110,000	11,344,467	44,454,467	3,025,000	2,914,825	50,394,292	
2040	34,320,000	10,189,129	44,509,129	3,180,000	2,759,700	50,448,829	
2041	33,530,000	9,069,838	42,599,838	3,345,000	2,596,575	48,541,413	
2042	34,635,000	7,990,452	42,625,452	3,515,000	2,425,075	48,565,527	
2043	35,785,000	6,866,480	42,651,480	3,695,000	2,244,825	48,591,305	77.73%
2044	36,980,000	5,703,160	42,683,160	3,885,000	2,055,325	48,623,485	
2045	38,205,000	4,500,415	42,705,415	4,060,000	1,877,000	48,642,415	
2046	23,695,000	3,507,662	27,202,662	4,230,000	1,711,200	33,143,862	
2047	22,900,000	2,758,555	25,658,555	4,400,000	1,538,600	31,597,155	
2048	23,645,000	2,010,765	25,655,765	4,580,000	1,359,000	31,594,765	92.65%
2049	24,420,000	1,250,418	25,670,418	4,765,000	1,172,100	31,607,518	
2050	8,370,000	730,060	9,100,060	4,960,000	977,600	15,037,660	
2051	8,655,000	445,040	9,100,040	5,165,000	775,100	15,040,140	
2052	8,955,000	150,054	9,105,054	5,375,000	564,300	15,044,354	
2053	-	-	-	5,595,000	344,900	5,939,900	99.48%
2054	-	-	-	5,825,000	116,500	5,941,500	100.00%
	<u>\$ 1,017,310,000</u>	<u>\$ 386,397,577</u>	<u>\$ 1,403,707,577</u>	<u>\$ 99,290,000</u>	<u>\$ 79,942,760</u>	<u>\$ 1,582,940,337</u>	

(1) Pro Forma Debt Service Requirements table will reflect the refunding in the Final Official Statement.

(2) "Outstanding Debt" does not include lease/purchase obligations.

(3) Average life of the issue – 18.624 years. Interest on the Bonds has been calculated at the rate of 4.00% for purposes of illustration. Preliminary, subject to change.



**CAPITAL IMPROVEMENT PROGRAM . . .** The District plans to issue bonds in the future for the following capital projects, in 2025 - \$150,000,000; 2026 - \$150,000,000; and 2027 - \$270,000,000 (mainly for the replacement of aged sections of the Cedar Creek Pipeline, design and construction of the Cedar Creek Wetlands, a new operations facility, design and construction of the 3rd Cell at the Kennedale Balancing Reservoir, and employee and public safety projects). The amounts and actual projects are subject to change.

**ANTICIPATED ISSUANCE OF REVENUE BONDS . . .** The District anticipates the issuance of \$150,000,000 of additional bonds payable from the Pledged Revenues in calendar year 2025. The District anticipates issuing approximately \$460,000,000 on behalf of the City of Dallas for their portion of the Integrated Pipeline Project (the "IPL") which are not secured by Pledged Revenues. (See "Brief Description of the System – Integrated Pipeline Project").

**PENSION FUND . . .** In 1997, the District adopted a defined contribution benefit plan, the benefits of which depend solely on amounts contributed to the plan plus investment earnings. All full-time employees over the age of 18 are eligible to participate in the plan from the date of employment, and benefits are 20% vested for each year of service up to five years of service. Benefit provisions and all other requirements are established by state statute and the District’s Board of Directors. The District contributes 13% of each eligible employee’s base salary, 13% of two-thirds of any applicable overtime wages and 13% of awarded production bonuses (if applicable) on a bi-weekly basis to the plan’s Administrator, Mission Square Retirement, formerly known as ICMA Retirement Trust. Employees may make additional voluntary after tax contributions; however, no employees have contributed to date. District contributions for, and interest forfeited by, employees who leave employment before becoming fully vested are evenly allocated to the other employee accounts. The plan’s normal retirement age is 60 years with early retirement eligibility at 55 years of age with five years of service. During fiscal year 2023 the District made contributions of \$3.8 million under this plan.

**POST-EMPLOYMENT BENEFITS . . .** The District provides other post employment benefits (OPEB) through the Post Employment Health Care Benefit Plan as established and administered by the District (a single-employer plan) under its Retiree Health Benefits Policy effective January 1, 2006, revised October 1, 2016, to full time status employees who retire from the District and meet the Rule of 80 or Rule of 90 (see following paragraphs for specifics). Plan participation is restricted to employees hired on or before September 30, 2016.

**Rule of 80** - the rule of 80 is reached when age and years of service total eighty (80).

If at the time of retirement, the employee meets the “Rule of 80” and elects to continue group health insurance coverage, the District will pay 100% for the premiums for the employee/retiree, and their eligible spouse at the date of retirement. After the initial election, coverage for individuals may be dropped at the time designated by the plan, but no one may be added. Upon reaching age 65, the employee/retiree and their eligible spouse will be transferred from group health insurance to a Medicare Supplement Plan F or Plan G, in accordance with Medicare eligibility rules. The District will also provide a monthly allowance of \$185 to offset the cost of Medicare Part B and Part D. Upon the death of the employee/retiree, the spouse will be covered for an additional five (5) years or until their death, whichever occurs first.

**Rule of 90** - the rule of 90 is reached when age and years of service total ninety (90).

If at the time of retirement, the employee meets the “Rule of 90” and elects to continue group health insurance coverage the District will pay 100% of the premiums for the employee/retiree, and their eligible spouse at the date of retirement. Upon reaching age 65, the employee/retiree and their eligible spouse will be transferred from group health insurance to a Medicare Supplement Plan F or Plan G, in accordance with Medicare eligibility rules. The District will also provide a monthly allowance of \$185 to offset the cost of Medicare Part B and Part D. The employee/retiree will be covered until his/her death and the spouse until his/her death.

The Plan does not issue separate financial statements; however, the Trust's financials are included in this financial report as a Fiduciary Fund of the District in the District's Audited Financial Statements. The OPEB Plan is governed by the District's Board of Directors, and changes to the Plan must be approved by the Board.

**PLAN MEMBERSHIP**

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	42
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	-
Active Plan Members	<u>187</u>
Total Plan Members	229

**FUNDING POLICIES . . .** For other post employment benefits, contractual requirements for the District are established by the Board of Directors. In fiscal year 2014, the District established a trust to fund OPEB costs through the Public Agency Retirement Fund (PARS). In fiscal year 2023, \$2.1 million was contributed to the trust and in fiscal year 2024 \$2.4 million is budgeted to contribute to the trust; these contributions are in addition to claims paid. The District’s Trust Funding Policy is to contribute an additional 10% more than the prior year to the trust each year in an effort to ultimately fund 75% of the total OPEB Liability.

The District does not require any member contributions for the post-employment health care benefits Plan.

**OPEB PLAN INVESTMENT POLICY . . .** The goal of the Plan’s investment program is to generate adequate long-term returns that, when combined with contributions, will result in sufficient assets to pay the present and future obligations of the Plan. The Plan has a Moderate Risk Tolerance with a Strategic Asset Allocation of the following:

Strategic Asset Allocation Ranges			
Asset Class	Cash	Fixed Income	Equity
Allocation Range	0-20%	40%-60%	40%-60%
Target Allocation	Policy: 5%	Policy: 45%	Policy: 50%
Long-term Expected Real Rate of Return	0.1%	1.8%	4.1%

The long-term expected real rate of return, presented as geometric means, is the combination of the asset return rates taken from the Horizon Actuarial Service Survey of Capital Market Assumptions 2016 and the target allocation of the Plan.

**SINGLE DISCOUNT RATE . . .** Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on OPEB plan investments (to the extent that the plan’s fiduciary net position is projected to be sufficient to pay benefits), and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

A Single Discount Rate of 6.00% was used to measure the total OPEB liability. This Single Discount Rate was based on the expected rate of return on OPEB plan investments of 6.00%. The funding policy of the District is to pay the recommended actuarially determined contribution or higher based on the policy, which is based on a closed amortization period. As a result, the OPEB plan’s fiduciary net position is expected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

The annual money-weighted rate of return for the OPEB Trust was 7.74% for fiscal year 2023. A money-weighted return expresses investment performance, net of OPEB plan investment expense, adjusted for the changing amounts actually invested.

**CHANGES IN THE NET OPEB LIABILITY . . .** The total OPEB liability shown below is based on an actuarial valuation performed as of December 31, 2021 and a measurement date of September 30, 2023.

	Increase (Decrease)		
	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
Balance at September 30, 2022	\$ 26,705,376	\$ 13,585,993	\$ 13,119,383
Changes for the year:			
Service cost	573,868	-	\$ 573,868
Interest	1,601,654	-	1,601,654
Difference between expected and actual experience	(46,850)	-	(46,850)
Changes in assumptions	-	-	-
Benefit Payments	(596,146)	(596,146)	-
Contributions - employer	-	2,739,735	(2,739,735)
Net investment income	-	1,186,938	(1,186,938)
Administrative expense	-	(77,762)	77,762
Net changes	1,532,526	3,252,765	(1,720,239)
Balance at September 30, 2023	<u>\$ 28,237,902</u>	<u>\$ 16,838,758</u>	<u>\$ 11,399,144</u>

Plan Fiduciary Net Position as a percentage of the total OPEB liability 60%

**SENSITIVITY OF NET OPEB LIABILITY . . .** Regarding the sensitivity of the net OPEB liability to changes in the Single Discount Rate, the following presents the plan's net OPEB liability, calculated using a Single Discount Rate of 6.00%, as well as what the plan's net OPEB liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Current Single Discount Rate		
1% Decrease	Assumption	1% Increase
5.0%	6.0%	7.0%
\$15,646,766	\$11,399,144	\$ 7,910,558

Regarding the sensitivity of the net OPEB liability to changes in the healthcare cost trend rates, the following presents the plan's net OPEB liability, calculated using the assumed trend rates as well as what the plan's net OPEB liability would be if it were calculated using a trend rate that is one percent lower or one percent higher. Refer to page 79 of the District's Annual Comprehensive Financial Report for further detail about healthcare trend rates.

1% Decrease	Current Healthcare Cost Trend Rate Assumption	1% Increase
\$ 7,109,048	\$ 11,399,144	\$16,808,298

**OPEB EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES RELATED TO OPEB . .** For the year ended September 30, 2023, the District recognized OPEB expenses of \$1,902,822 which included amortization of deferred inflows and outflows of (\$526,672). At September 30, 2023, the District reported deferred outflows and inflows of resources related to OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 485,366	\$ 642,874
Assumption Changes	1,045,675	341,806
Net difference between projected and actual earnings on OPEB plan investments	<u>1,308,769</u>	<u>-</u>
Total	<u>\$ 2,839,810</u>	<u>\$ 984,680</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense as follows:

Year Ended <u>9/30</u>	Net Deferred Outflows (Inflows) of Resources
2024	\$ 536,464
2025	564,369
2026	728,440
2027	39,612
2028	55,434
Thereafter	<u>(69,189)</u>
Total	<u><u>\$ 1,855,130</u></u>

## ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial cost method	Individual entry age normal cost method
Amortization method	Level dollar, Closed
Remaining amortization period	25 years as of September 30, 2023
Asset valuation method	Market Value
Investment rate	6.00% per annum, net of expenses
Inflation rate	2.50%
Salary increases	3.50% to 11.50%, including inflation
Demographic assumptions	Due to the size of this plan, the demographic assumptions are not based on formal experience studies. However, gains and losses are monitored and adjustments are made to the retirement and withdrawal assumptions as needed. Mortality and disability rates are based on assumptions used to value the Texas Municipal Retirement System (TMRS).
Mortality	For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables published through 2019 to account for future mortality improvements.
Healthcare trend rates	Pre-65: Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years Post-65: Initial rate of 5.30% declining to an ultimate rate of 4.15% after 12 years
Participation rates	100% of eligible retirees are assumed to elect coverage
Notes	Changes of assumptions reflect an update to the percentage of covered female retirees who are assumed to also cover their spouse.

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**FINANCIAL INFORMATION**

**TABLE 6 - CONDENSED STATEMENT OF OPERATIONS**

<u>Revenues</u>	Fiscal Year Ended September 30,				
	<u>2023</u>	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>
Sale of Water	\$ 148,599,782	\$ 138,836,740	\$ 138,108,606	\$ 123,206,591	\$ 120,669,062
Land Lease Rentals	138,346	154,186	152,743	145,268	164,955
Interest Income	5,888,392	1,521,745 <sup>(1)</sup>	(105,662)	3,943,256	9,924,623
Other <sup>(2)</sup>	8,952,057	3,633,484	3,437,116	3,309,975	2,254,880
<b>Total Revenues</b>	<b>\$ 163,578,577</b>	<b>\$ 144,146,155</b>	<b>\$ 141,592,803</b>	<b>\$ 130,605,090</b>	<b>\$ 133,013,520</b>
 <u>Expenditures</u>					
General and Administrative	\$ 23,698,662	\$ 18,719,022	\$ 17,927,398	\$ 17,606,761	\$ 16,066,439
Personnel Services	28,948,894	17,303,507	17,943,288	16,815,664	14,581,220
Utilities	21,010,817	21,587,282	15,045,877	8,958,220	9,060,771
Pension Plan Contribution	2,524,698	1,564,066	1,543,096	1,434,133	1,296,962
<b>Total Expenditures</b>	<b>\$ 76,183,071</b>	<b>\$ 59,173,877</b>	<b>\$ 52,459,659</b>	<b>\$ 44,814,778</b>	<b>\$ 41,005,392</b>
 Net Available for Debt Service	 <u><b>\$ 87,395,506</b></u>	 <u><b>\$ 84,972,278</b></u>	 <u><b>\$ 89,133,144</b></u>	 <u><b>\$ 85,790,312</b></u>	 <u><b>\$ 92,008,128</b></u>

(1) Interest Income for Fiscal Year 2022 excludes an investment loss on the Dallas Project of \$5.0M and an unrealized fair market value loss of \$9.5M.

(2) Other Revenues exclude a \$9.0M buy in premium which is held in contingency funds for future unexpected system needs.

**TABLE 7 - COVERAGE AND FUND BALANCES <sup>(1)(2)</sup>**

Average Annual Principal and Interest Requirements, 2024-2054 <sup>(3)</sup> .....	\$ 51,062,592
Coverage of Average Requirements by 9/30/23 Net Available .....	1.71 times
 Maximum Principal and Interest Requirements, 2027 <sup>(3)</sup> .....	\$ 77,133,596
Coverage of Maximum Requirements by 9/30/23 Net Available .....	1.13 times
 Actual Principal and Interest Requirements, 2024 <sup>(3)</sup> .....	\$ 73,786,754
Coverage of Maximum Requirements by 9/30/23 Net Available .....	1.18 times
 Revenue Bonds Outstanding as of 3/1/2024 <sup>(3)</sup> .....	\$ 1,075,450,000
 Interest and Sinking Fund as of 3/1/2024 .....	\$ 58,616
Reserve Fund as of 3/1/2024 .....	\$ 75,490,723

(1) The Dallas Contract Revenue Bonds shown on the District's Financial Statements are not reflected herein because the District has no obligation to make payments thereof out of District funds.

(2) The Contracting Parties share the cost of the system on the basis of proportional usage. Charges are based on current budgeted expenditures and are allocated to each Contracting Party at the beginning of the year based on estimated usage. At the end of the year, the actual cost of each Contracting Party is determined based on actual usage and final billing adjustments are applied accordingly.

(3) Includes the Bonds and excludes the Purchased Bonds. Preliminary, subject to change.

## BRIEF DESCRIPTION OF THE SYSTEM

The District's existing sources provide raw water service to more than 50 customers, including the Cities of Fort Worth, Arlington, Mansfield, and TRA. The District's water supply system is currently permitted to meet an annual demand of 719 MGD (as explained in footnote 1 to Table 8).

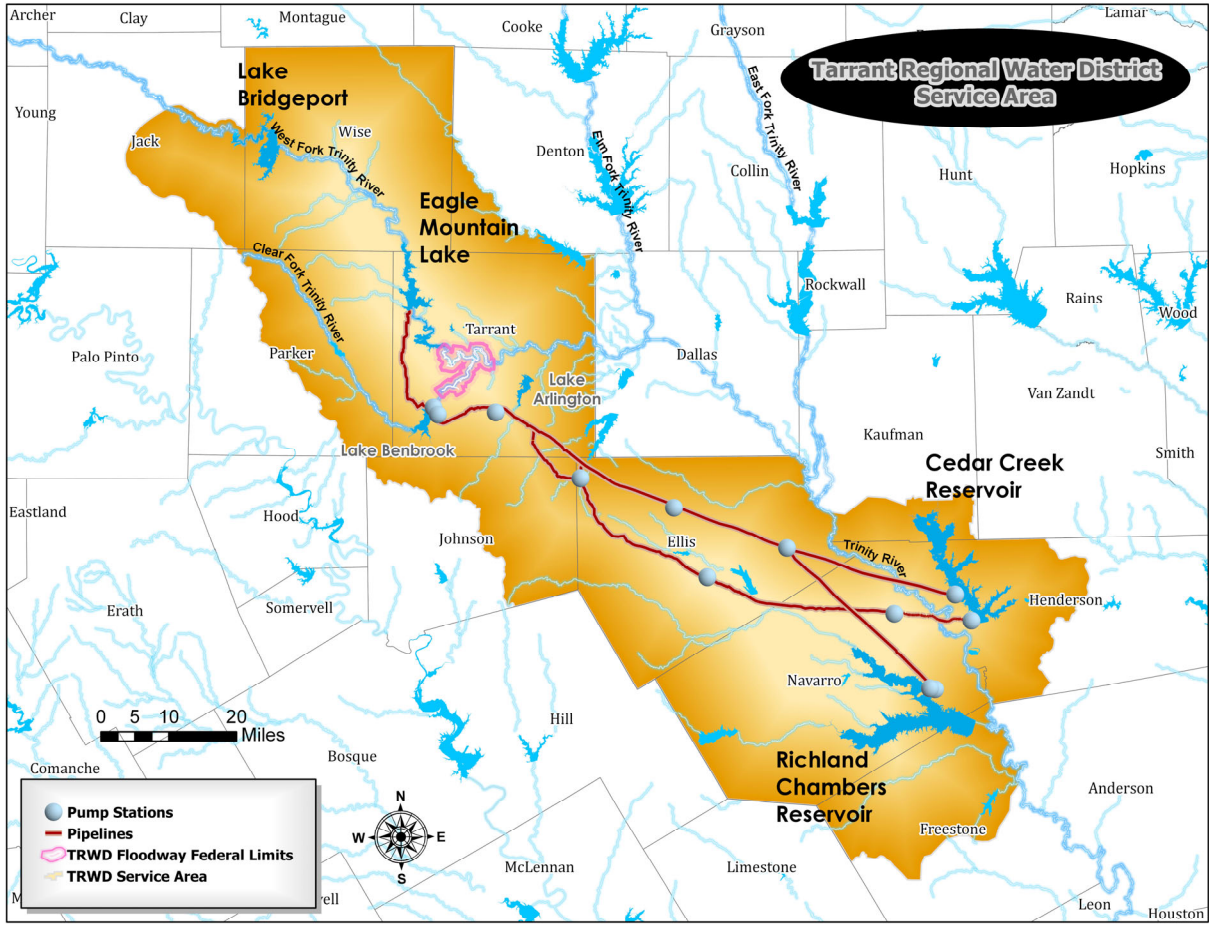
**TABLE 8 - WATER REQUIREMENTS**

The Region C Water Planning Group, in association with Freese & Nichols, Inc., Plummer Associates, Inc., CPY, Inc., and Cooksey Communications, Inc., prepared the *2021 Region C Regional Water Plan* and filed it with the Texas Water Development Board in November 2020. Population, water supply, and water demand data used in this section have been obtained from that report.

The available supply is based on the safe yield of the District's reservoirs, rather than the firm yield. Safe yield is defined as the water that could have been supplied annually from a reservoir or reservoir system during a repeat of drought-of-record conditions, leaving some amount (in this case, one year's supply) in reserve at the minimum content (the peak of the drought, the point when the reservoir has its lowest volume of water and afterwards begins to fill). Supply numbers shown below in Table 8 are based on the safe yield of the System, which is a more conservative estimate of the District's supply than firm yield. Numbers are provided in both acre-feet per year (AFY) and million gallons per day (MGD).

Calendar Year	District Service Area Population Projection	Water Supply Demand		Available Supply			
		Acre Feet Per Year	Average Daily Flow Rate (MGD)	Existing Supplies AFY <sup>(1)(2)</sup>	Additional Supply AFY	Total Supply AFY <sup>(3)</sup>	Total Supply (MGD)
2020	2,399,399	495,119	442	487,025	49,721 <sup>(4)</sup>	536,746	479
2030	2,883,379	582,072	520	483,503	181,810 <sup>(5)</sup>	665,313	594
2040	3,328,157	662,746	592	479,965	251,941 <sup>(6)</sup>	731,906	653
2050	3,773,780	747,498	667	476,797	444,422 <sup>(7)</sup>	921,219	822
2060	4,267,998	827,523	739	473,826	468,228 <sup>(8)</sup>	942,054	841
2070	4,893,661	926,855	827	471,897	539,990 <sup>(9)</sup>	1,011,887	903

- (1) Cumulative safe yield from the West Fork Trinity River System (Lake Bridgeport and Eagle Mountain Lake), Benbrook Lake, Lake Arlington, Cedar Creek Reservoir, Richland-Chambers Reservoir, and the constructed wetlands at Richland-Chambers (a water reuse project). Permitted yield for these sources is greater than the safe yield. Permitted annual diversions from each water source are: 175,000 AFY from Cedar Creek Reservoir; 210,000 AFY from Richland - Chambers Reservoir; 100,465 AFY from Richland-Chambers Constructed Wetlands; 72,500 AFY from Lake Benbrook; and 159,600 AFY from the West Fork of the Trinity River (Lake Bridgeport and Eagle Mountain Lake). A permit for 88,059 AFY has already been secured for the Cedar Creek Constructed Wetlands, but this project is still under development.
- (2) Availability of existing supplies changes over time due primarily to two factors: sedimentation decreases the amount available from the District's reservoirs; and the availability of reuse water to the constructed wetlands increases over time as more water is used by District customers, and therefore returned to the river.
- (3) Total Supply includes conservation, because conservation is accounted for as a supply in the *2021 Region Regional Water Plan*, growing from 47,221 AFY in 2020 to 68,958 AFY in 2070.
- (4) Additional Supply - Increase in supply due to 47,221 AFY in conservation and 2,500 AFY from the Aquifer Storage and Recovery Pilot.
- (5) Additional Supply - Increase in supply due to 60,724 AFY in conservation, 2,500 AFY from the Aquifer Storage and Recovery Pilot, 60,263 AFY from additional IPL capacity to convey Richland-Chambers reuse, 38,323 AFY for Cedar Creek Wetlands Reuse, and 20,000 AFY Reuse from TRA Central WWTP.
- (6) Additional Supply - Increase in supply due to 52,054 AFY in conservation, 5,000 AFY from the Aquifer Storage and Recovery Pilot, 56,010 AFY from additional IPL capacity to convey Richland-Chambers reuse, 55,807 AFY from Cedar Creek Wetlands Reuse, 30,000 AFY Reuse from TRA Central WWTP, 21,070 from Tehuacana Reservoir, and 32,000 AFY from Carrizo-Wilcox groundwater.
- (7) Additional Supply - Increase in supply due to 56,622 AFY in conservation, 5,000 AFY from the Aquifer Storage and Recovery Pilot, 51,387 AFY from additional IPL capacity to convey Richland-Chambers reuse, 70,819 AFY from Cedar Creek Wetlands Reuse, 40,000 AFY Reuse from TRA Central WWTP, 21,070 from Tehuacana Reservoir, 32,000 AFY from Carrizo-Wilcox groundwater, and 167,524 AFY from Marvin Nichols Reservoir.
- (8) Additional Supply - Increase in supply due to 62,198 AFY in conservation, 5,000 AFY from the Aquifer Storage and Recovery Pilot, 46,566 AFY from additional IPL capacity to convey Richland-Chambers reuse, 83,870 AFY from Cedar Creek Wetlands Reuse, 50,000 AFY Reuse from TRA Central WWTP, 21,070 from Tehuacana Reservoir, 32,000 AFY from Carrizo-Wilcox groundwater, and 167,524 AFY from Marvin Nichols Reservoir.
- (9) Additional Supply - Increase in supply due to 68,958 AFY in conservation, 5,000 AFY from the Aquifer Storage and Recovery Pilot, 40,703 AFY from additional IPL capacity to convey Richland-Chambers reuse, 88,059 AFY from Cedar Creek Wetlands Reuse, 60,000 AFY Reuse from TRA Central WWTP, 21,070 from Tehuacana Reservoir, 32,000 AFY from Carrizo-Wilcox groundwater, 167,524 AFY from Marvin Nichols Reservoir, and 56,676 AFY from Wright Patman Reallocation.



**EXISTING WATER SOURCES** . . . The District's existing water supply system consists of two geographically separate components. The first is the West Fork of the Trinity River (the "West Fork Source") which consists of the reservoirs situated northwest of the City of Fort Worth. The second component consists of the Cedar Creek Reservoir and pipeline and the Richland-Chambers Reservoir and pipeline. Raw water from these two reservoirs is transported to Tarrant County via their corresponding pipelines. A third pipeline, developed in partnership with the City of Dallas, allows delivery of additional supply from Cedar Creek Reservoir. In the future, this additional line will allow deliveries from Richland-Chambers and Dallas Supply from Lake Palestine. The District supplies, either directly or indirectly, water to approximately 95% of Tarrant County and to approximately 2.4 million people in its overall service area.

#### West Fork Source

Lake Bridgeport in Wise and Jack Counties is the uppermost of the West Fork lakes and is located about 45 miles northwest of Fort Worth. Lake Bridgeport, constructed by the District between 1930-32, has a storage capacity of approximately 366,000 acre-feet.

Eagle Mountain Lake, is in Tarrant and Wise Counties, and located approximately ten miles northwest of Fort Worth. Eagle Mountain Lake, also constructed by the District during 1930-32, has a storage capacity of approximately 182,000 acre-feet. Eagle Mountain Lake is highly developed and widely used for recreational activities.

Lake Worth is the lowest lake in the West Fork Source. Lake Worth was built by the City of Fort Worth between 1911-14 and is owned, maintained and operated by the City. The District releases water from Eagle Mountain to Lake Worth for use primarily by the City of Fort Worth.

The West Fork Source is a gravity-feed system. No pumping facilities are required to deliver the raw water to the District's customers served by this source. Safe water yield of the West Fork Source is 70 MGD. The City of Fort Worth withdraws West Fork water from both Lake Worth and Eagle Mountain Lake.

#### Eagle Mountain Connection

Due to increasing demands in the western and northern portions of the District's service area, the Eagle Mountain Connection Project was constructed in far western Tarrant County. This 20 mile pipeline connects to the existing East Texas Pipeline (near Lake Benbrook) and serves to supplement the West Fork Source by allowing the District to store water from Cedar Creek and Richland Chambers Reservoirs in Eagle Mountain Lake for later delivery to its customers. This pipeline has the delivery capacity of 280 MGD.

#### East Texas Source

Cedar Creek Reservoir, located southeast of the City of Fort Worth in Henderson and Kaufman Counties, was constructed by the District between 1960 and 1967. The Cedar Creek Reservoir has a storage capacity of approximately 638,000 acre-feet. Raw water is transmitted to various customers through a 74-mile pipeline which was placed in operation in October 1973. The existing transmission facilities consist of a 72-inch underground pipeline from the Cedar Creek Reservoir to the balancing reservoirs east of the City of Fort Worth and an 84-inch underground pipeline from the balancing reservoirs to the Rolling Hills Water Treatment Plant in the City of Fort Worth. This pipeline has a capacity of 117 MGD.

Richland-Chambers Reservoir is located some 100 miles southeast of Fort Worth in Navarro and Freestone Counties and was constructed by the District between 1982 and 1987. The lake filled in 1989, and has a storage capacity of approximately 1,135,000 acre-feet. Raw water is transmitted to District customers through a 74.5-mile pipeline to Fort Worth. This pipeline utilizes a 90-inch underground pipe, joining the Cedar Creek pipeline at the Ennis Booster Station and sharing the same right-of-way and expanded facilities on its way into Fort Worth's Rolling Hills Treatment Plant. The Reservoir has a permitted yield of approximately 210,000 AFY, and the pipeline system is capable of delivering 249 MGD.

The District, the City of Fort Worth and Benbrook Water and Sewer Authority each individually contract with the Corps of Engineers for storage rights in Benbrook Reservoir. The construction of a 90-inch pipeline and pump station that ties the District's pipelines from Cedar Creek and Richland-Chambers to Benbrook Reservoir is complete. The Benbrook connection allows the District to store water from Cedar Creek and Richland-Chambers Reservoirs in Benbrook Reservoir for later delivery to the City of Fort Worth Rolling Hills Water Treatment Plant, Fort Worth's Holly Water Treatment Plant, as well as to Benbrook Water Authority and the City of Weatherford. This pipeline has a capacity of 200 MGD.

The final phase of the Richland-Chambers Wetlands Reuse Supply was completed in 2014, with the amount of supply available from the East Texas Source increasing by 100,465 AFY.

**INTEGRATED PIPELINE PROJECT** . . . The Integrated Pipeline Project ("IPL Project") is an integrated water delivery system benefiting the District and the City of Dallas ("Dallas"). The District's interest in the IPL is a part of the District's System. Dallas's interest in the IPL is **not** part of the District's System. The IPL Project will run from Lake Palestine to Lake Benbrook, with connections to Cedar Creek and Richland-Chambers Reservoirs and interconnection to the existing District system. The IPL Project is expected to provide a maximum total pumping capacity of 347 MGD per day and to produce significant savings and efficiencies in capital construction and operation and maintenance costs for both Dallas and the District. In addition, the IPL Project is expected to enhance regional cooperation, including water supply reliability and water sharing between the two entities. The joint section of the IPL project, which runs from the Cedar Creek Reservoir to the Kennedale Balancing Reservoir, is complete and operational.



The District has entered into a Water Transmission Facilities Financing Agreement, dated November 16, 2010 (the "IPL Project Contract") with Dallas to enable the District to acquire and construct the IPL Project. The IPL Project Contract establishes that the District will own, operate and finance the transmission facilities and that Dallas will own "Reserved Capacity Rights" of 150 MGD and will pay its share of the design and construction based on "Reserved Capacity Rights". The District will own 197 MGD of Reserved Capacity Rights. There is also a "Delivery Contract" that establishes the cost allocation of operation and maintenance costs and the operation guidelines for the transmission system.

The District's share of the total capital cost of the IPL Project is currently estimated at \$1.6 billion. To date, the District has funded approximately \$783 million for its share of the IPL Project. It is anticipated that the District will issue additional bonds over the next 10 to 15 years to finance its remaining share of the total capital cost of the IPL Project.

Dallas's share of the IPL Project is currently estimated at \$1.5 billion. Under the IPL Project Contract, Dallas has requested and authorized the District to issue contract revenue bonds (the "Dallas Contract Revenue Bonds") secured solely by payments from Dallas to the District under the IPL Project Contract. Such Dallas Contract Revenue Bonds shall be in such amounts and issued at such times as determined by the District, in consultation with Dallas, to finance Dallas's share of the design and construction of the IPL Project. All such payments by Dallas to the District will constitute operating expenses of the Dallas Water Utilities System. It is currently expected that the District will issue Dallas Contract Revenue Bonds over a 10 to 15 year period to pay Dallas's share of the total capital cost of the IPL Project. To date, Dallas has funded, through contract revenue bonds, approximately \$974 million for its share of the IPL Project. Future Dallas Contract Revenue Bonds will be issued as determined by the District in consultation with Dallas; provided, however, the IPL Project Contract gives the District specific authority to issue Dallas Contract Revenue Bonds without any additional City approval in the event Dallas fails to take certain actions. **Dallas's interest in the IPL is not part of the District's System and none of the payments from Dallas to the District under the IPL Project Contract are pledged to the payment of the Bonds.**

**QUALITY OF DISTRICT WATER . . .** The District delivers only raw water to its municipal and non-municipal customers. The raw water used for domestic purposes, from all sources, will meet or exceed all existing State and Federal standards during a normal year. During periods when drought conditions are present, total dissolved solids in the water may exceed such standards. The District's contracts do not guarantee water quality nor do they in any way obligate the District to treat such water.

The District has established an Environmental Division whose responsibility is to oversee the quality of the reservoirs. This is accomplished through the District's Watershed Management Plan which includes reservoir water quality monitoring, State and Federal discharge permits review, and non-point source sampling program.

**WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN . . .** The District has adopted a Water Conservation and Drought Contingency Plan (the "Conservation and Drought Plan") meeting the guidelines and requirements issued by the TCEQ for the development of such plans for wholesale water suppliers such as the District. The water conservation section of the Conservation and Drought Plan is intended to result in ongoing, long-term water savings. The Conservation and Drought Plan outlines water conservation measures the District pursues as a water supply strategy to: (i) extend the life of existing supplies to meet new water demands; (ii) slow the withdrawals on District reservoirs to make more water available during times of drought; (iii) reduce peak supply requirements, which reduces wear and tear on existing infrastructure; (iv) defer increases in capital and operating costs for existing systems, and (v) delay the need for developing new water supplies.

The drought contingency and emergency response sections of the Conservation and Drought Plan address strategies designed to temporarily reduce water usage in response to specific conditions. The objectives of the Conservation and Drought Plan include (i) to reduce water consumption from the levels that would prevail without conservation efforts; (ii) to reduce loss and waste of water; (iii) to improve efficiency in the use of water; (iv) to document the level of recycling and reuse in the water supply; and (v) to extend the life of current supplies by reducing the growth rate on demand.

The drought contingency portion of the Conservation and Drought Plan identifies three Drought stages: (i) Stage 1, Water Watch; (ii) Stage 2, Water Warning; and (iii) Stage 3, Water Emergency. Each of the Contracting Parties has also adopted a water conservation and drought contingency plan. The drought stages in the Conservation and Drought Plan are triggered when total combined raw water supply in the District's western and eastern division reservoirs drops below a certain percentage of conservation storage capacity. The triggers levels are 75% (25% depleted), 60% (40% depleted), and 45% (55% depleted) for Stages 1, 2, and 3, respectively. The District continues to run computer models for forecasting our system storage and working with our customers to determine the appropriate timing for implementation of any drought stage, should it be needed.

## THE CONTRACTS

The District presently has outstanding and in force water purchase contracts with the Cities of Fort Worth, Arlington, Mansfield and the TRA, acting on behalf of itself, and other municipal and non-municipal customers. Certain provisions of these contracts are summarized below. This summary does not purport to be complete and reference is made to the respective contracts for full and complete statements of such provisions and such other provisions as are not summarized herein.

Effective September 1, 1982, the District entered into a Tarrant County Regional Water Supply Facilities Amendatory Contract (the "Contract") with the Cities of Fort Worth, Arlington, Mansfield, and the TRA (collectively, the "Initial Contracting Parties") which adopted by reference the provisions of a contract dated August 29, 1979, between the District and the Cities of Fort Worth and Mansfield (the "Base Contract") with the same effect as if the Base Contract had been set forth in its entirety. The Base Contract provided that the District is authorized to enter into similar contracts with additional contracting parties (collectively with the Initial Contracting Parties, the "Contracting Parties" or individually, the "Contracting Party") and recognized that the TRA and the City of Arlington expected to become Contracting Parties and execute similar contracts.

The Contract, with certain modifications to the Base Contract as to billing procedures, is in substance essentially the same as the Base Contract and does not affect the unconditional Bonds of the Contracting Parties with respect to the System and the Bonds.

**DELIVERY OF WATER . . .** The District agrees to deliver raw water from the System to the Contracting Parties, and will use its best efforts (i) to remain in position to furnish raw water sufficient for the reasonable demands of each Contracting Party, but the District's obligation is limited to the amount of water available to it from the System; and (ii) to issue its bonds in amounts necessary to acquire, construct, maintain, improve, and extend the System so as to enable the District to furnish such water.

The District may sell raw water from the System to parties other than Contracting Parties (including parties renewing existing contracts), provided such sales shall in all respects be subordinate to prior rights of the Contracting Parties to draw water from the System.

The Contract provides that it is the intention of the parties thereto that the System shall be the sole and exclusive source of raw water supply for each Contracting Party, with certain agreed exceptions, except that in respect to TRA, it so obligates itself only with respect to its Tarrant County Water Project serving the Cities of Bedford, Euless, Grapevine, North Richland Hills, Colleyville and others.

The Contracting Parties agree to take, with certain agreed exceptions, from the District all raw water required for such Contracting Party's own use and for the use of certain customers served by such Contracting Party's system.

In the event it becomes necessary to ration water from the System, such rationing shall, within the limits permitted by law, be done by the District on the basis of the relative actual total amount of all water from the entire System taken by each Contracting Party during the last preceding Annual Payment Period (October 1 through the last day of the next following September) in which rationing among said parties was not necessary.

If the District at any time during the term of the Contract is unable to supply all the raw water requirements of the Contracting Parties for any reason, or if it should become apparent that the District will become unable to supply the Contracting Parties with their raw water requirements, and any Contracting Party determines that it is necessary to procure or use raw water from sources other than the District, then, subject to certain specified notices and determinations, such Contracting Party may proceed to procure such raw water from other sources at its sole cost, and without any liability for damages accruing in favor of or against the District by reason thereof. If such Contracting Party procures water additional to that supplied by the District under the Contract, then such Contracting Party shall nevertheless continue to take from the District and pay for all raw water thereafter available to such Contracting Party from the System up to the full raw water requirements of such Contracting Party; provided, however, that all Contracting Parties shall at all times have the right to secure water from any possible source in any emergency when the District is unable to deliver water from the System.

All water delivered by the District shall be raw, untreated water from the System. Each Contracting Party has satisfied itself that such water will be suitable for its needs.

*Payments by Contracting Parties.* The Contract acknowledges, and the District and the Contracting Parties agree, that payments to be made under the Contract will be the primary source available to the District to provide moneys to pay the Annual Requirement, hereinafter defined, and further that the District has a statutory duty to establish, and from time-to-time revise, the charges for services to be rendered and made available to the Contracting Parties so that the payments to be made shall at all times be not less than an amount sufficient to pay or provide for the payment of: (a) an "Operation and Maintenance Component" equal to the amount paid or payable for all Operation and Maintenance Expenses of the System and (b) a "Bond Service Component" equal to (i) the principal of, redemption premium, if any, and interest on, the District's bonds issued for the System, including the Parity Bonds and any Additional Bonds payable from Pledged Revenues (hereinafter in this summary referred to as the "Bonds"), as such principal, redemption premium, if any, and interest become due, less interest to be paid out of Bond proceeds or from other sources if permitted by any Bond Resolution, and all amounts required to redeem any Bonds prior to maturity when and as provided in any Bond Resolution, (ii) the proportionate amount of any special or reserve funds required to be accumulated and maintained by the provisions of any Bond Resolution, and (iii) any amount in addition thereto sufficient to restore any deficiency in any of such funds required to be accumulated and maintained by the provisions of any Bond Resolution. The Operation and Maintenance Component plus the Bond Service Component is referred to in the Contract as the "Annual Requirement".

Each Contracting Party agrees to pay to the District for the water supply provided under the Contract its proportionate share of the Annual Requirement, such proportionate share payable by each Contracting Party being termed the "Annual Payment". Each Contracting Party's Annual Payment is to be estimated prior to the commencement of each "Annual Payment Period", shall be paid to the District in monthly installments and is to be finally determined, paid or adjusted immediately following the end of each Annual Payment Period.

The Annual Payment to be paid by each Contracting Party as finally determined shall be that percentage of the Annual Requirement, subject to certain adjustments, as is obtained by dividing such Contracting Party's actual raw water use by the total actual raw water use of all Contracting Parties. The District shall revise the Annual Payment of each Contracting Party if: (i) there should be additional Contracting Parties to the Contract; (ii) unusual, extraordinary, or unexpected expenditures for Operation and Maintenance Expenses are required which are not provided for in the District's annual budget for the System or in any Bond Resolution; (iii) Operation and Maintenance Expenses are substantially less than estimated; (iv) the District issues Bonds which require an increase in the Bond Service Component of the Annual Payment; or (v) the District receives either significantly more or significantly less revenues or other amounts than those anticipated.

Each Contracting Party shall have the obligation to pay each year, without offset or counterclaim, its proportionate share of the Annual Requirement regardless of whether or not the District actually acquires, constructs or completes the facilities contemplated by the Contract (the "Project") or is actually delivering water from the System to the Contracting Party, or whether or not any Contracting Party actually receives or uses water from the System, regardless of any other provisions of the Contract or any other contract or agreement between the parties. For the purpose of determining each Contracting Party's proportionate share of each year's Annual Requirement, each Contracting Party shall be deemed responsible for a minimum amount of water usage (the "Minimum Allocation"). Should a Contracting Party actually take or use less than its Minimum Allocation, then such Contracting Party shall be deemed to have taken its Minimum Allocation for the purpose of determining its proportionate share of the Annual Requirement, but should a Contracting Party actually take or use an amount equal to or greater than its Minimum Allocation, then such Contracting Party's proportionate share of the Annual Requirement shall be based upon the estimated and actual amount of water taken or used. For the Annual Payment Periods commencing October 1, 1984, and thereafter, the Minimum Allocation for each Contracting Party shall be an amount, expressed in MGD, equal to the greater of the initial Minimum Allocation fixed for such Contracting Party or average annual MGD actually taken from the System by such Contracting Party during the five immediately preceding Annual Payment Periods. Fort Worth's reserved waters of 61.6 MGD are not counted as part of waters actually taken from the System for the purposes of determining Fort Worth's average use of water, but its minimum allocation is not affected by such reserved water.

*Delinquencies.* If any Contracting Party should remain delinquent in any payments due under the Contract for a period of one hundred twenty days, and if such delinquency continues during any period thereafter, such Contracting Party's Minimum Allocation shall be deemed to have been zero MGD during all periods of such delinquency for the purpose of calculating and redetermining the percentage of the Annual Payment to be paid by each of the non-delinquent Contracting Parties. However, the District shall pursue all legal remedies against delinquent Contracting Parties to enforce and protect the rights of the District, the other Contracting Parties and the holders of the Bonds, and delinquent Contracting Parties shall not be relieved of the liability for the payment of all amounts which would have been due under the Contract were it not delinquent.

*Sources of Payments.* The District shall never have the right to demand payment by any Contracting Party from funds raised by taxes, and the Bonds under the contract shall never be construed to be a debt of such kind as to require any Contracting Party to levy and collect a tax to discharge such obligation. The Contracting Parties will each represent and covenant that all payments to be made by it under the Contract shall constitute reasonable and necessary operating expenses of its combined waterworks and sewer system (or, in the case of the TRA, its Tarrant County Water Project), and that all such payments will be made from the revenues of such system or project, as the case may be, with the effect that the obligation to make such payments shall have priority over any obligation to make any payments with respect to all bonds issued by such Contracting Party.

Each Contracting Party agrees to continuously operate and maintain its combined waterworks and sewer system or water system, as the case may be, and to fix and collect such rates and charges for services to be supplied thereby as will produce revenues in an amount equal to at least all of its payments under the Contract and all other amounts required by the provisions of the ordinances or resolutions authorizing its revenue bonds or other Bonds.

*Unconditional Obligation to Pay.* Each Contracting Party is unconditionally obligated to pay, without offset or counterclaim, its proportionate share of the Annual Requirement with respect to the Bonds regardless of whether or not the District actually acquires, constructs or completes the Project or is actually delivering water from the System to any Contracting Party or whether any Contracting Party actually uses water from the System, whether due to *force majeure* or otherwise, regardless of any other provisions of the Contract or any other agreement between any of the parties thereto.

*Advisory Committee.* The governing body of each of the District and the Contracting Parties annually shall appoint a member of its governing body or one of its officers as a voting member of an Advisory Committee for the System. The Advisory Committee shall consult with and advise the District with regard to the following matters pertaining to the System: (i) the issuance of Bonds, (ii) the operation and maintenance of the System, (iii) additional Contracting Parties and the terms and conditions of the contracts therewith, consistent with the provisions of the Contract, (iv) sales of water to entities other than Contracting Parties and the prices, terms and conditions of such sales, consistent with the provisions of the Contract, (v) the District's annual budget, prior to its submission to the Board of Directors of the District, (vi) review of the District's annual audit, (vii) all other pertinent matters relating to the management of the System and (viii) improvements and extensions of the System and the providing of any additional source of water supply. The committee shall have access to and may inspect at any reasonable times all physical elements of the System and all records and accounts of the District pertaining to the System.

**OTHER CONTRACTS . . .** The District's contracts with its other customers generally provide for the delivery of specified amounts of water, from a specified source, at a specified rate, and for a specified term. Certain of the contracts also require the District to maintain specified water levels. Certain of the contracts provide that the obligation of the District to supply water thereunder is subject to certain prior and superior rights with respect thereto.

Payment by the customer of all amounts due under certain of the contracts with municipalities is to be made from water revenues received by the customer, and its bonds under the contract will not be construed to be or to create a debt of such kind as to require it, under the laws of Texas, to levy and collect a tax to discharge such bonds. However, the customer agrees to maintain water rates adequate to enable it to pay all sums due to the District as and when payable, and such payments will constitute reasonable and necessary operating expenses of the customer's waterworks system with the effect that its bonds to make payments from its waterworks revenues will have priority over its bonds to make payments of the principal and interest on its own revenue bonds.

The contracts generally provide that the customer will, at its sole cost, install, maintain and operate intake facilities at the water source and provide, operate and maintain facilities which will accurately meter water sold under the contract, and that the District has the right to inspect and verify the records and measurements so taken. The District is not obligated to treat the water taken and used under the contracts, except that, prior to the development of sources of water other than those specified in the contract, and unless waived by the customer, the District must satisfy the customer with acceptable data that the quality of water from each such proposed additional water source will meet the chemical standards for a public water supply of the U.S. Public Health Service.

The District's obligation under several of the contracts can be relieved as can those of the customer (other than the obligation to make payments under the contract) if, by reason of "force majeure", either party is unable in whole or in part to perform under the contract. "Force Majeure" is defined to include, among other things, acts of God, strikes, orders of any civil or military authority, riots, floods, droughts, breakage of or accidents to machinery, pipelines or canals, partial or entire failure of water supply and any other causes not reasonably within the control of the party claiming such inability.

The contracts vary in terms of the parties' bonds upon termination thereof. They generally provide for renegotiation of terms and conditions; one contract, however, provides that the District will thereafter supply water upon the same price basis and for the same term as it is then supplied by the District to the City of Fort Worth.

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## SELECTED PROVISIONS OF THE RESOLUTION

The Board of Directors has adopted a resolution authorizing the issuance, sale and delivery of Tarrant Regional Water District, A Water Control and Improvement District, Water System Revenue Bonds, Series 2024 and approving and authorizing instruments and procedures relating thereto. There follow certain provisions of the Resolution which do not purport to be complete. For a full statement of all matters of fact relating to the Bonds reference should be made to the Resolution. As used in this Section, the term "Bonds" has the same meaning as the term "Parity Bonds" as used elsewhere in this Official Statement and the term "Series 2024 Bonds" has the same meaning as the term "Bonds" as used elsewhere in this Official Statement.

ADDITIONAL DEFINITIONS. In addition to the definitions heretofore provided for, the following terms as used in the Resolution shall have the meanings set forth below, unless the text hereof specifically indicates otherwise:

The term "Additional Bonds" shall mean the additional parity revenue bonds permitted to be authorized in the future on a parity with the Bonds, as provided in the Bond Resolution.

The term "Board" shall mean the Board of Directors of the District, being the governing body of the District, and it is further resolved that the declarations and covenants of the District contained in the Resolution are made by, and for and on behalf of the Board and the District, and are binding upon the Board and the District for all purposes.

The term "Bond Resolution" and "Resolution" shall mean the resolution authorizing the "Series 2024 Bonds", and it is hereby resolved and provided that Sections 8 through 24 of the Bond Resolution are applicable to all of the Bonds, as hereinafter defined, and substantially restate and are supplemental to and cumulative of Sections 8 through 24 of each of the Series 2015 Bond Resolution, Series 2015A Bond Resolution, Series 2016 Bond Resolution, Series 2016A Bond Resolution, Series 2017 Bond Resolution, Taxable Series 2020 Bond Resolution, Taxable Series 2020B Bond Resolution, Series 2020C Bond Resolution and the Series 2022 Bond Resolution with the appropriate changes and additions which are required with respect to the issuance of the Series 2022 Bonds.

The term "Bonds" shall mean collectively (i) the unpaid and unrefunded, Series 2015 Bonds, Series 2015A Bonds, Series 2016 Bonds, Series 2016A Bonds, Series 2017 Bonds, Taxable Series 2020 Bonds, Taxable Series 2020B Bonds, Series 2020C Bonds, Series 2022 Bonds and (ii) the Series 2024 Bonds to be outstanding at any time after the delivery of the Initial Bond for the Series 2024 Bonds.

The term "Contracts" shall mean collectively: (a) the "Tarrant County Regional Water Supply Facilities Contract", dated as of August 29, 1979, among the District and the Cities of Fort Worth and Mansfield, Texas, the "Tarrant County Regional Water Supply Facilities Supplemental Contract For Trinity River Authority of Texas", dated as of March 12, 1979, between the District and Trinity River Authority of Texas, and the "Tarrant County Regional Water Supply Facilities Amendatory Contract", dated September 1, 1982, among the District, the Cities of Fort Worth, Arlington, and Mansfield, Texas, and Trinity River Authority of Texas, which last named amendatory contract consolidates the previous contracts between such parties with respect to the System into one instrument and sets forth the entire agreement between such parties with respect to the System; and (b) all water supply contracts heretofore or hereafter executed between the District and other cities and customers in connection with the District's Water System.

The terms "District" and "Issuer" shall mean Tarrant Regional Water District, a Water Control and Improvement District.

The term "District's Water System," "Issuer's Water System," or "System" shall mean all of the District's existing water storage, treatment, transportation, distribution, and supply facilities, including all dams, reservoirs, and other properties, wherever located, (a) which are currently being used for water supply purposes and, to the extent financed with the proceeds from the sale of the Bonds or Additional Bonds or moneys from the Contingency Fund (hereinafter created), all facilities acquired or constructed in the future, and all improvements to any of the foregoing, and (b) all other facilities which in the future are deliberately and specifically, at the option of the Board, made a part of the System by resolution of the Board, but such term does not include any oil, gas, and other mineral properties owned by the District or property disposed of from time to time in accordance with the provisions of Section 23(g) of the Bond Resolution, provided that any property acquired in substitution therefor shall be included in the System, along with all repairs to and other replacements of the System. In particular such term includes and shall include (i) all of the District's existing Cedar Creek Project, a dam and reservoir on Cedar Creek in Henderson and Kaufman Counties, Texas, and Eagle Mountain Dam and Reservoir and Bridgeport Dam and Reservoir, which are water supply facilities of the District on the West Fork of the Trinity River, Richland-Chambers Reservoir in Navarro and Freestone Counties, Texas, and all transportation, storage, and other facilities related to all of the foregoing and (ii) the Projects which were financed or refinanced with the proceeds from the sale of bonds originally authorized by the Series 1983 Bond Resolution, the Series 1986 Bond Resolution, Series 1999 Bond Resolution, the Series 2002 Bond Resolution, the Series 2006 Bond Resolution, the Series 2008A Bond Resolution, the Series 2008B Bond Resolution, the Series 2009 Bond Resolution, the Series 2010 Bond Resolution, the Series 2010A Bond Resolution, the Series 2010B Bond Resolution, the Series 2012 Bond Resolution, the Series 2012A Bond Resolution, the Series 2014 Bond Resolution, the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution, and the Series 2022 Bond Resolution and made a part of the System. Unless deliberately added to the System by the Board, at its option, in the manner prescribed above, said term does not include any District flood control facilities or facilities which provide waste treatment or other wastewater services of any kind. Said term does not include any facilities acquired or constructed by the District with the proceeds from the issuance of "Special Facilities Bonds," which are hereby defined as being revenue Bonds of the District, which are not issued as Additional Bonds, and which are payable from any source, contract, or revenues whatsoever other than the Pledged Revenues; and Special Facilities Bonds may be issued for any lawful purpose and made payable from any source, contract, or revenues whatsoever other than the Pledged Revenues.

The term "Gross Revenues of the System" shall mean all of the revenues, income, rentals, rates, fees, and charges of every nature derived by the Board or the District from the operation and/or ownership of the System (except as hereinafter provided), including specifically all payments and amounts received by the Board or the District from Contracts, and any interest income from the investment of money in any Funds created or maintained pursuant to any resolution authorizing the issuance of Bonds or Additional Bonds, excepting only any Construction Fund created pursuant to any resolution authorizing any Bonds or Additional Bonds. There is excepted from such term, and such term does not include (i) revenues derived by the District from the production of oil, gas, and other minerals owned by the District, or the revenues derived from the granting, sale, or lease of the right to explore for and produce same, or (ii) the royalties, rentals, license fees, and other income (other than from water sales) derived by the District from (a) lands and assets owned by the District as flood control facilities or (b) property of the District at Eagle Mountain Dam and Reservoir and Bridgeport Dam and Reservoir on the West Fork of the Trinity River.

The term "Operation and Maintenance Expenses of the System" or "Current Expenses" shall mean all reasonable and necessary current costs of operation and maintenance of the System including, but not limited to, repairs and replacements, operating personnel, utilities, supervision, engineering, accounting, auditing, legal services, insurance premiums, paying agents fees, and any other supplies and services, administration of the System, and equipment necessary for proper operation and maintenance of the System, as well as payments made for the use or operation of any property, and payments made by the District in satisfaction of judgments or other liabilities resulting from claims not covered by the District's insurance. Neither depreciation nor any other expense which does not represent a cash expenditure shall be considered an item of Operation and Maintenance Expense.

The terms "Net Revenues of the District's Water System", "Net Revenues of the System", and "Net Revenues" shall mean the Gross Revenues of the System less the Operation and Maintenance Expenses of the System.

The term "Pledged Revenues" shall mean: (a) the Net Revenues of the System and (b) any additional revenues, income, receipts, grants, donations, or other resources, received or to be received from any public or private source, whether pursuant to an agreement or otherwise, which in the future may, at the option of the District, be pledged to the payment of the Bonds or the Additional Bonds.

The term "Series 1983 Bond Resolution" shall mean the resolution adopted by the Board of Directors of the District on May 18, 1983, authorizing the Tarrant County Water Control and Improvement District Number One Water Revenue Bonds, Series 1983.

The term "Series 1986 Bond Resolution" shall mean the resolution adopted by the Board of Directors of the District on July 15, 1986, authorizing the Tarrant County Water Control and Improvement District Number One Water Revenue Bonds, Series 1986.

The term "Series 1999 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on May 18, 1999, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 1999.

The term "Series 2002 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on December 17, 2002, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2002.

The term "Series 2006 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on March 21, 2006, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2006.

The term "Series 2008A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on June 17, 2008, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2008A.

The term "Series 2008B Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on June 17, 2008, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2008B.

The term "Series 2009 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 20, 2009, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2009.

The term "Series 2010 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 19, 2010, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2010.

The term "Series 2010A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on May 18, 2010, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2010A.

The term "Series 2010B Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on May 18, 2010, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2010B.

The term "Series 2012 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 17, 2012, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2012.

The term "Series 2012A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on September 18, 2012, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2012A.

The term "Series 2014 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 21, 2014, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2014.

The term "Series 2015 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 20, 2015, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Series 2015.

The term "Series 2015 Bonds" shall mean all unpaid and unrefunded Series 2015 Bonds authorized by the Series 2015 Bond Resolution.

The term "Series 2015A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on October 20, 2015, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2015A.

The term "Series 2015A Bonds" shall mean all unpaid and unrefunded Series 2015A Bonds authorized by the Series 2015A Bond Resolution.

The term "Series 2016 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 19, 2016, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2016.

The term "Series 2016 Bonds" shall mean all unpaid and unrefunded Series 2016 Bonds authorized by the Series 2016 Bond Resolution.

The term "Series 2016A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on March 15, 2016, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Series 2016A.

The term "Series 2016A Bonds" shall mean all unpaid and unrefunded Series 2016A Bonds authorized by the Series 2016A Bond Resolution.

The term "Series 2017 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on July 18, 2017, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Series 2017.

The term "Series 2017 Bonds" shall mean all unpaid and unrefunded Series 2017 Bonds authorized by the Series 2017 Bond Resolution.

The term "Series 2020C Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on October 20, 2020.

The term "Series 2020C Bonds" shall mean all unpaid and unrefunded Series 2020C Bonds authorized by the Series 2020C Bond Resolution.

The term "Series 2022 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on June 21, 2022.

The term "Series 2022 Bonds" shall mean all unpaid and unrefunded Series 2022 Bonds authorized by the Series 2022 Bond Resolution.

The term "Series 2024 Bonds" shall mean collectively the Initial Bond as described and defined in Sections 1, 2, and 3 of the Bond Resolution, and all substitute bonds exchanged therefor, as well as all other substitute bonds and replacement bonds issued pursuant to the Resolution, all as provided for therein; and the Series 2024 Bonds are Additional Bonds issued to be payable from and secured by a first lien on and pledge of the Pledged Revenues equally and ratably on a parity with all of the other Bonds, as permitted by Sections 21 and 22 of the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution and the Series 2022 Bond Resolution.

The term "Taxable Series 2020 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 21, 2020, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Taxable Series 2020.

The term "Taxable Series 2020 Bonds" shall mean all unpaid and unrefunded Taxable Series 2020 Bonds authorized by the Taxable Series 2020 Bond Resolution.

The term "Taxable Series 2020B Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on October 20, 2020.

The term "Taxable Series 2020B Bonds" shall mean all unpaid and unrefunded Taxable Series 2020B Bonds authorized by the Taxable Series 2020B Bond Resolution.

The terms "year" and "fiscal year" shall mean the District's fiscal year, which currently ends on September 30, but which subsequently may be any other 12 month period hereafter established by the District as a fiscal year for the purposes of the System and any resolution authorizing the Bonds or any Additional Bonds.

PLEDGE. (a) That the Bonds, as defined above, and any Additional Bonds, and the interest thereon, are and shall be secured equally and ratably on a parity by and payable from a first lien on and pledge of the Pledged Revenues; and the Series 2024 Bonds are Additional Bonds payable from and secured by a first lien on and pledge of the Pledged Revenues, as permitted by Sections 21 and 22 of the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution and the Series 2022 Bond Resolution.

(b) That Chapter 1208, Government Code, applies to the issuance of the Bonds and the pledge of the revenues granted by the Issuer under this Section, and is therefore valid, effective, and perfected. Should Texas law be amended at any time while the Bonds are outstanding and unpaid, the result of such amendment being that the pledge of the revenues granted by the Issuer under this Section is to be subject to the filing requirements of Chapter 9, Business & Commerce Code, in order to preserve to the registered owners of the Bonds a security interest in said pledge, the Issuer agrees to take such measures as it determines are reasonable and necessary under Texas law to comply with the applicable provisions of Chapter 9, Business & Commerce Code and enable a filing of a security interest in said pledge to occur.

REVENUE FUND. That there has been created and established, and there shall be maintained on the books of the District, and accounted for separate and apart from all other funds of the District, a special fund to be entitled the "Tarrant Regional Water District Water Revenue Bonds Revenue Fund" (hereinafter called the "Revenue Fund"). All Gross Revenues of the System (except investment interest and income from the other Funds hereinafter described and maintained) shall be credited to the Revenue Fund immediately upon receipt. All Operation and Maintenance Expenses of the System shall be paid from such Gross Revenues credited to the Revenue Fund, as a first charge against same.

INTEREST AND REDEMPTION FUND. That for the sole purpose of paying the principal of and interest on all Bonds and any Additional Bonds, as the same come due, either upon redemption or at maturity, there has been created and established, and there shall be maintained, at an official depository bank of the District, a separate fund to be entitled the "Tarrant Regional Water District Revenue Bonds Interest and Redemption Fund" (hereinafter called the "Interest and Redemption Fund").

THE CONTINGENCY AND IMPROVEMENT FUND AND THE RESERVE FUND. (a) That there has been created and established and there shall be maintained, at an official depository bank of the District, a separate fund to be entitled the "Tarrant Regional Water District Water Revenue Bonds Contingency and Improvement Fund" (hereinafter called the "Contingency Fund"). The Contingency Fund shall be used solely for the purpose of paying the costs of improvements, enlargements, extensions, additions, or other capital expenditures relating to the System, and unexpected or extraordinary replacements of the System, for which System funds are not otherwise available, or for paying unexpected or extraordinary Operation and Maintenance Expenses of the System for which System Funds are not otherwise available, or for paying principal of and interest on any Bonds or Additional Bonds, when and to the extent the amount in the Interest and Redemption Fund is insufficient for such purpose.

(b) That there has been created and established and there shall be maintained at an official depository bank of the District, a separate fund to be entitled the "Tarrant Regional Water District Water Revenue Bonds Reserve Fund" (hereinafter called the "Reserve Fund"), solely for the further security and benefit of the Bonds and any Additional Bonds. The Reserve Fund shall be used solely for the purpose of (i) finally retiring the last of the Bonds and any Additional Bonds, and (ii) paying principal of and interest on the Bonds or any Additional Bonds when and to the extent the amounts in the Interest and Redemption Fund and Contingency Fund are insufficient for such purpose. There is now on deposit in the Reserve Fund an aggregate amount of money and/or investments not less in market value than the principal and interest requirements of the Bonds during the fiscal year in which such requirements are scheduled to be the greatest. When and so long as the money and investments in the Reserve Fund are not less in market value than a "Required Amount" equal to the principal and interest requirements of the Bonds during the fiscal year in which such requirements are scheduled to be the greatest, no deposits shall be made to the credit of the Reserve Fund; but when and if the Reserve Fund at any time thereafter contains less than said "Required Amount" in market value, then, subject and subordinate to making the required deposits to the credit of the Interest and Redemption Fund, the District shall transfer from Pledged Revenues and deposit to the credit of the Reserve Fund, semiannually on or before the 25th days of each February and each August of each year, a sum equal to no less than 1/10th of the deficiency in the "Required Amount" until the Reserve Fund is restored to said "Required Amount." So long as the Reserve Fund contains said "Required Amount" in market value, all amounts in excess of said "Required Amount," if any, shall, at least annually, on or before the 25th day of February of each year, be deposited to the credit of the Interest and Redemption Fund.

DEPOSITS OF PLEDGED REVENUES; INVESTMENTS. (a) That the Pledged Revenues shall be deposited into the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, when and as required by the Bond Resolution, Sections 8 through 24 of which are cumulative of and supplemental to Sections 8 through 24 of, the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution, and the Series 2022 Bond Resolution and Sections 8 through 24 of the Bond Resolution shall be applicable to all of the Bonds.

(b) That money in any Fund maintained pursuant to these Bond Resolution may, at the option of the District, be placed in time deposits or certificates of deposit secured by Bonds of the type hereinafter described, or be invested in direct Bonds of the United States of America, Bonds guaranteed or insured by the United States of America, which, in the opinion of the Attorney General of the United States, are backed by its full faith and credit or represent its general Bonds, or invested in indirect Bonds of the United States of America, including, but not limited to, evidences of indebtedness issued, insured, or guaranteed by such governmental agencies as the Federal Land Banks, Federal Intermediate Credit Banks, Banks for Cooperatives, Federal Home Loan Banks, Government National Mortgage Association, United States Postal Service, Farmers Home Administration, Federal Home Loan Mortgage Association, Small Business Administration, Federal Housing Association, or Participation Certificates in the Federal Assets Financing Trust; provided that all such deposits and investments shall be made in such manner that the money required to be expended from any Fund will be available at the proper time or times. Such investments shall be valued by the District in terms of current market value as of the 20th day of February of



each year. All interest and income derived from such deposits and investments immediately shall be credited to, and any losses debited to, the Fund from which the deposit or investment was made, and surpluses in any Fund shall be disposed of as herein provided. Such investments shall be sold promptly when necessary to prevent any default in connection with the Bonds or Additional Bonds.

**FUNDS SECURED.** That money in all Funds described in the Bond Resolution shall be secured in the manner prescribed by law for securing funds of the District.

**DEBT SERVICE REQUIREMENTS.** (a) That promptly after the delivery of the Initial Bonds the District shall cause to be deposited to the credit of the Interest and Redemption Fund all accrued interest, if any, received from the sale and delivery of the Initial Bond, and any such deposit shall be used to pay part of the interest coming due on the Series 2024 Bonds.

(b) That the District shall transfer from the Pledged Revenues and deposit to the credit of the Interest and Redemption Fund the amounts, at the times, as follows:

- (1) such amounts, deposited semiannually on or before the 25th day of each February and each August of each year, as will be sufficient, together with other amounts, if any, then on hand in the Interest and Redemption Fund and available for such purpose, to pay the interest scheduled to accrue and come due on all Bonds and Additional Bonds on the next succeeding interest payment date; and
- (2) such amounts, deposited annually, on or before the 25<sup>th</sup> day of each February, as will be sufficient, together with other amounts, if any, then on hand in the Interest and Redemption Fund and available for such purpose, to pay all principal scheduled to mature and come due on all Bonds on the next succeeding March 1, and to pay all principal of all Bonds and Additional Bonds, if any, scheduled to be redeemed prior to maturity on the next succeeding March 1 in accordance with the mandatory redemption provisions and schedules set forth in any applicable Bond Resolution.

**CONTINGENCY REQUIREMENTS.** That there is now on deposit to the credit of the Contingency Fund an amount equal to at least \$1,100,000. No additional deposits are required to be made to the credit of the Contingency Fund unless and until such amount therein is reduced or depleted. If and when such amount in the Contingency Fund is reduced or depleted then, subject and subordinate to making the required deposits to the credit of the Interest and Redemption Fund and the Reserve Fund, such reduction or depletion shall be restored from amounts which shall be provided for such purpose in the District's Annual Budget for the next ensuing fiscal year or years; provided that the District is not required to budget more than \$100,000 for such purpose during any one fiscal year; but the District shall have the right to budget additional amounts for such purpose if it is deemed necessary or advisable by the Board. So long as the Contingency Fund contains money and investments not less than the amount of \$1,100,000 in market value, any surplus in the Contingency Fund over said amount shall, semiannually on or before February 15 and August 15 of each year, be withdrawn, deposited to the credit of the Revenue Fund, commingled with other revenues from the operation of the System, and used for any lawful purpose for which Gross Revenues of the System may be used.

**DEFICIENCIES; EXCESS PLEDGED REVENUES.** (a) That if on any occasion there shall not be sufficient Pledged Revenues to make the required deposits into the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, then such deficiency shall be made up as soon as possible from the next available Pledged Revenues, or from any other sources available for such purpose.

(b) That, subject to making the required deposits to the credit of the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, when and as required by this Bond Resolution, or any resolution authorizing the issuance of Additional Bonds, the excess Pledged Revenues may be used for any lawful purpose.

**BONDS AND ADDITIONAL BONDS NOT PAYABLE FROM TAXES.** It is specifically provided that the District is not authorized to, and shall not, levy, collect, or use any tax of any nature to pay the principal of or interest on any of the Bonds or Additional Bonds.

**PAYMENT OF BONDS AND ADDITIONAL BONDS.** Semiannually on or before each March 1 and September 1 while any of the Bonds or Additional Bonds are outstanding and unpaid, the District shall make available to the paying agents therefor, ratably and on a parity out of the Interest and Redemption Fund, and/or the Contingency Fund, or, from the Reserve Fund, money sufficient to pay such interest on and such principal of the Bonds or Additional Bonds as will accrue or mature, or which is scheduled to be redeemed prior to maturity, on each such September 1 and March 1, respectively. The paying agents shall destroy all paid Bonds or Additional Bonds, and the coupons, if any, appertaining thereto, and furnish the District with an appropriate certificate of cancellation or destruction.

**DEFEASANCE OF BONDS.** (a) Any Bond and the interest thereon shall be deemed to be paid, retired, and no longer outstanding (a "Defeased Bond") within the meaning of the Resolution, except to the extent provided in subsection (d) of this Section, when payment of the principal of such Bond, plus interest thereon to the due date (whether such due date be by reason of maturity, or otherwise) either (i) shall have been made or caused to be made in accordance with the terms thereof or (ii) shall have been provided for on or before such due date by irrevocably depositing with or making available to the Paying Agent/Registrar in accordance with an Escrow Agreement or other instrument (the "Future Escrow Agreements") for such payment (1) lawful money of the United States of America sufficient to make such payment or (2) Defeasance Securities that mature as to principal and interest in such amounts and at such times as will insure the availability, without reinvestment, of sufficient money to provide for such payment, and when proper arrangements have been made by the Issuer with the Paying Agent/Registrar for the payment of its services until all Defeased Bonds shall have become due and payable. At such time as a Bond shall be deemed to be a Defeased Bond hereunder, as aforesaid, such Bond and the interest thereon shall no longer be secured by, payable from, or entitled to the benefits of, the revenues herein pledged as provided in this Resolution, and such principal and interest shall be payable solely from such money or Defeasance Securities. Notwithstanding any other provision of the Resolution to the contrary, it is hereby provided that any determination not to redeem Defeased Bonds that is made in conjunction with the payment arrangements specified in subsection 20(a)(i) or (ii) of the Bond Resolution shall not be irrevocable, provided that: (1)

in the proceedings providing for such payment arrangements, the Issuer expressly reserves the right to call the Defeased Bonds for redemption; (2) the Issuer gives notice of the reservation of that right to the owners of the Defeased Bonds immediately following the making of the payment arrangements, and (3) the Issuer directs that notice of the reservation be included in any redemption notices that it authorizes.

(b) Any moneys so deposited with the Paying Agent/Registrar may at the written direction of the Issuer also be invested in Defeasance Securities, maturing in the amounts and times as hereinbefore set forth, and all income from such Defeasance Securities received by the Paying Agent/Registrar that is not required for the payment of the Bonds and interest thereon, with respect to which such money has been so deposited, shall be turned over to the Issuer, or deposited as directed in writing by the Issuer. Any Future Escrow Agreements pursuant to which the money and/or Defeasance Securities are held for the payment of Defeased Bonds may contain provisions permitting the investment or reinvestment of such moneys in Defeasance Securities or the substitution of other Defeasance Securities upon the satisfaction of the requirements specified in subsection 20(a)(i) or (ii) of the Bond Resolution. All income from such Defeasance Securities received by the Paying Agent/Registrar which is not required for the payment of the Defeased Bonds, with respect to which such money has been so deposited, shall be remitted to the Issuer or deposited as directed in writing by the Issuer.

(c) The term "Defeasance Securities" means (i) direct, noncallable Bonds of the United States of America, including Bonds that are unconditionally guaranteed by the United States of America, and (ii) noncallable Bonds of an agency or instrumentality of the United States of America, including Bonds that are unconditionally guaranteed or insured by the agency or instrumentality and that, on the date of the purchase thereof are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent.

(d) Until all Defeased Bonds shall have become due and payable, the Paying Agent/Registrar shall perform the services of Paying Agent/Registrar for such Defeased Bonds the same as if they had not been defeased, and the Issuer shall make proper arrangements to provide and pay for such services as required by the Resolution.

(e) In the event that the Issuer elects to defease less than all of the principal amount of Bonds of a maturity, the Paying Agent/Registrar shall select, or cause to be selected, such amount of Bonds by such random method as it deems fair and appropriate.

ADDITIONAL BONDS. (a) That the District shall have the right and power at any time and from time to time, and in one or more Series or issues, to authorize, issue, and deliver additional bonds (herein called "Additional Bonds"), which may be payable from and secured by a first lien on and pledge of the Pledged Revenues. No Additional Bonds shall be payable from or secured by ad valorem or other taxes.

(b) Additional Bonds, if and when authorized, issued, and delivered in accordance with the provisions hereof, shall be payable from the Interest and Redemption Fund, and shall be payable from and secured by a first lien on and pledge of the Pledged Revenues, equally and ratably on a parity with the Bonds and all other outstanding Additional Bonds.

(c) That the principal of all Additional Bonds must be scheduled to be paid or mature on March 1 of the years in which such principal is scheduled to be paid or mature; and all interest thereon must be payable on September 1 and March 1.

FURTHER REQUIREMENTS FOR ADDITIONAL BONDS. (a) That Additional Bonds shall be issued only in accordance with the provisions hereof, and then applicable laws, and may be issued in any amounts, for any lawful purpose relating to the System, including the refunding of any Bonds or Additional Bonds. No installment, Series, or issue of Additional Bonds shall be issued or delivered unless the President and the Secretary of the Board sign a written certificate to the effect (i) that the District is not in default as to any covenant, condition, or obligation in connection with all outstanding Bonds and Additional Bonds, and the resolutions authorizing the same, (ii) that the Interest and Redemption Fund and the Reserve Fund contain the amount then required to be therein, and (iii) that either (1) the Pledged Revenues in each fiscal year, commencing (A) with the third complete fiscal year following the execution of such certificate or report, or (B) with the fiscal year following the estimated completion date of any project for which the then proposed Additional Bonds are being issued (whichever of (A) or (B) is later) are estimated, based on a report of an independent engineer or firm of engineers, to be at least equal to 1.25 times the average annual principal and interest requirements of all Bonds and Additional Bonds to be outstanding after delivery of the then proposed Additional Bonds, or (2) based upon an opinion of legal counsel to the District, there are Contracts then in effect pursuant to which parties to such Contracts are obligated to make minimum payments to the District on a "take or pay" basis at such times and in such amounts as shall be necessary to provide to the District Pledged Revenues sufficient to pay when due all principal of and interest on all Bonds and Additional Bonds.

(b) That each resolution authorizing the issuance of Additional Bonds shall confirm the Reserve Fund as additional security for all such Additional Bonds, and the Reserve Fund shall be increased to the extent required to cause the Reserve Fund to be maintained in an amount not less than the principal and interest requirements, during the fiscal year in which such requirements are scheduled to be the greatest, of all Bonds and Additional Bonds to be outstanding after the issuance of such then proposed Additional Bonds (or any greater amount as may, at the option of the District, be provided for in any resolution authorizing the issuance of any Additional Bonds), and shall make provision for funding such Reserve Fund from Pledged Revenues, or, at the option of the District, from bond proceeds or other available sources. Such Reserve Fund may be funded in whole or in part initially, or may be funded in whole or in part from Pledged Revenues by approximately equal periodic payments, not less than annual, and within not more than five years from the date of such then proposed Additional Bonds.

(c) That all calculations of principal and interest requirements of any bonds made in connection with the issuance of any then proposed Additional Bonds shall be made as of the date of such Additional Bonds; and also in making calculations for such purpose, or for any other purpose under any resolution authorizing any Bonds or Additional Bonds, the principal amounts of any Bonds or Additional Bonds which must be redeemed prior to maturity pursuant to any applicable mandatory redemption requirements shall be deemed to be maturing amounts of principal.

GENERAL COVENANTS, REPRESENTATIONS, AND WARRANTIES. That the District further covenants, represents, warrants, and agrees that:

(a) PERFORMANCE. It will faithfully perform at all times any and all covenants, undertakings, stipulations, and provisions contained in each resolution authorizing the issuance of the Bonds and any Additional Bonds, and in each and every Bond and Additional Bond; that it will promptly pay or cause to be paid the principal of and interest on every Bond and Additional Bond, on the dates and in the places and manner prescribed in such resolutions and Bonds or Additional Bonds, and that it will, at the times and in the manner prescribed, deposit or cause to be deposited the amounts required to be deposited into the Interest and Redemption Fund; and any holder of the Bonds or Additional Bonds may require the District, its Board, and its officials and employees, to carry out, respect, or enforce the covenants and Bonds of each resolution authorizing the issuance of the Bonds and any Additional Bonds, by all legal and equitable means, including specifically, but without limitation, the use and filing of mandamus proceedings, in any court of competent jurisdiction, against the District, its Board, and its officials and employees.

(b) DISTRICT'S LEGAL AUTHORITY. It is a duly created and existing conservation and reclamation district of the State of Texas pursuant to Article 16, Section 59, of the Texas Constitution, and the laws of the State of Texas, and is duly authorized under the laws of the State of Texas to create and issue the Bonds; that all action on its part for the creation and issuance of the Bonds has been duly and effectively taken, and that the Bonds in the hands of the holders and owners thereof are and will be valid and enforceable Bonds of the District in accordance with their terms.

(c) TITLE. It has acquired and constructed, and will operate and maintain the System, and has or will obtain lawful title to, or the lawful right to use and operate, the lands, buildings, and facilities constituting the System, that it warrants that it will defend the title to or lawful right to use and operate, all of the aforesaid lands, buildings, and facilities, and every part thereof, for the benefit of the holders and owners of the Bonds and Additional Bonds against the claims and demands of all persons whomsoever, and is lawfully qualified to pledge the Pledged Revenues to the payment of the Bonds and Additional Bonds in the manner prescribed herein, and has lawfully exercised such rights.

(d) LIENS. It will from time to time and before the same become delinquent pay and discharge all taxes, assessments, and governmental charges, if any, which shall be lawfully imposed upon it, or the System, that it will pay all lawful claims for rents, royalties, labor, materials, and supplies which if unpaid might by law become a lien or charge thereon, the lien of which would be prior to or interfere with the liens hereof, so that the priority of the liens granted hereunder shall be fully preserved in the manner provided herein, and that it will not create or suffer to be created any mechanic's, laborer's, materialman's, or other lien or charge which might or could be prior to the liens hereof, or do or suffer any matter or thing whereby the liens hereof might or could be impaired; provided, however, that no such tax, assessment, or charge, and that no such claims which might be used as the basis of a mechanic's, laborer's, materialman's, or other lien or charge, shall be required to be paid so long as the validity of the same shall be contested in good faith by the District.

(e) OPERATION OF THE SYSTEM. While the Bonds or any Additional Bonds are outstanding and unpaid it will cause the System to be continuously and efficiently operated and maintained in good condition, repair, and working order, and at a reasonable cost.

(f) FURTHER ENCUMBRANCE. While the Bonds or any Additional Bonds are outstanding and unpaid, it will not additionally encumber the Pledged Revenues in any manner, except as permitted hereby in connection with Additional Bonds, unless said encumbrance is made junior and subordinate in all respects to the liens, pledges, covenants, and agreements of each resolution authorizing the issuance of the Bonds and any Additional Bonds; but the right of the District and the Board to issue revenue bonds for any lawful purpose payable from a subordinate lien on the Pledged Revenues is specifically recognized and retained. This Resolution does not and is not intended to affect, limit, or prohibit the issuance of bonds payable solely from ad valorem taxes.

(g) SALE OF PROPERTY. While the Bonds or any Additional Bonds, are outstanding and unpaid, it will maintain its current legal corporate status as a conservation and reclamation district, and it will not sell, convey, mortgage, or in any manner transfer title to, or lease or otherwise dispose of the entire System, or any significant or substantial part thereof; provided that whenever the District deems it necessary to dispose of any real or personal property, machinery, fixtures, or equipment, it may sell or otherwise dispose of such real or personal property, machinery, fixtures, or equipment when it has made arrangements to replace the same or provide substitutes therefor, unless it is determined by resolution of the Board that no such replacement or substitute is necessary; and all proceeds from the sale thereof shall be credited to the Revenue Fund. In all events counsel to the Issuer shall opine as to the validity of the Resolution, as supplemented and amended and counsel to the Contracting Parties shall opine on the validity of the obligation of the Contracting Parties under the Contract.

(h) INSURANCE. (1) It will carry or cause to be carried such insurance as usually would be carried by corporations or other business entities operating like properties and engaged in similar activities, with a responsible insurance company or companies; provided that no insurance shall be required to the extent that the Board determines, based on the advice of legal counsel, that no substantial liability can or will arise under a particular hazard. At any time while any contractor engaged in construction work shall be fully responsible therefor, the District shall not be required to carry insurance on the works being constructed, if the contractor is required to carry appropriate insurance. All such policies shall be open to the inspection of the owners or holders of the Bonds and Additional Bonds and their representatives at all reasonable times.

- (2) Upon the happening of any loss or damage covered by insurance from one or more of said causes, the District shall make due proof of loss and shall do all things necessary or desirable to cause the insuring companies to make payment in full directly to the District. The proceeds of insurance covering such property, together with any other funds necessary and available for such purpose, shall be used forthwith by the District for repairing the property damaged or replacing the property destroyed; provided, however, that if said insurance proceeds and other funds are insufficient for such purpose, then said insurance proceeds pertaining to the System shall be used promptly as follows:
- (a) for the redemption prior to maturity of the Bonds and Additional Bonds, if any, ratably in the proportion that the outstanding principal of each Series or issue of Bonds or Additional Bonds bears to the total outstanding principal of all Bonds and Additional Bonds; provided that if on any such occasion the principal of any such Series or issue is not subject to redemption, it shall not be regarded as outstanding in making the foregoing computation; or
  - (b) if none of the outstanding Bonds or Additional Bonds is subject to redemption, then for the purchase on the open market and retirement of said Bonds and Additional Bonds, in the same proportion as prescribed in the foregoing clause (a), to the extent practicable; provided that the purchase price for any such Bond or Additional Bonds shall not exceed the redemption price of such Bond or Additional Bond on the first date upon which it becomes subject to redemption; or
  - (c) to the extent that the foregoing clauses (a) and (b) cannot be complied with at the time, the insurance proceeds, or the remainder thereof, shall be deposited in a special and separate trust fund, at an official depository of the District, to be designated the Insurance Account. The Insurance Account shall be held until such time as the foregoing clauses (a) and/or (b) can be complied with, or until other funds become available which, together with the Insurance Account, will be sufficient to make the repairs or replacements originally required, whichever of said events occurs first.
- (3) The annual audit hereinafter required shall contain a list of all such insurance policies carried, together with a statement as to whether or not all insurance premiums upon such policies have been paid.
- (i) **RATE COVENANT.** It will fix, establish, maintain, revise (if and when necessary), and collect such rates, charges, and fees for the sale of water from the System and for the use and availability of the System as are necessary to produce Gross Revenues of the System sufficient, together with any other Pledged Revenues and any taxes as may be levied by the District for such purpose, (1) to pay all Operation and Maintenance Expenses of the System, and (2) to produce Pledged Revenues adequate to provide for all payments and deposits required to be made into the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, when and as required by the resolutions authorizing all Bonds and Additional Bonds.
- (j) **RECORDS.** It will keep proper books of records and accounts in which full, true, and correct entries will be made of all dealings, activities, and transactions relating to the System, the Pledged Revenues, and all Funds created pursuant to each resolution authorizing the issuance of the Bonds and Additional Bonds; and all books, documents, and vouchers relating thereto shall at all reasonable times be made available for inspection upon request of any bondholder.
- (k) **AUDITS.** Each year while any of the Bonds or Additional Bonds are outstanding, an audit will be made of its books and accounts relating to the System and the Pledged Revenues by an independent certified public accountant or an independent firm of certified public accountants. As soon as practicable after the close of each year, and when said audit has been completed and made available to the District, a copy of such audit for the preceding year shall be mailed to the Municipal Advisory Council of Texas and to any bondholders who shall so request in writing. Such annual audit reports shall be open to the inspection of the owners or holders of the Bonds and Additional Bonds and their agents and representatives at all reasonable times.
- (l) **GOVERNMENTAL AGENCIES.** It will comply with all of the terms and conditions of any and all franchises, permits, and agreements applicable to the System and the Bonds or Additional Bonds entered into between the District and any governmental agency, and the District will take all action necessary to enforce said terms and conditions; and the District will obtain and keep in full force and effect all franchises, permits, and other requirements necessary with respect to the acquisition, construction, operation, and maintenance of the System.
- (m) **CONTRACTS.** It will comply with the terms and conditions of the Contracts and will cause the other parties to the Contracts to comply with all of their Bonds thereunder by all lawful means; and the Contracts will not be rescinded, modified, or amended in any way which would have a materially adverse effect on the operation of the System or the rights of the owners of the Bonds and Additional Bonds.
- (n) **ANNUAL BUDGET.** On or before August 1 of each calendar year, it will prepare the preliminary Annual Budget of Operation and Maintenance Expenses of the System for the ensuing fiscal year, and such budget shall include a showing as to the proposed expenditures for such ensuing fiscal year, and shall show the estimated amount of Net Revenues of the System for such year. If the owners or holders of 25% in aggregate principal amount of the Bonds and Additional Bonds then outstanding shall so request on or before the 15th day of the aforesaid month, the Board shall hold a public hearing on or before the 15th day of the following month, at which any bondholder may appear in person or by agent or attorney and present any objections he may have to the final adoption of such budget. Notice of the time and place of such hearing shall be published twice, once in each of two successive weeks, in a newspaper of general circulation published in the District, with the date of the first publication to be at least fourteen days before the date fixed for the hearing; and copies of such notice shall be mailed at least ten days before the hearing to each bondholder who shall have filed his name and address with the Secretary of the Board for such purpose. The District further covenants that on or before October 1 of each calendar year it will finally adopt the Annual Budget of Operation and Maintenance Expenses of the System for such fiscal year (hereinafter sometimes called the "Annual Budget"). If for any reason the Board shall not have adopted the Annual Budget before the first day of any

fiscal year, the budget for the preceding fiscal year shall be deemed to be in force until the adoption of the Annual Budget. The Operation and Maintenance Expenses of the System incurred in any fiscal year will not exceed the reasonable and necessary amount thereof. The District may, at any time deemed necessary by the Board, adopt an Amended or Supplemental Budget for the remainder of the then current fiscal year.

AMENDMENT OF RESOLUTION. (a) The holders and registered owners of Bonds and Additional Bonds (hereinafter collectively called "holders") aggregating 51% in principal amount of the aggregate principal amount of then outstanding Bonds and Additional Bonds shall have the right from time to time to approve any amendment to any resolution authorizing the issuance of any Bonds or Additional Bonds, which may be deemed necessary or desirable by the District, provided, however, that nothing herein contained shall permit or be construed to permit the amendment of the terms and conditions in said Resolution or in the Bonds or Additional Bonds so as to:

- (1) Make any change in the maturity of the outstanding Bonds or Additional Bonds;
- (2) Reduce the rate of interest borne by any of the outstanding Bonds or Additional Bonds;
- (3) Reduce the amount of the principal payable on the outstanding Bonds or Additional Bonds;
- (4) Modify the terms of payment of principal or interest on the outstanding Bonds or Additional Bonds, or impose any conditions with respect to such payment;
- (5) Effect any change in the rights of the holders of the Bonds and Additional Bonds then outstanding, other than a change which similarly affects all such holders;
- (6) Change the minimum percentage of the principal amount of Bonds and Additional Bonds necessary for consent to such amendment.

(b) If at any time the District shall desire to amend a resolution under this Section, the District shall cause notice of the proposed amendment to be published in a financial newspaper or journal published in The City of New York, New York, once during each calendar week for at least two successive calendar weeks. Such notice shall briefly set forth the nature of the proposed amendment and shall state that a copy thereof is on file at the principal office of each Paying Agent/Registrar for the Bonds and Additional Bonds, for inspection by all holders of Bonds and Additional Bonds. Such publication is not required, however, if notice in writing is given to each holder of Bonds and Additional Bonds.

(c) Whenever at any time not less than thirty days, and within one year, from the date of the first publication of said notice or other service of written notice the District shall receive an instrument or instruments executed by the holders of at least 51% in aggregate principal amount of all Bonds and Additional Bonds then outstanding, which instrument or instruments shall refer to the proposed amendment described in said notice and which specifically consent to and approve such amendment in substantially the form of the copy thereof on file as aforesaid, the District may adopt the amendatory resolution in substantially the same form.

(d) Upon the adoption of any amendatory resolution pursuant to the provisions of this Section, the resolution being amended shall be deemed to be amended in accordance with the amendatory resolution, and the respective rights, duties, and Bonds of the District and all the holders of then outstanding Bonds and Additional Bonds and all future Additional Bonds shall thereafter be determined, exercised, and enforced hereunder, subject in all respects to such amendment.

(e) Any consent given by the holder of a Bond or Additional Bonds pursuant to the provisions of this Section shall be irrevocable for a period of six months from the date of the first publication of the notice provided for in this Section, and shall be conclusive and binding upon all future holders of the same Bond or Additional Bond during such period. Such consent may be revoked at any time after six months from the date of the first publication of such notice by the holder who gave such consent, or by a successor in title, by filing notice thereof with each Paying Agent/Registrar for the Bonds and Additional Bonds, and the District, but such revocation shall not be effective if the holders of 51% in aggregate principal amount of the then outstanding Bonds and Additional Bonds as in this Section defined have, prior to the attempted revocation, consented to and approved the amendment.

(f) For the purpose of this Section, the fact of the holding of Bonds or Additional Bonds by any holder of Bonds or Additional Bonds which are not registered and which are payable to bearer, and the amount and numbers of such registered Bonds and Additional Bonds, and the date of their holding same, may be provided by the affidavit of the person claiming to be such holder, or by a certificate executed by any trust company, bank, banker, or any other depository wherever situated showing that at the date therein mentioned such person had on deposit with such trust company, bank, banker, or other depository, the Bonds or Additional Bonds described in such certificate. The District may conclusively assume that such ownership continues until written notice to the contrary is served upon the District. All matters relating to the ownership of registered Bonds and Additional Bonds shall be determined from the bond registration books kept by the registrar therefor.

DAMAGED, MUTILATED, LOST, STOLEN, OR DESTROYED BONDS. (a) Replacement Bonds. In the event any outstanding Bond is damaged, mutilated, lost, stolen, or destroyed, the Paying Agent/Registrar shall cause to be printed, executed, and delivered, a new bond of the same principal amount, maturity, and interest rate, as the damaged, mutilated, lost, stolen, or destroyed Bond, in replacement for such Bond in the manner hereinafter provided.

(b) Application for Replacement Bonds. Application for replacement of damaged, mutilated, lost, stolen, or destroyed Bonds shall be made by the registered owner thereof to the Paying Agent/Registrar. In every case of loss, theft, or destruction of a Bonds, the registered owner applying for a replacement bond shall furnish to the Issuer and to the Paying Agent/Registrar such security or indemnity as may be required by them to save each of them harmless from any loss or damage with respect thereto. Also, in every case of loss, theft, or destruction of a Bonds, the registered owner shall furnish to the Issuer and to the Paying Agent/Registrar evidence to their satisfaction of the loss, theft, or destruction of such Bonds, as the case may be. In every case of damage or mutilation of a Bonds, the registered owner shall surrender to the Paying Agent/Registrar for cancellation the Bonds so damaged or mutilated.

(c) No Default Occurred. Notwithstanding the foregoing provisions of this Section, in the event any such Bonds shall have matured, and no default has occurred which is then continuing in the payment of the principal of, redemption premium, if any, or interest on the Bonds, the Issuer may authorize the payment of the same (without surrender thereof except in the case of a damaged or mutilated Bonds) instead of issuing a replacement Bonds, provided security or indemnity is furnished as above provided in this Section.

(d) Charge for Issuing Replacement Bonds. Prior to the issuance of any replacement bond, the Paying Agent/Registrar shall charge the registered owner of such Bonds with all legal, printing, and other expenses in connection therewith. Every replacement bond issued pursuant to the provisions of this Section by virtue of the fact that any Bonds is lost, stolen, or destroyed shall constitute a contractual obligation of the Issuer whether or not the lost, stolen, or destroyed Bonds shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of these Resolution equally and proportionately with any and all other Bonds duly issued under these Resolution.

(e) Authority for Issuing Replacement Bonds. In accordance with Chapter 1201, Texas Government Code, this Section of this Resolution shall constitute authority for the issuance of any such replacement bond without necessity of further action by the governing body of the Issuer or any other body or person, and the duty of the replacement of such bonds is hereby authorized and imposed upon the Paying Agent/Registrar, and the Paying Agent/Registrar shall authenticate and deliver such Bonds in the form and manner and with the effect, as provided in these Resolution for the Bonds issued in conversion and exchange for other Bonds.

CUSTODY, APPROVAL, AND REGISTRATION OF BONDS; BOND COUNSEL'S OPINION, CUSIP NUMBERS, PREAMBLE, AND INSURANCE. The President of the Board of Directors of the Issuer is hereby authorized to have control of the Initial Bond for the Series 2024 Bonds issued hereunder and all necessary records and proceedings pertaining to said Initial Bond pending its delivery and its investigation, examination, and approval by the Attorney General of the State of Texas, and its registration by the Comptroller of Public Accounts of the State of Texas. Upon registration of said Initial Bond said Comptroller of Public Accounts (or a deputy designated in writing to act for said Comptroller) shall manually sign the Comptroller's Registration Certificate on said Initial Bond, and the seal of said Comptroller shall be impressed, or placed in facsimile, on said Initial Bond. The approving legal opinion of the Issuer's Co-Bond Counsel and the assigned CUSIP numbers may, at the option of the Issuer, be printed on said Initial Bond or on any Series 2024 Bonds issued and delivered in conversion of and exchange or replacement of any Series 2024 Bonds, but neither shall have any legal effect, and shall be solely for the convenience and information of the registered owners of the Series 2024 Bonds. The preamble to the Bond Resolution is hereby adopted and made a part hereof for all purposes. If insurance is obtained by the Underwriter (as defined in Section 31 hereof) on any of the Series 2024 Bonds, the Initial Bond and all the Series 2024 Bonds so insured shall bear an appropriate legend concerning insurance as provided by the insurer.

COVENANTS REGARDING TAX EXEMPTION. (a) Covenants. The Issuer covenants to take any action necessary to assure, or refrain from any action that would adversely affect, the treatment of the Series 2024 Bonds as obligations described in section 103 of the Internal Revenue Code of 1986, as amended (the "Code"), the interest on which is not includable in the "gross income" of the Series 2024 Bonds holder for purposes of federal income taxation. In furtherance thereof, the Issuer covenants as follows:

(1) to take any action to assure that no more than 10 percent of the proceeds of the Series 2024 Bonds (less amounts deposited to a reserve fund, if any) are used for any "private business use," as defined in section 141(b)(6) of the Code or, if more than 10 percent of the proceeds or the projects financed therewith are so used, such amounts, whether or not received by the Issuer, with respect to such private business use, do not, under the terms of this Resolution or any underlying arrangement, directly or indirectly, secure or provide for the payment of more than 10 percent of the debt service on the Series 2024 Bonds, in contravention of section 141(b)(2) of the Code;

(2) to take any action to assure that in the event that the "private business use" described in subsection (1) hereof exceeds 5 percent of the proceeds of the Series 2024 Bonds or the projects financed therewith (less amounts deposited into a reserve fund, if any) then the amount in excess of 5 percent is used for a "private business use" that is "related" and not "disproportionate," within the meaning of section 141(b)(3) of the Code, to the governmental use;

(3) to take any action to assure that no amount that is greater than the lesser of \$5,000,000, or 5 percent of the proceeds of the Series 2024 Bonds (less amounts deposited into a reserve fund, if any) is directly or indirectly used to finance loans to persons, other than state or local governmental units, in contravention of section 141(c) of the Code;

(4) to refrain from taking any action that would otherwise result in the Series 2024 Bonds being treated as "private activity bonds" within the meaning of section 141(b) of the Code;

(5) to refrain from taking any action that would result in the Series 2024 Bonds being "federally guaranteed" within the meaning of section 149(b) of the Code;

(6) to refrain from using any portion of the proceeds of the Series 2024 Bonds, directly or indirectly, to acquire or to replace funds that were used, directly or indirectly, to acquire investment property (as defined in section 148(b)(2) of the Code) that produces a materially higher yield over the term of the Series 2024 Bonds, other than investment property acquired with

(A) proceeds of the Series 2024 Bonds invested for a reasonable temporary period of 3 years or less or, in the case of a refunding bond, for a period of 90 days or less until such proceeds are needed for the purpose for which the Series 2024 Bonds are issued,

(B) amounts invested in a bona fide debt service fund, within the meaning of section 1.148-1(b) of the Treasury Regulations, and

(C) amounts deposited in any reasonably required reserve or replacement fund to the extent such amounts do not exceed 10 percent of the proceeds of the Series 2024 Bonds;

(7) to otherwise restrict the use of the proceeds of the Series 2024 Bonds or amounts treated as proceeds of the Series 2022 Bonds, as may be necessary, so that the Series 2024 Bonds do not otherwise contravene the requirements of section 148 of the Code (relating to arbitrage);

(8) to refrain from using the proceeds of the Series 2024 Bonds or proceeds of any prior bonds to pay debt service on another issue more than 90 days after the date of issue of the Bonds in contravention of the requirements of section 149(d) of the Code (relating to advance refundings); and

(9) to pay to the United States of America at least once during each five-year period (beginning on the date of delivery of the Series 2024 Bonds) an amount that is at least equal to 90 percent of the "Excess Earnings," within the meaning of section 148(f) of the Code and to pay to the United States of America, not later than 60 days after the Series 2024 Bonds have been paid in full, 100 percent of the amount then required to be paid as a result of Excess Earnings under section 148(f) of the Code; and

(b) Rebate Fund. In order to facilitate compliance with the above covenant (a)(9), a "Rebate Fund" is hereby established by the Issuer for the sole benefit of the United States of America, and such Fund shall not be subject to the claim of any other person, including without limitation the Bondholders. The Rebate Fund is established for the additional purpose of compliance with section 148 of the Code.

(c) Compliance with Code. For purposes of the foregoing covenants (a)(1) and (a)(2), the Issuer understands that the term "proceeds" includes "disposition proceeds" as defined in the Treasury Regulations and, in the case of refunding bonds, transferred proceeds (if any) and proceeds of the refunded bonds expended prior to the date of issuance of the Series 2024 Bonds. It is the understanding of the Issuer that the covenants contained herein are intended to assure compliance with the Code and any regulations or rulings promulgated by the U.S. Department of the Treasury pursuant thereto. In the event that regulations or rulings are hereafter promulgated that modify or expand provisions of the Code, as applicable to the Series 2024 Bonds, the Issuer will not be required to comply with any covenant contained herein to the extent that such failure to comply, in the opinion of nationally recognized bond counsel, will not adversely affect the exemption from federal income taxation of interest on the Series 2024 Bonds under section 103 of the Code. In the event that regulations or rulings are hereafter promulgated that impose additional requirements applicable to the Series 2024 Bonds, the Issuer agrees to comply with the additional requirements to the extent necessary, in the opinion of nationally recognized bond counsel, to preserve the exemption from federal income taxation of interest on the Series 2024 Bonds under section 103 of the Code. In furtherance of such intention, the Issuer hereby authorizes and directs the President of the Board of Directors, the General Manager, or the Chief Financial Officer to execute any documents, certificates or reports required by the Code and to make such elections, on behalf of the Issuer, that may be permitted by the Code as are consistent with the purpose for the issuance of the Series 2024 Bonds.

(d) Written Procedures. Unless superseded by another action of the Issuer to ensure compliance with the covenants contained herein regarding private business use, remedial actions, arbitrage and rebate, the Issuer hereby adopts and establishes the instructions attached hereto as Exhibit A as their written procedures applicable to the Bonds and any Additional Bonds.

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## INVESTMENTS

The District invests its investable funds in investments authorized by Texas law in accordance with investment policies approved by the Board of Directors of the District. Both state law and the District's investment policies are subject to change.

**LEGAL INVESTMENTS** . . . Under Texas law, the District is authorized to invest in (1) obligations of the United States or its agencies and instrumentalities, including letters of credit; (2) direct obligations of the State of Texas or its agencies and instrumentalities; (3) collateralized mortgage obligations directly issued by a federal agency or instrumentality of the United States, the underlying security for which is guaranteed by an agency or instrumentality of the United States; (4) other obligations, the principal and interest of which is guaranteed or insured by or backed by the full faith and credit of, the State of Texas or the United States or their respective agencies and instrumentalities; (5) obligations of states, agencies, counties, cities, and other political subdivisions of any state rated as to investment quality by a nationally recognized investment rating firm not less than A or its equivalent; (6) bonds issued, assumed or guaranteed by the State of Israel; (7) certificates of deposit and share certificates meeting the requirements of the Public Funds Investment Act, Chapter 2256, Texas Government Code, as amended, (i) that are issued by an institution that has its main office or a branch office in the State of Texas and are guaranteed or insured by the Federal Deposit Insurance Corporation or the National Credit Union Share Insurance Fund, or are secured as to principal by obligations described in clauses (1) through (6) or in any other manner and amount provided by law for District deposits or (ii) where (a) the funds are invested by the District through a depository institution that has a main office or branch office in the State and that is selected by the District; (b) the depository institution selected by the District arranges for the deposit of funds in one or more federally insured depository institutions, wherever located, for the account of the District; (c) the full amount of the principal and accrued interest of each of the certificates of deposit is insured by the United States or an instrumentality of the United States; (d) the depository institution acts as a custodian for the District with respect to the certificates of deposit; and (e) at the same time that the certificates of deposit are issued, the depository institution selected by the District receives deposits from customers of other federally insured depository institutions, wherever located, that is equal to or greater than the funds invested by the District through the depository institution selected under clause (ii)(a) above (8) fully collateralized repurchase agreements that have a defined termination date, are fully secured by obligations described in clause (1), and are placed through a primary government securities dealer or a financial institution doing business in the State of Texas, (9) securities lending programs if (i) the securities loaned under the program are 100% collateralized, a loan made under the program allows for termination at any time and a loan made under the program is either secured by (a) obligations that are described in clauses (1) through (6) above, (b) irrevocable letters of credit issued by a state or national bank that is continuously rated by a nationally recognized investment rating firm at not less than A or its equivalent or (c) cash invested in obligations described in clauses (1) through (6) above, clauses (11) through (13) below, or an authorized investment pool; (ii) securities held as collateral under a loan are pledged to the District, held in the District's name and deposited at the time the investment is made with the District or a third party designated by the District; (iii) a loan made under the program is placed through either a primary government securities dealer or a financial institution doing business in the State of Texas; and (iv) the agreement to lend securities has a term of one year or less, (10) certain bankers' acceptances with the remaining term of 365 days or less, if the short-term obligations of the accepting bank or its parent are rated at least A-1 or P-1 or the equivalent by at least one nationally recognized credit rating agency, (11) commercial paper with a stated maturity of 365 days or less that is rated at least A-1 or P-1 or the equivalent by either (a) two nationally recognized credit rating agencies or (b) one nationally recognized credit rating agency if the paper is fully secured by an irrevocable letter of credit issued by a U.S. or state bank, (12) no-load money market mutual funds registered with and regulated by the Securities and Exchange Commission that have a dollar weighted average stated maturity of 90 days or less and include in their investment objectives the maintenance of a stable net asset value of \$1 for each share, and (13) no-load mutual funds registered with the Securities and Exchange Commission that have an average weighted maturity of less than two years, invest exclusively in obligations described in this paragraph, and are continuously rated as to investment quality by at least one nationally recognized investment rating firm of not less than AAA or its equivalent. In addition, bond proceeds may be invested in guaranteed investment contracts that have a defined termination date and are secured by obligations, including letters of credit, of the United States or its agencies and instrumentalities in an amount at least equal to the amount of bond proceeds invested under such contract, other than the prohibited obligations described in the next succeeding paragraph.

The District may invest in such obligations directly or through government investment pools that invest solely in such obligations provided that the pools are rated no lower than AAA or AAAM or an equivalent by at least one nationally recognized rating service. The District is specifically prohibited from investing in: (1) obligations whose payment represents the coupon payments on the outstanding principal balance of the underlying mortgage-backed security collateral and pays no principal; (2) obligations whose payment represents the principal stream of cash flow from the underlying mortgage-backed security and bears no interest; (3) collateralized mortgage obligations that have a stated final maturity of greater than 10 years; and (4) collateralized mortgage obligations the interest rate of which is determined by an index that adjusts opposite to the changes in a market index.

**INVESTMENT POLICIES** . . . Under Texas law, the District is required to invest its funds under written investment policies that primarily emphasize safety of principal and liquidity; that address investment diversification, yield, maturity, and the quality and capability of investment management; and that includes a list of authorized investments for District funds, maximum allowable stated maturity of any individual investment and the maximum average dollar-weighted maturity allowed for pooled fund groups. All District funds must be invested consistent with a formally adopted "Investment Strategy Statement" that specifically addresses each funds' investment. Each Investment Strategy Statement will describe its objectives concerning: (1) suitability of investment type, (2) preservation and safety of principal, (3) liquidity, (4) marketability of each investment, (5) diversification of the portfolio, and (6) yield.



Under Texas law, District investments must be made "with judgment and care, under prevailing circumstances, that a person of prudence, discretion, and intelligence would exercise in the management of the person's own affairs, not for speculation, but for investment, considering the probable safety of capital and the probable income to be derived." At least quarterly the investment officers of the District shall submit an investment report detailing: (1) the investment position of the District, (2) that all investment officers jointly prepared and signed the report, (3) the beginning market value, any additions and changes to market value and the ending value of each pooled fund group, (4) the book value and market value of each separately listed asset at the beginning and end of the reporting period, (5) the maturity date of each separately invested asset, (6) the account or fund or pooled fund group for which each individual investment was acquired, and (7) the compliance of the investment portfolio as it relates to: (a) adopted investment strategy statements and (b) state law. No person may invest District funds without express written authority from the Board of Directors.

**ADDITIONAL PROVISIONS** . . . Under State law, the District is additionally required to: (1) annually review its adopted investment policies and strategies; (2) adopt a rule, order, ordinance or Resolution stating that it has reviewed its investment policy and investment strategies and records any changes made to either its investment policy or investment strategy in the respective rule, order, ordinance or Resolution; (3) require any investment officers with personal business relationships or relatives with firms seeking to sell securities to the entity to disclose the relationship and file a statement with the Texas Ethics Commission and the District Board of Directors; (4) require the qualified representative of firms offering to engage in an investment transaction with the District to: (a) receive and review the District's investment policy, (b) acknowledge that reasonable controls and procedures have been implemented to preclude investment transactions conducted between the District and the business organization that are not authorized by the District's investment policy (except to the extent that this authorization is dependent on an analysis of the makeup of the District's entire portfolio or requires an interpretation of subjective investment standards), and (c) deliver a written statement in a form acceptable to the District and the business organization attesting to these requirements; (5) perform an annual audit of the management procedures on investments and adherence to the District's investment policy; (6) provide specific investment training for the Treasurer, Chief Financial Officer and investment officers; (7) restrict reverse repurchase agreements to not more than 90 days and restrict the investment of reverse repurchase agreement funds to no greater than the term of the reverse purchase agreement; (8) restrict the investment in no-load mutual funds in the aggregate to no more than 15% of the District's monthly average fund balance, excluding bond proceeds and reserves and other funds held for debt service; (9) require local government investment pools to conform to the new disclosure, rating, net asset value, yield calculation, and advisory board requirements; and (10) at least annually review, revise, and adopt a list of qualified brokers that are authorized to engage in investment transactions with the District.

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**TABLE 9 - CURRENT INVESTMENTS**

As of March 1, 2024, the following percentage of the District's investable funds were invested in the following categories of investments:

<u>Description</u>	<u>Percent</u>	<u>Par Value</u>	<u>Market Value</u>
Agencies	54.51%	\$ 93,374,444	\$ 86,466,447
Pools	45.49%	77,921,478	77,921,478
	100.00%	<u>\$ 171,295,922</u>	<u>\$ 164,387,925</u>

The Pools that the District invests in are TexPool and LOGIC. Each investment pool is a governmental investment pool that operates as a money market equivalent. Each of such pools currently maintains an "AAA" rating from S&P Global Ratings, a business unit of Standard and Poor's Financial Services LLP ("S&P") or Fitch Ratings and has an investment objective of achieving and maintaining a stable net asset value of \$1.00 per share. Daily investments or redemptions of funds are allowed by the participants.

The Texas State Comptroller of Public Accounts exercises oversight responsibility over the Texas Local Government Investment Pool ("TexPool"). Oversight includes the ability to significantly influence operations, designation of management and accountability for fiscal matters. Additionally, the State Comptroller has established an advisory board composed both of participants in TexPool and of the other persons who do not have a business relationship with TexPool. The advisory Board members review the investment policy and management fee structure. Finally, TexPool is rated AAA by S&P. TexPool operates in a manner consistent with the Security and Exchange Commission's Rule 2a-7 of the Investment Company Act of 1940. As such, TexPool uses amortized cost to report net assets and share prices since that amount approximates fair value.

LOGIC is a local government investment pool for whom HilltopSecurities Asset Management, Inc., provides customer service and marketing for the pool. Ms. Sandra Newby, the District's Chief Financial Officer, also serves as President on the Board of LOGIC. LOGIC currently maintains a "AAA" rating from S&P and has an investment objective of achieving and maintaining a stable net asset value of \$1.00 per share. Daily investments or redemptions of funds is allowed by the participants.

No funds of the District are invested in derivative securities, i.e., securities whose rate of return is determined by reference to another instrument, index, or commodity.

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## TAX MATTERS

**OPINION . . .** On the date of initial delivery of the Bonds, McCall, Parkhurst & Horton L.L.P., Dallas, Texas, and Escamilla & Poneck, LLP, Fort Worth, Texas, Co-Bond Counsel, will render their respective opinions that, in accordance with statutes, regulations, published rulings and court decisions existing on the date thereof ("Existing Law"), (1) interest on the Bonds for federal income tax purposes will be excludable from the "gross income" of the holders thereof and (2) the Bonds will not be treated as "specified private activity bonds" the interest on which would be included as an alternative minimum tax preference item under section 57(a)(5) of the Code. Except as stated herein, Co-Bond Counsel will express no opinion as to any other federal, state or local tax consequences of the purchase, ownership or disposition of the Bonds. See Appen-ix C - Forms of Co-Bond Counsel's Opinions.

In rendering their opinions, Co-Bond Counsel will rely upon (a) certain information and representations of the District, including information and representations contained in the District's federal tax certificate and, (b) covenants of the District contained in the Bond documents relating to certain matters, including arbitrage and the use of the proceeds of the Bonds and the property financed or refinanced therewith. Failure by the District to observe the aforementioned representations or covenants could cause the interest on the Bonds to become taxable retroactively to the date of issuance.

The Code and the regulations promulgated thereunder contain a number of requirements that must be satisfied subsequent to the issuance of the Bonds in order for interest on the Bonds to be, and to remain, excludable from gross income for federal income tax purposes. Failure to comply with such requirements may cause interest on the Bonds to be included in gross income retroactively to the date of issuance of the Bonds. The opinions of Co-Bond Counsel are conditioned on compliance by the District with such requirements, and Co-Bond Counsel have not been retained to monitor compliance with these requirements subsequent to the issuance of the Bonds.

Co-Bond Counsel's opinions represent their respective legal judgments based upon their review of Existing Law and the reliance on the aforementioned information, representations and covenants. Co-Bond Counsel's opinions are not a guarantee of a result. Existing Law is subject to change by the Congress and to subsequent judicial and administrative interpretation by the courts and the Department of the Treasury. There can be no assurance that Existing Law or the interpretation thereof will not be changed in a manner which would adversely affect the tax treatment of the purchase, ownership or disposition of the Bonds. Further, no assurances can be given as to whether the Internal Revenue Service will commence an audit of the Bonds, or as to whether the Internal Revenue Service would agree with the opinions of Co-Bond Counsel. If an Internal Revenue Service audit is commenced, under current procedures the Internal Revenue Service is likely to treat the District as the taxpayer and the Bondholders may have no right to participate in such procedure. No additional interest will be paid upon any determination of taxability.

**FEDERAL INCOME TAX ACCOUNTING TREATMENT OF ORIGINAL ISSUE DISCOUNT . . .** The initial public offering price to be paid for one or more maturities of the Bonds may be less than the principal amount thereof or one or more periods for the payment of interest on the bonds may not be equal to the accrual period or be in excess of one year (the "Original Issue Discount Bonds"). In such event, the difference between (i) the "stated redemption price at maturity" of each Original Issue Discount Bond, and (ii) the initial offering price to the public of such Original Issue Discount Bond would constitute original issue discount. The "stated redemption price at maturity" means the sum of all payments to be made on the bonds less the amount of all periodic interest payments. Periodic interest payments are payments which are made during equal accrual periods (or during any unequal period if it is the initial or final period) and which are made during accrual periods which do not exceed one year.

Under existing law, any owner who has purchased such Original Issue Discount Bond in the initial public offering is entitled to exclude from gross income (as defined in section 61 of the Code) an amount of income with respect to such Original Issue Discount Bond equal to that portion of the amount of such original issue discount allocable to the accrual period. For a discussion of certain collateral federal tax consequences, see discussion set forth below.

In the event of the redemption, sale or other taxable disposition of such Original Issue Discount Bond prior to stated maturity, however, the amount realized by such owner in excess of the basis of such Original Issue Discount Bond in the hands of such owner (adjusted upward by the portion of the original issue discount allocable to the period for which such Original Issue Discount Bond was held by such initial owner) is includable in gross income.

Under Existing Law, the original issue discount on each Original Issue Discount Bond is accrued daily to the stated maturity thereof (in amounts calculated as described below for each six-month period ending on the date before the semiannual anniversary dates of the date of the Bonds and ratably within each such six-month period) and the accrued amount is added to an initial owner's basis for such Original Issue Discount Bond for purposes of determining the amount of gain or loss recognized by such owner upon the redemption, sale or other disposition thereof. The amount to be added to basis for each accrual period is equal to (a) the sum of the issue price and the amount of original issue discount accrued in prior periods multiplied by the yield to stated maturity (determined on the basis of compounding at the close of each accrual period and properly adjusted for the length of the accrual period) less (b) the amounts payable as current interest during such accrual period on such Original Issue Discount Bond.

The federal income tax consequences of the purchase, ownership, redemption, sale or other disposition of Original Issue Discount Bonds which are not purchased in the initial offering at the initial offering price may be determined according to rules which differ from those described above. All owners of Original Issue Discount Bonds should consult their own tax advisors with respect to the determination for federal, state and local income tax purposes of the treatment of interest accrued upon redemption, sale or other disposition of such Original Issue Discount Bonds and with respect to the federal, state, local and foreign tax consequences of the purchase, ownership, redemption, sale or other disposition of such Original Issue Discount Bonds.

**COLLATERAL FEDERAL INCOME TAX CONSEQUENCES . . .** The following discussion is a summary of certain collateral federal income tax consequences resulting from the purchase, ownership or disposition of the Bonds. This discussion is based on existing statutes, regulations, published rulings and court decisions, all of which are subject to change or modification, retroactively.

The following discussion is applicable to investors, other than those who are subject to special provisions of the Code, such as financial institutions, property and casualty insurance companies, life insurance companies, individual recipients of Social Security or Railroad Retirement benefits, individuals allowed an earned income credit, certain S corporations with accumulated earnings and profits and excess passive investment income, foreign corporations subject to the branch profits tax, taxpayers qualifying for the health insurance premium assistance credit, and taxpayers who may be deemed to have incurred or continued indebtedness to purchase tax-exempt obligations.

THE DISCUSSION CONTAINED HEREIN MAY NOT BE EXHAUSTIVE. INVESTORS, INCLUDING THOSE WHO ARE SUBJECT TO SPECIAL PROVISIONS OF THE CODE, SHOULD CONSULT THEIR OWN TAX ADVISORS AS TO THE TAX TREATMENT WHICH MAY BE ANTICIPATED TO RESULT FROM THE PURCHASE, OWNERSHIP AND DISPOSITION OF TAX-EXEMPT OBLIGATIONS BEFORE DETERMINING WHETHER TO PURCHASE THE BONDS.

Interest on the Bonds may be includable in certain corporation's "adjusted financial statement income" determined under section 56A of the Code to calculate the alternative minimum tax imposed by section 55 of the Code.

Under section 6012 of the Code, holders of tax-exempt obligations, such as the Bonds, may be required to disclose interest received or accrued during each taxable year on their returns of federal income taxation.

Section 1276 of the Code provides for ordinary income tax treatment of gain recognized upon the disposition of a tax-exempt obligation, such as the Bonds, if such obligation was acquired at a "market discount" and if the fixed maturity of such obligation is equal to, or exceeds, one year from the date of issue. Such treatment applies to "market discount bonds" to the extent such gain does not exceed the accrued market discount of such bonds; although for this purpose, a de minimis amount of market discount is ignored. A "market discount bond" is one which is acquired by the holder at a purchase price which is less than the stated redemption price at maturity or, in the case of a bond issued at an original issue discount, the "revised issue price" (i.e., the issue price plus accrued original issue discount).

The "accrued market discount" is the amount which bears the same ratio to the market discount as the number of days during which the holder holds the obligation bears to the number of days between the acquisition date and the final maturity date.

**INFORMATION REPORTING AND BACKUP WITHHOLDING . . .** Subject to certain exceptions, information reports describing interest income, including original issue discount, with respect to the Bonds will be sent to each registered holder and to the IRS. Payments of interest and principal may be subject to backup withholding under section 3406 of the Code if a recipient of the payments fails to furnish to the payor such owner's social security number or other taxpayer identification number ("TIN"), furnishes an incorrect TIN, or otherwise fails to establish an exemption from the backup withholding tax. Any amounts so withheld would be allowed as a credit against the recipient's federal income tax. Special rules apply to partnerships, estates and trusts, and in certain circumstances, and in respect of foreign investors, certifications as to foreign status and other matters may be required to be provided by partners and beneficiaries thereof.

**STATE, LOCAL AND FOREIGN TAXES . . .** Investors should consult their own tax advisors concerning the tax implications of the purchase, ownership or disposition of the Bonds under applicable state or local laws. Foreign investors should also consult their own tax advisors regarding the tax consequences unique to investors who are not United States persons.

## OTHER INFORMATION

### RATINGS

The Bonds and the Outstanding Bonds are rated "[redacted]" by S&P and "[redacted]" by Fitch. An explanation of the significance of such ratings may be obtained from the company furnishing the rating. A securities rating is not a recommendation to buy or hold securities. The ratings reflect only the respective views of such organizations and the District makes no representation as to the appropriateness of the ratings. There is no assurance that such ratings will continue for any given period of time or that they will not be revised downward or withdrawn entirely by either or both of such rating companies, if in the judgment of either or both companies, circumstances so warrant. Any such downward revision or withdrawal of such ratings, or either of them, may have an adverse effect on the market price of the Bonds.

### LITIGATION

The District is not a party to any litigation or other proceeding pending or to its knowledge, threatened, in any court, agency or other administrative body (either state or federal) which, if decided adversely to the District, could have a material adverse effect on the financial statements or operations of the District. Based on information provided to the District by the Contracting Parties, none of the Contracting Parties is a party to any litigation or other proceeding pending or, to its knowledge, threatened, in any court, agency or other administrative body (state or federal) which, if decided adversely to such Contracting Party, could have a material adverse effect on the financial statements or operations of the Contracting Party, and the District is not aware of any such litigation or other proceeding pending or threatened against any of the Contracting Parties.

At the time of the initial delivery of the Bonds, the District will provide the Underwriters with a certificate to the effect that no litigation of any nature has been filed or is then pending challenging the issuance of the Bonds or that affects the payment and security of the Bonds or in any other manner questioning the issuance, sale or delivery of said Bonds.

## **FUTURE AND PROPOSED LEGISLATION**

Tax legislation, administrative actions taken by tax authorities, or court decisions, whether at the Federal or state level, may adversely affect the tax-exempt status of interest on the Bonds under Federal or state law and could affect the market price or marketability of the Bonds. Any such proposal could limit the value of certain deductions and exclusions, including the exclusion for tax-exempt interest. The likelihood of any such proposal being enacted cannot be predicted. Prospective purchasers of the Bonds should consult their own tax advisors regarding the foregoing matters.

## **REGISTRATION AND QUALIFICATION OF BONDS FOR SALE**

The sale of the Bonds has not been registered under the Federal Securities Act of 1933, as amended, in reliance upon the exemption provided thereunder by Section 3(a)(2); and the Bonds have not been qualified under the Securities Act of Texas in reliance upon various exemptions contained therein; nor have the Bonds been qualified under the securities acts of any jurisdiction. The District assumes no responsibility for qualification of the Bonds under the securities laws of any jurisdiction in which the Bonds may be sold, assigned, pledged, hypothecated or otherwise transferred. This disclaimer of responsibility for qualification for sale or other disposition of the Bonds shall not be construed as an interpretation of any kind with regard to the availability of any exemption from securities registration provisions.

## **LEGAL INVESTMENTS AND ELIGIBILITY TO SECURE PUBLIC FUNDS IN TEXAS**

Section 1201.041 Texas Government Code, provides that the Bonds are negotiable instruments and investment securities governed by Chapter 8, Texas Business and Commerce Code, and are legal and authorized investments for insurance companies, fiduciaries, and trustees, and for the sinking funds of municipalities or other political subdivisions or public agencies of the State of Texas. With respect to investment in the Bonds by municipalities or other political subdivisions or public agencies of the State of Texas, the Public Funds Investment Act, Chapter 2256, Texas Government Code, requires that the Bonds be assigned a rating of at least "A" or its equivalent as to investment quality by a national rating agency. See "Other Information - Ratings" above. In addition, various provisions of the Texas Finance Code provide that, subject to a prudent investor standard, the Bonds are legal investments for state banks, savings banks, trust companies with a capital of one million dollars or more, and savings and loan associations. The Public Funds Collateral Act, Chapter 2257, Texas Government Code, provides that the Bonds are eligible to secure deposits of any public funds of the State, its agencies, and its political subdivisions, and are legal security for those deposits to the extent of their market value. No review by the District has been made of the laws in other states to determine whether the Bonds are legal investments for various institutions in those states.

## **LEGAL MATTERS**

The District will furnish a complete transcript of proceedings had incident to the authorization and issuance of the Bonds, including the unqualified approving legal opinion of the Attorney General of Texas approving the Bonds and to the effect that the Bonds are valid and legally binding obligations of the District, and based upon examination of such transcript of proceedings, the approving legal opinions of Co-Bond Counsel. The customary closing papers, including a certificate to the effect that no litigation of any nature has been filed or is then pending to restrain the issuance and delivery of the Bonds, or which would affect the provision made for their payment or security, or in any manner questioning the validity of the Bonds will also be furnished. Except as noted below, Co-Bond Counsel were not requested to participate, and did not take part, in the preparation of the Official Statement, and such firm has not assumed any responsibility with respect thereto or undertaken independently to verify any of the information contained therein, except that, in their capacity as Co-Bond Counsel, such firms have reviewed the information appearing under the captions or subcaptions "Plan of Financing" (excluding "Estimated Sources and Uses of Proceeds"), "The Bonds" (excluding the table relating to the Outstanding Bonds and except under the subcaptions "Book-Entry-Only System" and "Remedies"), "The Contracts", "Selected Provisions of the Resolution", "Tax Matters", "Other Information – Registration and Qualification of Bonds for Sale", " - Legal Investments and Eligibility to Secure Public Funds in Texas", " - Legal Matters" and " - Continuing Disclosure of Information" (except the information under "Compliance with Prior Undertakings") and such firms are of the opinion that such information fairly reflects the provisions of the Bonds, the Bond Resolution, and with respect to the Bonds such information conforms to the provisions of the Resolution. In connection with the transactions described herein, Co-Bond Counsel represents only the District. The legal fee to be paid Co-Bond Counsel for services rendered in connection with the issuance of the Bonds is contingent on the sale and delivery of the Bonds. The legal opinions will accompany the Bonds deposited with DTC. Certain legal matters will be passed upon for the Underwriters by their counsel, Kelly Hart & Hallman LLP, Fort Worth, Texas, whose legal fees are contingent upon the sale and delivery of the Bonds.

## **VERIFICATION OF ARITHMETICAL AND MATHEMATICAL COMPUTATIONS**

Public Finance Partners LLC, will deliver to the District, on or before the settlement date of the Bonds, its verification report indicating that it has verified the mathematical accuracy of the mathematical computations of the adequacy of the cash, if any, and the maturing principal of and interest on the Escrowed Securities, to pay, when due, the maturing principal of, interest on and related call premium requirements, if any, of the Defeased Obligations.

Public Finance Partners LLC relied on the accuracy, completeness and reliability of all information provided to it by, and on all decisions and approvals of, the District. In addition, Public Finance Partners LLC has relied on any information provided to it by the District's retained advisors, consultants or legal counsel.

The report will be relied upon by Co-Bond Counsel in rendering its opinion with respect to the defeasance of the Refunded Obligations.

## **AUTHENTICITY OF FINANCIAL DATA AND OTHER INFORMATION**

The financial data and other information contained herein have been obtained from the District and the Contracting Parties records, audited financial statements and other sources which are believed to be reliable. There is no guarantee that any of the assumptions or estimates contained herein will be realized. All of the summaries of the statutes, documents and resolutions contained in this Official Statement are made subject to all of the provisions of such statutes, documents and resolutions. These summaries do not purport to be complete statements of such provisions and reference is made to such documents for further information. Reference is made to original documents in all respects.

## **CONTINUING DISCLOSURE OF INFORMATION**

### **ANNUAL REPORTS**

#### ***THE DISTRICT***

In the Resolution, the District has made the following agreements for the benefit of the holders and beneficial owners of the Bonds (see "Selected Provisions of the Resolution"). The District is required to observe the agreement for so long as it remains obligated to advance funds to pay the Bonds. Under the agreement, the District will be obligated to provide certain updated financial information and operating data annually, and timely notice of specified events, to the Municipal Securities Rulemaking Board (the "MSRB") through its Electronic Municipal Market Access ("EMMA") system.

The District will provide certain updated financial information and operating data to the MSRB annually. The information to be updated includes all quantitative financial information and operating data with respect to the District of the general type included in this Official Statement contained in Tables numbered 1 through 9, inclusive, and in Appendix B. The District will update and provide this information within six months after the end of each fiscal year ending in or after 2024.

The District may provide updated information in full text or may incorporate by reference certain other publicly available documents, as permitted by SEC Rule 15c2-12. The updated information will include audited financial statements, if the District commissions an audit and it is completed by the required time. If audited financial statements are not available by the required time, the District will provide unaudited financial information within the required time and audited financial statements when and if the audit report becomes available. Any such financial statements will be prepared in accordance with the accounting principles described in Appendix B or such other accounting principles as the District may be required to employ from time to time pursuant to state law or regulation.

The District's current fiscal year end is September 30. Accordingly, it must provide updated information by March 31 in each year, unless the District changes its fiscal year. If the District changes its fiscal year, it will notify the MSRB of the change.

#### ***THE OBLIGATED PERSONS***

In Continuing Disclosure Agreements entered into between the District and the Cities of Fort Worth, Arlington, Mansfield (the "Cities"), and the TRA (the Cities and TRA, together, the "Obligated Persons"), the Obligated Persons have made the following respective agreements for the benefit of the holders and beneficial owners of the Bonds. The Obligated Persons are required to observe the agreements for so long as the Obligated Persons remain obligated to advance funds to pay the Bonds. Under the agreement, the Obligated Persons will be obligated to provide certain updated financial information and operating data annually to the MSRB, and the Obligated Persons will be obligated to provide timely notice of specified events to the District. The Obligated Persons' filings can be found under the following CUSIP prefixes: for Arlington, 04184K; for Fort Worth, 349515; for Mansfield, 564395; and for TRA, 89657P.

The Obligated Persons will provide certain information to the MSRB annually. The information to be updated, includes all quantitative financial information and operating data with respect to the respective Obligated Persons of the general type included in Appendix A of this Official Statement. The Obligated Persons will update and provide this information as to such entity within six months after the end of each fiscal year of the Obligated Persons.

The Obligated Persons may provide updated information in full text or may incorporate by reference certain other publicly available documents, as permitted by SEC Rule 15c2-12. The updated information will include audited financial statements, if the Obligated Persons commission an audit and it is completed by the required time. If audited financial statements are not available by the required time, the Obligated Persons will provide unaudited financial information within the required time and audited financial statements when and if the audit report becomes available. Any such financial statements will be prepared in accordance with the accounting principles described in such filings or such other accounting principles as the Obligated Persons may be required to employ from time to time pursuant to state law or regulation.

The Cities' current fiscal year end is September 30, and TRA's fiscal year end is November 30. Accordingly, they must provide updated information by March 31 and May 31, respectively, in each year, unless the Cities or the TRA change their fiscal years. If the Cities or the TRA change their fiscal years, they will notify the MSRB of the change.

**NOTICE OF CERTAIN EVENTS** . . . The District will also provide timely notices of certain events to the MSRB. The District will provide notice of any of the following events with respect to the Bonds to the MSRB in a timely manner (but not in excess of ten business days after the occurrence of the event): (1) principal and interest payment delinquencies; (2) non-payment related defaults, if material; (3) unscheduled draws on debt service reserves reflecting financial difficulties; (4) unscheduled draws on credit enhancements reflecting financial difficulties; (5) substitution of credit or liquidity providers, or their failure to perform; (6) in the case of the Bonds, adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the Bonds, or other material events affecting

the tax status of the Bonds; (7) modifications to rights of holders of the Bonds, if material; (8) Bond calls, if material, and tender offers; (9) defeasances; (10) release, substitution, or sale of property securing repayment of the Bonds, if material; (11) rating changes; (12) bankruptcy, insolvency, receivership, or similar event of the District, which shall occur as described below; (13) the consummation of a merger, consolidation, or acquisition involving the District or the sale of all or substantially all of its assets, other than in the ordinary course of business, the entry into of a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; (14) appointment of a successor or additional trustee or the change of name of a trustee, if material; (15) incurrence of a Financial Obligation of the District or an Obligated Person, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the District or an Obligated Person, any of which affect security holders, if material; and (16) default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a Financial Obligation of the District or an Obligated Person, any of which reflect financial difficulties. Neither the Bonds nor the Resolution make any provision for credit enhancement or liquidity enhancement. In addition, the District will provide timely notice of any failure by the District to provide annual financial information in accordance with their agreement described above under "Annual Reports".

For these purposes, any event described in (12) in the immediately preceding paragraph is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent, or similar officer for the District in a proceeding under the United States Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the District, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement, or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the District. The term "Financial Obligation" shall mean, for purposes of the events in clauses (15) and (16), a (i) debt obligation; (ii) derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing, or planned debt obligation; or (iii) guarantee of (i) or (ii); provided that Financial Obligation shall not include municipal securities (as defined in the Securities Exchange Act of 1934, as amended) as to which a final official statement (as defined in the Rule) has been provided to the MSRB consistent with the Rule.

**AVAILABILITY OF INFORMATION** . . . The District and the Obligated Persons have agreed to provide the foregoing information to the MSRB. Investors will be able to access continuing disclosure information filed with the MSRB at [www.emma.msrb.org](http://www.emma.msrb.org).

**LIMITATIONS AND AMENDMENTS** . . . The District and the Obligated Persons have agreed to update information and to provide notices of material events only as described above. The District and the Obligated Persons have not agreed to provide other information that may be relevant or material to a complete presentation of its financial results of operations, condition, or prospects or agreed to update any information that is provided, except as described above. Neither the District nor the Obligated Persons makes any representation or warranty concerning such information or concerning its usefulness to a decision to invest in or sell Bonds at any future date. The District and the Obligated Persons disclaim any contractual or tort liability for damages resulting in whole or in part from any breach their continuing disclosure agreements or from any statement made pursuant to their agreements.

The District and any Obligated Person may amend its continuing disclosure agreement to adapt to changed circumstances that arise from a change in legal requirements, a change in law, or a change in the identity, nature, status, or type of operations of the District or such Obligated Person, if (1) the agreement, as amended, would have permitted the Purchaser to purchase or sell Bonds in the offering described herein in compliance with the SEC Rule 15c2-12, taking into account any amendments or interpretations of such Rule to the date of such amendment, as well as changed circumstances, and (2) either (a) the holders of a majority in aggregate principal amount of the outstanding Bonds consent to the amendment or (b) any person unaffiliated with the District or such Obligated Person (such as nationally recognized bond counsel) determines that the amendment will not materially impair the interests of the holders and beneficial owners of the Bonds. If the District or any Obligated Person so amends its agreement, it has agreed to include with the next financial information and operating data provided in accordance with its agreement described above under "Annual Reports" an explanation, in narrative form, of the reasons for the amendment and of the impact of any change in the type of financial information and operating data so provided.

**COMPLIANCE WITH PRIOR UNDERTAKINGS** . . . During the last five years, the District has complied in all material respects with all continuing disclosure agreements made in accordance with SEC Rule 15c2-12. The District has been made aware that the City of Arlington, one of the Obligated Persons, did not timely file a notice with respect to the incurrence of a Financial Obligation pursuant to the Rule upon the issuance of its Water and Wastewater System Revenue Bonds, Series 2019D in a private placement sale with the Texas Water Development Board on September 20, 2019. The City of Arlington filed an event notice with the MSRB on March 30, 2020. The District has been made aware that the City of Fort Worth, one of the Obligated Persons, closed on its Tax Notes, Series 2021A and Tax Notes, Taxable Series 2021B on January 21, 2021. A Financial Obligation disclosure event notice was filed by the City of Fort Worth with the MSRB on February 9, 2021.

#### **CO-FINANCIAL ADVISORS**

Hilltop Securities, Inc. ("HilltopSecurities"), and The RSI Group, LLC are employed as Co-Financial Advisors to the District. HilltopSecurities and The RSI Group, LLC have relied on the opinion of Co-Bond Counsel and have not verified and do not assume any responsibility for the information, covenants and representations contained in any of the legal documents with respect to the federal income tax status of the Bonds, or the possible impact of any present, pending or future actions taken by any legislative or judicial bodies. In the normal course of business, the Co-Financial Advisors may, individually or collectively, from time to time sell investment securities to the District for the investment of bond proceeds or other funds of the District

The Co-Financial Advisors to the District have provided the following sentence for inclusion in this Official Statement. The Co-Financial Advisors have reviewed the information in this Official Statement in accordance with, and as part of, their responsibilities to the District and, as applicable, to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Co-Financial Advisors do not guarantee the accuracy or completeness of such information.

## USE OF AUDITED FINANCIAL STATEMENTS

The financial statements of the District as of September 30, 2023, and for the year then ended, included in this *Preliminary Official Statement*, have been audited by Deloitte & Touche LLP, independent auditors, as stated in their report appearing herein.

## UNDERWRITING

Jefferies LLC, Siebert Williams Shank & Co., LLC and Wells Fargo Bank, N.A (collectively the "Underwriters") have agreed, subject to certain conditions specified in a bond purchase agreement, to purchase the Bonds from the District, at a price equal to the initial offering prices to the public, as shown on the cover less an underwriting discount of \$\_\_\_\_\_. The Underwriters will be obligated to purchase all of the Bonds if any Bonds are purchased. The Bonds to be offered to the public may be offered and sold to certain dealers (including the Underwriters and other dealers depositing Bonds into investment trusts) at prices lower than the public offering prices of such Bonds and such public offering prices may be changed, from time to time, by the Underwriters.

Jefferies, the book-running senior manager for the Bonds, is also acting as the Dealer Manager for the tender offer. The Dealer Manager will be paid a customary fee for its role as Dealer Manager and the District will also agree to reimburse the Dealer Manager for its reasonable expenses in connection with the tender offer. The Dealer Manager Fee is expected to be paid from proceeds of the Bonds.

The Underwriters have provided the following sentence for inclusion in this Official Statement. The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their respective responsibilities to investors under federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of the information.

Jefferies and its affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. Under certain circumstances, Jefferies and its affiliates may have certain creditor and/or other rights against the District and its affiliates in connection with such activities. In the course of their various business activities, Jefferies and its affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the District (directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships with the District. Jefferies and its affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to the clients that they should acquire, long and/or short positions in such assets, securities and instruments.

The Underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. Certain of the Underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various investment banking services for the District for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (which may include bank loans and/or credit default swaps) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve securities and instruments of the District.

## CYBERSECURITY

Computer networks and data transmission and collection are vital to the operations of the District. Information technology and infrastructure of the District may be subject to attacks by outside or internal hackers and may be subject to breach by employee error, negligence or malfeasance. An attack or breach could compromise systems and the information stored thereon, result in the loss of confidential or proprietary data and disrupt the operations of the District. To mitigate these risks, the District continuously endeavors to improve the range of control for digital information operations, enhancements to the authentication process, and additional measures toward improving system protection/security posture, including required training for District staff and administration.



**FORWARD-LOOKING STATEMENTS DISCLAIMER**

The statements contained in this Official Statement, and in any other information provided by the District, that are not purely historical, are forward-looking statements, including statements regarding the District's expectations, hopes, intentions, or strategies regarding the future. Readers should not place undue reliance on forward-looking statements. All forward-looking statements included in this Official Statement are based on information available to the District on the date hereof, and the District assumes no obligation to update any such forward-looking statements. The District's actual results could differ materially from those discussed in such forward-looking statements.

The forward-looking statements included herein are necessarily based on various assumptions and estimates and are inherently subject to various risks and uncertainties, including risks and uncertainties relating to the possible invalidity of the underlying assumptions and estimates and possible changes or developments in social, economic, business, industry, market, legal, and regulatory circumstances and conditions and actions taken or omitted to be taken by third parties, including customers, suppliers, business partners and competitors, and legislative, judicial, and other governmental authorities and officials. Assumptions related to the foregoing involve judgments with respect to, among other things, future economic, competitive, and market conditions and future business decisions, all of which are difficult or impossible to predict accurately and many of which are beyond the control of the District. Any of such assumptions could be inaccurate and, therefore, there can be no assurance that the forward-looking statements included in this Official Statement will prove to be accurate.

**MISCELLANEOUS**

The Resolution authorizing the issuance of the Bonds will approve the form and content of this Official Statement, and any addenda, supplement or amendment thereto, and authorize its further use in the reoffering of the Bonds by the Underwriters.

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AUTHORIZED OFFICER  
Tarrant Regional Water District,  
A Water Control and Improvement District

**SCHEDULE OF REFUNDED BONDS**

**Schedule I**

**Water Revenue Refunding Bonds, Taxable Series 2020**

<u>Original Dated Date</u>	<u>Original Maturity</u>	<u>Interest Rate</u>	<u>Original Principal Amount</u>	<u>Amount Purchased</u>	<u>Amount Defeased</u>	<u>Remaining Principal Amount</u>
2/1/2020	3/1/2025	1.750%				\$ -
	3/1/2026	1.850%				-
	3/1/2027	1.900%				-
	3/1/2028	2.000%				-
	3/1/2029	2.050%				-
	3/1/2030	2.150%				-
	3/1/2031	2.200%				-
	3/1/2032	2.250%				-
	3/1/2033	2.350%				-
	3/1/2034	2.400%				-
	3/1/2035	2.450%				-
	3/1/2036	2.550%				-
	3/1/2037	2.600%				-
	3/1/2041 <sup>(1)</sup>	2.950%				-
	3/1/2042 <sup>(1)</sup>	2.950%				-
	3/1/2043 <sup>(1)</sup>	2.950%				-
	3/1/2044 <sup>(1)</sup>	2.950%				-
	3/1/2045 <sup>(1)</sup>	2.950%				-
	3/1/2046 <sup>(2)</sup>	3.050%				-
	3/1/2047 <sup>(2)</sup>	3.050%				-
	3/1/2048 <sup>(2)</sup>	3.050%				-
	3/1/2049 <sup>(2)</sup>	3.050%				-
	3/1/2050 <sup>(2)</sup>	3.050%				-
	3/1/2051 <sup>(2)</sup>	3.050%				-
	3/1/2052 <sup>(2)</sup>	3.050%				-
			<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>

(1) Represents a Term Bond with a final maturity of March 1, 2045.

(2) Represents a Term Bond with a final maturity of March 1, 2052.

**Water Revenue Refunding Bonds, Taxable Series 2020B**

<u>Original Dated Date</u>	<u>Original Maturity</u>	<u>Interest Rate</u>	<u>Original Principal Amount</u>	<u>Amount Purchased</u>	<u>Amount Defeased</u>	<u>Remaining Principal Amount</u>
11/1/2020	3/1/2025	0.850%				\$ -
	3/1/2026	1.050%				-
	3/1/2027	1.250%				-
	3/1/2028	1.450%				-
	3/1/2029	1.600%				-
	3/1/2030	1.750%				-
	3/1/2031	1.850%				-
	3/1/2032	1.950%				-
	3/1/2033	2.050%				-
	3/1/2034	2.150%				-
	3/1/2035	2.250%				-
	3/1/2036	2.400%				-
	3/1/2037	2.550%				-
	3/1/2038	2.650%				-
	3/1/2039	2.750%				-
	3/1/2040	2.850%				-
	3/1/2041	2.900%				-
	3/1/2042 <sup>(1)</sup>	3.000%				-
	3/1/2043 <sup>(1)</sup>	3.000%				-
	3/1/2044 <sup>(1)</sup>	3.000%				-
	3/1/2045 <sup>(1)</sup>	3.000%				-
	3/1/2046 <sup>(1)</sup>	3.000%				-
	3/1/2047 <sup>(1)</sup>	3.000%				-
	3/1/2048 <sup>(1)</sup>	3.000%				-
	3/1/2049 <sup>(1)</sup>	3.000%				-
			<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>

(1) Represents a Term Bond with a final maturity of March 1, 2049.

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**APPENDIX A**

GENERAL INFORMATION ON CONTRACTING PARTIES OF THE DISTRICT

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**CITY OF FORT WORTH, TEXAS**  
**ALL OF THE FOLLOWING INFORMATION PROVIDED BY THE CITY OF FORT WORTH**

**TEN LARGEST WATER CUSTOMERS (BASED ON GALLONS CONSUMED)**

Customer	Total 2023 Consumption (Gallons)	Revenue	% of Total Water Usage
Miller Brewing Company	724,983,785	\$ 2,582,321	1.03%
Alcon Laboratories	403,159,243	1,639,426	0.57%
Tarrant County	385,276,584	1,689,936	0.55%
Texas Christian University	249,134,955	1,248,712	0.35%
Fort Worth ISD	244,549,548	1,420,082	0.35%
Lockheed Martin Tactical A/S	186,685,063	673,979	0.27%
Zoological Assn	178,796,873	701,356	0.25%
Carolina Beverage Group LLV	177,915,686	638,324	0.25%
American Airlines	146,341,377	677,690	0.21%
Cook Childrens Medical Center	133,778,983	570,275	0.19%
	<u>2,830,622,097</u>	<u>\$ 11,842,101</u>	<u>4.03%</u>

Source: City's Water Department.

**MONTHLY WATER RATES (EFFECTIVE JANUARY 1, 2024)**

Monthly Service Charge: Based on the size of meter serving the customer.

A monthly service charge in the following amount shall be charged based on the size of the meter serving the customers <sup>(1)</sup>:

<u>Inside City Limits</u>		<u>Outside City Limits</u>	
Meter Size	Monthly Service Charge	Meter Size	Monthly Service Charge
5/8" x 3/4"	\$ 12.90	5/8" x 3/4"	\$ 16.13
3/4" x 3/4"	13.15	3/4" x 3/4"	16.44
1"	27.25	1"	34.06
1 1/2"	51.15	1 1/2"	63.94
2"	79.90	2"	99.88
3"	211.35	3"	264.19
4"	362.00	4"	452.50
6"	768.50	6"	960.63
8"	1,342.40	8"	1,678.00
10"	2,012.00	10"	2,515.00

Source: City's Water Department.

(1) Rates for outside-the-city-limit customers have a 1.25x multiplier.

**MONTHLY WATER RATES (VOLUME CHARGE ONLY)**

Volume Charge: Based on volume of water used<sup>(1)</sup>

*Inside City Limits*

Residential Customers Rate		Irrigation Rate		Gas Well Driller Rate	
Cubic Feet	Rate	Cubic Feet	Rate	Cubic Feet	Rate
First 600	\$2.27 per 100 Cu. Ft.	First 10,000	\$3.01 per 100 Cu. Ft.	All	\$5.85 per 100 Cu. Ft.
Next 1,200	3.18 per 100 Cu. Ft.	Over 10,000	3.90 per 100 Cu. Ft.		
Next 1,200	4.07 per 100 Cu. Ft.				
Over 3,000	4.95 per 100 Cu. Ft.				

Commercial Rate		Industrial Rate	
Cubic Feet	Rate	Cubic Feet	Rate
All	\$2.70 per 100 Cu. Ft.	All	\$2.67 per 100 Cu. Ft.

*Outside City Limits*

Residential Customers Rate		Irrigation Rate		Gas Well Driller Rate	
Cubic Feet	Rate	Cubic Feet	Rate	Cubic Feet	Rate
First 600	\$2.84 per 100 Cu. Ft.	First 10,000	\$3.76 per 100 Cu. Ft.	All	\$7.31 per 100 Cu. Ft.
Next 1,200	3.98 per 100 Cu. Ft.	Over 10,000	4.88 per 100 Cu. Ft.		
Next 1,200	5.09 per 100 Cu. Ft.				
Over 3,000	6.19 per 100 Cu. Ft.				

Commercial Rate		Industrial Rate	
Cubic Feet	Rate	Cubic Feet	Rate
All	\$3.38 per 100 Cu. Ft.	All	\$3.34 per 100 Cu. Ft.

Source: City's Water Department and the City Code, as amended.

(1) Rates for outside-the-city-limit customers have a 1.25x multiplier.

Rates for Wholesale Water Service  
(Effective October 1, 2023)

The City has a contract for raw water supply with Tarrant Regional Water District (the "District"). The contract allows the District to proceed with operation of Richland Chambers, West Fork and Cedar Creek Reservoirs.

Prior to October 1 of each year, the District will establish its operating budget and will advise the City of the charge for raw water. This amount can vary each year, and if the revenue does not equal the expenditures, the rate can and will be adjusted to recover additional costs.

Charges to the City for water sold to customers inside the District include a raw water component, plus a street rental charge of 5% and a system loss charge of 4% which increases the raw water cost to wholesale customers inside the District to \$1.47672 per 1,000 gallons. The Volume Charge is made up of two components: (1) the total raw water cost to the wholesale customer of \$1.47672 per 1,000 gallons; and (2) the cost of treatment and pumping, and other services required, to deliver water to the wholesale customer's meter at \$0.8436 per 1,000 gallons. The total volume charge will be \$2.32032 per 1,000 gallons.

1. Monthly charges are based on the greater of either \$1,000 or a sum equal to the Volume Charge for the actual volume of water taken plus 1/12 of the sum of the estimated Rate of Use Charges and a \$25 per meter charge. For purposes of estimating the rate of use payments, the current rate of use charges will be derived from the prior Fiscal Year's Maximum Day Demand, Maximum Hour Demand and Average Daily Use.

Computations for the monthly charge based on the water used and for the Rate of Use Charge shall be made in accordance with the following rates:

	<u>All</u>
	<u>Wholesale</u>
Volume Charge, per 1,000 Gallons	\$ 2.32032
Excess Maximum Day Demand (per MGD of daily demand in excess of average day demand)	\$ 128,609
Excess Maximum Hour Demand (annual charge per MGD of hourly demand in excess of maximum day demand)	\$ 45,949
Service Charge per Meter per Month	\$ 25

2. Annual payments will be the greater of the following:
  - a. The charges calculated by applying the current Volume Charge to annual consumption, the appropriate meter reading and billing charge, and the Rate of Use Charge for the current fiscal year; or
  - b. The current fiscal year volume charge, the appropriate meter reading and billing charge, and the current Fiscal Year Rate of Use Charge applied to the average of the Maximum Day Demand above Average Daily Use and the average of the Maximum Hour Demand above Maximum Day Demand for the most recently completed three Fiscal Years, which include the current Fiscal Year; or
  - c. If no water is taken during the year, a stand-by charge applies.

**CONDENSED STATEMENT OF OPERATIONS (000s OMITTED) <sup>(1)</sup>**

<u>Revenues</u>	Fiscal Year Ended September 30,				
	2023	2022	2021	2020	2019
Charges for Services	\$ 572,126	\$ 558,595	\$ 486,106	\$ 477,940	\$ 452,989
Other Operating Revenue	1,455	1,248	1,144	940	448
Interest on Investments	42,025	8,843	6,924	10,236	14,071
Total Revenues	\$ 615,606	\$ 568,686	\$ 494,174	\$ 489,116	\$ 467,508
<u>Expenses <sup>(2)</sup></u>					
Personnel Services	\$ 88,040 <sup>(3)</sup>	\$ 82,886 <sup>(3)</sup>	\$ 84,027 <sup>(3)</sup>	\$ 78,719 <sup>(4)</sup>	\$ 76,690 <sup>(5)</sup>
Supplies and Materials	46,606	37,569	25,746	26,493	25,830
Contractual Services	184,602	178,617	165,418	154,025	151,340
Total Expenses	\$ 319,248	\$ 299,072	\$ 275,191	\$ 259,237	\$ 253,860
Net Available for Debt Service	\$ 296,358	\$ 269,614	\$ 218,983	\$ 229,879	\$ 213,648
Water Accounts <sup>(6)</sup>	291,412	284,057	277,027	269,888	260,369
Sewer Accounts <sup>(6)</sup>	278,851	272,052	265,264	258,303	249,377

- (1) Sources for 2019-2023 are Annual Comprehensive Financial Reports (ACFR) for the corresponding fiscal year, City of Fort Worth.
- (2) Expenses exclude depreciation (a non-cash expense).
- (3) For 2021-23, Personnel Services excludes Net Pension Obligation.
- (4) For 2020, Personnel Services excludes non-cash expenses. See page 170 of the City's Fiscal Year End 2020 ACFR.
- (5) For 2019, Personnel Services excludes non-cash expenses. See page 169 of the City's Fiscal Year End 2019 ACFR.
- (6) Actual number of accounts, not in thousands.

**COVERAGE <sup>(1)</sup>**

Average Annual Principal and Interest Requirements, 2024 - 2053 <sup>(1)</sup>	\$ 55,181,623
Coverage of Average Annual Requirements by 9/30/23 Net Available for Debt Service	5.37x
Maximum Principal and Interest Requirements, 2024 <sup>(1)</sup>	\$ 106,857,998
Coverage of Maximum Requirements by 9/30/23 Net Available for Debt Service	2.77x
Water and Sewer System Revenue Bonds Outstanding as of 2/1/24	\$ 1,148,430,000

- (1) Includes all Outstanding Parity Obligations.



**CITY OF ARLINGTON, TEXAS**  
**ALL OF THE FOLLOWING INFORMATION PROVIDED BY THE CITY OF ARLINGTON**

**TEN LARGEST WATER CUSTOMERS (BASED ON GALLONS CONSUMED) AS OF SEPTEMBER 30, 2023 <sup>(1)</sup>**

<u>Customer</u>	<u>Total Consumption (1,000 Gallons)</u>	<u>Billing</u>
EUSB/General Motors	327,240	\$ 1,292,334
University Texas Arlington	319,096	1,743,472
Arlington ISD	196,566	1,680,658
City of Arlington	179,327	1,640,806
AT&T Stadium (Cowboys)	79,458	486,756
Mansfield ISD	75,369	697,062
Globe Life Field (Texas Rangers)	74,753	386,568
Six Flags Over Texas	72,232	366,808
Tep Barnett USA, LLC	72,172	673,153
Arlington Memorial Hospital	59,317	282,747
	<u>1,455,530</u>	<u>\$ 9,250,365</u>

(1) Source: Water Utilities Department.

Note: Wholesale customers not included in top ten.

**WATER RATES (EFFECTIVE JANUARY 1, 2024)**

<u>Fixed Monthly Fee</u>	
<u>Meter Size</u>	<u>Monthly Charge</u>
5/8 x 3/4" ( $\leq$ 2,000 gal)	\$ 7.61
5/8 x 3/4" ( $\geq$ 3,000 gal)	11.04
3/4" x 3/4"	16.72
1"	24.16
1 1/2"	57.83
2"	100.95
3"	238.04
4"	378.87
6"	882.38
8"	1,379.65
10"	2,073.84

<u>Residential</u>		<u>Commercial</u>		<u>Irrigation</u>	
First 2,000 Gallons	\$ 2.16	First 15,000 Gallons	\$ 3.84	0 Gallon - 29,000 Gallons	\$ 6.39
3,000 Gallons - 10,000 Gallons	2.99	Over 15,000 Gallons	4.06	Over 30,000 Gallons	7.70
11,000 Gallons - 15,000 Gallons	4.3				
16,000 Gallon - 29,000 Gallons	6.69				
Over 30,000 Gallons	7.70				
				<u>Construction</u>	
				First 99,000 Gallons	\$ 7.10
				Over 100,000 Gallons	8.93

Source: Water Utilities Department

**HISTORICAL NET REVENUES AVAILABLE FOR DEBT SERVICE (AMOUNTS IN THOUSANDS)**

Revenues	Fiscal Year Ended September 30,				
	2023	2022	2021	2020	2019
Water Sales	\$ 96,066	\$ 95,998	\$ 80,695	\$ 81,555	\$ 75,933
Wastewater Sales	82,517	81,667	74,934	73,241	70,492
Interest Income	12,786	(5,754)	891	1,804	4,073
Other Income	13,053	15,212	14,272	10,251	8,764
Total Revenues	<u>\$ 204,422</u>	<u>\$ 187,123</u>	<u>\$ 170,792</u>	<u>\$ 166,851</u>	<u>\$ 159,262</u>
<b>Expenses</b>					
Labor Costs	\$ 19,932	\$ 15,045	\$ 16,788	\$ 16,962	\$ 16,834
Supplies	-	-	2,727	2,766	3,338
Maintenance	17,776	18,596	3,959	4,235	4,198
Water Supply (the District)	22,112	20,305	24,289	20,406	19,781
Wastewater Treatment Contracts	41,886	38,599	39,310	38,731	36,780
Utilities	-	-	2,454	2,461	2,330
Other Expenses	392	1,418	10,157	4,449	4,493
Total Operating Expenses Before Depreciation	<u>\$ 102,098</u>	<u>\$ 93,963</u>	<u>\$ 99,684</u>	<u>\$ 90,010</u>	<u>\$ 87,754</u>
Net Revenues of the System	\$ 102,324	\$ 93,160	\$ 71,108	\$ 76,841	\$ 71,508
Interest During Construction Included Above	<u>2,974</u>	<u>-</u>	<u>(3)</u>	<u>-</u>	<u>(1,129)</u>
Net Available for Debt Service	<u>\$ 105,298</u>	<u>\$ 93,160</u>	<u>\$ 71,105</u>	<u>\$ 76,841</u>	<u>\$ 70,379</u>
Debt Service Paid <sup>(1)</sup>	\$ 33,020	\$ 31,526	\$ 29,243	\$ 30,971	\$ 24,899
Debt Service Coverage (times)	3.19x	2.96x	2.43x	2.48x	2.83x

Source: City Finance Department (Unaudited Statements)

(1) Excludes Trinity River Authority Revenue Bonds, accrued interest from bond sales, and refunding or cash defeasances.

**THE TRINITY RIVER AUTHORITY OF TEXAS (THE "AUTHORITY")**  
**ALL OF THE FOLLOWING INFORMATION PROVIDED BY THE AUTHORITY**

**THE AUTHORITY'S ACTIVITIES**

1. **Master Planning.** After a series of public hearings, the Authority adopted the original master plan in April 1958. The purpose of the Master Plan is to define and provide a course of action for the Authority to achieve water and soil conservation goals for which purpose the Authority was established by the State of Texas Legislature. The Master Plan goals can generally be described as: to improve the quality of water within the Trinity River Basin in order to provide supplies of good quality water for all beneficial purposes, conserve water and soil resources, reduce flooding, promote water oriented recreation, preserve natural areas, promote the diversity and productivity of aquatic life, and foster an understanding of the complex interrelationships among people, resources, economy and the environment in the basin. The Authority's Board of Directors reviews the status of the master plan annually and amends the master plan periodically when it is deemed necessary.
2. **Federal Projects.** By various resolutions, the Authority has agreed to serve as the local sponsor of the Navarro Mills Reservoir, Bardwell Reservoir, Joe Pool Lake and the Wallisville Salt Water Barrier Project in cooperation with local municipalities or districts that benefit from these projects.
3. **Revenue Based Projects.** The Authority, without collecting any property taxes, has implemented service projects serving cities, communities and other special districts throughout the Trinity River Basin. The majority of these funds for these projects have come from the sale of tax exempt contract service revenue bonds, service payments from customers, federal grants and long term federal loans. The Authority has responsibility for operating certain of these projects (referred to below as "Operating"). Projects referred to below as "Non-Operating" require a limited amount of Authority personnel involvement and are primarily financing arrangements with the entities. These projects and those served include:

**THE AUTHORITY'S REVENUE-BASED PROJECTS**

<b>Project Name (Operating)</b>	<b>Cities and Entities Served</b>
Central Regional Wastewater System	Addison, Arlington, Bedford, Carrollton, Cedar Hill, Colleyville, Coppell, Dallas, Dallas/Fort Worth International Airport Board, Duncanville, Euless, Farmers Branch, Fort Worth, Grand Prairie, Grapevine, Hurst, Irving, Keller, Mansfield, North Richland Hills, and Southlake
Ten Mile Creek Regional Wastewater System	Cedar Hill, DeSoto, Duncanville, Ferris, and Lancaster
Denton Creek Regional Wastewater Treatment System	Argyle, Circle T Municipal Utility District No. 1, Circle T Municipal Utility District No. 3, Flower Mound, Fort Worth, Haslet, Keller, Northlake, Roanoke, Southlake and Westlake.
Red Oak Creek Regional Wastewater Project	Cedar Hill, DeSoto, Glenn Heights, Lancaster, Ovilla, and Red Oak
Mountain Creek Regional Wastewater System	Grand Prairie, Mansfield, Midlothian and Venus
Tarrant County Water Supply Project	Bedford, Colleyville, Euless, Grapevine, and North Richland Hills
Huntsville Regional Water Supply System	Huntsville
Livingston Regional Water Supply System	Livingston
Trinity County Regional Water Supply System	Glendale Water Supply Corp, Groveton, Riverside Water Supply Corp, Trinity, Trinity Rural Water Supply Corp and Westwood Shores MUD.
Lake Livingston—Wallisville Project	Houston, 21 lakeside communities (and two industries)
Livingston Recreation Facilities	Serving the General Public

<b>Project Name (Non-Operating)</b>	<b>Cities and Entities Served</b>
Walker-Calloway Branches Outfall Line	Hurst and North Richland Hills
Northeast Lakeview Project	Cedar Hill, Grand Prairie
Lakeview Regional Water Supply Project	Cedar Hill, Duncanville, and Grand Prairie
Navarro Mills Reservoir	Corsicana
Bardwell Reservoir	Ennis and Ellis County WCID #1
Joe Pool Lake Project	Cedar Hill, Duncanville, Grand Prairie, and Midlothian
Ellis County Regional Water Supply Project	Cities of Ferris, Italy, Maypearl, Midlothian, Palmer and Red Oak; Ellis County WC&ID No. 1, Avalon Water and Sewer Service Corporation, Nash-Forrester, and Buena Vista-Bethel Water Supply Corporations.
Freestone Raw Water Supply Project	Freestone Power Generation LP
Ennis Raw Water Supply Project	Ennis
Denton Creek Wastewater Interceptor System	Fort Worth
Fort Worth Sendera Ranch Project	Fort Worth
Pollution Control Facilities	Community Waste Disposal, Inc and Texas Utilities Electric Co.
Denton Creek Wastewater Transportation Project	Argyle, Flower Mound and Northlake

#### **THE FUTURE ROLE OF THE AUTHORITY**

In recognition of the fact that the Authority does not exercise control over all facets of water resource management within the Trinity River watershed, the goals of the Authority's Basin Master Plan are objectives for the Trinity River Basin, regardless of the implementing agency.

##### **1. Master Planning.**

- a. The Authority will carefully monitor the progress being made as to each master plan goal.
- b. The Authority will support the accomplishments of all institutional and financial arrangements necessary to the achievement of the goals.
- c. The Authority will amend the master plan as needed.
- d. The Authority will continue its leadership in water quality planning in the basin.

2. Revenue-based Services. When desired by others and when an adequate revenue base and other finances are available, the Authority will exercise its powers to provide needed services in the areas of water supply, wastewater treatment, parks and recreational facilities, pollution control facilities and solid waste disposal.

3. Federal Projects. The Authority will continue to serve as local sponsor of the Navarro Mills Reservoir, Bardwell Reservoir, the Wallisville Salt Water Barrier Project and Joe Pool Lake.

4. Public Information. The Authority will continue to encourage the public's understanding of the complex interrelationships among the people, resources, economy and environment of the Trinity River Basin.

5. Tax based Services. If there is public support, the Authority will seek to obtain some form of tax-based support for specific programs which should be implemented for comprehensive management of the basin's soil and water resources: conservation of the use of water, soil conservation, water oriented recreation and adequate public access to the river and basin lakes, greenbelts, preservation of natural areas, fish and wildlife mitigation, coordination of floodwater reservoir releases, and full dissemination of flood plain information under the Flood Insurance Act throughout the Authority's territory. At this time the Authority has no plans to pursue any form of tax based support for these programs.

6. The Authority's Territory. In order to provide services on a truly basin wide basis, the Authority will support legislation to add to its territory those parts of the basin not presently within the Authority's defined territory if this is desired by any of the involved counties.

7. Financing of Flood Control and Navigation Projects. Implementation of flood control (by whatever means) and navigation projects should be through a combination of revenues, locally provided taxes and federal funds. The Authority's support of any navigation project is based on three conditions: public support, environmental soundness and economic feasibility.

**OTHER OUTSTANDING INDEBTEDNESS OF THE AUTHORITY**

The Authority has other indebtedness outstanding which is listed below. The other outstanding indebtedness is not payable from the Net Revenues which provide payment for the Bonds and are not Parity Bonds as defined in the Resolution.

Bond Issues	Principal Outstanding 3/1/2024
Central Regional Wastewater System	\$ 924,570,000 <sup>(1)</sup>
Denton Creek Regional Wastewater Treatment System	141,000,000
Trinity River Authority of Texas (General Improvement Project of the Authority)	1,225,000
Livingston Regional Water Supply Project	15,095,000
Mountain Creek Regional Wastewater System	126,360,000
Northeast Lakeview Wastewater Transportation Project	3,325,000
Red Oak Creek Regional Wastewater System	94,430,000
Tarrant County Water Project	186,655,000
Ten Mile Creek Regional Wastewater System	102,720,000
Town of Flower Mound Wastewater Transportation Project	1,885,000
Walker Calloway System	8,655,000
TOTAL	<u>\$ 1,605,920,000</u>

(1) Does not include debt service on the \$350,000,000 Extendable Commercial Paper Bonds ("ECP Bonds") program. The ECP Bonds are secured by and payable from a lien on the Net Revenues of the System created in the resolution authorizing their issuance; provided that the pledge of Net Revenues securing the ECP Bonds is expressly made junior and subordinate to the pledge of Net Revenues securing First Lien Bonds as described herein. The ECP Bonds are and shall be secured by and payable only from the Net Revenues, from the proceeds from the sale of ECP Bonds to refinance maturing ECP Bonds (i.e., "roll") and the proceeds of Refunding Bonds to be issued by the Authority

**CONDENSED STATEMENT OF OPERATIONS/TARRANT COUNTY WATER PROJECT ENTERPRISE FUND**

	Fiscal Year Ended November 30,				
	2023	2022	2021	2020	2019
<u>Operating Revenues</u>					
Water Sales Contract Charges	\$ -	\$ 39,623,212	\$ 36,722,214	\$ 34,978,195	\$ 31,585,571
Miscellaneous/Other Income	-	46,551	(2,749)	681	(1,374)
Investment Income	-	(31,050)	27,772	608,074	1,087,086
Total Revenues	\$ -	\$ 39,638,713	\$ 36,747,237	\$ 35,586,950	\$ 32,671,283
Operating Expenses	\$ -	\$ 24,113,248	\$ 21,976,305	\$ 20,680,342	\$ 20,112,162
Net Revenue Available	\$ -	\$ 15,525,465	\$ 14,770,932	\$ 14,906,608	\$ 12,559,121

**CITY OF MANSFIELD, TEXAS**  
**ALL OF THE FOLLOWING INFORMATION PROVIDED BY THE CITY OF MANSFIELD**

**TEN LARGEST WATER CUSTOMERS (BASED ON GALLONS CONSUMED) <sup>(1)</sup>**

Customer	2023 Water Usage	% of Total Water Usage	Water Revenue	Percent of Water Revenues
Johnson County SUD	3,020,160,000	76.63%	\$4,167,255	15.34%
City of Grand Prairie	216,302,000	5.49%	297,240	1.09%
Mansfield ISD	154,846,950	3.93%	1,077,087	3.97%
City of Mansfield	124,745,909	3.17%	677,734	2.50%
Mansfield National Golf Club	58,115,670	1.47%	88,944	0.33%
Mid America Apartments LP	46,147,340	1.17%	203,960	0.75%
Methodist Mansfield Medical Center	38,932,510	0.99%	178,458	0.66%
Southwaste - Dallas	36,094,100	0.92%	14,687	0.05%
Equistar Chemicals	26,339,300	0.67%	97,071	0.36%
Mycon	23,303,140	0.59%	98,644	0.36%
Total	<u>3,744,986,919</u>	<u>95.02%</u>	<u>\$ 6,901,080</u>	<u>25.41%</u>

(1) Golf courses and gas companies purchase non-potable water and they pay a discounted rate for non-potable water. As of September 30, 2023.

**MONTHLY WATER RATES**

Meter Size	Current Rates Effective as of October 2023	
Residential < 2,000 gallons	\$7.53	
3/4" & 5/8"	\$22.77	
1"	\$56.63	
1 1/2"	\$113.05	
2"	\$180.76	
3"	\$361.32	
4"	\$620.88	
6"	\$1,264.12	
Volumetric Rate per 1,000 Gallons Water (Effective October 2023)		
	Industrial	Residential / Commercial
First 2,000 Gallons	\$0.00	\$0.00
Next 30,000 Gallons	\$2.65	\$3.39
Over 32,000 Gallons	\$3.30	\$4.21

**CONDENSED STATEMENT OF OPERATIONS**

	Fiscal Year Ended September 30,				
<u>Revenues</u>	2023	2022	2021	2020	2019
Water Service	\$ 29,013,694	\$ 27,321,655	\$ 21,938,151	\$ 22,091,764	\$ 20,401,003
Sewer Service	16,536,685	15,180,682	13,364,600	13,338,839	12,805,588
Charges for Services	843,633	1,510,957	1,014,403	1,633,661	1,710,937
Interest Earnings	1,704,805	197,490	9,818	249,422	620,381
Impact Fees	3,126,972	5,817,750	5,881,597	4,879,934	2,939,992
Total Revenues	\$ 51,225,789	\$ 50,028,534	\$ 42,208,569	\$ 42,193,620	\$ 38,477,901
<u>Expenses</u>					
Costs of Sales and services	\$ 27,637,321	\$ 23,742,785	\$ 21,323,874	\$ 19,565,236	\$ 19,342,805
Administration	2,812,115	1,849,963	2,792,112	5,386,645	4,220,376
Total Expenses	\$ 30,449,436	\$ 25,592,748	\$ 24,115,986	\$ 24,951,881	\$ 23,563,181
Net Available for Debt Service	\$ 20,776,353	\$ 24,435,786	\$ 18,092,583	\$ 17,241,739	\$ 14,914,720
Water Customers	26,057	25,421	24,346	23,364	22,408
Sewer Customers	23,145	22,006	21,278	20,501	19,813

**COVERAGE AND FUND BALANCES**

Average Annual Principal and Interest Requirements, 2024-2044	\$ 4,700,495
Coverage of Average Requirements by 9/30/23 Net Available	4.42x
Maximum Principal and Interest Requirements, 2027	\$ 7,311,200
Coverage of Maximum Requirements by 9/30/23 Net Available	2.84x
Waterworks and Sewer System Bonds Outstanding, 3/1/24	\$ 65,840,000
Water and Sewer Sinking and Reserve Fund, 3/1/24	\$ 5,164,680



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**APPENDIX B**

TARRANT REGIONAL WATER DISTRICT,  
A WATER CONTROL AND IMPROVEMENT DISTRICT

AUDITED FINANCIAL STATEMENTS

For the Year Ended September 30, 2023

The information contained in this Appendix consists of the Tarrant Regional Water District, A Water Control and Improvement District Audited Financial Statements for the Year Ended September 30, 2023.

Deloitte & Touche LLP, the District's Independent auditor, has not been engaged to perform and has not performed, since the date of its report included herein, any procedures on the financial statements addressed in that report. Deloitte & Touche LLP also has not performed any procedures relating to this Official Statement.

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## **INDEPENDENT AUDITOR'S REPORT**

Members of the Board of Directors  
Tarrant Regional Water District  
Fort Worth, Texas

### **Report on the Audit of the Financial Statements**

#### ***Opinions***

We have audited the financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the Tarrant Regional Water District (the "District"), as of and for the year ended September 30, 2023, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of Tarrant Regional Water District, as of September 30, 2023, and the respective changes in financial position, and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

#### ***Basis for Opinions***

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the District, and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

#### ***Responsibilities of Management for the Financial Statements***

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

### ***Auditor's Responsibilities for the Audit of the Financial Statements***

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we

- exercise professional judgment and maintain professional skepticism throughout the audit.
- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, no such opinion is expressed.
- evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

### ***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, Schedule of Revenues, Expenditures and Changes in Fund Balance – Budget to Actual - General Fund, Schedule of Changes in Net Other Post-Employment Benefits Liability and Related Ratios, Schedule of Investment Returns in Other Post Employment Benefits, and Schedule of Contributions in Other Post Employment Benefits be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our

inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

***Other Information***

Management is responsible for the other information included in the annual comprehensive financial report. The other information comprises the Introductory Section and Statistical Section but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

*Deloitte & Touche LLP*

December 15, 2023

# **TARRANT REGIONAL WATER DISTRICT**

## **MANAGEMENT'S DISCUSSION AND ANALYSIS FOR THE YEAR ENDED SEPTEMBER 30, 2023**

This section of the District's annual comprehensive financial report presents our discussion and analysis of the District's financial performance during the fiscal year ended September 30, 2023. Please read this analysis in conjunction with the District's audited financial statements, which follow this discussion.

### **FINANCIAL HIGHLIGHTS**

#### **NET POSITION**

The assets and deferred outflows of the District exceed its liabilities and deferred inflows at the close of the most recent fiscal year by \$1.6 billion (net position). Of this amount, \$347.6 million (unrestricted net position) may be used to meet the District's ongoing obligations to citizens and creditors.

At the end of the current fiscal year: Business-Type Activities total net position increased by \$49.6 million mainly due to the payment of debt service payables by revenues from customer water sales. Governmental activities total net position increased by \$23.3 million mainly due to higher than expected property taxes and investment income and lower than budgeted expenses.

### **OVERVIEW OF THE FINANCIAL STATEMENTS**

This discussion and analysis is intended to serve as an introduction to the District's basic financial statements. The District's basic financial statements contain three components: 1) government-wide financial statements, 2) fund financial statements, and 3) notes to the financial statements. The report also contains other required supplementary information in addition to the basic financial statements.

#### **Government-wide Financial Statements**

The government-wide financial statements are designed to provide readers with a broad overview of the District's finances, presented in a manner similar to that of a private-sector business. Both the Statement of Net Position and the Statement of Activities distinguish between the two functions of the District. The government-wide financial statements can be found beginning on page 38 of this report.

## **Statement of Net Position**

The Statement of Net Position presents information on all of the District's assets, deferred outflows, liabilities, and deferred inflows. The difference between those assets, deferred outflows, liabilities, and deferred inflows is reported as net position. Over time, increases and decreases in net position could provide a useful indicator of whether the financial position of the District is improving or deteriorating.

## **Statement of Activities**

The Statement of Activities presents information showing how the District's net position has changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows.

Property taxes, oil and gas royalties, and inter-governmental revenues support the governmental activities. These activities include flood control, floodway maintenance and improvements, recreation, and general government administration. The business-type activities of the District are intended to recover all or a significant portion of their costs through user fees and charges. The District's business-type activity is supplying raw water to municipalities.

## **Fund Financial Statements**

A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. The funds of the District can be divided into three categories: governmental, proprietary, and fiduciary.

## **Governmental Funds**

Governmental funds are used to account for the same functions shown in the governmental activities on the Statement of Activities mentioned above. However, unlike the government-wide financial statements, governmental fund financial statements focus on near-term inflows and outflows and the expending of available resources, as well as on balances of resources available at the end of the fiscal year.

Because the focus of governmental funds is narrower than that of the government-wide financial statements, it is useful to compare the information presented for governmental funds with similar information presented for governmental activities in the government-wide financial statements. Both the governmental fund balance sheet and the governmental fund statement of revenues, expenditures, and changes in fund balances provide reconciliations to facilitate this comparison between governmental funds and governmental activities. The District maintains only one governmental fund, the General Fund, which accounts for the flood control and recreation activities.



## **Proprietary Funds**

Proprietary funds are used to report the same functions presented as business-type activities in the government-wide financial statements. The District has only one proprietary fund which accounts for the raw water system, its repairs, and its improvements.

## **Fiduciary Funds**

Fiduciary Funds account for assets held in a trustee or agency capacity for others and therefore cannot be used to support the government's own programs. Fiduciary Funds meet all of the following criteria:

- 1) The assets associated with the fiduciary activity are controlled by the government.
- 2) The assets associated with the fiduciary activity are not derived either solely from the government's own-source revenues or from government mandated non-exchange transactions or voluntary non-exchange transactions.
- 3) The assets associated with the fiduciary activity are either:
  - a) administered through a trust in which the government itself is not a beneficiary, dedicated to providing benefits to recipients in accordance with the benefit terms, and legally protected from the creditors of the government
  - b) for the benefit of individuals and the government does not have administration involvement with the assets or direct financial involvement with the assets and the assets are not derived from the government's provision of goods or services to those individuals
  - c) for the benefit of organizations or other governments that are not part of the financial reporting entity and the assets are not derived from the government's provision of goods or services to those organizations or other governments

The District's only Fiduciary Fund is the Other Post Employee Benefits Trust Fund which holds assets to be used for the future payments of benefits offered through the District's post-employment healthcare benefit plan.

## **Notes to the Financial Statements**

The notes provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements. The notes to the financial statements can be found beginning on page 51 of this report.

## FINANCIAL ANALYSIS: GOVERNMENT-WIDE STATEMENTS

As noted earlier, net position may serve over time as a useful indicator of a government’s financial position. In the case of the District, assets and deferred outflows exceed liabilities and deferred inflows by \$1.6 billion at the close of fiscal year 2023.

### CONDENSED SCHEDULE OF NET POSITION

	Governmental Activities		Business-Type Activities		Total	
	2022	2023	2022	2023	2022	2023
Current and other assets	\$ 310,286,563	\$ 329,385,764	\$ 460,239,258	\$ 620,824,012	\$ 770,525,821	\$ 950,209,776
Capital assets	381,557,959	386,619,023	2,120,499,935	2,225,030,686	2,502,057,894	2,611,649,709
<b>Total Assets</b>	<b>691,844,522</b>	<b>716,004,787</b>	<b>2,580,739,193</b>	<b>2,845,854,698</b>	<b>3,272,583,715</b>	<b>3,561,859,485</b>
Total Deferred Outflows of Resources	946,825	709,294	54,811,251	51,275,741	55,758,076	51,985,035
Current liabilities	4,972,398	6,841,296	116,489,628	151,296,850	121,462,026	158,138,146
Long-term liabilities	15,185,168	14,348,852	1,703,451,727	1,880,813,333	1,718,636,895	1,895,162,185
<b>Total Liabilities</b>	<b>20,157,566</b>	<b>21,190,148</b>	<b>1,819,941,355</b>	<b>2,032,110,183</b>	<b>1,840,098,921</b>	<b>2,053,300,331</b>
Total Deferred Inflows of Resources	2,742,968	2,379,959	3,813,156	3,591,123	6,556,124	5,971,082
<b>Net position</b>						
Net investment in cap. assets	380,949,418	386,155,715	692,153,862	714,072,935	1,073,103,280	1,100,228,650
Restricted for						
Capital projects	5,510,011	5,765,799			5,510,011	5,765,799
Debt service			87,094,181	100,986,881	87,094,181	100,986,881
Unrestricted	283,431,384	301,222,460	32,547,890	46,369,317	315,979,274	347,591,777
<b>Total Net Position</b>	<b>\$ 669,890,813</b>	<b>\$ 693,143,974</b>	<b>\$ 811,795,933</b>	<b>\$ 861,429,133</b>	<b>\$ 1,481,686,746</b>	<b>\$ 1,554,573,107</b>

### Government-wide

- **Current and Other Assets**

The increase in current and other assets of \$179.7 million is mainly due to \$241.0 million received from the new Dallas 2022 Bond issue offset by bond project costs.

- **Capital Assets**

The increase in capital assets of \$109.6 million is due to land purchases and design and construction costs for capital projects including a \$123.1 million increase in the IPL Phase 3 Project, \$13.0 million increase in the Kennedale Balancing Reservoir and \$5.8 million increase in the Central City Flood Control Project offset by accumulated depreciation. Refer to Note 4 for further detail about capital assets.

- **Current Liabilities**

The increase in current liabilities of \$36.7 million is due in large part to two invoices from Traylor Sundt Joint Venture totaling \$26.5 million for IPL Section 19 tunnel crossing construction services.

- **Long-Term Liabilities**

The increase in long-term liabilities of \$176.5 million is mainly due to the new \$241.0 million Dallas 2022 Bond issue offset by the debt service payments of \$61.1 million.

- **Net Investment in Capital Assets**

The increase in net investment in capital assets of \$27.1 million is mainly due to capital asset project expenses and principal payments of long-term debt with current resources. Net investment in capital assets includes capital assets (e.g. dams, spillways and water transmission facilities as well as land, buildings, machinery, and equipment) less any related debt used to acquire those assets that is still outstanding. The District uses the majority of these capital assets to provide services to its water customers; consequently, those assets are not available for future spending.

Although the District's investment in capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, since the capital assets themselves cannot be used to liquidate these liabilities.

- **Restricted for Capital Projects**

The \$5.8 million represents resources that are restricted for the environmental clean-up of property that is part of the Central City Flood Control Project.

- **Restricted for Debt Service**

The increase of \$13.9 million is mainly due to an increase in the reserve balance from the Dallas 2022 Bond issuance.

- **Unrestricted Net Position**

The increase of \$31.6 million in the District's unrestricted net position included a \$17.8 million increase in the Governmental Fund due to a \$5.9 million increase in investment income, higher property taxes, and lower-than-expected expenditures, and a \$13.8 million increase in the Enterprise fund mostly due to an increase in the fair market value of investments over the prior year.

## **Governmental Activities**

- **Current and Other Assets**

The increase of \$19.1 million is mainly due to higher than budgeted property taxes offset by lower than budgeted expenditures.

- **Capital Assets**

The capital assets increase of \$5.2 million is mainly due to purchases of land and ongoing construction-in-progress for the Central City Flood Control Project offset by accumulated depreciation. Refer to Note 4 for further detail about capital assets.

- **Current Liabilities**

The increase of \$1.9 million is mainly due to the accrual of an invoice for Oncor on the Central City Flood Control Project franchise utility relocation.

- **Net Investment in Capital Assets**

The increase in net investment in capital assets of \$5.2 million is due to purchases of land and ongoing construction-in-progress for the Central City Flood Control Project offset by depreciation.

- **Unrestricted Net Position**

The increase of \$17.8 million in the District's unrestricted net position occurred mainly due to a \$5.9 million increase in investment income, higher property taxes, and lower-than-expected expenditures.

## **Business-Type Activities**

- **Current and Other Assets**

The increase of \$160.6 million is mainly due to \$241.0 million received from the new Dallas bond issue offset by spending on capital projects including the IPL and Kennedale Balancing Reservoir projects.

- **Capital Assets**

The capital assets increase of \$104.5 million is due to on-going bond projects costs, including the IPL and Kennedale Balancing Reservoir projects offset by depreciation. Refer to Note 4 for further detail about capital assets.

- **Current Liabilities**

The increase of \$34.8 million is due in large part to accruing two invoices from Traylor Sundt Joint Venture totaling \$26.5 million for IPL Section 19 tunnel crossing construction services accruing as well as a net increase of \$7.0 million in retainage for large construction projects.

- **Long-Term Liabilities**

The increase of \$177.4 million is mainly due to the new \$241.0 million Dallas 2022 Bond issue offset by the debt service payments of \$61.1 million. Refer to Note 7 for further detail about bonds payable.

- **Net Investment in Capital Assets**

The increase of \$21.9 million is mainly due to increased capital project costs and principal payments of long-term debt with current resources.

- **Restricted for Debt Service**

The increase of \$13.9 million is mainly due to an increase in the reserve balance from the Dallas 2022 bond issuance.

- **Unrestricted Net Position**

The increase of \$13.8 million is mostly due to an increase in the fair market value of investments over the prior year.

## CONDENSED SCHEDULE OF ACTIVITIES

	Governmental Activities		Business-Type Activities		Total	
	2022	2023	2022	2023	2022	2023
Revenues:						
Program Revenues						
Charges for services	\$ 17,116,980	\$ 8,271,553	\$ 172,432,425	\$ 194,798,879	\$ 189,549,405	\$ 203,070,432
Operating Grants and Contributions	68,500	62,806	10,086,962	1,336,146	10,155,462	1,398,952
Capital Grants and Contributions	11,511,098	6,676,117			11,511,098	6,676,117
Total Program Revenues	28,696,578	15,010,476	182,519,387	196,135,025	211,215,965	211,145,501
General Revenues						
Property tax revenues	24,669,850	25,989,506			24,669,850	25,989,506
Investment income (loss)	(707,632)	5,206,309	(12,965,711)	25,973,598	(13,673,343)	31,179,907
Other income (loss)	(90,239)	773,225	188,870	111,385	98,631	884,610
Total Revenues	52,568,557	46,979,516	169,742,546	222,220,008	222,311,103	269,199,524
Expenses						
Flood protection	21,520,140	20,301,962			21,520,140	20,301,962
Recreation	3,758,746	3,424,393			3,758,746	3,424,393
Water supply			122,108,598	172,586,808	122,108,598	172,586,808
Total Expenses	25,278,886	23,726,355	122,108,598	172,586,808	147,387,484	196,313,163
Changes in Net Position	27,289,671	23,253,161	47,633,948	49,633,200	74,923,619	72,886,361
Net Position - Beginning of year	642,601,142	669,890,813	764,161,985	811,795,933	1,406,763,127	1,481,686,746
Net Position - Ending	\$ 669,890,813	\$ 693,143,974	\$ 811,795,933	\$ 861,429,133	\$ 1,481,686,746	\$ 1,554,573,107

### Governmental Activities

- **Program Revenues - Charges for Services**

The decrease of \$8.8 million is due to a \$8.7 million decrease in oil and gas royalties due to decreases in price and volume.

- **Program Revenues - Capital Grants and Contributions**

The decrease of \$4.8 million is due to decrease in Central City Flood Control Project contributions as the project did not have as high of expenditures in fiscal year 2023 as in fiscal year 2022.

- **General Revenues - Property Tax Revenues**

The increase of \$1.3 million is mainly due to the increase in property tax revenues due to the increase in tax valuations for fiscal year 2023 offset by a decrease in the tax rate from \$0.0287 to \$0.0269.

- **General Revenues - Investment income**

The increase of \$5.9 million is due to a \$4.4 million increase in interest income as well as a \$1.5 million increase in fair market value over the prior year.

- **Expenses - Flood protection**

The decrease of \$1.2 million is mainly due to the Central City Flood Control Project bridge with most of its construction being finished in fiscal year 2022 and was not needed in fiscal year 2023.

## **Business Type Activities**

- **Program Revenues - Charges for Services**

The increase of \$22.4 million is due primarily to a \$12.7 million increase in Dallas Water Utilities payments as they are now paying additional operating costs since IPL Phases 1 and 2 are now online and a \$9.8 million increase in Sale of Water revenues also due in large part to additional operating costs due to IPL Phases 1 and 2.

- **Program Revenues - Operating Grants and Contributions**

The decrease of \$8.8 million is due to a \$9.0 million buy in premium received in fiscal year 2022 and no buy-in premium received in fiscal year 2023.

- **General Revenues - Investment income**

The increase of \$38.9 million is due to a \$19.9 million increase in interest income as well as a \$19.1 million increase in fair market value over the prior year.

- **Expenses - Water Supply**

The increase of \$50.5 million is mainly due to a \$24.0 million increase in depreciation expense due to the completion of the IPL Phase 1 and 2 as well as a \$12.6 million increase in personnel and pension plan expenses due to increased headcount and an increase in expenses allocated to the Enterprise Fund after completion of the IPL Phase 1 and 2.

## FINANCIAL ANALYSIS: CAPITAL ASSETS

	Governmental Activities		Business-Type Activities		Total	
	2022	2023	2022	2023	2022	2023
Nondepreciable						
Land	\$ 276,339,794	\$ 280,200,672	\$ 186,637,511	\$ 193,225,257	\$ 462,977,305	\$ 473,425,929
Construction in progress	74,422,677	77,600,924	150,855,605	281,493,242	225,278,282	359,094,166
<b>Total nondepreciable assets</b>	<b>350,762,471</b>	<b>357,801,596</b>	<b>337,493,116</b>	<b>474,718,499</b>	<b>688,255,587</b>	<b>832,520,095</b>
Depreciable						
Dams and spillways	3,070,461	3,070,461	234,543,120	234,543,120	237,613,581	237,613,581
Pipeline			1,721,500,069	1,733,211,319	1,721,500,069	1,733,211,319
Wetlands			56,160,860	56,160,860	56,160,860	56,160,860
Communications			20,787	20,787	20,787	20,787
Buildings	52,147,148	49,841,095	7,854,201	7,854,201	60,001,349	57,695,296
Technology Infrastructure			3,865,282	3,865,282	3,865,282	3,865,282
Machinery and equipment	11,664,297	12,220,406	13,577,179	14,041,560	25,241,476	26,261,966
Flood control	8,115,517	10,569,192			8,115,517	10,569,192
Other project costs			193,072,352	193,072,352	193,072,352	193,072,352
	74,997,423	75,701,154	2,230,593,850	2,242,769,481	2,305,591,273	2,318,470,635
Less						
Accumulated depreciation	(44,805,919)	(47,333,049)	(450,735,756)	(495,212,428)	(495,541,675)	(542,545,477)
<b>Total depreciable assets</b>	<b>30,191,504</b>	<b>28,368,105</b>	<b>1,779,858,094</b>	<b>1,747,557,053</b>	<b>1,810,049,598</b>	<b>1,775,925,158</b>
Intangible assets, net of accum amort.	603,984	449,322	3,148,725	2,755,134	3,752,709	3,204,456
<b>Total</b>	<b>\$ 381,557,959</b>	<b>\$ 386,619,023</b>	<b>\$ 2,120,499,935</b>	<b>\$ 2,225,030,686</b>	<b>\$ 2,502,057,894</b>	<b>\$ 2,611,649,709</b>

The District's capital assets for its governmental and business-type activities as of September 30, 2023 were \$2.6 billion. Capital assets include: dams, spillways and water transmission facilities as well as land, roads, buildings, technology infrastructure, machinery, equipment, construction costs and intangibles. More information on capital assets can be found in Note 4 in the Notes to the Financial Statements.

Major capital asset events during the current year included the following:

### Governmental Activities

- **Land**
  - Central City Flood Control Project land, relocation, demolition, environmental costs increased the land balance by \$3.0 million.



- **Construction in Progress**

- Central City Flood Control Project increased by \$2.9 million.

## **Business Type Activities**

- **Land**

- Purchased final land parcels for the Integrated Pipeline Project for \$1.3 million.
- Purchased additional land for the Cedar Creek Wetlands for \$5.1 million.

- **Construction in Progress**

- Integrated Pipeline Phase 3 increased \$123.1 million.
- Kennedale Balancing Reservoir Project increased \$13.0 million.
- Cedar Creek Wetlands Project increased by \$2.3 million.
- Cedar Creek Reservoir pipeline replacement increased \$740 thousand.
- Pump room cooling project was completed and transferred out of CIP to Pipeline for \$10.6 million.

- **Pipeline**

- Increased by \$10.6 million due to Pump Room Cooling project being moved out of CIP.

## FINANCIAL ANALYSIS: FUND STATEMENTS

### General Fund

As of the end of the 2023 fiscal year, the District's General Fund reported an ending fund balance of \$130.1 million. This total includes nonspendable fund balance in the amount of \$2.3 million (which includes long-term interfund notes and interest, prepaid items, inventory of supplies and inventory held for sale), \$5.8 million restricted for environmental cleanup on a District property that was acquired for the Central City Flood Control Project, \$27.1 million assigned for the Reserve Policy, \$64.9 million assigned for the Contingency Fund (\$8.1 million assigned for fiscal year 2024 debt service, \$56.8 million assigned for future board designated projects), and \$30.0 million in an unassigned fund balance.

The General Fund includes floodway support and maintenance, flood control efforts, recreation, and general administrative costs. Tax revenues, oil and gas royalties, and investment income are the major sources of revenue. General Fund revenues cannot be used to support Enterprise Fund functions.

### Enterprise Fund

The District's Enterprise Fund provides the same type of information found in the government-wide financial statements for business type activities (found on page 38) and has an end of year net position of \$861.4 million. This includes a net investment in capital assets of \$714.0 million, restricted net position for debt service of \$101.0 million, and an unrestricted net position of \$46.4 million. The Enterprise fund includes the current water supply infrastructure, support and maintenance for the existing system, as well as water conservation efforts. Enterprise Fund revenues cannot be used to support General Fund functions.

### Fiduciary Fund

The District's Fiduciary Fund is the Other Post Employee Benefit Trust Fund which holds assets to be used for the future payments of benefits offered through the District's post-employment healthcare benefit plan. The Fiduciary Fund is not included in the government-wide financial statements, and has an end of year net position of \$16.8 million.

## **BUDGETARY HIGHLIGHTS**

### **GENERAL FUND**

The 2023 budgeted revenues for the General Fund were \$41.9 million and the year ended with actual revenues of \$47.8 million. The increase in revenues was due to higher property taxes from increased property values and increased investment income due to higher market rates.

The 2023 budgeted expenditures for the General Fund were \$51.5 million and the year ended with actual expenditures of \$28.3 million. The deficiency in expenditures was due to several factors, the largest of which was lower than budgeted capital expenditures on the Central City Flood Control Project, as well as no debt was needed for the project during the year.

The District approved \$156.2 million in expenditures for fiscal year 2024, an increase of \$104.7 million. The increase was due in large part to an increase of \$98.7 million for the Central City Flood Control Project.

The property tax rate for the tax year 2023, fiscal year 2024, will decrease from \$0.0269 to \$0.0267 per \$100 valuation.

### **ENTERPRISE FUND**

The 2023 budgeted expenses for the Revenue Fund were \$158.1 million and the year ended with actual expenses of \$155.2 million. The deficiency in expenses was mainly due to lower than budgeted support services costs including personnel and professional services.

The fiscal year 2024 Revenue Fund Budget, prepared in accordance with the Tarrant Regional Water Supply Facilities Amendatory Contract, totals \$171.8 million. The total budget includes administrative expenses, operating and maintenance expenses, capital expenditures, and debt service that provides for principal and interest payments to retire outstanding bonds.

## **REQUESTS FOR INFORMATION**

This financial report is designed to provide a general overview of Tarrant Regional Water District's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed as follows:

Sandra Newby  
Chief Financial Officer  
800 East Northside Drive  
Fort Worth, Texas 76102

TARRANT REGIONAL WATER DISTRICT

STATEMENT OF NET POSITION

SEPTEMBER 30, 2023

	Primary Government		
	Governmental Activities	Business-Type Activities	Total
<b>ASSETS</b>			
Cash and cash equivalents	\$ 73,232,118	\$ 377,613,047	\$ 450,845,165
Investments	53,452,076	235,327,302	288,779,378
Receivables			
Accounts, oil and gas royalties, and other	980,923	3,752,889	4,733,812
Taxes-net of allowance	4,872		4,872
Accrued interest	496,587	664,008	1,160,595
Long-term receivable	190,856,610		190,856,610
Internal balances	255,554	(255,554)	
Prepaid items	1,664,322	3,640,098	5,304,420
Inventory-at cost	88,653		88,653
Inventory held for sale	429,292		429,292
Lease receivable			
Due within one year	283,364	34,460	317,824
Accrued interest	6,018	320	6,338
Due in more than one year	1,869,576	47,442	1,917,018
Deposits held by others	5,765,799		5,765,799
Land	280,200,672	193,225,257	473,425,929
Construction in progress	77,600,924	281,493,242	359,094,166
Depreciable capital assets, net of accumulated depreciation	28,368,105	1,747,557,053	1,775,925,158
Intangible assets, net of accumulated amortization	449,322	2,755,134	3,204,456
Total Assets	<u>716,004,787</u>	<u>2,845,854,698</u>	<u>3,561,859,485</u>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred bond refunding -loss		49,145,225	49,145,225
Deferred outflow from OPEB	709,294	2,130,516	2,839,810
<b>Total Deferred Outflows of Resources</b>	<u>709,294</u>	<u>51,275,741</u>	<u>51,985,035</u>
<b>LIABILITIES</b>			
Accounts payable	5,051,828	56,485,434	61,537,262
Other liabilities	890,474	20,464,039	21,354,513
Note payable			
Due within one year	350,000		350,000
Due in more than one year	2,800,000		2,800,000
Revenue bonds payable, net of premium			
Due within one year		68,320,000	68,320,000
Payable from restricted assets - accrued bond interest payable		4,680,328	4,680,328
Due in more than one year		1,870,764,494	1,870,764,494
Leases payable			
Due within one year	146,242		146,242
Accrued interest	387		387
Due in more than one year	317,066		317,066
Accrued vacation			
Due within one year	402,365	1,347,049	1,749,414
Due in more than one year	903,666	3,025,315	3,928,981
Long-term payables-due in more than one year			
Pollution remediation obligations	5,952,500		5,952,500
Post employment benefits payable	4,375,620	7,023,524	11,399,144
Total Liabilities	<u>21,190,148</u>	<u>2,032,110,183</u>	<u>2,053,300,331</u>
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred bond refunding -gain		2,760,013	2,760,013
Deferred inflow from OPEB	253,843	730,837	984,680
Deferred inflow from Leases	2,126,116	100,273	2,226,389
<b>Total Deferred Inflows of Resources</b>	<u>2,379,959</u>	<u>3,591,123</u>	<u>5,971,082</u>
<b>NET POSITION</b>			
Net investment in capital assets	386,155,715	714,072,935	1,100,228,650
Restricted for			
Capital projects	5,765,799		5,765,799
Debt service		100,986,881	100,986,881
Unrestricted	301,222,460	46,369,317	347,591,777
<b>Total Net Position</b>	<u>\$ 693,143,974</u>	<u>\$ 861,429,133</u>	<u>\$ 1,554,573,107</u>

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF ACTIVITIES  
FOR THE YEAR ENDED SEPTEMBER 30, 2023**

Functions/Programs	Program Revenues				Net (Expense) Revenue and Changes in Net Position		
	Expenses	Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions	Primary Government		
					Governmental Activities	Business Type Activities	Total
<b>PRIMARY GOVERNMENT</b>							
Governmental activities							
Flood protection	\$ 20,301,962	\$ 6,848,612	\$ 31,006	\$ 6,676,117	\$ (6,746,227)		\$ (6,746,227)
Recreation	3,424,393	1,422,941	31,800		(1,969,652)		(1,969,652)
Total governmental activities	<u>23,726,355</u>	<u>8,271,553</u>	<u>62,806</u>	<u>6,676,117</u>	<u>(8,715,879)</u>		<u>(8,715,879)</u>
Business type activities-Water supply	172,586,808	194,798,879	1,336,146			23,548,217	23,548,217
	<u>\$ 196,313,163</u>	<u>\$ 203,070,432</u>	<u>\$ 1,398,952</u>	<u>\$ 6,676,117</u>		<u>23,548,217</u>	<u>14,832,338</u>
<b>GENERAL REVENUES</b>							
Property taxes					25,989,506		25,989,506
Investment income					5,206,309	25,973,598	31,179,907
Miscellaneous					70,322	41,535	111,857
Gain (loss) on disposal of assets					702,903	69,850	772,753
Total general revenues					<u>31,969,040</u>	<u>26,084,983</u>	<u>58,054,023</u>
CHANGES IN NET POSITION					23,253,161	49,633,200	72,886,361
NET POSITION - Beginning of year					<u>669,890,813</u>	<u>811,795,933</u>	<u>1,481,686,746</u>
NET POSITION - End of year					<u>\$ 693,143,974</u>	<u>\$ 861,429,133</u>	<u>\$ 1,554,573,107</u>

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**BALANCE SHEET—GENERAL FUND**

**SEPTEMBER 30, 2023**

<b>ASSETS</b>	
Cash and cash equivalents	\$ 73,232,118
Investments	53,452,076
Receivables	
Accounts, oil and gas royalties and other	980,923
Taxes—net of allowance	4,872
Accrued interest	496,587
Due from Enterprise Fund	175,732
Notes and interest due from enterprise fund	79,822
Prepaid items	1,664,322
Inventory of supplies—at cost	88,653
Inventory held for sale	429,292
Lease receivable	
Due within one year	283,364
Accrued interest	6,018
Due in more than one year	1,869,576
Deposits held by others	5,765,799
Long-term receivable	190,856,610
Total assets	<u>329,385,764</u>
<b>LIABILITIES</b>	
Accounts payable	5,051,828
Other liabilities	890,474
Total liabilities	<u>5,942,302</u>
<b>DEFERRED INFLOWS</b>	
Unavailable revenue	191,263,496
Deferred inflows from leases	2,126,116
Total deferred inflows	<u>193,389,612</u>
<b>FUND BALANCES</b>	
Nonspendable	
Long-term interfund notes and interest	79,822
Prepaid items	1,664,322
Inventory of supplies - at cost	88,653
Inventory held for sale	429,292
Restricted for Capital Projects	5,765,799
Assigned for General Fund Reserve Policy	27,106,472
Assigned for Contingency Fund	64,917,192
Unassigned	30,002,298
Total fund balances	<u>130,053,850</u>
<b>TOTAL</b>	<u>\$ 329,385,764</u>

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**RECONCILIATION OF BALANCE SHEET-GENERAL FUND TO GOVERNMENT-WIDE STATEMENT OF NET POSITION  
SEPTEMBER 30, 2023**

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TOTAL FUND BALANCES -General Fund \$ 130,053,850

Amounts reported for governmental activities in the statement of net assets are different because

Certain revenues and deferred outflows do not provide current financial resources and therefore are unavailable at the fund level

TIF Project contribution revenues	190,856,610
Property tax revenues	4,872
Oil and gas revenues	402,014
Deferred outflows-other post employment benefits	709,294

Certain liabilities and deferred inflows are not payable from current resources and are therefore not accrued at the fund level

Accrued vacation	(1,306,031)
Pollution remediation obligations	(5,952,500)
Other post employment benefits payable	(4,375,620)
Deferred inflows-other post employment benefits	(253,843)
Lease payable	(463,308)
Other payables	(3,150,000)
Lease accrued interest	(387)

Capital assets used in governmental activities are not financial resources and therefore are not reported as assets in governmental funds

386,619,023

TOTAL NET POSITION - Governmental activities

\$ 693,143,974

The accompanying notes are an integral part of these financial statements.



**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCE - GENERAL FUND  
FOR THE YEAR ENDED SEPTEMBER 30, 2023**

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REVENUES	
Property taxes	\$ 25,984,634
Contributions	8,173,744
Oil and gas royalties	5,821,884
Investment income	5,206,309
Lease rentals	1,292,432
Other	<u>1,106,514</u>
Total revenues	<u>47,585,517</u>
EXPENDITURES	
Current	
General and administrative	9,492,233
Personnel services	9,982,786
Retirement plan contribution	842,229
Contribution	312,253
Capital expenditures	7,151,833
Debt service	
Principal payments	483,602
Interest payments	<u>5,687</u>
Total expenditures	<u>28,270,623</u>
EXCESS OF REVENUES OVER EXPENDITURES	<u>19,314,894</u>
OTHER FINANCING SOURCES (USES)	
Proceeds from Sale of Land	<u>165,600</u>
Total other financing sources (uses)	<u>165,600</u>
CHANGE IN FUND BALANCE	19,480,494
FUND BALANCE - Beginning of year	<u>110,573,356</u>
FUND BALANCE - End of year	<u>\$ 130,053,850</u>

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**RECONCILIATION OF STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND  
BALANCE—GENERAL FUND—TO GOVERNMENT WIDE STATEMENT OF ACTIVITIES  
FOR THE YEAR ENDED SEPTEMBER 30, 2023**

CHANGE IN FUND BALANCE—General Fund \$ 19,480,494

Amounts reported for governmental activities in the statement of net position are different because

Revenues in the statement of activities that do not provide current financial resources are not reported as revenues at the fund level.

Change in unavailable revenue-TIF	(2,069,323)
Change in unavailable property taxes	4,872
Change in unavailable oil and gas revenue	197,133
Change in unavailable contributions	634,502

Certain liabilities are not payable from current resources and are therefore not accrued in the fund

Change in paid leave	(4,377)
Change in post employment benefits	88,453
Change in accrued interest on leases	(5,568)
Change in debt service-principal payments	483,602
Change in debt service-interest payments	5,687

The general fund reports capital outlays as expenditures. However, in the statement of activities the cost of those assets is allocated over their estimated useful lives and reported as depreciation and amortization expense.

Amount by which Capital Outlays (\$7,151,833) exceeded depreciation (\$3,031,825)	4,120,008
Intangible right-of-use lease asset amortization expense	(143,537)

Change in gain/(loss) on disposal of assets	461,215
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CHANGE IN NET POSITION—Governmental activities	\$ 23,253,161
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The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF NET POSITION—ENTERPRISE FUND**

**SEPTEMBER 30, 2023**

**ASSETS**

Current

Cash and cash equivalents	\$	53,672,480
Investments		19,611,483
Receivables		
Accounts and other		3,752,889
Accrued interest		160,934
Lease receivable		
Current portion		34,460
Accrued interest		320
Prepaid items		3,640,098
		<hr/>
Total current assets		80,872,664

Noncurrent

Cash and cash equivalents for bond projects		317,227,771
Investments held for bond projects		111,829,497
Accrued interest receivable for bond projects		189,946
Cash and cash equivalents restricted		1,324,601
Investments restricted		4,984,811
Accrued interest receivable restricted		35,625
Cash and cash equivalents for debt service		5,388,195
Investments for debt service		98,901,511
Accrued interest receivable for debt service		277,503
Lease receivable		47,442
Capital Assets		
Land		193,225,257
Construction in progress		281,493,242
Depreciable capital assets—net of accumulated depreciation		1,747,557,053
Intangible assets—net of accumulated amortization		2,755,134
		<hr/>
Total noncurrent assets		2,765,237,588
		<hr/>
Total assets		2,846,110,252

**DEFERRED OUTFLOWS OF RESOURCES:**

Deferred bond refunding-loss		49,145,225
Deferred outflow from OPEB		2,130,516
		<hr/>
Total deferred outflows of resources		51,275,741

(Continued)

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF NET POSITION—ENTERPRISE FUND**

**SEPTEMBER 30, 2023**

**LIABILITIES**

Current Liabilities

Accounts payable	\$	18,899,436
Accounts payable restricted for customer contingency		5,245,037
Accounts payable for bond projects		32,340,961
Due to General Fund		175,732
Notes and interest payable to General Fund		79,822
Accrued vacation		1,347,049
Other liabilities		5,489,263
Other liabilities for bond projects		14,974,776
Payable from restricted assets—accrued bond interest payable		4,680,328
Revenue bonds payable		68,320,000

Total current liabilities 151,552,404

Noncurrent Liabilities

Accrued vacation		3,025,315
Revenue bonds payable-net of premium		1,870,764,494
Long-term post employment benefits		7,023,524

Total noncurrent liabilities 1,880,813,333

Total liabilities 2,032,365,737

**DEFERRED INFLOWS OF RESOURCES**

Deferred bond refunding-gain		2,760,013
Deferred inflow from OPEB		730,837
Deferred inflow from leases		100,273

Total deferred inflows of resources 3,591,123

**NET POSITION**

Net investment in capital assets		714,072,935
Restricted for debt service		100,986,881
Unrestricted		46,369,317

**TOTAL NET POSITION** \$ 861,429,133

(Concluded)

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION - ENTERPRISE FUND  
FOR THE YEAR ENDED SEPTEMBER 30, 2023**

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OPERATING REVENUES	
Sale of water	\$ 148,599,782
Sale of system capacity	7,023,519
Contributions	1,336,146
Land lease rentals	138,346
Other	522,542
	<hr/>
Total operating revenues	157,620,335
OPERATING EXPENSES	
General and administrative	24,370,094
Personnel services	28,948,894
Retirement plan contribution	2,524,698
Utilities	21,010,817
Depreciation and amortization	45,176,425
	<hr/>
Total operating expenses	122,030,928
OPERATING INCOME	<hr/> 35,589,407
NONOPERATING INCOME/(LOSS)	
Sale of system capacity restricted for debt service	38,556,225
Investment income	25,973,598
Interest expense	(50,555,880)
Gain on disposal of capital assets	69,850
	<hr/>
Total net nonoperating revenues	14,043,793
NET INCOME	49,633,200
NET POSITION - Beginning of year	<hr/> 811,795,933
NET POSITION - End of year	<hr/> <u>\$ 861,429,133</u>

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF CASH FLOWS—ENTERPRISE FUND  
FOR THE YEAR ENDED SEPTEMBER 30, 2023**

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CASH FLOWS FROM OPERATING ACTIVITIES	
Receipts from water customers	\$ 155,249,559
Contributions	1,336,146
Miscellaneous receipts	957,707
Payments to suppliers and contractors	(40,820,525)
Payments to employees for services	(31,971,594)
Receipts from General Fund	571,769
	<hr/>
Net cash provided by operating activities	85,323,062
	<hr/>
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES	
Proceeds from the sale of revenue bonds	254,329,918
Principal paid on revenue bonds payable	(61,085,000)
Interest paid on revenue bonds and contract payable	(55,092,828)
Receipts from system capacity customer restricted for debt service	38,556,225
Acquisition and construction of capital assets	(125,068,859)
Proceeds from disposal of capital assets	69,850
	<hr/>
Net cash provided by capital and related financing activities	51,709,306
	<hr/>
CASH FLOWS FROM INVESTING ACTIVITIES	
Purchase of investments	(166,000,000)
Proceeds from sale and maturity of investments	169,500,000
Interest received on investments	24,053,008
	<hr/>
Net cash provided by investing activities	27,553,008
	<hr/>
NET INCREASE IN CASH AND CASH EQUIVALENTS	164,585,376
CASH AND CASH EQUIVALENTS—Beginning of year	213,027,671
	<hr/>
CASH AND CASH EQUIVALENTS - End of year	\$ 377,613,047
	<hr/> <hr/>

(Continued)

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF CASH FLOWS—ENTERPRISE FUND  
FOR THE YEAR ENDED SEPTEMBER 30, 2023**

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RECONCILIATION OF OPERATING INCOME TO NET CASH

PROVIDED BY OPERATING ACTIVITIES

Operating income	\$	35,589,407
Adjustments to reconcile operating income to net cash provided by operating activities		
Depreciation & amortization expense		45,176,425
Bond issuance cost considered financing activity		670,082
OPEB amortization of deferred inflows		459,323
Change in assets and liabilities		
Accounts and other receivables		(76,923)
Prepaid expenses		2,324,680
Accounts payable		1,940,704
Due to (from) other funds—net		571,769
Vacation accrual		250,458
OPEB liability		(1,207,783)
Other liabilities		(375,080)
		<hr/>
Net cash provided by operating activities	\$	<u>85,323,062</u>

NONCASH ACTIVITIES

Disposal of \$306,162 of capital assets, net of \$306,162 accumulated depreciation.

Record increase in fair value of investments and change in premium/discounts on investments to interest income of \$2,902,686 and (\$657,178) respectively.

Record Amortization of Gain/Loss of \$2,627,453.

Record decrease in Other Post Employment Benefits deferred outflow of resources of \$808,483 and decrease in deferred inflow of resources of \$125,745 from the amortization of the deferred balances.

Record amortization of Deferred Inflow of Resources from Other Post Employment Benefits of \$459,323.

Record lease receivable of \$29,962 offset by Deferred Inflow of Resources of \$29,962.

(Concluded)

The accompanying notes are an integral part of these financial statements.

**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF FIDUCIARY NET POSITION**

**SEPTEMBER 30, 2023**

	<u>Other Post-Employment Benefits Trust Fund</u>
<b>ASSETS</b>	
Cash and cash equivalents	\$ 617,170
Equity Fund Investments	8,091,359
Fixed Income Fund Investments	8,089,660
Interest Receivable	<u>40,569</u>
Total Assets	<u>16,838,758</u>
<b>NET POSITION</b>	
Restricted and held in trust for Other Post-Employment Benefits	<u>16,838,758</u>
<b>TOTAL FIDUCIARY NET POSITION</b>	<u><u>\$ 16,838,758</u></u>

The accompanying notes are an integral part of these financial statements.



**TARRANT REGIONAL WATER DISTRICT**

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED SEPTEMBER 30, 2023**

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	<u>Other Post-Employment Benefits Trust Fund</u>
ADDITIONS	
Employer Contributions	\$ 2,739,735
Net Appreciation in Fair Value of Investments	1,186,938
Total Additions	<u>3,926,673</u>
DEDUCTIONS	
Benefit Payments	596,146
Other Post-Employment Benefits Plan Administrative Expense	77,762
Total Deductions	<u>673,908</u>
Net Increase in Fiduciary Net Position	3,252,765
Fiduciary Net Position	
Beginning of Year	<u>13,585,993</u>
End of Year	<u>\$ 16,838,758</u>

The accompanying notes are an integral part of these financial statements.

## TARRANT REGIONAL WATER DISTRICT

### NOTES TO BASIC FINANCIAL STATEMENTS AS OF AND FOR THE YEAR ENDED SEPTEMBER 30, 2023

#### 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

**Financial Reporting Entity** - The accounting policies of the Tarrant Regional Water District (the "District") conform to accounting principles generally accepted in the United States of America as applicable to governmental units and promulgated by the Governmental Accounting Standards Board ("GASB").

**Measurement Focus and Basis of Accounting** - The District's accounts are organized on the basis of funds, each of which are considered to be a separate accounting entity. The operations of each fund are accounted for by providing a separate set of self-balancing accounts which comprise each fund's assets, liabilities, fund equity, revenues and expenditures, or expenses. The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. The proprietary fund, government-wide, and fiduciary fund financial statements are reported using the economic resources measurement focus. The governmental fund financial statements are reported using the current financial resources measurement focus.

**Government-wide Financial Statements** - Government-wide financial statements consist of the statement of net position and the statement of activities. These statements report information on all of the activities of the District. Eliminations have been made to these statements to prevent double counting of internal activities. Governmental activities, which normally are supported by taxes and intergovernmental revenues, are reported separately from business-type activities, which rely to a significant extent on fees and charges for support. Fiduciary Funds are not included in the Government-wide Financial Statements.

The statement of activities presents a comparison between direct expenses and program revenues of the business-type activities of the District and for each function of the District's governmental activities. Direct expenses are those that are specifically associated with a program or function and therefore are clearly identifiable to a particular function. Program revenues include charges paid by the recipients of goods or services offered by the programs, as well as grants and contributions that are restricted to meeting the operational or capital requirements of a particular program. Revenues that are not classified as program revenues are presented as general revenues.

The government-wide financial statements are prepared using the economic resources measurement focus and the accrual basis of accounting. Under this measurement focus, revenues are recorded when earned and expenses are recorded at the time the liabilities are incurred, regardless of the timing of cash flows. Property taxes are recognized as revenues in the year which they are levied.

Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

**Fund-level Financial Statements** - The fund financial statements provide information about the District's individual funds, which are used to account for the District's various activities. Separate financial statements are provided for the General Fund (a governmental fund) and the Enterprise Fund (a proprietary fund) which are each classified as major funds. The Fiduciary fund (a fiduciary fund) is provided as a separate financial statement and it is classified as a nonmajor fund.

**Governmental Fund** - The General Fund, the only governmental fund reported by the District, is used to account for revenues and expenditures related to flood protection operations and activities or improvements as well as recreation activities. Voters have approved the District to issue up to \$250.0 million in bonds to finance the remaining outstanding local share of the Central City Flood Control Project. As part of the \$250.0 million, the District created a \$150.0 million Extendable Commercial Paper Bond program that provides efficient flexibility for the Central City Flood Control Project. As of the end of fiscal year 2023, no long-term debt has been issued for this project.

The General Fund is accounted for using the modified accrual basis of accounting. Under the modified accrual basis of accounting, revenues are recognized when susceptible to accrual (i.e., when they become both measurable and available). Major revenue sources which are susceptible to accrual include property taxes, lease rentals and oil & gas royalties. "Measurable" means the amount of the transaction can be determined and "available" means collectible within the current period or soon enough thereafter to be used to pay liabilities of the current period. The District considers revenues as available if they are collected within 60 days after year-end. Expenditures are recorded when the related fund liability is incurred.

Governmental funds report unavailable revenue in connection with receivables for revenues that are not considered to be available to liquidate liabilities of the current period. Governmental funds also record unearned revenue in connection with resources that have been received, but not yet earned.

The General Fund is reported using the current financial resources measurement focus. The reported fund balance is considered a measure of "available spending resources". The General Fund operating statement presents increases (revenues) and decreases (expenditures) in fund balance. Accordingly, it is said to present a summary of sources and uses of "available spendable resources" during a period.

**Proprietary Fund** - The Enterprise Fund, the only proprietary fund reported by the District, is used to account for revenues and expenses relating to maintenance and operation of the water supply system. Currently, the District has outstanding Construction and Improvement Water Revenue Bonds which provide funding for large infrastructure type projects. The District also has a \$150.0 million

extendable commercial paper bond program that provides efficient flexibility for those large projects. This program is separate from the Governmental extendable commercial paper bond program.

Proprietary funds report operations (a) that are financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges; or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and net income is appropriate for capital maintenance, public policy, management control, accountability, or other purposes.

The Enterprise Fund is accounted for using the accrual basis of accounting. Revenues are recognized when earned, and expenses when they are incurred. Claims incurred but not reported are included in payables and expenses.

The Enterprise Fund is reported using an economic resources measurement focus. This means that all assets and liabilities (whether current or noncurrent) associated with the activity are included in the Fund's Statement of Net Position.

Revenues and expenses for the District's Enterprise Fund are categorized as either operating or non-operating. For the District, the majority of operating revenues are from the sale of water. Operating expenses include general and administrative, personnel services, utilities, depreciation and amortization, and retirement plan contributions.

**Fiduciary Fund** - The Fiduciary Fund accounts for assets held by the District in a trustee capacity for others or other Funds. The District's only Fiduciary Fund is the Other Post Employee Benefits Trust Fund which holds assets to be used for the future payments of benefits offered through the District's post-employment healthcare benefit plan. Benefit payments in this fund are made by the employer as they come due. The Fiduciary fund is not included in the government-wide financial statements.

The Fiduciary Fund is reported using an economic resources measurement focus. This means that all assets and liabilities (whether current or noncurrent) associated with the activity are included in the Fund's Statement of Fiduciary Net Position.

**Cash, Cash Equivalents, and Investments** - Cash and cash equivalents consist of deposits (principally interest-bearing accounts) with one financial institution and investments in two public funds investment pools. Investments consist of U.S. Government and government agency obligations recorded at fair value. For accounting purposes, fair value is defined as the price at which two willing parties would complete an exchange.

For purposes of the statement of cash flows, the Enterprise Fund considers all highly liquid (i.e. maturity date of three months or less from the date of purchase) deposits and investments (including restricted assets and the investments in public funds investment pools) to be cash equivalents.

**Long Term Receivables** - During the fiscal year 2023 the District made expenditures on behalf of the City of Fort Worth Tax Increment Reinvestment Zone #9 and 9A (TIF), a project partner in the Central City Flood Control Project under a Project Cost Funding Agreement between the District and the TIF. Under the agreement the District is advancing funds for the Central City Flood Control Project that would normally be paid by the TIF for costs related to the Project Plan.

The TIF currently does not have, and is not projected to have, timely funds to implement the Project Plan as contemplated by the current schedule approved by the United States Army Corps of Engineers (USACE). The TIF Board has authorized an agreement with the District dedicating revenue from the TIF Fund to cover the advances made by the District. The advances must be annually approved by the TIF board and are repayable from future tax revenues of the TIF.

During fiscal year 2023, the District expended an additional \$6.1 million under the agreement bringing the total amount expended to \$253.2 million. As of the end of fiscal year 2023, the TIF had repaid \$62.4 million, including \$8.1 million collected in fiscal year 2023 bringing the net loan amount to \$190.9 million.

**Interfund Transactions** - Interfund balance consists of allocation of expenses to Enterprise Fund as well as loan payments from General Fund to Enterprise Fund. Certain General Fund expenditures are allocated to the Enterprise Fund. The allocation is based on time and effort for the benefit of the Enterprise Fund by General Fund employees. The Enterprise Fund has an outstanding loan from the General Fund for the construction of the administration building which is reflected in the appropriate areas in the accompanying basic financial statements rather than as an interfund transaction. Refer to Note 9 for further detail about interfund transactions.

**Prepaid Items** - Certain payments to vendors reflect services that will occur throughout future accounting periods. These payments are recorded as prepaid items in both government-wide and fund financial statements and follow the consumption method, the expense is recognized proportionately over the periods that the service is provided. Due to the completion of Phase 1 and 2 of the Integrated Pipeline Project (IPL), a portion of the prepaid ROCIP insurance balance held in escrow was released, reducing the prepaid balance by \$1.3 million. The remaining prepaid claims balance will be held until the program ends or until the claims activity is reevaluated for additional release.

**Inventory** - The District values inventory using weighted average as the cost basis. For inventory held for sale, lower of cost or market is used as the cost basis.

**Capital Assets** - Capital assets, which include property, plant, equipment, construction in progress, infrastructure assets and intangible assets, are reported in the applicable governmental and business-type activities columns in the government-wide financial statements and in the fund financial statements for the Enterprise Fund. The District capitalizes all machinery and equipment capital purchases greater than or equal to \$10 thousand and all other assets purchased which cost \$20 thousand or greater.

The costs of repairs and maintenance that do not extend the lives of or improve the value of related capital assets are expensed as incurred.

**Depreciation** - Depreciation of capital assets is charged as an expense against operations in the applicable governmental and business-type activities columns in the government-wide financial statements and in the fund financial statements for the Enterprise Fund. Capital assets are reported net of accumulated depreciation on the statements of net position. Depreciation is recorded utilizing the straight-line method. Estimated useful lives are as follows:

Communications	50 years
Dams and spillways	50 years
Flood control projects	50 years
Pipeline	50 years
Wetlands	50 years
Other project costs	50 years
Buildings	20 years
Technology infrastructure	10 years
Machinery and equipment	5 years

**Intangible Internally Developed Asset Management System** - The District worked with a consultant to create a system to manage our water supply assets through annual analysis that aligns practices with the District’s Strategic Plan, engages internal and external stakeholders, and provides for continuous improvement of asset management outcomes. The system created connects multiple software applications (Maximo, Power BI, Sharepoint, GIS, and Microsoft Excel) to allow for formalized condition assessments of assets to determine risk-based prioritization of assets to be repaired/ replaced through incorporation into annual budgeting and Capital Improvement Program processes. The system analyzes the data and provides information in useable forms to make investment decisions on the basis of life cycle cost balanced with risk and impact on customer rates. The District is amortizing this intangible asset over 10 years, at which time the District expects to re-analyze the software connections and the overall success of the system analysis to determine any needed significant changes.

**Leases - Lessee** - The District is a lessee for noncancellable leases of one building. The District recognized a lease liability and an intangible right-of-use asset (ROU asset) in the government-wide financial statements. The District recognized lease liabilities with an initial value of \$10 thousand or more for machinery and equipment and \$20 thousand or more for all other assets. At the commencement of a lease, the District initially measures the lease liability at the present value of payments expected to be made during the lease term. Subsequently, the lease liability is reduced by the principal portion of lease payments made. The ROU asset is initially measured as the initial amount of the lease liability, adjusted for lease payments made at or before the lease commencement date, plus certain initial direct costs. Subsequently, the ROU asset is amortized on a straight-line basis over its lease term. Key estimates and judgements related to leases include how the District determines (1) the discount rate it uses to discount the expected lease payments to present value, (2) lease term and (3) lease payments. The District uses the interest rate charged by the lessor as the discount rate. When the interest rate charged by the lessor is not provided, the District generally uses its estimated incremental borrowing rate as the discount rate for leases. The District monitors changes in circumstances that would require a remeasurement of its lease and will remeasure the ROU asset and liability if certain changes occur that are expected to significantly affect the amount of the lease liability. ROU assets are reported with other capital assets and lease liabilities are reported with long-term debt on the statement of net position.

**Lessor** - The District is a lessor for several noncancellable leases consisting of one building and several land and equipment leases. The District recognized a lease receivable and a deferred inflow of resources in the government-wide and fund level financial statements. At the commencement of a lease, the District initially measures the lease receivable at the present value of payments expected to be received during the lease term. Subsequently, the lease receivable is reduced by the principal portion of lease payments received. The deferred inflow of resources is initially measured as the initial amount of the lease receivable, adjusted for lease payments received at or before the lease commencement date. Subsequently, the deferred inflow of resources is recognized as revenue over the life of the lease term. Key estimates and judgements include how the District determines (1) the discount rate it uses to discount the expected lease receipts to present value, (2) lease term, and (3) lease receipts. The District uses its estimated incremental borrowing rate as the discount rate for leases. The lease term includes the noncancellable period of the lease. Lease receipts included in the measurement of the lease receivable is composed of fixed payments from the lessee. The District monitors changes in circumstances that would require a remeasurement of its lease, and will remeasure the lease receivable and deferred inflows of resources if certain changes occur that are expected to significantly affect the amount of the lease receivable. Lease receivables and deferred inflow of resources are reported on the statement of net position.

**Vacation and Sick Leave** - The District's full time employees are granted paid leave in specified amounts. In the event of separation from the District, an employee is compensated for all

accumulated unused paid leave. Accrued paid leave is reflected in other liabilities in the accompanying basic financial statements. The change in accrued paid leave during the year is shown below:

	Balance at			Balance at		Due Within
	October 1, 2022	Additions	Deletions	September 30, 2023	One Year	
Governmental Activities	\$ 1,301,654	\$ 437,215	\$ 432,838	\$ 1,306,031	\$ 402,365	
Business-type Activities	4,121,906	1,699,527	1,449,069	4,372,364	1,347,049	
Total	<u>\$ 5,423,560</u>	<u>\$ 2,136,742</u>	<u>\$ 1,881,907</u>	<u>\$ 5,678,395</u>	<u>\$ 1,749,414</u>	

Vacation and sick leave increased by \$255 thousand in fiscal year 2023 when compared to fiscal year 2022. During fiscal year 2023, more vacation and sick leave hours were accrued than taken by employees which led to this increase.

**Pollution Remediation Obligations** - The District has an environmental financial obligation for property purchased through September 30, 2023. Properties purchased during fiscal year 2023 were screened for potential environmental concerns based upon available records, assessments and other actions. No properties purchased in fiscal year 2023 were identified requiring pollution remediation.

Based upon the Phase I, Phase II, or other site investigations completed to date, one property still requires remediation and is classified as high or moderate risk. As of September 30, 2023, the pollution remediation obligation amounted to \$6.0 million.

Based upon the limited data available, a remediation liability outlay for four other properties with low risk cannot be reasonably estimated at this time.

Pollution remediation obligations are estimates and are subject to changes resulting from price increases or reductions, technology, or changes in applicable laws or regulations.

**Restricted Assets** - Certain assets are classified as restricted assets because their use is limited by applicable bond terms. These assets include amounts restricted for reserve and interest and sinking funds, as required by bond covenants. It also reflects unspent proceeds of revenue bonds.

**Restricted Net Position** - Restricted net position is restricted assets less related liabilities.

**Program Revenue - Operating Contributions** - During 2023, the District received contributions of \$1.4 million mainly due to contributions to the Water Conservation campaign, participation in an interlocal agreement with Trinity River Authority, as well as sponsorships for multiple events. The Water Conservation campaign focuses on increasing the public's awareness of water efficient practices.



**Oil and Gas Royalties** - The District receives royalties related to various oil and gas leases for which the District acts as lessor. The royalties are generally payable to the District when production begins at the lease site, and revenue is recognized at the time the royalty is earned and considered measurable and available if received within 60 days after year-end.

**Water Revenues** - Water rates charged to customers during each year are based on budgeted operating expenses, revenue bond debt service requirements, and estimated customer water usage. Subsequent to year-end, calculations of adjusted water rates based on actual usage and costs are made and either billed or credited to customer accounts as of year-end. While the actual results could differ from the estimate calculated, management normally does not expect the difference to be material to the financial statements. The calculated year-end adjustments for 2023 resulted in an estimated \$9.7 million due to the customers, which is reflected in the accounts payable balance in the Enterprise Fund. The District has not experienced any credit losses resulting from its sale of water.

**Property Taxes** - Property subject to taxation is certain real and personal property served by the District in the County. Certain properties of religious, educational, and charitable organizations are exempt from taxation.

Every year on October 1<sup>st</sup> the District's ad valorem taxes are levied on 100% of assessed valuation at a rate approved by the District's Board per \$100 valuation as of the preceding January 1st, and are due and payable from October 1st of the year in which levied, until January 31st of the following year without interest or penalty. Taxes paid after February 1st of each year are subject to interest and penalty charges.

In fiscal year 2023, the District's ad valorem tax rate was \$0.0269 per \$100 valuation. Collections of the current year's levy are reported as current collections if received by June 30th (within nine months of the October 1st due date). Collections received thereafter are reported as delinquent collections.

Generally, property taxes, net of amounts estimated to be uncollectible, are recorded as a receivable on the assessment date and recognized as revenue when they become available (collected within 60 days of year-end). The allowance for uncollectible taxes as of September 30, 2023 was \$194 thousand. Under GASB 33, *Accounting and Financial Reporting for Non-exchange Transactions*, property taxes are imposed non-exchange revenue. Assets from imposed non-exchange transactions are recorded when the entity has enforceable legal claim to the asset, or when the District receives resources, whichever comes first. The assessment date has been designated at a date subsequent to fiscal year-end.

The District's taxes on real property are a lien (as of the date of levy) against such property until paid. The District may foreclose on real property upon which it has a lien for unpaid taxes. Delinquent taxes on property not otherwise collected are generally paid when there is a sale or transfer of the title to

the property. Any liens and subsequent suits against the taxpayer for payment of delinquent personal property taxes are barred unless instituted within four years from the time such taxes became delinquent.

**Deferred Compensation Plan** - The District offers its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. The plan, available to all District employees at their option, permits participants to defer a portion of their salary until future years. The deferred compensation is not available to participants until termination, retirement, death, or unforeseeable emergency. The assets of this plan are excluded from the District's financial statements.

**Budgets and Budgetary Accounting** - Budgets are adopted on a basis consistent with accounting principles generally accepted in the United States of America. An annual budget by function is adopted for the General Fund.

#### **Governmental Fund Balances -**

**Fund Balance Classification** - The governmental fund financial statements present fund balances based on classifications that comprise a hierarchy that is based primarily on the extent to which the District is bound to observe constraints imposed upon the use of the resources reported in governmental funds. The classifications used in the governmental fund financial statements are as follows:

**Nonspendable fund balance** - Assets that will never convert to cash, such as inventory and prepaid items. At September 30, 2023, the District had nonspendable fund balances in the amount of \$2.3 million.

**Restricted fund balance** - The portion of fund balance that reflects resources that are subject to externally enforceable legal restrictions imposed by parties outside the District at September 30, 2023. At September 30, 2023, the District had a restricted fund balance in the amount of \$5.8 million for environmental cleanup on a District property that was acquired for the Central City Flood Control Project.

**Committed fund balance** - The portion of fund balance that reflects resources that can be used only for specific purposes pursuant to constraints imposed by formal action of the Board of Directors. These amounts cannot be used for any other purpose unless the Board of Directors removes or changes the specified use by taking the same type of action (ordinance or resolution) that was employed when the funds were initially committed. At September 30, 2023, the District had no committed fund balance.

**Assigned fund balance** - The portion of fund balance that reflects resources intended for a specific purpose. Intent is expressed or authorized by Board of Directors. At September 30, 2023, the District

had an assigned fund balance in the amount of \$27.1 million for the Reserve Policy and \$64.9 million for the Contingency Fund (Central City Flood Control Project \$8.1 million TIF Budget assigned for fiscal year 2024 debt service, \$56.8 million assigned for future board designated projects).

Unassigned fund balance - The portion of fund balances in excess of nonspendable, restricted, committed, and assigned. The unassigned fund balance for the General Fund was \$30.0 million. Spending Prioritization in Using Available Resources - When both restricted and unrestricted (i.e. restricted, committed, assigned, and unassigned) resources are available to be used for the same purpose, the District considers the restricted resources to be expended first. When all categories of fund balance are available, the flow assumption is as follows: the restricted resources get expended first, the assigned resources get expended second, and the unassigned resources get expended last.

**Governmental Accounting Standards Board Statements Implemented in Current Fiscal Year -**

During the fiscal year, several GASB Statements became effective for the District. GASB Statement No. 91, *Conduit Debt Obligations*, and GASB Statement No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements*, became effective for the District with no effect on the District's financial statements. GASB Statement No. 96, *Subscription-Based Information Technology Arrangements*, was implemented with no effect on the District's financial statements. The remaining requirements for GASB Statement No. 99, *Omnibus 2022*, were implemented with no effect on the District's financial statements.

**2. REVENUES FROM THE SALE OF WATER**

All revenues from the sale of water from Eagle Mountain Lake, Lake Bridgeport, Cedar Creek Reservoir, and Richland-Chambers Reservoir and related expenses are recorded in the Enterprise Fund.

Sales of water to four government entities (Cities of Fort Worth, Mansfield, Arlington, and the Trinity River Authority of Texas) accounted for approximately 89% of the District's water sales for the year ended September 30, 2023. Charges to such entities are in amounts primarily equivalent to each entity's share (based on quantities of raw water received) of operating and maintenance costs and the debt service requirements of the District's revenue bonds.

**3. CASH, CASH EQUIVALENTS, AND INVESTMENTS**

**Cash** - The balance per bank of cash on deposit for the District at September 30, 2023 was \$3.8 million and was entirely covered by FDIC insurance or collateral. The carrying value of cash for the District was \$3.7 million. At September 30, 2023, the District also held petty cash of \$500.

**BOK Financial Short Term Cash Fund** - Proceeds from the 2022 Dallas Bond issuance were placed into escrow after issuance to be released by the Texas Water Development Board as contracts for the

Integrated Pipeline Project Phase 3 are issued. Currently \$120,727,718 is held in a demand deposit account at BOK Financial Corporation. To be nationally competitive with other cash investment options, the fund is priced daily and is indexed using the Prime Institutional index proved by iMoneyNet. Interest is accrued daily and credited to the account monthly, but unlike money market funds, the earnings are interest and not dividends. The balance is collateralized at 110% of the cash market value in excess of FDIC coverage and consists of US Treasury and US Agency securities.

**Credit Risk** - Legal provisions of the Texas Public Funds Investment Act generally permit the District to invest in direct and indirect obligations of the United States or its agencies, certain certificates of deposit, repurchase agreements, public funds investment pools, and money market mutual funds.

The District invests in the Texas Local Government Investment Pool (Texpool) and the Local Government Investment Cooperative (LOGIC). Texpool, a public funds investment pool created by the Treasurer of the State of Texas acting by and through the Texas Treasury Safekeeping Trust Company, is empowered to invest funds and act as a custodian of investments purchased with local investment funds.

LOGIC is also a public fund investment pool with the same authority as Texpool. It has been organized and established pursuant to an Interlocal Agreement between participating government entities. The District has an undivided beneficial interest in the pool of assets held by this agency. These investments and deposits are fully insured by the federal depository insurance or collateralized by securities held in the name of Texas Treasury Safekeeping Trust Company.

**Interest Rate Risk** - As a means of limiting its exposure to fair value losses arising from interest rate fluctuations, the District's investment policy limits maturities based on the objectives of each fund. Investment maximum maturities are limited as follows:

**General Fund** - three years

**Enterprise Fund** -

Revenue sub-fund - nine months

Construction sub-fund - three years with a strategy determined on a project-by-project basis

Interest and Redemption sub-fund - six months

Reserve sub-fund - not to exceed the date of the District's last maturing revenue bond

Contingency sub-fund - three years

**Concentration of Credit Risk** - The District places no limit on the amount it may invest in one issuer. Approximately 72% of the District's investments are held in Federal securities including: Federal Farm Credit Bank, Federal Home Loan Bank, Federal National Mortgage Association and Federal Home Loan

Mortgage Corporation. The remaining 28% of the District's investments are held in U.S. Treasury Notes.

**Custodial Credit Risk** - The District's policy requires that all securities be held in safekeeping on the District's behalf.

**Public Funds Investment Act** - Audit procedures related to the Public Funds Investment Act (PFIA) are conducted as part of the audit of the basic financial statements. In the areas of investment practices, management reports and establishes appropriate policies, and the District adheres to the requirements of the PFIA.

**Public Funds Collateral Act** - Custodial credit risk is the risk that in the event of bank failure, the District's deposits may not be returned to it. The District has a policy of maintaining contact with the trust department of its depository agency to eliminate all custodial credit risk. As of September 30, 2023, the District's bank balance of \$3.8 million was not exposed to custodial credit risk and was insured and over-collateralized.

**Fair Value of Investments** - Fair value is the amount at which a security could be exchanged in a current transaction between willing parties, other than in forced liquidation. During fiscal year 2023, the fair market value of the District's investments increased, which increased the investment income during the year. However, overall, the District's portfolio balance still includes a significant unrealized loss. The District, as a practice, buys and holds investments, and therefore, while the financials reflect the required unrealized fair value adjustment, the loss would only be realized if investments were sold instead of held to maturity.

GASB 79, *Certain External Investment Pools and Pool Participants*, created an election option for external investment pools and pool participants to continue to utilize amortized cost accounting, rather than fair value, for certain investment pools. Participants in qualifying pools would be permitted to continue measuring investments at amortized cost if they met certain criteria. The District invests in two local government investment pools, LOGIC and Texpool. LOGIC and Texpool both have elected to report assets at amortized cost and the District has mirrored these valuations.

**SUMMARY OF INVESTMENTS AND CASH EQUIVALENTS, RELATED WEIGHTED AVG. MATURITY,  
AND FAIR VALUE MEASUREMENTS**

	<b>9/30/2023</b>	<b>Weighted Avg. Maturity (Years)</b>	<b>S &amp; P Rating</b>	<b>Fair Value Measurements Using Significant Other Observable Inputs (Level 2)</b>
<b>Investments</b>				
Federal Farm Credit Bank	\$ 54,176,980	2.60	AA+	\$ 54,176,980
Federal Home Loan Bank	122,187,246	2.32	AA+	122,187,246
Federal Home Loan Mortgage Corp	19,223,288	2.56	AA+	19,223,288
Federal National Mortgage Association	11,547,400	2.72	AA+	11,547,400
U.S. Treasury Notes	81,644,464	0.09	AA+	81,644,464
Total investments	<u>288,779,378</u>			<u>288,779,378</u>
<b>Investment pools</b>				
LOGIC (net asset value)	155,405,016	N/A	AAA-m	N/A
Texpool (net asset value)	171,022,206	N/A	AAA-m	N/A
Total investment pools	<u>326,427,222</u>			
Total investments and cash equivalents	<u>\$ 615,206,600</u>			<u>\$ 288,779,378</u>

The District is required to disclose the fair value level of its investments within the fair value hierarchy established by GASB 72, *Fair Value Measurement and Application*. In the fair value hierarchy there are three levels:

1. Level one - inputs that are quoted prices (unadjusted) for identical assets or liabilities in active markets that a government can access at the measurement date
2. Level two - inputs (other than quoted prices included within level one) that are observable for an asset or liability, either directly or indirectly
3. Level three - unobservable inputs for an asset or liability

Federal Securities classified as level two of the fair value hierarchy are valued using an evaluation model maintained by surveying the dealer community, obtaining relevant trade dates and spreads, and incorporating information into the evaluation process.

U.S. Treasury Notes classified as level two of the fair value hierarchy are valued using an evaluation model with continuous feeds from live data sources including active market makers and inter-dealer brokers.

The District has no unfunded commitments to LOGIC and Texpool and may redeem investments at any time. Sandra Newby, the District's Chief Financial Officer, is the President of the LOGIC Board of Directors.

## OPEB Trust Fund Cash, Cash Equivalents, and Investments

The balance per bank of cash on deposit in the Trust Fund and the carrying value was zero as of September 30, 2023. See below for the detail of investments held as of the end of fiscal year 2023.

The District has contracted with Public Agency Retirement Services (PARS) for trust administration, and the District's OPEB Plan investments are held in the PARS Post Retirement Health Care Plan Trust by its trustee and custodian US Bank (the "Trustee").

PARS provides its participants a range of investment strategies, and the District has selected the PARS Diversified Moderate Portfolio Index Plus. The goal of the Plan's investment program is to generate adequate long-term returns that, when combined with contributions, will result in sufficient assets to pay present and future obligations to the Plan. The Moderate Portfolio's goal is for moderate growth of both principal and income.

	<u>9/30/2023</u>	<u>Fair Value Measurements Using Significant Other Observable Inputs (Level 1)</u>
<b>Investments</b>		
Money Market Funds		
First AM Govt	\$ 617,170	N/A
Equity Funds		
iShares Core S&P 500 ETF	\$ 2,299,598	\$ 2,299,598
iShares S&P 500 Value ETF	1,033,959	1,033,959
iShares S&P 500 Growth ETF	909,028	909,028
iShares Russell Mid Cap ETF	898,450	898,450
iShares Russell 2000 Value ETF	556,839	556,839
iShares Russell 2000 Growth ETF	561,720	561,720
iShares Core MSCI EAFE ETF	1,015,700	1,015,700
Vanguard FTSE Emerging Markets ETF	557,762	557,762
Vanguard Real Estate ETF	258,303	258,303
Fixed Income Funds		
iShares Core US Agg Bond ETF	\$ 7,067,294	\$ 7,067,294
iShares Trust US Treasury ETF	512,210	512,210
iShares MBS ETF	510,156	510,156
<b>Total Investments and Cash Equivalents</b>	<u><u>\$ 16,798,189</u></u>	

The OPEB Plan is invested in a Money Market Fund (First Am Govt) which is valued at Net Asset Value (NAV) and therefore are excluded from leveling above. See discussion earlier in this note regarding inputs for each level.

The OPEB Plan has no unfunded commitments and may redeem investments at anytime to pay for OPEB benefits.

#### 4. CAPITAL ASSETS

A summary of changes in capital assets governmental activities:

	October 1, 2022	Additions/ Adjustments	Disposals/ Adjustments	Reclassification & Transfers	September 30, 2023
<b>GOVERNMENTAL ACTIVITIES</b>					
<b>NONDEPRECIABLE ASSETS</b>					
Land	\$ 276,339,794	\$ 3,860,878	\$ —	\$ —	\$ 280,200,672
Construction in progress	74,422,677	3,414,374	—	(236,127)	77,600,924
<b>TOTAL NONDEPRECIABLE ASSETS</b>	<b>350,762,471</b>	<b>7,275,252</b>	<b>—</b>	<b>(236,127)</b>	<b>357,801,596</b>
<b>DEPRECIABLE ASSETS</b>					
Dams and spillways	3,070,461	—	—	—	3,070,461
Flood control projects	8,115,517	—	—	2,453,675 (1)	10,569,192
Buildings	52,147,148	—	(88,505)	(2,217,548) (1)	49,841,095
Machinery and equipment	11,664,297	1,060,804	(504,695)	—	12,220,406
	<u>74,997,423</u>	<u>1,060,804</u>	<u>(593,200)</u>	<u>236,127</u>	<u>75,701,154</u>
Less accumulated depreciation for					
Dams and spillways	(1,185,357)	(68,275)	—	—	(1,253,632)
Flood control projects	(8,115,518)	(49,288)	—	—	(8,164,806)
Buildings	(25,300,163)	(2,352,582)	—	—	(27,652,745)
Machinery and equipment	(10,204,881)	(561,680)	504,695	—	(10,261,866)
Total accumulated depreciation	<u>(44,805,919)</u>	<u>(3,031,825)</u>	<u>504,695</u>	<u>—</u>	<u>(47,333,049)</u>
<b>TOTAL DEPRECIABLE ASSETS, NET</b>	<b>30,191,504</b>	<b>(1,971,021)</b>	<b>(88,505)</b>	<b>236,127</b>	<b>28,368,105</b>
<b>INTANGIBLE RIGHT-OF-USE ASSETS</b>					
Buildings	751,899	—	(11,125)	—	740,774
	<u>751,899</u>	<u>—</u>	<u>(11,125)</u>	<u>—</u>	<u>740,774</u>
Less accumulated amortization for					
Buildings	(147,915)	(143,537)	—	—	(291,452)
Total accumulated amortization	<u>(147,915)</u>	<u>(143,537)</u>	<u>—</u>	<u>—</u>	<u>(291,452)</u>
<b>TOTAL AMORTIZABLE ASSETS, NET</b>	<b>603,984</b>	<b>(143,537)</b>	<b>(11,125)</b>	<b>—</b>	<b>449,322</b>
<b>TOTAL GOVERNMENTAL ACTIVITIES, NET</b>	<b>\$ 381,557,959</b>	<b>\$ 5,160,694</b>	<b>\$ (99,630)</b>	<b>\$ —</b>	<b>\$ 386,619,023</b>

(1) In fiscal year 2023, \$2,552,893 was transferred from Buildings to Flood Control Projects for the canal project completed in fiscal year 2022. The District determined that the canal project, as it will be part of a full canal system that will support flood control and stormwater in Fort Worth, would be better reflected as a Flood Control Project. This will ensure consistency over the future years as additional canals are completed.



Depreciation expense was charged to functions of the District as follows:

Governmental activities	
Flood protection	\$ 2,012,725
Recreation	<u>1,019,100</u>
Total depreciation expense - governmental activities	<u>\$ 3,031,825</u>

Amortization expense was charged to functions of the District as follows:

Governmental activities	
Flood protection	<u>\$ 143,537</u>
Total amortization expense - governmental activities	<u>\$ 143,537</u>

A summary of changes in capital assets business-type activities:

	October 1, 2022	Additions/ Adjustments	Disposals/ Adjustments	Reclassification & Transfers	September 30, 2023
<b>BUSINESS-TYPE ACTIVITIES</b>					
<b>NONDEPRECIABLE ASSETS</b>					
Land	\$ 186,637,511	\$ 6,587,746	\$ —	\$ —	\$ 193,225,257
Construction in progress	150,855,605	141,398,172	—	(10,760,535)	281,493,242
<b>TOTAL NONDEPRECIABLE ASSETS</b>	<b>337,493,116</b>	<b>147,985,918</b>	<b>—</b>	<b>(10,760,535)</b>	<b>474,718,499</b>
<b>DEPRECIABLE ASSETS</b>					
Dams and spillways	234,543,120				234,543,120
Pipeline	1,721,500,069	950,715		10,760,535	1,733,211,319
Wetlands	56,160,860				56,160,860
Communications	20,787				20,787
Buildings	7,854,201				7,854,201
Technology Infrastructure	3,865,282				3,865,282
Machinery and equipment	13,577,179	770,543	(306,162)		14,041,560
Other project costs	193,072,352				193,072,352
	<u>2,230,593,850</u>	<u>1,721,258</u>	<u>(306,162)</u>	<u>10,760,535</u>	<u>2,242,769,481</u>
Less accumulated depreciation for					
Dams and spillways	(141,297,525)	(4,329,178)			(145,626,703)
Pipeline	(251,440,484)	(34,226,359)			(285,666,843)
Wetlands	(10,656,436)	(1,122,780)			(11,779,216)
Communications	(7,342)	(181,223)			(188,565)
Buildings	(6,009,511)	(236,232)			(6,245,743)
Technology Infrastructure	(972,105)	(155,727)			(1,127,832)
Machinery and equipment	(11,759,395)	(691,394)	306,162		(12,144,627)
Other project costs	(28,592,958)	(3,839,941)			(32,432,899)
Total accumulated depreciation	<u>(450,735,756)</u>	<u>(44,782,834)</u>	<u>306,162</u>	<u>—</u>	<u>(495,212,428)</u>
<b>TOTAL DEPRECIABLE ASSETS, NET</b>	<b>1,779,858,094</b>	<b>(43,061,576)</b>	<b>—</b>	<b>10,760,535</b>	<b>1,747,557,053</b>
<b>INTANGIBLE ASSETS</b>					
Internally Developed Asset Management System	3,935,906				3,935,906
	<u>3,935,906</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>3,935,906</u>
Less accumulated amortization for					
Internally Developed Asset Management System	(787,181)	(393,591)			(1,180,772)
Total accumulated amortization	<u>(787,181)</u>	<u>(393,591)</u>	<u>—</u>	<u>—</u>	<u>(1,180,772)</u>
<b>TOTAL AMORTIZABLE ASSETS, NET</b>	<b>3,148,725</b>	<b>(393,591)</b>	<b>—</b>	<b>—</b>	<b>2,755,134</b>
<b>TOTAL BUSINESS-TYPE ACTIVITIES, NET</b>	<b>\$ 2,120,499,935</b>	<b>\$ 104,530,751</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ 2,225,030,686</b>

## 5. RETIREMENT PLAN

**Plan Description and Provisions** — In 1997, the District adopted a defined contribution benefit plan, the benefits of which depend solely on amounts contributed to the plan plus investment earnings. All full-time employees over the age of 18 are eligible to participate in the plan from the date of employment, and benefits are 20% vested for each year of service up to five years of service. Benefit provisions and all other requirements are established by state statute and the District’s Board of Directors. The District contributes 13% of each eligible employee’s base salary, 13% of two-thirds of any applicable overtime wages and 13% of awarded production bonuses (if applicable) on a bi-weekly basis to the plan’s Administrator, Mission Square Retirement, formerly known as ICMA Retirement Trust. Employees may make additional voluntary after tax contributions; however, no employees have contributed to date. District contributions for, and interest forfeited by, employees who leave employment before becoming fully vested are evenly allocated to the other employee accounts. The plan’s normal retirement age is 60 years with early retirement eligibility at 55 years of age with five years of service. During fiscal year 2023 the District made contributions of \$3.8 million under this plan.

## 6. NOTE PAYABLE

During fiscal year 2022, the District entered into an interlocal cooperation agreement with North Central Texas Council of Governments to repay \$3.5 million in a loan on the Central City Flood Control Project related to the construction of the bridges. The loan is non-interest bearing and will be paid back over 10 years at \$350 thousand per year.

A summary of long-term note transactions of the District for the year ended September 30, 2023 is show below:

	Balance at October 1, 2022	Additions	Deletions	Balance at September 30, 2023	Due Within One Year
<u>Governmental Activities</u>					
Note payable	\$ 3,500,000	\$	\$ 350,000	\$ 3,150,000	\$ 350,000
Total Governmental Activities	<u>\$ 3,500,000</u>	<u>\$ —</u>	<u>\$ 350,000</u>	<u>\$ 3,150,000</u>	<u>\$ 350,000</u>

The future principal note payments as of September 30, 2023 were as follows:

Years Ending September 30th	Principal	Interest	Total
2024	\$ 350,000	\$	\$ 350,000
2025	350,000		350,000
2026	350,000		350,000
2027	350,000		350,000
2028	350,000		350,000
2029 - 2032	1,400,000		1,400,000
	<u>\$ 3,150,000</u>	<u>\$ —</u>	<u>\$ 3,150,000</u>

## 7. BONDS PAYABLE

A summary of long-term bond transactions (excluding original issue premiums) of the District for the year ended September 30, 2023 is show below:

	Balance at Oct. 1, 2022	Additions	Deletions	Balance at Sept. 30, 2023	Due Within One Year
<u>Business-type Activities</u>					
TRWD Bonds	\$ 803,630,000	\$	\$32,180,000	\$ 771,450,000	\$ 32,920,000
TRWD Contract Revenue Bonds (City of Dallas Water Utilities Project)	536,710,000		17,030,000	519,680,000	17,480,000
Bonds from Direct Borrowings (TRWD Bonds)	253,935,000		8,075,000	245,860,000	8,230,000
Bonds from Direct Borrowings (City of Dallas Water Utilities Project)	118,260,000	255,000,000	3,800,000	369,460,000	9,690,000
Total Construction and Improvement Bonds	<u>\$ 1,712,535,000</u>	<u>\$ 255,000,000</u>	<u>\$61,085,000</u>	<u>\$ 1,906,450,000</u>	<u>\$ 68,320,000</u>

**DETAIL OF REVENUE BONDS PAYABLE AS OF SEPTEMBER 30, 2023**

Bond Type	Maturity	Interest Rates	Outstanding Balance
<u>Tarrant Regional Water District Bonds</u>			
\$156,470,000 Series 2015 Water Revenue Refunding Bonds	Serially through 2029	2.0 - 5.0%	\$ 86,110,000
\$300,000,000 Series 2015A Waterworks Revenue Bonds (Direct)	Serially through 2045	0.5 - 3.2%	245,860,000
\$28,530,000 Series 2016 Water Systems Revenue Bonds	Serially through 2046	3.0 - 5.0%	24,130,000
\$61,910,000 Series 2016A Water Revenue Refunding Bonds	Serially through 2032	2.0 - 5.0%	47,690,000
\$52,765,000 Series 2017 Water Revenue Refunding Bonds	Serially through 2040	2.0 - 5.0%	51,900,000
\$129,570,000 Series 2020 Water Revenue Refunding Bonds	Serially through 2052	1.0 - 3.5%	126,495,000
\$386,680,000 Series 2020B Water Revenue Refunding Bonds	Serially through 2049	0.3 - 3.0%	358,770,000
\$38,105,000 Series 2020C Water Revenue Refunding Bonds	Serially through 2030	4.0 - 5.0%	30,450,000
\$46,510,000 Series 2022 Water Revenue Bonds	Serially through 2052	4.0 - 5.0%	45,905,000
Total Tarrant Regional Water District Bonds			<u>1,017,310,000</u>
<u>TRWD Contract Revenue Bonds (City of Dallas Water Utilities Project)</u>			
\$202,130,000 Series 2014 Dallas Contract Revenue Bonds	Serially through 2044	4.0 - 6.0%	4,720,000
\$140,000,000 Series 2015 Dallas Contract Revenue Bonds (Direct)	Serially through 2045	0.5 - 3.2%	114,460,000
\$240,025,000 Series 2021A Dallas Contract Revenue Bonds	Serially through 2051	2.0 - 4.0%	229,815,000
\$298,395,000 Series 2021B Dallas Contract Revenue Refunding Bonds	Serially through 2044	0.15 - 2.45%	285,145,000
\$255,000,000 Series 2022 Dallas Contract Revenue Bonds (Direct)	Serially through 2052	2.78 - 4.17%	<u>255,000,000</u>
Total TRWD Contract Revenue Bonds (City of Dallas Water Utilities Project)			<u>889,140,000</u>
Total Construction and Improvement Bonds			1,906,450,000
Add premium (net of accumulated amortization)			<u>32,634,494</u>
			1,939,084,494
Less current portion			(68,320,000)
Total long term revenue bonds payable, net of premium			<u>\$ 1,870,764,494</u>

Series 2020B Water Revenue Refunding Bonds currently has \$312.0 million in defeased debt outstanding related to the Series 2014 Revenue Bonds. This debt will be fully redeemed in fiscal year 2024.

Series 2021B Dallas Contract Revenue Refunding Bonds currently has \$163.9 million in defeased debt outstanding related to the Series 2014 Revenue Bonds. This debt will be fully redeemed in fiscal year 2024.

The District amortizes deferred amounts on refundings, including gains and losses, using the straight-line method over the shorter of the remaining life of the old debt or the life of new debt. Premiums on bonds are amortized using the effective interest rate method over the life of the bonds.

The annual requirements to amortize all bonds outstanding as of September 30, 2023 including interest payments are approximately as follows:

Years ending September 30th (in thousands)	Bonds			Bonds from Direct Borrowings		
	Principal	Interest	Requirements	Principal	Interest	Requirements
<u>Tarrant Regional Water District Bonds</u>						
2024	\$ 32,920	\$ 24,644	\$ 57,564	\$ 8,230	\$ 6,936	\$ 15,166
2025	32,640	23,339	55,979	8,390	6,793	15,183
2026	33,945	21,992	55,937	8,575	6,635	15,210
2027	35,415	20,545	55,960	8,780	6,454	15,234
2028	36,840	18,997	55,837	9,000	6,252	15,252
2029-2033	189,445	76,162	265,607	48,955	27,547	76,502
2034-2038	140,030	53,653	193,683	56,940	19,933	76,873
2039-2043	104,445	35,156	139,601	66,935	10,306	77,241
2044-2048	115,370	17,507	132,877	30,055	973	31,028
2049-2052	50,400	2,576	52,976			
	<u>771,450</u>	<u>294,571</u>	<u>1,066,021</u>	<u>245,860</u>	<u>91,829</u>	<u>337,689</u>
<u>TRWD Contract Revenue Bonds (City of Dallas Water Utilities Project)</u>						
2024	17,480	10,986	28,466	9,690	12,879	22,569
2025	17,960	10,461	28,421	9,880	12,652	22,532
2026	18,220	10,156	28,376	10,085	12,416	22,501
2027	18,600	9,829	28,429	10,305	12,163	22,468
2028	19,065	9,453	28,518	10,540	11,894	22,434
2029-2033	102,855	40,673	143,528	56,715	54,887	111,602
2034-2038	114,630	30,000	144,630	65,265	45,479	110,744
2039-2043	120,185	17,193	137,378	76,820	32,963	109,783
2044-2048	58,945	6,391	65,336	68,625	18,331	86,956
2049-2052	31,740	1,278	33,018	51,535	5,471	57,006
	<u>519,680</u>	<u>146,420</u>	<u>666,100</u>	<u>369,460</u>	<u>219,135</u>	<u>588,595</u>
Total	<u>\$1,291,130</u>	<u>\$ 440,991</u>	<u>\$ 1,732,121</u>	<u>\$ 615,320</u>	<u>\$ 310,964</u>	<u>\$ 926,284</u>

Bonded debt of the District consists of water revenue refunding bonds and revenue bonds, which are secured by and payable from net revenues of the District. Certain revenue bond issues contain provisions that allow the District to prepay or call the bonds.

Specifically, revenues (net of operating expenses) of the District's water operations have been pledged for repayment of the District's revenue bonds. The amount of the pledge is equal to the remaining outstanding debt service requirements for those bonds, which were all originally issued to provide

funding for construction of the water system. The pledge continues for the life of the bonds. For the year ended September 30, 2023, pledged revenues for the Tarrant Regional Water District Revenue Bonds were \$86.5 million which offsets debt service requirements for the year of \$69.6 million.

The various revenue bond indentures contain significant limitations and restrictions on annual debt service requirements, maintenance of and flow of monies through various restricted accounts, and minimum amounts to be maintained in various sinking funds. None of the revenue bond indentures contain bond coverage requirement provisions.

The TRWD Contract Revenue Bonds (City of Dallas Water Utilities Project) are Dallas Water Utilities' share of the Integrated Pipeline (IPL) Project, which is currently estimated at \$1.2 billion. Under the IPL Project Contract, the City of Dallas has requested and authorized the District to issue contract revenue bonds (the Dallas Contract Revenue Bonds) secured solely by payments from the City of Dallas to the District under the IPL Project Contract. Such Dallas Contract Revenue Bonds shall be in such amounts and issued at such times as determined by the District, in consultation with the City of Dallas to finance the City of Dallas' share of the design and construction of the IPL Project. All such payments by the City of Dallas to the District will constitute operating expenses of the Dallas Water Utilities System and System Capacity revenues of the District. The District has issued and will continue to issue Dallas Contract Revenue Bonds over a 10 to 15 year period to pay the City of Dallas' share of the total capital cost of the IPL Project. Future Dallas Contract Revenue Bonds will be issued as determined by the District in consultation with the City of Dallas. However, the IPL Project Contract gives the District specific authority to issue Dallas Contract Revenue Bonds without any additional City approval in the event the City of Dallas fails to take certain actions. No payments from the City of Dallas to the District under the IPL Project Contract are pledged to the payment of the District's System Revenue Bonds. For the year ended September 30, 2023, pledged revenues for the TRWD Contract Revenue Bonds (City of Dallas Water Utilities Project) were \$56.0 million which offsets debt service requirements for the year of \$42.0 million.

#### **Extendible Commercial Paper Bonds**

In fiscal year 2016 the District implemented an extendible commercial paper bonds program in the amount of \$150.0 million for the benefit of enterprise fund projects and capital needs. In fiscal year 2018 the District implemented an additional extendible commercial paper bonds program in the amount of \$150.0 million for the benefit of the general fund Central City Flood Control Project. During fiscal year 2023, no commercial paper bonds were issued and none were outstanding as of September 30, 2023.

#### **8. LEASES**

**Lease receivable** - During fiscal year 2023, the District leases out some of its property, including one building, several parcels of land, and towers. The District recognized \$352 thousand in lease revenue

and \$45 thousand in interest revenue during the fiscal year 2023 related to these leases. The District received \$400 thousand in lease payments, \$354 thousand in principal and \$46 thousand in interest. As of September 30, 2023, the District's total lease receivable for lease payments was \$2.2 million for Governmental and Enterprise funds. Also, the District has a deferred inflows of resources associated with these leases that will be recognized as revenue over the lease term. As of September 30, 2023, the balance of the deferred inflows of resources was \$2.2 million.

**Lease payable** - During fiscal year 2023, the District leased one building. As of September 30, 2023, the value of the lease liability was \$463 thousand. The District is required to make monthly principal and interest payments of \$150 thousand. The balance of the right-of-use asset as of September 30, 2023 was \$741 thousand net of accumulated amortization of \$291 thousand.

	Balance at October 1, 2022	Additions	Deletions	Balance at September 30, 2023	Due Within One Year
<u>Governmental Activities</u>					
Leases	\$ 608,035	\$ —	\$ 144,727	\$ 463,308	\$ 146,242
Total Governmental Activities	<u>\$ 608,035</u>	<u>\$ —</u>	<u>\$ 144,727</u>	<u>\$ 463,308</u>	<u>\$ 146,242</u>

The future principal and interest lease payments as of September 30, 2023 were as follows:

Fiscal Year Ending September 30,	Principal	Interest	Total
2024	\$ 146,242	\$ 4,172	\$ 150,414
2025	151,327	2,600	153,927
2026	152,923	1,004	153,927
2027	12,816	11	12,827
	<u>\$ 463,308</u>	<u>\$ 7,787</u>	<u>\$ 471,095</u>



**9. INTERFUND TRANSACTIONS**

At September 30, 2023, interfund balances consisted of the following:

	Notes & Interest Due From Other Funds	Notes & Interest Due To Other Funds	Due From Other Funds	Due to Other Funds
General Fund	\$ 79,822		\$ 175,732	
Enterprise Fund		\$ 79,822		\$ 175,732
Total	<u>\$ 79,822</u>	<u>\$ 79,822</u>	<u>\$ 175,732</u>	<u>\$ 175,732</u>

The District has one note between the Enterprise Fund and the General Fund for the reimbursement of a portion of the cost of constructing the administrative building. The administrative building note was set up in 2003 with 3% interest. During fiscal year 2023, the Enterprise Fund repaid \$77 thousand, plus interest of \$5 thousand. In the fund financial statements, interfund balances (shown as due to/ from other funds) are the results of normal expenditure transactions between funds and will be liquidated in the subsequent fiscal year.

All interfund receivables and payables are combined in the government-wide financial statement of net position and presented as internal balances.

**10. POST EMPLOYMENT HEALTH CARE BENEFITS**

**Plan Descriptions**

The District provides other post employment benefits (OPEB) through the Post Employment Health Care Benefit Plan as established and administered by the District (a single-employer plan) under its Retiree Health Benefits Policy effective January 1, 2006, revised October 1, 2016, to full time status employees who retire from the District and meet the Rule of 80 or Rule of 90 (see following paragraphs for specifics). Plan participation is restricted to employees hired on or before September 30, 2016.

**Rule of 80** - the rule of 80 is reached when age and years of full time service total eighty (80).

If at the time of retirement, the employee meets the “Rule of 80” and elects to continue group health insurance coverage, the District will pay 100% for the premiums for the employee/retiree, and their eligible spouse at the date of retirement. After the initial election, coverage for individuals may be dropped at the time designated by the plan, but no one may be added. Upon reaching age 65, the employee/retiree and their eligible spouse will be transferred from group health insurance to a Medicare Supplement Plan F or Plan G, in accordance with Medicare eligibility rules. The District will also provide a monthly allowance of \$185 to offset the cost of Medicare Part B and Part D. Upon the

death of the employee/retiree, the spouse will be covered for an additional five (5) years or until their death, whichever occurs first.

**Rule of 90** - the rule of 90 is reached when age and years of full time service total ninety (90).

If at the time of retirement, the employee meets the “Rule of 90” and elects to continue group health insurance coverage the District will pay 100% of the premiums for the employee/retiree, and their eligible spouse at the date of retirement. Upon reaching age 65, the employee/retiree and their eligible spouse will be transferred from group health insurance to a Medicare Supplement Plan F or Plan G, in accordance with Medicare eligibility rules. The District will also provide a monthly allowance of \$185 to offset the cost of Medicare Part B and Part D. The employee/retiree will be covered until his/her death and the spouse until his/her death.

The Plan does not issue separate financial statements; however, the Trust's financials are included in this financial report as a Fiduciary Fund of the District starting on page 49. The OPEB Plan is governed by the District's Board of Directors, and changes to the Plan must be approved by the Board.

**Plan Membership Information as of September 30, 2023**

Inactive Plan Members or Beneficiaries currently receiving benefits	42
Inactive Plan Members entitled to but not receiving benefits	0
Active Plan Members (active employees hired on or before 9/30/16)	<u>187</u>
Total Plan Members	<u><u>229</u></u>

**Funding Policies**

For other post employment benefits, contractual requirements for the District are established by the Board of Directors. In fiscal year 2014, the District established a trust to fund OPEB costs through the Public Agency Retirement Fund (PARS). In fiscal year 2023, \$2.1 million was contributed to the trust and in fiscal year 2024 \$2.4 million is budgeted to contribute to the trust; these contributions are in addition to claims paid. The District’s Trust Funding Policy is to contribute an additional 10% more than the prior year to the trust each year in an effort to ultimately fund 75% of the total OPEB Liability.

The District does not require any member contributions for the post-employment health care benefits Plan.

## OPEB Plan Investment Policy

The goal of the Plan's investment program is to generate adequate long-term returns that, when combined with contributions, will result in sufficient assets to pay the present and future obligations of the Plan. The Plan has a Moderate Risk Tolerance with a Strategic Asset Allocation of the following:

<i>Strategic Asset Allocation Ranges</i>			
Asset Class	Cash	Fixed Income	Equity
Allocation Range	0-20%	40%-60%	40%-60%
Target Allocation	Policy: 5%	Policy: 45%	Policy: 50%
Long-term Expected Real Rate of Return	0.1%	1.8%	4.1%

The long-term expected real rate of return, presented as geometric means, is the combination of the asset return rates taken from the Horizon Actuarial Service Survey of Capital Market Assumptions 2016 and the target allocation of the Plan.

## Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on OPEB plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits), and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

A Single Discount Rate of 6.00% was used to measure the total OPEB liability. This Single Discount Rate was based on the expected rate of return on OPEB plan investments of 6.00%. The funding policy of the District is to pay the recommended actuarially determined contribution or higher based on the policy, which is based on a closed amortization period. As a result, the OPEB plan's fiduciary net position is expected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

The annual money-weighted rate of return for the OPEB Trust was 7.74% for fiscal year 2023. A money-weighted return expresses investment performance, net of OPEB plan investment expense, adjusted for the changing amounts actually invested.

### Changes in the Net OPEB Liability

The total OPEB liability shown below is based on an actuarial valuation performed as of December 31, 2021 and a measurement date of September 30, 2023.

	Increase/(Decrease)		
	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
	(a)	(b)	(a)-(b)
Balance at September 30, 2022	\$ 26,705,376	\$ 13,585,993	\$ 13,119,383
Changes for the year:			
Service Cost	573,868		573,868
Interest	1,601,654		1,601,654
Difference between expected and actual experience	(46,850)		(46,850)
Changes in Assumptions			
Benefit Payments	(596,146)	(596,146)	
Contributions - employer		2,739,735	(2,739,735)
Net Investment income		1,186,938	(1,186,938)
Administrative Expense		(77,762)	77,762
Net Changes	1,532,526	3,252,765	(1,720,239)
Balance at September 30, 2023	<u>\$ 28,237,902</u>	<u>\$ 16,838,758</u>	<u>\$ 11,399,144</u>

Plan Fiduciary Net Position as a percentage of the total OPEB liability 60%

### Sensitivity of Net OPEB Liability

Regarding the sensitivity of the net OPEB liability to changes in the Single Discount Rate, the following presents the plan's net OPEB liability, calculated using a Single Discount Rate of 6.00%, as well as what the plan's net OPEB liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

1% Decrease 5.0%	Current Single Discount Rate Assumption 6.0%	1% Increase 7.0%
\$15,646,766	\$11,399,144	\$7,910,558

Regarding the sensitivity of the net OPEB liability to changes in the healthcare cost trend rates, the following presents the plan's net OPEB liability, calculated using the assumed trend rates as well as what the plan's net OPEB liability would be if it were calculated using a trend rate that is one percent lower or one percent higher. Refer to page 79 for further detail about healthcare trend rates.

1% Decrease	Current Healthcare Cost Trend Rate Assumption	1% Increase
\$7,109,048	\$11,399,144	\$16,808,298

**OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB**

For the year ended September 30, 2023, the District recognized OPEB expenses of \$1,902,822 which included amortization of deferred inflows and outflows of (\$526,672). At September 30, 2023, the District reported deferred outflows and inflows of resources related to OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 485,366	\$ 642,874
Assumption changes	1,045,675	341,806
Net difference between projected and actual earnings on OPEB plan investments	1,308,769	
Total	<u>\$ 2,839,810</u>	<u>\$ 984,680</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense as follows:

Year Ending September 30	Net Deferred Outflows (Inflows) of Resources
2024	\$ 536,464
2025	564,369
2026	728,440
2027	39,612
2028	55,434
Thereafter	(69,189)
Total	<u>\$ 1,855,130</u>

## Actuarial Methods and Assumptions

Actuarial cost method	Individual entry age normal cost method
Amortization method	Level dollar, Closed
Remaining amortization period	23 years as of September 30, 2023
Asset valuation method	Market Value
Investment rate	6.00% per annum, net of expenses
Inflation rate	2.50%
Salary increases	3.50% to 11.50%, including inflation
Demographic assumptions	Due to the size of this plan, the demographic assumptions are not based on formal experience studies. However, gains and losses are monitored and adjustments are made to the retirement and withdrawal assumptions as needed. Mortality and disability rates are based on assumptions used to value the Texas Municipal Retirement System (TMRS).
Mortality	For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables published through 2019 to account for future mortality improvements.
Healthcare trend rates	Pre-65: Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years  Post-65: Initial rate of 5.30% declining to an ultimate rate of 4.15% after 12 years
Participation rates	100% of eligible retirees are assumed to elect coverage
Notes	Changes of assumptions reflect an update to the percentage of covered female retirees who are assumed to also cover their spouse.

## 11. COMMITMENTS AND CONTINGENCIES

**Commitments** - The Enterprise Fund had remaining commitments estimated at \$231.5 million due to on-going construction contracts as of September 30, 2023.

**Insurance** - The District participates in a public entity risk pool for its fleet policy, property insurance, workers' compensation, general liability, and errors and omissions liability. The District purchases crime, directors' liability, and law enforcement bonds through Sedgwick, an insurance brokerage firm that also manages the risk pool. The District's Aviation insurance is obtained from a brokerage firm specializing in aircraft insurance. For the IPL Project, the District and the City of Dallas Water Utilities are utilizing a Rolling Owner Controlled Insurance Program (ROCIP). Willis Towers Watson manages and administers the ROCIP program for the project.

Texas Water Conservation Association Risk Management Fund (Trust) - This risk pool provides auto, property insurance, workers' compensation, general liability, and errors and omissions coverage for the District. The District shall cooperate with the Trust and give any information as may be reasonably required, and upon the Trust's request, assist in making settlement, in the conduct of suits, and in enforcing any right of contribution or indemnity against any person or organization who may be liable to the District because of injury or damage concerning which insurance is afforded under the agreement. The District shall attend hearings and trials and assist in securing and giving evidence and obtaining the attendance of witnesses. The District shall not, except at its own cost, voluntarily make any payment, assume any obligation, or incur any expense that could increase the liability, exposure of, or jeopardize the Trust in any way.

The Trust will pay on behalf of the District all sums that the District shall become legally obligated to pay arising out of an occurrence during the Trust year and within the agreement. The Trust reserves the right to deny any claims that are not reported. The Trust shall have the right and the duty to defend any suit against the District, even if the allegations of the suit are groundless, false or fraudulent, and may make such investigation and settlement of any claim or suit it deems expedient. Still, the Trust shall not be obliged to pay any claim or judgment, or to defend a suit after the applicable limit of the Trust's liability has been exhausted.

Sedgwick - Sedgwick is the Third-Party Administrator for the Texas Water Conservation Association Risk Management Fund (Trust). Outside of the Trust, Sedgwick also secures and manages the District's crime policy, law enforcement and director bonds.

Aviation Insurance - The District aviation insurance covers physical damage to the aircraft, bodily injury to passengers and others, and physical damage to property other than the aircraft. All claims should be made to the aircraft Broker. The District does not retain the claims risk.

Rolling Owner Controlled Insurance Program - The ROCIP program started July 21, 2020 and will run until July 21, 2027 and is insured by Liberty Mutual. This program is for the Dallas portion of IPL, Section 19, and the Lake Palestine Pump Station (LP1). The program provides a master insurance, safety, and claims management program for Workers' Compensation, Employers Liability, Commercial General Liability, Excess Liability and Builders Risks for the Owner and all Enrolled Participants on the IPL. In the event of an occurrence, wrongful act, or personal injury, all participants in the ROCIP program must promptly provide written notice to Willis Towers Watson, the ROCIP Administrator, per the contract agreement. The ROCIP Administrator will review all information for accuracy and promptly report the claim to the Insurance Provider. The Insurance Provider will coordinate the investigation of commercial general liability claims. Contractor's team members are required to cooperate with the Insurance Provider's investigations.

Notifications of a lawsuit or litigation are made to the PCM and ROCIP Administrator. They shall be by email or telephone immediately when served with notice of any lawsuits or citations filed against either Enrolled Participants or Excluded Participants. Failure to respond to a lawsuit within the prescribed time may result in a default judgment. The entity served with the lawsuit will pay judgments and expenses associated with a default judgment. Enrolled participants must report all workers' compensation claims to the ROCIP Administrator. Claims must be reported no later than the end of the shift during which the accident occurred, except in cases of serious injuries, which shall be reported immediately. The Insurance Provider will coordinate the investigations of all workers' compensation claims. The coverage includes all materials and equipment that will be permanently incorporated into the project, including property in transit and stored at pre-approved locations within the United States. Enrolled participants are responsible for the first \$25,000 of any loss.

Charges to the ROCIP that the District retained risk on over the past two fiscal year were as follows:

	Beginning of Fiscal Year Liability	Current Year Claims and Changes in Estimate	Claims Payments	Balance at Fiscal Year End
IPL Project ROCIP - 2022	\$ 4,040	\$ 15,690	\$ (11,359)	\$ 8,371
IPL Project ROCIP - 2023	\$ 8,371	\$ 594,869	\$ (584,522)	\$ 18,718

Health Insurance – As of January 1, 2015, the District has opted to retain their own risk for their employees' health insurance claims, sometimes referred to as "self-insurance". Blue Cross Blue Shield of Texas is the claims administrator selected by the District for their health insurance. Included in "health insurance" are medical costs, as well as prescription claims for current employees and eligible retirees.



Liabilities arising from self-insurance are reported when it is probable that a loss has occurred, and the amount of the loss can be reasonably estimated. These claims are referred to as "incurred but not reported" (IBNR). The IBNR liabilities include an amount for health and prescription claims. Beginning January 1, 2016 the District's excess coverage medical insurance policy covers individual claims in excess of \$100,000.

The claims liabilities for claims were developed using the completion factor method for both an unsmoothed and smoothed methodology. For both methodologies, the completion factor method analyzes a matrix that displays the claims paid each month by the month in which the claim was incurred on a cumulative basis over the available experience period. The completion factors are applied to the claims that were paid for each incurred month to estimate the ultimate incurred claims for the month. For the smoothed methodology, the incurred claims for August and September 2023 were calculated using a weighted average of the completion factor method. The estimated ultimate liability for those months was calculated using the most recent 10 months of claims experience, trended forward at an annual rate of 7.4% for medical and 8.5% for pharmacy. The claims liability is calculated as the sum, for all incurred months, of the estimated ultimate incurred claims less paid claims.

Claims, stop loss premiums, and administrative costs are paid by the District as costs of the self-insured medical program. Liabilities of the fund are reported when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated. Liabilities include an amount for medical and Rx claims that have been incurred but not reported (IBNR). The result of the process to estimate the claims liability is not an exact amount as it depends on many complex factors such as inflation, changes in legal doctrines, and damage awards. An excess coverage medical insurance policy covers individual claims in excess of \$100,000 and/or \$8,309,947 in aggregate for the plan year to date (October 2022 – September 2023).

Changes to Health insurance that the District retained risk on over the past two fiscal years were as follows:

	Beginning of Fiscal Year Liability	Current Year Claims and Changes in Estimate	Claims Payments	Balance at Fiscal Year End
Group Health - 2022	\$ 901,209	\$ 4,989,396	\$ (5,483,849)	\$ 406,756
Group Health - 2023	\$ 406,756	\$ 6,697,488	\$ (6,655,194)	\$ 449,050

## 12. RECENTLY ISSUED GASB STATEMENTS

The GASB has issued a number of standards that will become effective for the District in future years as follows:

**GASB Statement No. 100, *Accounting Changes and Error Corrections* – an amendment of GASB Statement No. 62** (issued June 2022) – The primary objective of this Statement is to enhance accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent, and comparable information for making decisions or assessing accountability. This Statement defines accounting changes as changes in accounting principles, changes in accounting estimates, and changes to or within the financial reporting entity and describes the transactions or other events that constitute those changes. This Statement also addresses corrections of errors in previously issued financial statements. This Statement requires that (1) changes in accounting principles and error corrections be reported retroactively by restating prior periods, (2) changes to or within the financials reporting entity be reported by adjusting beginning balances of the current periods, and (3) changes in accounting estimates be reported prospectively by recognizing the change in the current period. This Statement also requires that the aggregate amount of adjustments to and restatements of beginning net position, fund balance, or fund net position, as applicable, be displayed by reporting unit in the financial statements. This Statement requires disclosure in notes to financial statements of descriptive information about accounting changes and error corrections, such as their nature and information about the quantitative effects on beginning balances should be disclosed by reporting unit in a tabular format. Furthermore, this Statement addresses how information that is affected should be presented in required supplementary information (RSI) and supplementary information (SI). This standard becomes effective for the District in fiscal year 2024.

Management is currently in the process of evaluating the impact of this Statement on the District's financial statements.

**GASB Statement No. 101, *Compensated Absences*** (issued June 2022) – The objective of this Statement is to better meet the information needs of financial statement users by updating the recognition and measurement guidance for compensated absences. That objective is achieved by aligning the recognition and measurement guidance under a unified model and by amending certain previously required disclosures. This Statement requires that liabilities for compensated absences be recognized for (1) leave that has not been used and (2) leave that has been used but not yet paid in cash or settled through noncash means. This Statement also requires that a liability for certain types of compensated absences, including parental leave, military leave, and jury duty leave, not be recognized until the leave commences. This Statement also establishes guidance for measuring a liability for leave that has not been used, generally using an employee's pay rate as of the date of the financial statements. A liability for leave that has been used but not yet paid or settled should be measured at the amount of the cash payment or noncash settlement to be made. Certain salary-related payments

that are directly and incrementally associated with payments for leave also should be included in the measurement of the liabilities. This Statement amends the existing requirement to disclose the gross increases and decreases in a liability for compensated absences to allow governments to disclose only the net change in the liability. In addition, governments are no longer required to disclose which governmental funds typically have been used to liquidate the liability for compensated absences. This standard becomes effective for the District in fiscal year 2025.

Management is currently in the process of evaluating the impact of this Statement on the District's financial statements.

## REQUIRED SUPPLEMENTARY INFORMATION



(Trinity Park North on the Trinity River)

TARRANT REGIONAL WATER DISTRICT

SCHEDULE OF REVENUES, EXPENDITURES, AND CHANGES IN FUND  
 BALANCE—BUDGET TO ACTUAL—GAAP BASIS—GENERAL FUND  
 FOR THE YEAR ENDED SEPTEMBER 30, 2023

	Original and Final Budget	Actual	Variance (Budget - Actual)
<b>REVENUES</b>			
Property taxes	\$ 24,600,000	\$ 25,984,634	\$ (1,384,634)
Contributions	7,510,553	8,173,744	(663,191)
Oil and gas royalties	7,000,000	5,821,884	1,178,116
Investment income	350,000	5,206,309	(4,856,309)
Lease rentals	1,260,930	1,292,432	(31,502)
Other	1,186,200	1,106,514	79,686
	<u>41,907,683</u>	<u>47,585,517</u>	<u>(5,677,834)</u>
<b>EXPENDITURES</b>			
Current			
General and administrative	11,435,059	9,492,233	1,942,826
Personnel services	11,425,181	9,982,786	1,442,395
Retirement plan contribution	754,848	842,229	(87,381)
Contribution	1,034,170	312,253	721,917
Interest	7,310,553		7,310,553
Capital expenditures	19,542,454	7,151,833	12,390,621
Debt service - leases			
Principal payments		483,602	(483,602)
Interest payments		5,687	(5,687)
Total expenditures	<u>51,502,265</u>	<u>28,270,623</u>	<u>23,231,642</u>
Excess/(Deficiency) of Revenues Over/Under Expenditures	<u>(9,594,582)</u>	<u>19,314,894</u>	<u>(28,909,476)</u>
Other Financing Sources			
Proceeds from Sale of Land		165,600	(165,600)
CHANGE IN FUND BALANCE	(9,594,582)	19,480,494	(29,075,076)
FUND BALANCE—Beginning of year	<u>110,573,356</u>	<u>110,573,356</u>	<u>—</u>
FUND BALANCE—End of year	<u>\$ 100,978,774</u>	<u>\$ 130,053,850</u>	<u>\$ (29,075,076)</u>

## NOTES TO RSI

**Property Taxes Revenues over Budget** - The District received \$1.4 million more in taxes than budgeted due to an increase in property values.

**Oil and Gas Royalties under Budget** - The District received \$1.2 million less in oil and gas royalties due to lower oil and gas price and production during the year.

**Contribution Revenue over Budget** - The District received \$663 thousand more than budgeted due to higher TIF reimbursements as property values increased.

**Investment Income over Budget** - The District earned \$4.9 million more than budgeted investment income due to both higher than budgeted interest rates during the year as well as an increase in the fair market value of the District's investments since prior year.

**General and Administrative Expenditures under Budget** - Expenses were under budget mainly due to projects beginning later in the year and the ending of property tax contributions to TIF #4.

**Personnel Services Expenditures under Budget** - The variance in the personnel budget is due to vacant positions throughout the fiscal year. Also, the District is self insured and health claims were lower than budgeted.

**Contribution Expense under Budget** - Decrease is due to reimbursement to the City of Fort Worth for the District's portion of the Central City Flood Control Project utility relocation costs being less than expected.

**Capital Expenditures under Budget** - Capital expenditures were \$12.4 million under budget mainly due to lower than budgeted capital expenditures on the Central City Flood Control Project.

**Interest Expenditures under Budget** - Interest expenditures were under budget due to lower than budgeted debt service expenditures on the Central City Flood Control Project.

**Debt Service - Principal/Interest Payments** - The Debt service variances are a result of applying GASB Statement No. 87 regarding leases.

**TARRANT REGIONAL WATER DISTRICT**

**SCHEDULE OF CHANGES IN NET OTHER POST EMPLOYMENT BENEFITS LIABILITY AND RELATED RATIOS  
LAST 10 FISCAL YEARS**

	2017	2018	2019
<u>Other post employment benefits liability</u>			
Service cost	\$ 565,239	\$ 531,820	\$ 528,530
Interest	1,033,856	1,109,066	1,237,434
Difference between expected and actual experience of the total OPEB liability	(72,928)	190,998	(688,704)
Changes in assumptions		548,904	524,159
Benefit payments	(335,551)	(295,730)	(387,380)
Net change in total other post employment benefits liability	1,190,616	2,085,058	1,214,039
Total other post employment benefits liability - beginning	16,295,561	17,486,177	19,571,235
Total other post employment benefits liability - ending	<u>\$17,486,177</u>	<u>\$19,571,235</u>	<u>\$20,785,274</u>
<u>Plan fiduciary net position</u>			
Contributions - employer	\$ 1,545,551	\$ 1,626,730	\$ 1,851,480
Net investment income	417,971	296,613	501,718
Benefit payments	(335,551)	(295,730)	(387,380)
Administrative expense	(25,922)	(32,888)	(43,846)
Net changes	1,602,049	1,594,725	1,921,972
Plan fiduciary net position - beginning	3,279,665	4,881,714	6,476,439
Plan fiduciary net position - ending	4,881,714	6,476,439	8,398,411
Net other post employment benefits liability	<u>\$12,604,463</u>	<u>\$13,094,796</u>	<u>\$12,386,863</u>
Plan fiduciary net position as percentage of total OPEB liability	28%	33%	40%
Covered-employee payroll	\$19,291,600	\$18,513,781	\$18,674,165
Net OPEB liability as percentage of covered-employee payroll	65%	71%	66%

Note: Due to implementation of GASB 75 this schedule is newly created and the 10-year requirement will be built prospectively.

(Continued)

TARRANT REGIONAL WATER DISTRICT

SCHEDULE OF CHANGES IN NET OTHER POST EMPLOYMENT BENEFITS LIABILITY AND RELATED RATIOS  
LAST 10 FISCAL YEARS

	2020	2021
<u>Other post employment benefits liability</u>		
Service cost	\$ 561,117	\$ 547,295
Interest	1,315,611	1,455,965
Difference between expected and actual experience of the total OPEB liability	826,908	(141,365)
Changes in assumptions	(139,716)	1,061,704
Benefit payments	(366,238)	(292,111)
Net change in total other post employment benefits liability	2,197,682	2,631,488
Total other post employment benefits liability - beginning	20,785,274	22,982,956
Total other post employment benefits liability - ending	<u>\$ 22,982,956</u>	<u>\$ 25,614,444</u>
<u>Plan fiduciary net position</u>		
Contributions - employer	\$ 1,976,748	\$ 2,063,672
Net investment income	686,452	1,822,450
Benefit payments	(366,238)	(292,111)
Administrative expense	(53,147)	(68,206)
Net changes	2,243,815	3,525,805
Plan fiduciary net position - beginning	8,398,411	10,642,226
Plan fiduciary net position - ending	<u>10,642,226</u>	<u>14,168,031</u>
Net other post employment benefits liability	<u>\$ 12,340,730</u>	<u>\$ 11,446,413</u>
Plan fiduciary net position as percentage of total OPEB liability	46%	55%
Covered-employee payroll	\$ 19,662,433	\$ 20,217,028
Net OPEB liability as percentage of covered-employee payroll	63%	57%

Note: Due to implementation of GASB 75 this schedule is newly created and the 10-year requirement will be built prospectively.

(Continued)



**TARRANT REGIONAL WATER DISTRICT**

**SCHEDULE OF CHANGES IN NET OTHER POST EMPLOYMENT BENEFITS LIABILITY AND RELATED RATIOS  
LAST 10 FISCAL YEARS**

	2022	2023
<u>Other post employment benefits liability</u>		
Service cost	\$ 602,123	\$ 573,868
Interest	1,542,872	1,601,654
Difference between expected and actual experience of the total OPEB liability	(298,023)	(46,850)
Changes in assumptions	(354,102)	
Benefit payments	(401,938)	(596,146)
Net change in total other post employment benefits liability	1,090,932	1,532,526
Total other post employment benefits liability - beginning	25,614,444	26,705,376
Total other post employment benefits liability - ending	<u>\$ 26,705,376</u>	<u>\$ 28,237,902</u>
<u>Plan fiduciary net position</u>		
Contributions - employer	\$ 2,350,655	\$ 2,739,735
Net investment income (loss)	(2,456,362)	1,186,938
Benefit payments	(401,938)	(596,146)
Administrative expense	(74,393)	(77,762)
Net changes	(582,038)	3,252,765
Plan fiduciary net position - beginning	14,168,031	13,585,993
Plan fiduciary net position - ending	<u>13,585,993</u>	<u>16,838,758</u>
Net other post employment benefits liability	<u>\$ 13,119,383</u>	<u>\$ 11,399,144</u>
Plan fiduciary net position as percentage of total OPEB liability	51%	60 %
Covered-employee payroll	\$ 20,106,498	\$ 20,216,906
Net OPEB liability as percentage of covered-employee payroll	65%	56 %

Note: Due to implementation of GASB 75 this schedule is newly created and the 10-year requirement will be built prospectively.

(Concluded)

**TARRANT REGIONAL WATER DISTRICT**

**SCHEDULE OF INVESTMENTS RETURNS IN OTHER POST EMPLOYMENT BENEFITS  
LAST 10 FISCAL YEARS**

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	Annual money-weighted rate of return, net of investment expense
2017	9.50%
2018	5.27%
2019	6.56%
2020	7.07%
2021	14.95%
2022	(15.56)%
2023	7.74%

Note: Due to implementation of GASB 75 this schedule is newly created and the 10-year requirement will be built prospectively.

TARRANT REGIONAL WATER DISTRICT

SCHEDULE OF CONTRIBUTIONS IN OTHER POST EMPLOYMENT BENEFITS

LAST 10 FISCAL YEARS

	Actuarially determined contribution	Actual contribution	Contribution deficiency (excess)	Covered- employee payroll	Contributions as % of covered- employee payroll
2017	\$ 1,524,244	\$ 1,545,511	\$ (21,267)	\$ 19,291,600	8.01%
2018	1,569,476	1,626,730	(57,254)	18,513,781	8.79%
2019	1,534,834	1,851,480	(316,646)	18,674,165	9.91%
2020	1,504,889	1,976,748	(471,859)	19,662,433	10.05%
2021	1,401,562	1,375,112	26,450	20,217,028	10.21%
2022	2,063,672	2,350,655	(286,983)	20,106,498	11.69%
2023	1,349,443	2,739,735	(1,390,292)	20,216,906	13.55%

**Methods and Assumptions used to Determine Contribution Rates:**

Actuarial cost method	Individual entry age normal cost method
Amortization method	Level dollar, Closed
Remaining amortization period	23 years as of September 30, 2023
Asset valuation method	Market Value
Investment rate	6.30% per annum, net of expenses, including inflation
Inflation rate	2.50%
Salary increases	3.50% to 11.50%, including inflation
Demographic assumptions	Due to the size of this plan, the demographic assumptions are not based on formal experience studies. However, gains and losses are monitored and adjustments are made to the retirement and withdrawal assumptions as needed. Mortality and disability rates are based on assumptions used to value the Texas Municipal Retirement System (TMRS).
Mortality	For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables, published through 2019 to account for future mortality improvements.
Healthcare trend rates	Pre-65: Initial rate of 7.00% declining to an ultimate rate of 4.15% after 15 years Post-65: Initial rate of 5.50% declining to an ultimate rate of 4.15% after 14 years
Participation rates	100% of eligible retirees are assumed to elect coverage

Note: Due to implementation of GASB 75 this schedule is newly created and the 10-year requirement will be built prospectively.

**APPENDIX C**

FORM OF CO-BOND COUNSEL'S OPINION

Municipal Advisory Services  
Provided By





## Water System Revenue Refunding and Improvement Bonds, Series 2024

### Projected Schedule of Events

Mar-24							Apr-24							May-24							Jun-24						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2		1	2	3	4	5	6				1	2	3	4							1
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22
24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29
31																					30						

Complete By	Day	Event
11-Mar-24	Monday	Provide initial draft of Preliminary Official Statement to District and Bond Counsel for comments and modifications
19-Mar-24	Tuesday	Receive Preliminary Official Statement information from District and Bond Counsel
21-Mar-24	Thursday	Send Updated Preliminary Official Statement to the Working Group and Credit Rating Agencies
25-Mar-24	Week of	Rating Agency Calls
28-Mar-24	Thursday	Receive second round of comments to Preliminary Official Statement
31-Mar-24	Sunday	FYE 9-30 Disclsoure Filings Due
15-Apr-24	Monday	Send revised draft Preliminary Official Statement to the Working Group
<b>16-Apr-24</b>	<b>Tuesday</b>	<b>Board adopts Parameters Resolution Authorizing Bonds</b>
22-Apr-24	Week of	Due Diligence Call
23-Apr-24	Tuesday	Receive all final comments to draft of Preliminary Official Statement Receive Credit Ratings
26-Apr-24	Friday	Distribute POS electronically through i-Deal Prospectus by 1PM
2-May-24	Thursday	Prefile with AG Office
<b>14-May-24</b>	<b>Tuesday</b>	<b>Bond Pricing - TENTATIVE</b>
22-May-24	Wednesday	Distribute Final Official Statement through i-Deal Prospectus
6-Jun-24	Thursday	Closing and delivery of funds

RESOLUTION AUTHORIZING THE ISSUANCE, SALE, AND DELIVERY OF TARRANT REGIONAL WATER DISTRICT, A WATER CONTROL AND IMPROVEMENT DISTRICT, WATER REVENUE REFUNDING AND IMPROVEMENT BONDS, SERIES 2024, PLEDGING REVENUES FOR THE PAYMENT OF THE BONDS, APPROVING AN OFFICIAL STATEMENT, AND AUTHORIZING OTHER INSTRUMENTS AND PROCEDURES RELATING THERETO

THE STATE OF TEXAS §  
COUNTY OF TARRANT §  
TARRANT REGIONAL WATER DISTRICT  
A WATER CONTROL AND IMPROVEMENT DISTRICT §

WHEREAS, Tarrant Regional Water District, a Water Control and Improvement District, (formerly known as "Tarrant County Water Control and Improvement District Number One") (the "Issuer" or the "District") is a political subdivision of the State of Texas, being a conservation and reclamation district created and functioning under Article 16, Section 59, of the Texas Constitution, pursuant to the general laws of the State of Texas, including Chapters 49 and 51, Texas Water Code, as amended, and pursuant to the provisions of Chapter 268, Acts of 1957, 55th Legislature of Texas, Regular Session, as amended (collectively the "District Act"); and

WHEREAS, among other bonds, the Issuer has previously issued and there are presently outstanding the following described bonds:

Tarrant Regional Water District, a Water Control and Improvement District Water Revenue Refunding Bonds, Taxable Series 2020, in the original principal amount of \$129,570,000, dated February 1, 2020 (the "Series 2020 Bonds");

Tarrant Regional Water District, a Water Control and Improvement District Water Revenue Refunding Bonds, Taxable Series 2020B, in the original principal amount of \$386,680,000, dated November 1, 2020 (the "Series 2020B Bonds");

WHEREAS, the Issuer now desires to authorize the tender of the outstanding Series 2020 Bonds and Series 2020B Bonds (collectively, the "Tender Candidates") for purchase (such purchased Tender Candidates, the "Purchased Bonds"), and issue revenue refunding bonds as designated by the Authorized Officer in the Approval Certificate, each as defined herein; and

WHEREAS, the Issuer also desires to defease for debt service savings all or a portion of the principal amount of the Series 2020 Bonds and the Series 2020B Bonds that are not Purchased Bonds (the "Defeased 2020 Bonds" and together with the Purchased Bonds, the "Refunded Bonds") as designated by the Authorized Officer in the Approval Certificate;

WHEREAS, the Issuer also desires to provide funds with which to pay for certain improvements to its Water System (as defined herein), to fund a debt service reserve fund, and to pay costs of issuance of the Series 2024 Bonds, as further described herein;

WHEREAS, the Issuer will authorize the Series 2024 Bonds (hereinafter defined) pursuant to the District Act and Chapters 1207 and 1371, Texas Government Code, as amended; and

WHEREAS, the Board hereby finds and determines that it is in the best interests of the District to issue the bonds hereinafter authorized (the "Series 2024 Bonds"), in one or more series, for the purposes stated, and to delegate to the Authorized Officer (hereinafter designated) the authority to act on behalf of the District and determine the principal amount and certain other specified terms of Series 2024 Bonds to be issued, negotiate the terms of sale thereof, select the specific maturities (whole or part) of the Tender Candidates to be refunded whether through payment of the purchase price and cancellation thereof through a tender offer (such transaction, the "Tender Offer") or through other means, and authorize defeasance of the Defeased 2020 Bonds, with such information and terms to be included in one or more pricing certificates (the "Approval Certificate") to be executed by the Authorized Officer, all in accordance with the provisions of the District Act, Section 1371.053, Texas Government Code, as amended, and Section 1207.007, Texas Government Code; and

WHEREAS, the meeting was open to the public and public notice of the time, place and purpose of said meeting was given pursuant to Chapter 551, Texas Government Code.

THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF TARRANT REGIONAL WATER DISTRICT, A WATER CONTROL AND IMPROVEMENT DISTRICT, THAT:

Section 1. AMOUNT AND PURPOSE OF THE SERIES 2024 BONDS. The Series 2024 Bonds will be issued (i) for the purpose of obtaining funds to pay for the planning, design, construction, and right of way costs related to the District's Water System, including the design and construction of a new operations facility, design and construction of various employee and public safety projects, design of Phase 4 of the Integrated Pipeline Project, construction of Kennedale Balancing Reservoir cell modifications, continued design of Cedar Creek Wetlands and other construction, improvements and repairs to the District's Water System; (ii) to refund on a current basis for debt service savings through purchase by means of a tender offer and cancellation, all or a portion of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B (iii) to defease for debt service savings all or a portion of the aggregate principal amount of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B (iv) to fund a debt service reserve fund; and (v) to pay costs of issuance for the Series 2024 Bonds.

Section 2. DESIGNATION OF THE BONDS. Each bond issued pursuant to this Resolution shall be designated: "TARRANT REGIONAL WATER DISTRICT, A WATER CONTROL AND IMPROVEMENT DISTRICT, WATER REVENUE REFUNDING AND IMPROVEMENT BONDS, SERIES 2024." Initially there shall be issued, sold, and delivered hereunder a single fully registered bond, without interest coupons, payable in installments of principal (the "Initial Bond"), but the Initial Bond may be assigned and transferred and/or converted into and exchanged for a like aggregate amount of fully registered bonds, without interest coupons, having serial maturities, and in the denomination or denominations of \$5,000 or any integral multiple of \$5,000, all in the manner hereinafter provided. The term "Series 2024 Bonds" as used in this Resolution shall mean and include collectively the Initial Bond and all substitute bonds exchanged therefor, as well as all other substitute bonds and replacement bonds issued pursuant hereto, and the term "Series 2024 Bond" shall mean any of the Series 2024 Bonds.



Section 3. INITIAL DATE, DENOMINATION, NUMBER, MATURITIES, INITIAL REGISTERED OWNER, AND CHARACTERISTICS OF THE INITIAL BOND. (a) As authorized by Chapter 1371 and Chapter 1207, Texas Government Code, as amended, the President of the Board of Directors, the General Manager, and the Chief Financial Officer of the Issuer are each hereby designated as an "Authorized Officer" of the Issuer, and each is hereby authorized, appointed, and designated as the officer or employee of the Issuer authorized to act on behalf of the Issuer, which actions shall be evidenced by the Approval Certificate executed by such Authorized Officer, for a period not to extend beyond April 16, 2025, in the selling and delivering of the Series 2024 Bonds determining which of the Refundable Bonds shall be refunded and constitute "Refunded Bonds" in this Resolution and carrying out the other procedures specified in this Resolution, including the use of a book-entry only system with respect to the Series 2024 Bonds and the execution of an appropriate letter of representations if deemed appropriate, the determining and fixing of the date and the date of delivery of the Series 2024 Bonds, any additional or different designation or title by which the Series 2024 Bonds shall be known, the price at which the Series 2024 Bonds will be sold (but in no event less than 97% of the principal amount of the Series 2024 Bonds), the principal amount (not exceeding \$583,340,000) of the Series 2024 Bonds, the amount of each maturity of principal thereof, the due date of each such maturity (not exceeding forty years from the date of the Series 2024 Bonds), the rate of interest to be borne by each such maturity (but in no event to result in a net effective interest rate on the Series 2024 Bonds exceeding 5.00%), the interest payment dates and periods, the date or dates of optional redemption thereof, any mandatory sinking fund redemption provisions, procuring municipal bond insurance, if any, selecting the specific maturities (in whole or in part) and amounts of the Tender Candidates to be purchased for cancellation in accordance with the Invitation (as hereinafter defined), if any, and the method for determining the purchase price for each maturity of the Tender Candidates subject to the Tender Offer, overseeing the preparation and distribution of an invitation to tender (including all exhibits and/or appendices thereto, the "Invitation") and the execution of a dealer manager agreement and an agreement with the information and tender agent relating to the Invitation and the Tender Offer, designating the dealer manager associated with the Tender Offer and the underwriters associated with the issuance and sale of the Series 2024 Bonds and the Tender Offer, designating an information agent and a tender agent related to the Tender Offer, determining the principal amount and purchase price of the Purchased Bonds to be purchased and cancelled pursuant to the Tender Offer and accepted for purchase and cancellation, authorizing defeasance of the Defeased 2020 Bonds, selecting the specific maturities (in whole or in part) and amounts of the Defeased 2020 Bonds, determining any amounts to be contributed to the refunding by the District, if any, and approving modifications to this Resolution and executing such instruments, documents and agreements as may be necessary with respect thereto, and all other matters relating to the issuance, sale and delivery of the Series 2024 Bonds, the Tender Offer, and the refunding and defeasance of the Refunded Bonds.

(b) The Initial Bond is hereby authorized to be issued, sold, and delivered hereunder as a single fully registered Bond, without interest coupons, in the denomination and aggregate principal amount set forth in the Approval Certificate (not exceeding \$583,340,000), numbered TR-1, payable in annual installments of principal to the initial registered owner thereof or to the registered assignee or assignees of said Bond or any portion or portions thereof (in each case, the "registered owner"), with the annual installments of principal of the Initial Bond to be payable on the dates, respectively, and in the principal amounts, respectively, and may and shall be prepaid or redeemed prior to the respective scheduled due dates of installments of principal thereof, all as set forth in the Approval Certificate.

(c) The Initial Bond (i) if so provided in the Approval Certificate, may and/or shall be prepaid or paid on the respective scheduled due dates of installments of principal thereof, (ii) may be assigned and transferred, (iii) may be converted and exchanged for other bonds, (iv) shall have the characteristics, and (v) shall be signed and sealed, and the principal of and interest on the Initial Bond shall be payable, all as provided, and in the manner required or indicated, in the FORM OF INITIAL BOND set forth in this Resolution.

Section 4. INTEREST. The unpaid principal balance of the Initial Bond shall bear interest from the date of delivery (the "Issue Date") of the Initial Bond to the Underwriters (as defined in Section 31 hereof) to the respective scheduled due dates, or to the respective dates of prepayment or redemption, if any, of the installments of principal of the Initial Bond, and such interest shall be payable in the manner, at the rates, and on the dates, respectively, as provided in the Approval Certificate and the FORM OF INITIAL BOND set forth in this Resolution.

Section 5. FORM OF INITIAL BOND. The form of the Initial Bond, including the form of Registration Certificate of the Comptroller of Public Accounts of the State of Texas to be endorsed on the Initial Bond, shall be substantially as follows, with blank or bracketed information to be completed or deleted based upon the Approval Certificate:

FORM OF INITIAL BOND

NO. TR-1

\$ \_\_\_\_\_\*

UNITED STATES OF AMERICA  
STATE OF TEXAS  
TARRANT REGIONAL WATER DISTRICT,  
A WATER CONTROL AND IMPROVEMENT DISTRICT,  
WATER REVENUE REFUNDING AND IMPROVEMENT BONDS,  
SERIES 2024

TARRANT REGIONAL WATER DISTRICT, A WATER CONTROL AND IMPROVEMENT DISTRICT (the "Issuer"), being a political subdivision of the State of Texas, hereby promises to pay to:

\_\_\_\_\_\*

or to the registered assignee or assignees of this Bond or any portion or portions hereof (in each case, the "registered owner") the aggregate principal amount of

\_\_\_\_\_\*

in annual installments of principal due and payable on March 1 in each of the years, and in the respective principal amounts, as set forth in the following schedule:

\* From Approval Certificate.

<u>Year*</u>	<u>Principal Amount*</u>	<u>Year*</u>	<u>Principal Amount*</u>
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and to pay interest, calculated on the basis of a 360-day year composed of twelve 30-day months, from the date of initial delivery of this Bond to the Underwriters (as defined in the Bond Resolution (hereinafter defined)), on the balance of each such installment of principal, respectively, from time to time remaining unpaid, at the rates as follows:

<u>Year*</u>	<u>Rate*</u>	<u>Year*</u>	<u>Rate*</u>
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with said interest being payable semiannually on each March 1 and September 1, commencing \_\_\_\_\_\*, while this Bond or any portion hereof is outstanding and unpaid.

THE INSTALLMENTS OF PRINCIPAL OF AND THE INTEREST ON this Bond are payable in lawful money of the United States of America, without exchange or collection charges. The installments of principal and the interest on this Bond are payable to the registered owner hereof through the services of BOKF, NA, DALLAS, TEXAS, which is the "Paying Agent/Registrar" for this Bond. Payment of all principal of and interest on this Bond shall be made by the Paying Agent/Registrar to the registered owner hereof on each principal and/or interest payment date by check, dated as of such date, drawn by the Paying Agent/Registrar on, and payable solely from, funds of the Issuer required by the resolution authorizing the issuance of this Bond (the "Bond Resolution") to be on deposit with the Paying Agent/Registrar for such purpose as hereinafter provided; and such check shall be sent by the Paying Agent/Registrar by United States mail, first class postage prepaid, on each such principal and/or interest payment date, to the registered owner hereof, at the address of the registered owner, as it appeared at the close of business on the 15th day of the month next preceding each such date (the "Record Date") on the Registration Books kept by the Paying Agent/ Registrar, as hereinafter described. The Issuer covenants with the registered owner of this Bond that on or before each principal and/or interest payment date for this Bond it will make available to the Paying Agent/Registrar, from the "Interest and Redemption Fund" created by the Bond Resolution, the amounts required to provide for the payment, in immediately available funds, of all principal of and interest on this Bond, when due.

\* From Approval Certificate.

IF THE DATE for the payment of the principal of or interest on this Bond shall be a Saturday, Sunday, a legal holiday, or a day on which banking institutions in the City where the Paying Agent/Registrar is located are authorized by law or executive order to close, then the date for such payment shall be the next succeeding day which is not such a Saturday, Sunday, legal holiday, or day on which banking institutions are authorized to close; and payment on such date shall have the same force and effect as if made on the original date payment was due.

THIS BOND has been authorized in accordance with the Constitution and laws of the State of Texas in the principal amount of \$ \_\_\_\_\_ \*, (i) for the purpose of obtaining funds to pay for the planning, design, construction, and right of way costs related to the District's Water System, including the design and construction of a new operations facility, design and construction of various employee and public safety projects, design of Phase 4 of the Integrated Pipeline Project, construction of Kennedale Balancing Reservoir cell modifications, continued design of Cedar Creek Wetlands and other construction, improvements and repairs to the District's Water System; (ii) to refund on a current basis for debt service savings through purchase by means of a tender offer and cancellation, all or a portion of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B (iii) to defease for debt service savings all or a portion of the aggregate principal amount of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B (iv) to fund a debt service reserve fund; and (v) to pay costs of issuance for the Bonds.

ON \_\_\_\_\_ \*, or any date thereafter, the unpaid installments of principal of this Bond may be prepaid or redeemed prior to their scheduled due dates, at the option of the Issuer, with funds derived from any available source, as a whole, or in part, and, if in part, the Issuer shall select and designate the installment or installments of principal, and the amount that is to be redeemed, and if less than a whole principal installment is to be called, the Issuer shall direct the Paying Agent/Registrar to call by lot or other customary method of random selection the portion of the principal installment to be redeemed (only in an integral multiple of \$5,000), at the redemption price of the principal amount to be prepaid or redeemed, plus accrued interest to the date fixed for prepayment or redemption.

\*\*[THE PRINCIPAL INSTALLMENTS OF THIS BOND maturing on March 1, \_\_\_\_ and March 1, \_\_\_\_ are subject to mandatory prepayment or redemption prior to maturity in part, at a price equal to the principal amount of this Bond or portions hereof to be prepaid or redeemed plus accrued interest to the date of prepayment or redemption, on March 1 in the each of years and in the amounts as follows:

Principal Installment due on March 1, \_\_\_\_

Years                      Amounts

\* From Approval Certificate.

\*\* From Approval Certificate, if applicable.

Principal Installment due on March 1, \_\_\_\_\_

Years                      Amounts

The amount of any principal installment of this Bond required to be prepaid or redeemed pursuant to the operation of such mandatory prepayment or redemption provisions shall be reduced, at the option of the Issuer, by the principal amount of such principal installment of this Bond which, at least 50 days prior to the mandatory prepayment or redemption date (1) shall have been acquired by the Issuer at a price not exceeding such principal amount plus accrued interest to the date of purchase thereof, (2) shall have been purchased by the Paying Agent/Registrar at the request of the Issuer at a price not exceeding such principal amount plus accrued interest to the date of purchase, or (3) shall have been prepaid or redeemed pursuant to the optional prepayment or redemption provisions and not theretofore credited against a mandatory prepayment or redemption requirement.]

AT LEAST 30 days prior to the date fixed for any such prepayment or redemption a written notice of such prepayment or redemption shall be mailed by the Paying Agent/Registrar to the registered owner hereof. By the date fixed for any such prepayment or redemption due provision shall be made by the Issuer with the Paying Agent/Registrar for the payment of the required prepayment or redemption price for this Bond or the portion hereof which is to be so prepaid or redeemed, plus accrued interest thereon to the date fixed for prepayment or redemption. If such written notice of prepayment or redemption is given, and if due provision for such payment is made, all as provided above, this Bond, or the portion thereof which is to be so prepaid or redeemed, thereby automatically shall be treated as prepaid or redeemed prior to its scheduled due date, and shall not bear interest after the date fixed for its prepayment or redemption, and shall not be regarded as being outstanding except for the right of the registered owner to receive the prepayment or redemption price plus accrued interest to the date fixed for prepayment or redemption from the Paying Agent/Registrar out of the funds provided for such payment. The Paying Agent/Registrar shall record in the Registration Books all such prepayments or redemptions of principal of this Bond or any portion hereof.

THIS BOND, to the extent of the unpaid principal balance hereof, or any unpaid portion hereof in any integral multiple of \$5,000, may be assigned by the initial registered owner hereof and shall be transferred only in the Registration Books of the Issuer kept by the Paying Agent/Registrar acting in the capacity of registrar for the Bonds, upon the terms and conditions set forth in the Bond Resolution. Among other requirements for such transfer, this Bond must be presented and surrendered to the Paying Agent/ Registrar for cancellation, together with proper instruments of assignment, in form and with guarantee of signatures satisfactory to the Paying Agent/Registrar, evidencing assignment by the initial registered owner of this Bond, or any portion or portions hereof in any integral multiple of \$5,000, to the assignee or assignees in whose name or names this Bond or any such portion or portions hereof is or are to be transferred and registered. Any instrument or instruments of assignment satisfactory to the Paying Agent/Registrar may be used to evidence the assignment of this Bond or any such portion or portions hereof by the initial registered owner hereof. A new bond or bonds payable to such assignee or assignees (which then will be the new registered owner or owners of such new Bond or Bonds) or to the initial registered

owner as to any portion of this Bond which is not being assigned and transferred by the initial registered owner, shall be delivered by the Paying Agent/Registrar in conversion of and exchange for this Bond or any portion or portions hereof, but solely in the form and manner as provided in the next paragraph hereof for the conversion and exchange of this Bond or any portion hereof. The registered owner of this Bond shall be deemed and treated by the Issuer and the Paying Agent/Registrar as the absolute owner hereof for all purposes, including payment and discharge of liability upon this Bond to the extent of such payment, and the Issuer and the Paying Agent/Registrar shall not be affected by any notice to the contrary.

AS PROVIDED above and in the Bond Resolution, this Bond, to the extent of the unpaid principal balance hereof, may be converted into and exchanged for a like aggregate principal amount of fully registered bonds, without interest coupons, payable to the assignee or assignees duly designated in writing by the initial registered owner hereof, or to the initial registered owner as to any portion of this Bond which is not being assigned and transferred by the initial registered owner, in any denomination or denominations in any integral multiple of \$5,000 (subject to the requirement hereinafter stated that each substitute bond issued in exchange for any portion of this Bond shall have a single stated principal maturity date), upon surrender of this Bond to the Paying Agent/Registrar for cancellation, all in accordance with the form and procedures set forth in the Bond Resolution. If this Bond or any portion hereof is assigned and transferred or converted each bond issued in exchange for any portion hereof shall have a single stated principal maturity date corresponding to the due date of the installment of principal of this Bond or portion hereof for which the substitute bond is being exchanged, and shall bear interest at the rate applicable to and borne by such installment of principal or portion thereof. Such bonds, respectively, shall be subject to redemption prior to maturity on the same dates and for the same prices as the corresponding installment of principal of this Bond or portion hereof for which they are being exchanged. No such bond shall be payable in installments, but shall have only one stated principal maturity date.

AS PROVIDED IN THE BOND RESOLUTION, THIS BOND IN ITS PRESENT FORM MAY BE ASSIGNED AND TRANSFERRED OR CONVERTED ONCE ONLY, and to one or more assignees, but the bonds issued and delivered in exchange for this Bond or any portion hereof may be assigned and transferred, and converted, subsequently, as provided in the Bond Resolution. The Issuer shall pay the Paying Agent/Registrar's standard or customary fees and charges for transferring, converting, and exchanging this Bond or any portion thereof, but the one requesting such transfer, conversion, and exchange shall pay any taxes or governmental charges required to be paid with respect thereto. The Paying Agent/Registrar shall not be required to make any such assignment, conversion, or exchange (i) during the period commencing with the close of business on any Record Date and ending with the opening of business on the next following principal or interest payment date, or, (ii) with respect to any Bond or portion thereof called for prepayment or redemption prior to maturity, within 45 days prior to its prepayment or redemption date.

IN THE EVENT any Paying Agent/Registrar for this Bond is changed by the Issuer, resigns, or otherwise ceases to act as such, the Issuer has covenanted in the Bond Resolution that it promptly will appoint a competent and legally qualified substitute therefor, and promptly will cause written notice thereof to be mailed to the registered owner of this Bond.

IT IS HEREBY certified, recited, and covenanted that this Bond has been duly and validly authorized, issued, and delivered; that all acts, conditions, and things required or proper to be performed, exist, and be done precedent to or in the authorization, issuance, and delivery of this Bond have been performed, existed, and been done in accordance with law; that this Bond and the

interest thereon, are special obligations of the Issuer which, together with other outstanding bonds of the Issuer, are secured by and payable equally and ratably on a parity from a first lien on and pledge of the "Pledged Revenues," as defined in the Bond Resolution, which include the "Net Revenues of the District's Water System," as defined in the Bond Resolution, which specifically include certain amounts to be received by the Issuer (i) pursuant to the "Tarrant County Regional Water Supply Facilities Contract," dated August 29, 1979, among the Issuer and the Cities of Fort Worth and Mansfield, Texas, the "Tarrant County Regional Water Supply Facilities Supplemental Contract For Trinity River Authority of Texas," dated as of March 12, 1979 between the Issuer and Trinity River Authority of Texas, and the "Tarrant County Regional Water Supply Facilities Amendatory Contract", dated September 1, 1982, among the Issuer, the Cities of Fort Worth, Arlington, and Mansfield, Texas, and Trinity River Authority of Texas, which last named amendatory contract consolidates the previous contracts between such parties with respect to the Issuer's Water System into one instrument and sets forth the entire agreement between such parties with respect to the Issuer's Water System, and (ii) pursuant to contracts with other water customers of the Issuer.

THE ISSUER has reserved the right, subject to the restrictions stated in the Bond Resolution, to issue Additional Bonds payable from and secured by a first lien on and pledge of the "Pledged Revenues" on a parity with this Bond.

THE ISSUER also has reserved the right to amend the Bond Resolution, with the approval of the owners of 51% of the outstanding bonds secured by a first lien on the Pledged Revenues, subject to the restrictions as stated in the Bond Resolution.

THE REGISTERED OWNER hereof shall never have the right to demand payment of this Bond or the interest hereon out of any funds raised or to be raised by taxation or from any source whatsoever other than specified in the Bond Resolution.

BY BECOMING the registered owner of this Bond, the registered owner thereby acknowledges all of the terms and provisions of the Bond Resolution, agrees to be bound by such terms and provisions, acknowledges that the Bond Resolution is duly recorded and available for inspection in the official minutes and records of the governing body of the Issuer, and agrees that the terms and provisions of this Bond and the Bond Resolution constitute a contract between the registered owner hereof and the Issuer.

IN WITNESS WHEREOF, the Issuer has caused this Bond to be signed with the manual or facsimile signature of the President of the Board of Directors of the Issuer and countersigned with the manual or facsimile signature of the Secretary of the Board of Directors of the Issuer, has caused the official seal of the Issuer to be duly impressed, or placed in facsimile, on this Bond and has caused this Bond to be dated as of \_\_\_\_\_\*, 2024.

\_\_\_\_\_  
Secretary, Board of Directors

\_\_\_\_\_  
President, Board of Directors

(DISTRICT SEAL)

\*From Approval Certificate.

FORM OF REGISTRATION CERTIFICATE OF THE COMPTROLLER  
OF PUBLIC ACCOUNTS:

COMPTROLLER'S REGISTRATION CERTIFICATE: REGISTER NO.

I hereby certify that this Bond has been examined, certified as to validity, and approved by the Attorney General of the State of Texas, and that this Bond has been registered by the Comptroller of Public Accounts of the State of Texas.

Witness my signature and seal this

\_\_\_\_\_  
Comptroller of Public Accounts of the State of Texas

(COMPTROLLER'S SEAL)

Section 6. CHARACTERISTICS OF THE SERIES 2024 BONDS. (a) Registration, Transfer, Conversion and Exchange; Authentication. (a) The Issuer shall keep or cause to be kept at the principal corporate trust office of BOKF, NA, Dallas, Texas (the "Paying Agent/Registrar") books or records for the registration of the transfer, conversion and exchange of the Series 2024 Bonds (the "Registration Books"), and the Issuer hereby appoints the Paying Agent/Registrar as its registrar and transfer agent to keep such books or records and make such registrations of transfers, conversions and exchanges under such reasonable regulations as the Issuer and Paying Agent/Registrar may prescribe; and the Paying Agent/Registrar shall make such registrations, transfers, conversions and exchanges as herein provided. The Paying Agent/Registrar shall obtain and record in the Registration Books the address of the registered owner of each Series 2024 Bond to which payments with respect to the Series 2024 Bonds shall be mailed, as herein provided; but it shall be the duty of each registered owner to notify the Paying Agent/Registrar in writing of the address to which payments shall be mailed, and such interest payments shall not be mailed unless such notice has been given. To the extent possible and under reasonable circumstances, all transfers of Series 2024 Bonds shall be made within three business days after request and presentation thereof. The Issuer shall have the right to inspect the Registration Books during regular business hours of the Paying Agent/Registrar, but otherwise the Paying Agent/Registrar shall keep the Registration Books confidential and, unless otherwise required by law, shall not permit their inspection by any other entity. The Paying Agent/Registrar's standard or customary fees and charges for making such registration, transfer, conversion, exchange and delivery of a substitute Series 2024 Bond or Series 2024 Bonds shall be paid as provided in the FORM OF SERIES 2024 BOND set forth in this Resolution. Registration of assignments, transfers, conversions and exchanges of Series 2024 Bonds shall be made in the manner provided and with the effect stated in the FORM OF SERIES 2024 BOND set forth in this Resolution. Each substitute Series 2024 Bond shall bear a letter and/or number to distinguish it from each other Series 2024 Bond.

An authorized representative of the Paying Agent/Registrar shall, before the delivery of any such Series 2024 Bond, date and manually sign the Paying Agent/Registrar's Authentication Certificate, and no such Series 2024 Bond shall be deemed to be issued or outstanding unless such Certificate is so executed. The Paying Agent/Registrar promptly shall cancel all paid Series 2024 Bonds surrendered for conversion and exchange. No additional ordinances, orders, or resolutions need be passed or adopted by the governing body of the Issuer or any other body or person so as to accomplish the foregoing conversion and exchange of any Series 2024 Bond or portion thereof,



and the Paying Agent/Registrar shall provide for the printing, execution, and delivery of the substitute Series 2024 Bonds in the manner prescribed herein, and said Series 2024 Bonds shall be of type composition printed on paper of customary weight and strength. Pursuant to Subchapter D, Chapter 1201, Texas Government Code, the duty of conversion and exchange of Series 2024 Bonds as aforesaid is hereby imposed upon the Paying Agent/Registrar, and, upon the execution of said Certificate, the converted and exchanged Series 2024 Bond shall be valid, incontestable, and enforceable in the same manner and with the same effect as the Series 2024 Bonds which initially were issued and delivered pursuant to this Resolution, approved by the Attorney General, and registered by the Comptroller of Public Accounts.

(b) Payment of Series 2024 Bonds and Interest. The Issuer hereby further appoints the Paying Agent/Registrar to act as the paying agent for paying the principal of and interest on the Series 2024 Bonds, all as provided in this Resolution. The Paying Agent/Registrar shall keep proper records of all payments made by the Issuer and the Paying Agent/Registrar with respect to the Series 2024 Bonds.

(c) In General. The Series 2024 Bonds (i) shall be issued in fully registered form, without interest coupons, with the principal of and interest on such Series 2024 Bonds to be payable only to the registered owners thereof, (ii) if so provided in the Approval Certificate, may and/or shall be redeemed prior to their scheduled maturities, (iii) may be transferred and assigned, (iv) may be converted and exchanged for other Series 2024 Bonds, (v) shall have the characteristics, (vi) shall be signed, sealed, executed and authenticated, (vii) shall be payable as to principal and interest, and (viii) shall be administered and the Paying Agent/Registrar and the Issuer shall have certain duties and responsibilities with respect to the Series 2024 Bonds, all as provided, and in the manner and to the effect as required or indicated, in the FORM OF SERIES 2024 BOND set forth in this Resolution. The Series 2024 Bonds initially issued and delivered pursuant to this Resolution are not required to be, and shall not be, authenticated by the Paying Agent/Registrar, but on each substitute Series 2024 Bond issued in conversion of and exchange for any Series 2024 Bond or Series 2024 Bonds issued under this Resolution the Paying Agent/Registrar shall execute the PAYING AGENT/REGISTRAR'S AUTHENTICATION CERTIFICATE, in the form set forth in the FORM OF SERIES 2024 BOND.

(d) Substitute Paying Agent/Registrar. The Issuer covenants with the registered owners of the Series 2024 Bonds that at all times while the Series 2024 Bonds are outstanding the Issuer will provide a competent and legally qualified bank, trust company, financial institution, or other agency to act as and perform the services of Paying Agent/Registrar for the Series 2024 Bonds under this Resolution, and that the Paying Agent/Registrar will be one entity. The Issuer reserves the right to, and may, at its option, change the Paying Agent/Registrar upon not less than 120 days written notice to the Paying Agent/Registrar, to be effective not later than 60 days prior to the next principal or interest payment date after such notice. In the event that the entity at any time acting as Paying Agent/Registrar (or its successor by merger, acquisition, or other method) should resign or otherwise cease to act as such, the Issuer covenants that promptly it will appoint a competent and legally qualified bank, trust company, financial institution, or other agency to act as Paying Agent/Registrar under this Resolution. Upon any change in the Paying Agent/Registrar, the previous Paying Agent/Registrar promptly shall transfer and deliver the Registration Books (or a copy thereof), along with all other pertinent books and records relating to the Series 2024 Bonds, to the new Paying Agent/Registrar designated and appointed by the Issuer. Upon any change in the Paying Agent/Registrar, the Issuer promptly will cause a written notice thereof to be sent by the new Paying Agent/Registrar to each registered owner of the Series 2024 Bonds, by United States

mail, first-class postage prepaid, which notice also shall give the address of the new Paying Agent/Registrar. By accepting the position and performing as such, each Paying Agent/Registrar shall be deemed to have agreed to the provisions of this Resolution, and a certified copy of this Resolution shall be delivered to each Paying Agent/Registrar.

(e) Reporting Requirements of Paying Agent/Registrar. To the extent required by the Code and the regulations promulgated and pertaining thereto, it shall be the duty of the Paying Agent/Registrar, on behalf of the Issuer, to report to the owners of the Series 2024 Bonds and the Internal Revenue Service (i) the amount of "reportable payments," if any, subject to backup withholding during each year and the amount of tax withheld, if any, with respect to payments of the Series 2024 Bonds and (ii) the amount of interest or amount treated as interest on the Series 2024 Bonds and required to be included in gross income of the owner thereof.

(f) Book-Entry Only System. The Series 2024 Bonds issued in exchange for the Initial Bond shall be initially issued in the form of a separate single fully registered Series 2024 Bond for each of the maturities thereof. Upon initial issuance, the ownership of each such Series 2024 Bond shall be registered in the name of Cede & Co., as nominee of Depository Trust Company of New York ("DTC"), and except as provided in subsection (f) hereof, all of the outstanding Series 2024 Bonds shall be registered in the name of Cede & Co., as nominee of DTC.

With respect to Series 2024 Bonds registered in the name of Cede & Co., as nominee of DTC, the Issuer and the Paying Agent/Registrar shall have no responsibility or obligation to any DTC Participant or to any person on behalf of whom such a DTC Participant holds an interest on the Series 2024 Bonds. Without limiting the immediately preceding sentence, the Issuer and the Paying Agent/Registrar shall have no responsibility or obligation with respect to (i) the accuracy of the records of DTC, Cede & Co. or any DTC Participant with respect to any ownership interest in the Series 2024 Bonds, (ii) the delivery to any DTC Participant or any other person, other than a Bondholder, as shown on the Registration Books, of any notice with respect to the Series 2024 Bonds, including any notice of redemption, or (iii) the payment to any DTC Participant or any other person, other than a Bondholder, as shown in the Registration Books of any amount with respect to principal of, premium, if any, or interest on, as the case may be, the Series 2024 Bonds. Notwithstanding any other provision of this Resolution to the contrary, the Issuer and the Paying Agent/Registrar shall be entitled to treat and consider the person in whose name each Series 2024 Bond is registered in the Registration Books as the absolute owner of such Series 2024 Bond for the purpose of payment of principal, premium, if any, and interest, as the case may be, with respect to such Series 2024 Bond, for the purpose of giving notices of redemption and other matters with respect to such Series 2024 Bond, for the purpose of registering transfers with respect to such Series 2024 Bond, and for all other purposes whatsoever. The Paying Agent/Registrar shall pay all principal of and interest on the Series 2024 Bonds only to or upon the order of the respective owners, as shown in the Registration Books as provided in this Resolution, or their respective attorneys duly authorized in writing, and all such payments shall be valid and effective to fully satisfy and discharge the Issuer's obligations with respect to payment of principal of, premium, if any, and interest on, or as the case may be, the Series 2024 Bonds to the extent of the sum or sums so paid. No person other than an owner, as shown in the Registration Books, shall receive a Series 2024 Bond certificate evidencing the obligation of the Issuer to make payments of principal, premium, if any, and interest, as the case may be, pursuant to this Resolution. Upon delivery by DTC to the Paying Agent/Registrar of written notice to the effect that DTC has determined to substitute a new nominee in place of Cede & Co., and subject to the provisions in this Resolution

with respect to interest checks being mailed to the registered owner at the close of business on the Record Date, the word "Cede & Co." in this Resolution shall refer to such new nominee of DTC.

(g) Successor Securities Depository; Transfers Outside Book-Entry Only System. In the event that the Issuer or the Paying Agent/Registrar determines that DTC is incapable of discharging its responsibilities described herein and in the representation letter of the Issuer to DTC and that it is in the best interest of the beneficial owners of the Series 2024 Bonds that they be able to obtain certificated Series 2024 Bonds, the Issuer or the Paying Agent/Registrar shall (i) appoint a successor securities depository, qualified to act as such under Section 17(a) of the Securities and Exchange Act of 1934, as amended, notify DTC and DTC Participants of the appointment of such successor securities depository and transfer one or more separate Series 2024 Bonds to such successor securities depository or (ii) notify DTC and DTC Participants of the availability through DTC of Series 2024 Bonds and transfer one or more separate Series 2024 Bonds to DTC Participants having Series 2024 Bonds credited to their DTC accounts. In such event, the Series 2024 Bonds shall no longer be restricted to being registered in the Registration Books in the name of Cede & Co., as nominee of DTC, but may be registered in the name of the successor securities depository, or its nominee, or in whatever name or names Bondholders transferring or exchanging Series 2024 Bonds shall designate, in accordance with the provisions of this Resolution.

(h) Payments to Cede & Co. Notwithstanding any other provision of this Resolution to the contrary, so long as any Series 2024 Bond is registered in the name of Cede & Co., as nominee of DTC, all payments with respect to principal of, premium, if any, and interest on, or as the case may be, such Series 2024 Bond and all notices with respect to such Series 2024 Bond shall be made and given, respectively, in the manner provided in the representation letter of the Issuer to DTC.

Section 7. FORM OF SERIES 2024 SUBSTITUTE BONDS. The form of all Series 2024 Bonds issued in conversion and exchange or replacement of any other Series 2024 Bond or portion thereof, including the form of Paying Agent/Registrar's Certificate to be printed on each of such Series 2024 Bonds, and the Form of Assignment to be printed on each of the Series 2024 Bonds, shall be, respectively, substantially as follows, with blank or bracketed information to be completed or deleted based upon the Approval Certificate, and with such appropriate variations, omissions, or insertions as are permitted or required by this Resolution.

#### FORM OF SERIES 2024 SUBSTITUTE BOND

THE FOLLOWING TWO BRACKETED PARAGRAPHS ARE TO BE DELETED IF BOND IS NOT BOOK ENTRY ONLY:

[Unless this Bond is presented by an authorized representative of The Depository Trust Company, a New York corporation ("DTC") to the Issuer or its agent for registration of transfer, exchange, or payment, and any Bond issued is registered in the name of Cede & Co. or in such other name as is requested by an authorized representative of DTC (and any payment is made to Cede & Co. or to such other entity as is requested by an authorized representative of DTC), ANY TRANSFER, PLEDGE, OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL inasmuch as the registered owner hereof, Cede & Co., has an interest herein.

As provided in the Indenture referred to herein, until the termination of the system of book-entry-only transfers through DTC, and notwithstanding any other provision of the Indenture to the

contrary, this Bond may be transferred, in whole but not in part, only to a nominee of DTC, or by a nominee of DTC to DTC or a nominee of DTC, or by DTC or a nominee of DTC to any successor securities depository or any nominee thereof.]

NO. \_\_\_\_\_

PRINCIPAL AMOUNT  
\$ \_\_\_\_\_

UNITED STATES OF AMERICA  
STATE OF TEXAS  
TARRANT REGIONAL WATER DISTRICT,  
A WATER CONTROL AND IMPROVEMENT DISTRICT,  
WATER REVENUE REFUNDING AND IMPROVEMENT BONDS,  
SERIES 2024

<b>INTEREST RATE</b>	<b>MATURITY DATE</b>	<b>ISSUE DATE</b>	<b>CUSIP NO.</b>
%		_____, 2024	

ON THE MATURITY DATE specified above TARRANT REGIONAL WATER DISTRICT, A WATER CONTROL AND IMPROVEMENT DISTRICT (the "Issuer"), being a political subdivision of the State of Texas, hereby promises to pay to CEDE & CO. or to the registered assignee hereof (either being hereinafter called the "registered owner") the principal amount of \_\_\_\_\_ DOLLARS and to pay interest thereon, calculated on the basis of a 360-day year composed of twelve 30-day months, from the Issue Date specified above, to the Maturity Date specified above, or the date of redemption prior to maturity, at the interest rate per annum specified above; with interest being payable semiannually on each March 1 and September 1, commencing \_\_\_\_\_\*\*, except that if the date of authentication of this Bond is later than the first Record Date (hereinafter defined), such principal amount shall bear interest from the interest payment date next preceding the date of authentication, unless such date of authentication is after any Record Date (hereinafter defined) but on or before the next following interest payment date, in which case such principal amount shall bear interest from such next following interest payment date.

THE PRINCIPAL OF AND INTEREST ON this Bond are payable in lawful money of the United States of America, without exchange or collection charges. The principal of this Bond shall be paid to the registered owner hereof upon presentation and surrender of this Bond at maturity or upon the date fixed for its redemption prior to maturity, at the principal corporate trust office of BOKF, NA, Texas, which is the "Paying Agent/Registrar" for this Bond. The payment of interest on this Bond shall be made by the Paying Agent/Registrar to the registered owner hereof on each interest payment date by check dated as of such interest payment date, drawn by the Paying

\* Date of delivery to the Underwriters (as defined in section 31 hereof).

\*\* From Approval Certificate.

Agent/Registrar on, and payable solely from, funds of the Issuer required by the resolution authorizing the issuance of the Bonds (the "Bond Resolution") to be on deposit with the Paying Agent/Registrar for such purpose as hereinafter provided; and such check shall be sent by the Paying Agent/Registrar by United States mail, first-class postage prepaid, on each such interest payment date, to the registered owner hereof, at the address of the registered owner, as it appeared at the close of business on the 15th day of the month next preceding each such date (the "Record Date") on the Registration Books kept by the Paying Agent/Registrar, as hereinafter described. However, notwithstanding the foregoing provisions, (1) the payment of such interest may be made by any other method acceptable to the Paying Agent/Registrar and requested by, and at the risk and expense of, the registered owner hereof and (2) upon the written request, and at the risk and expense of, the registered owner of any Bond of this Series in the amount of \$1,000,000 or more, delivered to the Paying Agent/Registrar not less than 15 days prior to any interest payment date, payment of the interest due on such Bond on such date shall be paid on such date by wire transfer to any designated account in the United States of America which has available to it the wire service facilities of the Federal Reserve Bank. Any accrued interest due upon the redemption of this Bond prior to maturity as provided herein shall be paid to the registered owner at the principal corporate trust office of the Paying Agent/Registrar upon presentation and surrender of this Bond for redemption and payment at the principal corporate trust office of the Paying Agent/Registrar. The Issuer covenants with the registered owner of this Bond that on or before each principal payment date, interest payment date, and accrued interest payment date for this Bond it will make available to the Paying Agent/Registrar, from the "Interest and Redemption Fund" created by the Bond Resolution, the amounts required to provide for the payment, in immediately available funds, of all principal of and interest on the Bonds, when due.

IF THE DATE for the payment of the principal of or interest on this Bond shall be a Saturday, Sunday, a legal holiday, or a day on which banking institutions in the City where the Paying Agent/Registrar is located are authorized by law or executive order to close, then the date for such payment shall be the next succeeding day which is not such a Saturday, Sunday, legal holiday, or day on which banking institutions are authorized to close; and payment on such date shall have the same force and effect as if made on the original date payment was due.

THIS BOND is one of an issue of Bonds dated as of \_\_\_\_\_\*, 2024, authorized in accordance with the Constitution and laws of the State of Texas in the principal amount of \$\_\_\_\_\_\* (i) for the purpose of obtaining funds to pay for the planning, design, construction, and right of way costs related to the District's Water System, including the design and construction of a new operations facility, design and construction of various employee and public safety projects, design of Phase 4 of the Integrated Pipeline Project, construction of Kennedale Balancing Reservoir cell modifications, continued design of Cedar Creek Wetlands and other construction, improvements and repairs to the District's Water System; (ii) to refund on a current basis for debt service savings through purchase by means of a tender offer and cancellation, all or a portion of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B (iii) to defease for debt service savings all or a portion of the aggregate principal amount of the District's Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B (iv) to fund a debt service reserve fund; and (v) to pay costs of issuance for the Bonds.

\* From Approval Certificate.

ON \_\_\_\_\_\*, or any date thereafter, the outstanding Bonds may be redeemed prior to their scheduled maturities, at the option of the Issuer, with funds derived from any available source, as a whole, or in part, and, if in part, the Issuer shall select and designate the maturity, or maturities, and the amount that is to be redeemed, and if less than a whole maturity is to be redeemed, the Issuer shall direct the Paying Agent/Registrar to call by lot or other customary method of random selection the Bonds or portions thereof to be redeemed (provided that the Bonds to be redeemed only in integral multiples of \$5,000), at the redemption price of the principal amount of the Bonds to be redeemed, plus accrued interest to the date fixed for redemption.

\*\*[THE BONDS maturing on March 1, \_\_\_\_ and March 1, \_\_\_\_ (the "Term Bonds") are subject to mandatory redemption prior to maturity in part, by lot or other customary random method selected by the Paying Agent/Registrar, at a redemption price equal to the principal amount of the Term Bonds or portions thereof to be redeemed plus accrued interest to the redemption date, on June 1 in each of the years and in the principal amounts as follows:

Term Bonds maturing on March 1, \_\_\_\_

Years \_\_\_\_\_ Amounts

Term Bonds maturing on March 1, \_\_\_\_

Years \_\_\_\_\_ Amounts

The principal amount of the Term Bonds of a maturity required to be redeemed pursuant to the operation of such mandatory redemption provisions shall be reduced, at the option of the Issuer, by the principal amount of the Term Bonds of such maturity which, at least 50 days prior to the mandatory redemption date (1) shall have been acquired by the Issuer at a price not exceeding the principal amount of such Term Bonds plus accrued interest to the date of purchase thereof, and delivered to the Paying Agent/Registrar for cancellation, (2) shall have been purchased and canceled by the Paying Agent/Registrar at the request of the Issuer at a price not exceeding the principal amount of such Term Bonds plus accrued interest to the date of purchase, or (3) shall have been redeemed pursuant to the optional redemption provisions and not theretofore credited against a mandatory redemption requirement.]

DURING ANY PERIOD in which ownership of the Bonds is determined by a book entry at a securities depository for the Bonds, if fewer than all of the Bonds of the same maturity and bearing the same interest rate are to be redeemed, the particular Bonds of such maturity and bearing such interest rate shall be selected in accordance with the arrangements between the Issuer and the securities depository.

\* From Approval Certificate.

\*\* From Approval Certificate, if applicable.

AT LEAST 30 days prior to the date fixed for any redemption of Bonds or portions thereof prior to maturity at the option of the Issuer, a written notice of such redemption shall be sent by the Paying Agent/Registrar by United States mail, first-class postage prepaid, to the registered owner appearing on the Registration Books at the close of business on the day next preceding the date of mailing of such notice; provided, however, that any notice so mailed shall be conclusively presumed to have been duly given and the failure to receive such notice, or any defect therein shall not affect the validity or effectiveness of the proceedings for the redemption of any Bond at the option of the Issuer. By the date fixed for any such redemption due provision shall be made with the Paying Agent/Registrar for the payment of the required redemption price for the Bonds or portions thereof which are to be so redeemed, plus accrued interest thereon to the date fixed for redemption. If such written notice of redemption is mailed and if due provision for such payment is made, all as provided above, the Bonds or portions thereof which are to be so redeemed thereby automatically shall be treated as redeemed prior to their scheduled maturities, and they shall not bear interest after the date fixed for redemption, and they shall not be regarded as being outstanding except for the right of the registered owner to receive the redemption price plus accrued interest from the Paying Agent/Registrar out of the funds provided for such payment. If a portion of any Bond shall be redeemed a substitute Bond or Bonds having the same maturity date, bearing interest at the same rate, in any denomination or denominations in any integral multiple of \$5,000, at the written request of the registered owner, and in aggregate principal amount equal to the unredeemed portion thereof, will be issued to the registered owner upon the surrender thereof for cancellation, at the expense of the Issuer, all as provided in the Bond Resolution.

THIS BOND OR ANY PORTION OR PORTIONS HEREOF IN ANY INTEGRAL MULTIPLE OF \$5,000 may be assigned and shall be transferred only in the Registration Books of the Issuer kept by the Paying Agent/Registrar acting in the capacity of registrar for the Bonds, upon the terms and conditions set forth in the Bond Resolution. Among other requirements for such assignment and transfer, this Bond must be presented and surrendered to the Paying Agent/Registrar, together with proper instruments of assignment, in form and with guarantee of signatures satisfactory to the Paying Agent/Registrar, evidencing assignment of this Bond or any portion or portions hereof in any integral multiple of \$5,000 to the assignee or assignees in whose name or names this Bond or any such portion or portions hereof is or are to be transferred and registered. The form of Assignment printed or endorsed on this Bond shall be executed by the registered owner or its duly authorized attorney or representative, to evidence the assignment hereof. A new Bond or Bonds payable to such assignee or assignees (which then will be the new registered owner or owners of such new Bond or Bonds), or to the previous registered owner in the case of the assignment and transfer of only a portion of this Bond, may be delivered by the Paying Agent/Registrar in conversion of and exchange for this Bond, all in the form and manner as provided in the next paragraph hereof for the conversion and exchange of other Bonds. The Issuer shall pay the Paying Agent/Registrar's standard or customary fees and charges for making such transfer, but the one requesting such transfer shall pay any taxes or other governmental charges required to be paid with respect thereto. The Paying Agent/Registrar shall not be required to make transfers of registration of this Bond or any portion hereof (i) during the period commencing with the close of business on any Record Date and ending with the opening of business on the next following principal or interest payment date, or, (ii) with respect to any Bond or any portion thereof called for redemption prior to maturity, within 45 days prior to its redemption date. The registered owner of this Bond shall be deemed and treated by the Issuer and the Paying Agent/Registrar as the absolute owner hereof for all purposes, including payment and discharge of liability upon this Bond to the extent of such payment, and the Issuer and the Paying Agent/Registrar shall not be affected by any notice to the contrary.

ALL BONDS OF THIS SERIES are issuable solely as fully registered bonds, without interest coupons, in the denomination of any integral multiple of \$5,000. As provided in the Bond Resolution, this Bond, or any unredeemed portion hereof, may, at the request of the registered owner or the assignee or assignees hereof, be converted into and exchanged for a like aggregate principal amount of fully registered bonds, without interest coupons, payable to the appropriate registered owner, assignee, or assignees, as the case may be, having the same maturity date, and bearing interest at the same rate, in any denomination or denominations in any integral multiple of \$5,000 as requested in writing by the appropriate registered owner, assignee, or assignees, as the case may be, upon surrender of this Bond to the Paying Agent/Registrar for cancellation, all in accordance with the form and procedures set forth in the Bond Resolution. The Issuer shall pay the Paying Agent/Registrar's standard or customary fees and charges for transferring, converting, and exchanging any Bond or any portion thereof, but the one requesting such transfer, conversion, and exchange shall pay any taxes or governmental charges required to be paid with respect thereto as a condition precedent to the exercise of such privilege of conversion and exchange. The Paying Agent/Registrar shall not be required to make any such conversion and exchange \*[(i)] during the period commencing with the close of business on any Record Date and ending with the opening of business on the next following principal or interest payment date\*[ or, (ii) with respect to any Bond or portion thereof called for redemption prior to maturity, within 45 days prior to its redemption date].

IN THE EVENT any Paying Agent/Registrar for the Bonds is changed by the Issuer, resigns, or otherwise ceases to act as such, the Issuer has covenanted in the Bond Resolution that it promptly will appoint a competent and legally qualified substitute therefor, and promptly will cause written notice thereof to be mailed to the registered owners of the Bonds.

IT IS HEREBY certified, recited, and covenanted that this Bond has been duly and validly authorized, issued, and delivered; that all acts, conditions, and things required or proper to be performed, exist, and be done precedent to or in the authorization, issuance, and delivery of this Bond have been performed, existed, and been done in accordance with law; that this Bond and the interest thereon, are special obligations of the Issuer which, together with other outstanding bonds of the Issuer, are secured by and payable equally and ratably on a parity from a first lien on and pledge of the "Pledged Revenues," as defined in the Bond Resolution, which include the "Net Revenues of the District's Water System," as defined in the Bond Resolution, which specifically include certain amounts to be received by the Issuer (i) pursuant to the "Tarrant County Regional Water Supply Facilities Contract", dated August 29, 1979, among the Issuer and the Cities of Fort Worth and Mansfield, Texas, the "Tarrant County Regional Water Supply Facilities Supplemental Contract For Trinity River Authority of Texas," dated as of March 12, 1979 between the Issuer and Trinity River Authority of Texas, and the "Tarrant County Regional Water Supply Facilities Amendatory Contract," dated September 1, 1982, among the Issuer, the Cities of Fort Worth, Arlington, and Mansfield, Texas, and Trinity River Authority of Texas, which last named amendatory contract consolidates the previous contracts between such parties with respect to the Issuer's Water System into one instrument and sets forth the entire agreement between such parties with respect to the Issuer's Water System, and (ii) pursuant to contracts with other water customers of the Issuer.

THE ISSUER has reserved the right, subject to the restrictions stated in the Bond Resolution, to issue Additional Bonds payable from and secured by a first lien on and pledge of the "Pledged Revenues" on a parity with this Bond.



THE ISSUER also has reserved the right to amend the Bond Resolution, with the approval of the owners of 51% of the outstanding bonds secured by a first lien on the Pledged Revenues, subject to the restrictions stated in the Bond Resolution.

THE REGISTERED OWNER hereof shall never have the right to demand payment of this Bond or the interest hereon out of any funds raised or to be raised by taxation or from any source whatsoever other than as specified in the Bond Resolution.

BY BECOMING the registered owner of this Bond, the registered owner thereby acknowledges all of the terms and provisions of the Bond Resolution, agrees to be bound by such terms and provisions, acknowledges that the Bond Resolution is duly recorded and available for inspection in the official minutes and records of the governing body of the Issuer, and agrees that the terms and provisions of this Bond and the Bond Resolution constitute a contract between each registered owner hereof and the Issuer.

IN WITNESS WHEREOF, the Issuer has caused this Bond to be signed with the facsimile signature of the President of the Board of Directors of the Issuer and countersigned with the facsimile signature of the Secretary of the Board of Directors of the Issuer, and has caused the official seal of the Issuer to be duly impressed, or placed in facsimile, on this Bond.

\_\_\_\_\_  
XXXXXXXX  
Secretary, Board of Directors

\_\_\_\_\_  
XXXXXXXX  
President, Board of Directors

(DISTRICT SEAL)

FORM OF PAYING AGENT/REGISTRAR'S AUTHENTICATION CERTIFICATE

PAYING AGENT/REGISTRAR'S AUTHENTICATION CERTIFICATE

(To be executed if this Bond is not accompanied by an executed Registration Certificate of the Comptroller of Public Accounts of the State of Texas)

It is hereby certified that this Bond has been issued under the provisions of the Bond Resolution described in the text of this Bond; and that this Bond has been issued in conversion or replacement of, or in exchange for, a bond, bonds, or a portion of a bond or bonds of a Series which originally was approved by the Attorney General of the State of Texas and registered by the Comptroller of Public Accounts of the State of Texas.

Dated

BOKF, NA,  
Dallas, Texas

By \_\_\_\_\_  
Authorized Representative

FORM OF ASSIGNMENT

ASSIGNMENT

FOR VALUE RECEIVED, the undersigned sells, assigns and transfers unto

Please Insert Social Security or  
Other Identifying Number of Assignee  
/ \_\_\_\_\_ /

\_\_\_\_\_  
(Name and Address of Assignee) the within Bond and does hereby irrevocably constitute and appoint \_\_\_\_\_ to transfer said Bond on the books kept for registration thereof with full power of substitution in the premises.

Date: \_\_\_\_\_

Signature Guaranteed: \_\_\_\_\_

NOTICE: The signature to this assignment must correspond with the name as it appears upon the face of the within Bond in every particular, without alteration or enlargement or any change whatever; and

NOTICE: Signature(s) must be guaranteed by an eligible guarantor institution participating in a Securities Transfer Association recognized signature guarantee program.

Section 8. ADDITIONAL DEFINITIONS. In addition to the definitions heretofore provided for, the following terms as used in this Resolution shall have the meanings set forth below, unless the text hereof specifically indicates otherwise:

The term "Additional Bonds" shall mean the additional parity revenue bonds permitted to be authorized in the future on a parity with the Bonds, as hereinafter provided in Sections 21 and 22 hereof.

The term "Board" shall mean the Board of Directors of the District, being the governing body of the District, and it is further resolved that the declarations and covenants of the District contained in this Resolution are made by, and for and on behalf of the Board and the District, and are binding upon the Board and the District for all purposes.

The terms "Bond Resolution" and "Resolution" shall mean this resolution authorizing the Series 2024 Bonds; and it is hereby resolved and provided that Sections 8 through 24 of this Bond Resolution are applicable to all of the Bonds, as hereinafter defined, and substantially restate and are supplemental to and cumulative of Sections 8 through 24 of each of the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution, and the Series 2022 Bond Resolution with the appropriate changes and additions which are required with respect to the issuance of the Series 2024 Bonds.

The term "Bonds" shall mean collectively (i) the unpaid and unrefunded Series 2015 Bonds, Series 2015A Bonds, Series 2016 Bonds, Series 2016A Bonds, Series 2017 Bonds, Taxable Series 2020 Bonds, Taxable Series 2020B Bonds, Series 2020C Bonds, and the Series 2022 Bonds to be outstanding at any time after the delivery of the Initial Bond, and (ii) the Series 2024 Bonds.

The term "Contracts" shall mean collectively: (a) the "Tarrant County Regional Water Supply Facilities Contract", dated as of August 29, 1979, among the District and the Cities of Fort Worth and Mansfield, Texas, the "Tarrant County Regional Water Supply Facilities Supplemental Contract For Trinity River Authority of Texas", dated as of March 12, 1979, between the District and Trinity River Authority of Texas, and the "Tarrant County Regional Water Supply Facilities Amendatory Contract", dated September 1, 1982, among the District, the Cities of Fort Worth, Arlington, and Mansfield, Texas, and Trinity River Authority of Texas, which last named amendatory contract consolidates the previous contracts between such parties with respect to the System into one instrument and sets forth the entire agreement between such parties with respect to the System; and (b) all water supply contracts heretofore or hereafter executed between the District and other cities and customers in connection with the District's Water System.

The terms "District" and "Issuer" shall mean Tarrant Regional Water District, a Water Control and Improvement District.

The term "District's Water System," "Issuer's Water System," or "System" shall mean all of the District's existing water storage, treatment, transportation, distribution, and supply facilities, including all dams, reservoirs, and other properties, wherever located, (a) which are currently being used for water supply purposes and, to the extent financed with the proceeds from the sale of the Bonds or Additional Bonds or moneys from the Contingency Fund (hereinafter created), all facilities acquired or constructed in the future, and all improvements to any of the foregoing, and (b) all other facilities which in the future are deliberately and specifically, at the option of the Board, made a part of the System by resolution of the Board, but such term does not include any oil, gas, and other mineral properties owned by the District or property disposed of from time to time in accordance with the provisions of Section 23(g) hereof, provided that any property acquired in substitution therefor shall be included in the System, along with all repairs to and other replacements of the System. In particular such term includes and shall include (i) all of the District's existing Cedar Creek Project, a dam and reservoir on Cedar Creek in Henderson and Kaufman Counties, Texas, and Eagle Mountain Dam and Reservoir and Bridgeport Dam and Reservoir, which are water supply facilities of the District on the West Fork of the Trinity River, Richland-Chambers Reservoir in Navarro and Freestone Counties, Texas, and all transportation, storage, and other facilities related to all of the foregoing and (ii) the Projects which were, or are to be, financed with the proceeds from the sale of bonds originally authorized by the Series 1983 Bond Resolution, the Series 1986 Bond Resolution, Series 1999 Bond Resolution, the Series 2002 Bond Resolution, the Series 2006 Bond Resolution, the Series 2008A Bond Resolution, the Series 2008B Bond Resolution, the Series 2009 Bond Resolution, the Series 2010 Bond Resolution, the Series 2010A Bond Resolution, the Series 2010B Bond Resolution, the Series 2012 Bond Resolution, the Series 2012A Bond Resolution, the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution, the Series 2022 Bond Resolution, and the Series 2024 Bond Resolution and made a part of the System. Unless deliberately added to the System by the Board, at its option, in the manner prescribed above, said term does not include any District flood control facilities or facilities which provide waste treatment or other wastewater services of any kind. Said term does

not include any facilities acquired or constructed by the District with the proceeds from the issuance of "Special Facilities Bonds," which are hereby defined as being revenue obligations of the District, which are not issued as Additional Bonds, and which are payable from any source, contract, or revenues whatsoever other than the Pledged Revenues; and Special Facilities Bonds may be issued for any lawful purpose and made payable from any source, contract, or revenues whatsoever other than the Pledged Revenues.

The term "Gross Revenues of the System" shall mean all of the revenues, income, rentals, rates, fees, and charges of every nature derived by the Board or the District from the operation and/or ownership of the System (except as hereinafter provided), including specifically all payments and amounts received by the Board or the District from Contracts, and any interest income from the investment of money in any Funds created or maintained pursuant to any resolution authorizing the issuance of Bonds or Additional Bonds, excepting only any Construction Fund created pursuant to any resolution authorizing any Bonds or Additional Bonds. There is excepted from such term, and such term does not include (i) revenues derived by the District from the production of oil, gas, and other minerals owned by the District, or the revenues derived from the granting, sale, or lease of the right to explore for and produce same, or (ii) the royalties, rentals, license fees, and other income (other than from water sales) derived by the District from (a) lands and assets owned by the District as flood control facilities or (b) property of the District at Eagle Mountain Dam and Reservoir and Bridgeport Dam and Reservoir on the West Fork of the Trinity River.

The term "Operation and Maintenance Expenses of the System" or "Current Expenses" shall mean all reasonable and necessary current costs of operation and maintenance of the System including, but not limited to, repairs and replacements, operating personnel, utilities, supervision, engineering, accounting, auditing, legal services, insurance premiums, paying agents fees, and any other supplies and services, administration of the System, and equipment necessary for proper operation and maintenance of the System, as well as payments made for the use or operation of any property, and payments made by the District in satisfaction of judgments or other liabilities resulting from claims not covered by the District's insurance. Neither depreciation nor any other expense which does not represent a cash expenditure shall be considered an item of Operation and Maintenance Expense.

The terms "Net Revenues of the District's Water System", "Net Revenues of the System", and "Net Revenues" shall mean the Gross Revenues of the System less the Operation and Maintenance Expenses of the System.

The term "Pledged Revenues" shall mean: (a) the Net Revenues of the System and (b) any additional revenues, income, receipts, grants, donations, or other resources, received or to be received from any public or private source, whether pursuant to an agreement or otherwise, which in the future may, at the option of the District, be pledged to the payment of the Bonds or the Additional Bonds.

The term "Refunded Bonds" has the meaning set forth in the recitals hereto.

The term "Series 1983 Bond Resolution" shall mean the resolution adopted by the Board of Directors of the District on May 18, 1983, authorizing the Tarrant County Water Control and Improvement District Number One Water Revenue Bonds, Series 1983.

The term "Series 1986 Bond Resolution" shall mean the resolution adopted by the Board of Directors of the District on July 15, 1986, authorizing the Tarrant County Water Control and Improvement District Number One Water Revenue Bonds, Series 1986.

The term "Series 1999 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on May 18, 1999, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 1999.

The term "Series 2002 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on December 17, 2002, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2002.

The term "Series 2006 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on March 21, 2006, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2006.

The term "Series 2008A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on June 17, 2008, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2008A.

The term "Series 2008B Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on June 17, 2008, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2008B.

The term "Series 2009 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 20, 2009, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2009.

The term "Series 2010 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 19, 2010, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2010.

The term "Series 2010A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on May 18, 2010, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2010A.

The term "Series 2010B Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on May 18, 2010, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2010B.

The term "Series 2012 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 17, 2012, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2012.

The term "Series 2012A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on September 18, 2012, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2012A.

The term "Series 2014 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 21, 2014, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2014.

The term "Series 2015 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 20, 2015, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2015.

The term "Series 2015 Bonds" shall mean all unpaid and unrefunded Series 2015 Bonds authorized by the Series 2015 Bond Resolution

The term "Series 2015A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on October 20, 2015, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2015A.

The term "Series 2015A Bonds" shall mean all unpaid and unrefunded Series 2015A Bonds authorized by the Series 2015A Bond Resolution.

The term "Series 2016 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 19, 2016, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2016.

The term "Series 2016 Bonds" shall mean all unpaid and unrefunded Series 2016 Bonds authorized by the Series 2016 Bond Resolution.

The term "Series 2016A Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on March 15, 2016, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Series 2016A.

The term "Series 2016A Bonds" shall mean all unpaid and unrefunded Series 2016A Bonds authorized by the Series 2016A Bond Resolution.

The term "Series 2017 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on July 18, 2017, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Series 2017.

The term "Series 2017 Bonds" shall mean all unpaid and unrefunded Series 2017 Bonds authorized by the Series 2017 Bond Resolution.

The term "Series 2020C Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on October 20, 2020, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Series 2020C.

The term "Series 2020C Bonds" shall mean all unpaid and unrefunded Series 2020C Bonds authorized by the Series 2020C Bond Resolution.

The term "Series 2022 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on July 21, 2022, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Bonds, Series 2022.

The term "Series 2022 Bonds" shall mean all unpaid and unrefunded Series 2022 Bonds authorized by the Series 2022 Bond Resolution.

The term "Series 2024 Bonds" shall mean collectively the Initial Bond as described and defined in Sections 1, 2, and 3 of this Bond Resolution, and all substitute bonds exchanged therefor, as well as all other substitute bonds and replacement bonds issued pursuant to this Bond Resolution, all as provided for herein; and the Series 2024 Bonds are Additional Bonds issued to be payable from and secured by a first lien on and pledge of the Pledged Revenues equally and ratably on a parity with all of the other Bonds, as permitted by Sections 20 and 21 of the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution, and the Series 2022 Bond Resolution.

The term "Taxable Series 2020 Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on January 21, 2020, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Taxable Series 2020.

The term "Taxable Series 2020 Bonds" shall mean all unpaid and unrefunded Taxable Series 2020 Bonds authorized by the Taxable Series 2020 Bond Resolution.

The term "Taxable Series 2020B Bond Resolution" shall mean the Resolution adopted by the Board of Directors of the District on October 20, 2020, authorizing Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding Bonds, Taxable Series 2020B.

The term "Taxable Series 2020B Bonds" shall mean all unpaid and unrefunded Taxable Series 2020B Bonds authorized by the Taxable Series 2020B Bond Resolution.

The term "Tender Candidates" shall mean any of the District's Outstanding Taxable Series 2020 Bonds and Taxable Series 2020B Bonds to be refunded whether through the payment of the purchase price and cancellation thereof through the Tender Offer or through other means.

The terms "year" and "fiscal year" shall mean the District's fiscal year, which currently ends on September 30, but which subsequently may be any other 12 month period hereafter established by the District as a fiscal year for the purposes of the System and any resolution authorizing the Bonds or any Additional Bonds.

Section 9. PLEDGE. (a) That the Bonds, as defined above, and any Additional Bonds, and the interest thereon, are and shall be secured equally and ratably on a parity by and payable from a first lien on and pledge of the Pledged Revenues; and the Series 2024 Bonds are Additional Bonds payable from and secured by a first lien on and pledge of the Pledged Revenues, as permitted by

Sections 21 and 22 of the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, Series 2020C Bond Resolution, and Series 2022 Bond Resolution.

(b) That Chapter 1208, Government Code, applies to the issuance of the Series 2024 Bonds and the pledge of the revenues granted by the Issuer under this Section, and is therefore valid, effective, and perfected. Should Texas law be amended at any time while the Series 2024 Bonds are outstanding and unpaid, the result of such amendment being that the pledge of the revenues granted by the Issuer under this Section is to be subject to the filing requirements of Chapter 9, Business & Commerce Code, in order to preserve to the registered owners of the Series 2024 Bonds a security interest in said pledge, the Issuer agrees to take such measures as it determines are reasonable and necessary under Texas law to comply with the applicable provisions of Chapter 9, Business & Commerce Code and enable a filing of a security interest in said pledge to occur.

Section 10. REVENUE FUND. That there has been created and established, and there shall be maintained on the books of the District, and accounted for separate and apart from all other funds of the District, a special fund to be entitled the "Tarrant Regional Water District Water Revenue Bonds Revenue Fund" (hereinafter called the "Revenue Fund"). All Gross Revenues of the System (except investment interest and income from the other Funds hereinafter described and maintained) shall be credited to the Revenue Fund immediately upon receipt. All Operation and Maintenance Expenses of the System shall be paid from such Gross Revenues credited to the Revenue Fund, as a first charge against same.

Section 11. INTEREST AND REDEMPTION FUND. That for the sole purpose of paying the principal of and interest on all Bonds and any Additional Bonds, as the same come due, either upon redemption or at maturity, there has been created and established, and there shall be maintained, at an official depository bank of the District, a separate fund to be entitled the "Tarrant Regional Water District Revenue Bonds Interest and Redemption Fund" (hereinafter called the "Interest and Redemption Fund").

Section 12. THE CONTINGENCY AND IMPROVEMENT FUND AND THE RESERVE FUND. (a) That there has been created and established and there shall be maintained, at an official depository bank of the District, a separate fund to be entitled the "Tarrant Regional Water District Water Revenue Bonds Contingency and Improvement Fund" (hereinafter called the "Contingency Fund"). The Contingency Fund shall be used solely for the purpose of paying the costs of improvements, enlargements, extensions, additions, or other capital expenditures relating to the System, and unexpected or extraordinary replacements of the System, for which System funds are not otherwise available, or for paying unexpected or extraordinary Operation and Maintenance Expenses of the System for which System Funds are not otherwise available, or for paying principal of and interest on any Bonds or Additional Bonds, when and to the extent the amount in the Interest and Redemption Fund is insufficient for such purpose.

(b) That there has been created and established and there shall be maintained at an official depository bank of the District, a separate fund to be entitled the "Tarrant Regional Water District Water Revenue Bonds Reserve Fund" (hereinafter called the "Reserve Fund"), solely for the further security and benefit of the Bonds and any Additional Bonds. The Reserve Fund shall be used solely for the purpose of (i) finally retiring the last of the Bonds and any Additional Bonds, and (ii) paying principal of and interest on the Bonds or any Additional Bonds when and to the extent the amounts



in the Interest and Redemption Fund and Contingency Fund are insufficient for such purpose. Out of proceeds of the Bonds, there shall be deposited to the Reserve Fund an amount of money sufficient to cause the Reserve Fund to contain the Required Amount (hereinafter defined). When and so long as the money and investments in the Reserve Fund are not less in market value than a "Required Amount" equal to the principal and interest requirements of the Bonds during the fiscal year in which such requirements are scheduled to be the greatest, no deposits shall be made to the credit of the Reserve Fund; but when and if the Reserve Fund at any time thereafter contains less than said "Required Amount" in market value, then, subject and subordinate to making the required deposits to the credit of the Interest and Redemption Fund, the District shall transfer from Pledged Revenues and deposit to the credit of the Reserve Fund, semiannually on or before the 25th days of each February and each August of each year, a sum equal to no less than 1/10th of the deficiency in the "Required Amount" until the Reserve Fund is restored to said "Required Amount." So long as the Reserve Fund contains said "Required Amount" in market value, all amounts in excess of said "Required Amount," if any, shall, at least annually, on or before the 25th day of February of each year, be deposited to the credit of the Interest and Redemption Fund.

Section 13. DEPOSITS OF PLEDGED REVENUES; INVESTMENTS. (a) That the Pledged Revenues shall be deposited into the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, when and as required by this Bond Resolution, Sections 8 through 24 of the Series 2015 Bond Resolution, the Series 2015A Bond Resolution, the Series 2016 Bond Resolution, the Series 2016A Bond Resolution, the Series 2017 Bond Resolution, the Taxable Series 2020 Bond Resolution, the Taxable Series 2020B Bond Resolution, the Series 2020C Bond Resolution, and the Series 2022 Bond Resolution and Sections 8 through 24 of this Bond Resolution shall be applicable to all of the Bonds.

(b) That money in any Fund maintained pursuant to this Bond Resolution may, at the option of the District, be placed in time deposits or certificates of deposit secured by obligations of the type hereinafter described, or be invested in direct obligations of the United States of America, obligations guaranteed or insured by the United States of America, which, in the opinion of the Attorney General of the United States, are backed by its full faith and credit or represent its general obligations, or invested in indirect obligations of the United States of America, including, but not limited to, evidences of indebtedness issued, insured, or guaranteed by such governmental agencies as the Federal Land Banks, Federal Intermediate Credit Banks, Banks for Cooperatives, Federal Home Loan Banks, Government National Mortgage Association, United States Postal Service, Farmers Home Administration, Federal Home Loan Mortgage Association, Small Business Administration, Federal Housing Association, or Participation Certificates in the Federal Assets Financing Trust; provided that all such deposits and investments shall be made in such manner that the money required to be expended from any Fund will be available at the proper time or times. Such investments shall be valued by the District in terms of current market value as of the 20th day of February of each year. All interest and income derived from such deposits and investments immediately shall be credited to, and any losses debited to, the Fund from which the deposit or investment was made, and surpluses in any Fund shall be disposed of as herein provided. Such investments shall be sold promptly when necessary to prevent any default in connection with the Bonds or Additional Bonds.

Section 14. FUNDS SECURED. That money in all Funds described in this Bond Resolution shall be secured in the manner prescribed by law for securing funds of the District.

Section 15. DEBT SERVICE REQUIREMENTS. (a) That promptly after the delivery of the Initial Bond the District shall cause to be deposited to the credit of the Interest and Redemption Fund all accrued interest, if any, received from the sale and delivery of the Initial Bond, and any such deposit shall be used to pay part of the interest coming due on the Series 2024 Bonds.

(b) That the District shall transfer from the Pledged Revenues and deposit to the credit of the Interest and Redemption Fund the amounts, at the times, as follows:

(1) such amounts, deposited semiannually on or before the 25th day of each February and each August of each year, as will be sufficient, together with other amounts, if any, then on hand in the Interest and Redemption Fund and available for such purpose, to pay the interest scheduled to accrue and come due on all Bonds and Additional Bonds on the next succeeding interest payment date; and

(2) such amounts, deposited annually, on or before the 25th day of each February, as will be sufficient, together with other amounts, if any, then on hand in the Interest and Redemption Fund and available for such purpose, to pay all principal scheduled to mature and come due on all Bonds on the next succeeding March 1, and to pay all principal of all Bonds and Additional Bonds, if any, scheduled to be redeemed prior to maturity on the next succeeding March 1 in accordance with the mandatory redemption provisions and schedules set forth in any applicable Bond Resolution.

Section 16. CONTINGENCY REQUIREMENTS. That there is now on deposit to the credit of the Contingency Fund an amount equal to at least \$1,100,000. No additional deposits are required to be made to the credit of the Contingency Fund unless and until such amount therein is reduced or depleted. If and when such amount in the Contingency Fund is reduced or depleted then, subject and subordinate to making the required deposits to the credit of the Interest and Redemption Fund and the Reserve Fund, such reduction or depletion shall be restored from amounts which shall be provided for such purpose in the District's Annual Budget for the next ensuing fiscal year or years; provided that the District is not required to budget more than \$100,000 for such purpose during any one fiscal year; but the District shall have the right to budget additional amounts for such purpose if it is deemed necessary or advisable by the Board. So long as the Contingency Fund contains money and investments not less than the amount of \$1,100,000 in market value, any surplus in the Contingency Fund over said amount shall, semiannually on or before February 15 and August 15 of each year, be withdrawn, deposited to the credit of the Revenue Fund, commingled with other revenues from the operation of the System, and used for any lawful purpose for which Gross Revenues of the System may be used.

Section 17. DEFICIENCIES; EXCESS PLEDGED REVENUES. (a) That if on any occasion there shall not be sufficient Pledged Revenues to make the required deposits into the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, then such deficiency shall be made up as soon as possible from the next available Pledged Revenues, or from any other sources available for such purpose.

(b) That, subject to making the required deposits to the credit of the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, when and as required by this Bond Resolution, or any resolution authorizing the issuance of Additional Bonds, the excess Pledged Revenues may be used for any lawful purpose.

Section 18. BONDS AND ADDITIONAL BONDS NOT PAYABLE FROM TAXES. It is specifically provided that the District is not authorized to, and shall not, levy, collect, or use any tax of any nature to pay the principal of or interest on any of the Bonds or Additional Bonds.

Section 19. PAYMENT OF BONDS AND ADDITIONAL BONDS. Semiannually on or before each March 1 and September 1 while any of the Bonds or Additional Bonds are outstanding and unpaid, the District shall make available to the paying agents therefor, ratably and on a parity out of the Interest and Redemption Fund, and/or the Contingency Fund, or, from the Reserve Fund, money sufficient to pay such interest on and such principal of the Bonds or Additional Bonds as will accrue or mature, or which is scheduled to be redeemed prior to maturity, on each such March 1 and September 1, respectively. The paying agents shall destroy all paid Bonds or Additional Bonds, and the coupons, if any, appertaining thereto, and furnish the District with an appropriate certificate of cancellation or destruction.

Section 20. DEFEASANCE OF SERIES 2024 BONDS. (a) Any Series 2024 Bond and the interest thereon shall be deemed to be paid, retired, and no longer outstanding (a "Defeased Bond") within the meaning of this Resolution, except to the extent provided in subsection (d) of this Section, when payment of the principal of such Series 2024 Bond, plus interest thereon to the due date (whether such due date be by reason of maturity, or otherwise) either (i) shall have been made or caused to be made in accordance with the terms thereof or (ii) shall have been provided for on or before such due date by irrevocably depositing with or making available to the Paying Agent/Registrar in accordance with an escrow agreement or other instrument (the "Future Escrow Agreement") for such payment (1) lawful money of the United States of America sufficient to make such payment or (2) Defeasance Securities that mature as to principal and interest in such amounts and at such times as will insure the availability, without reinvestment, of sufficient money to provide for such payment, and when proper arrangements have been made by the Issuer with the Paying Agent/Registrar for the payment of its services until all Defeased Bonds shall have become due and payable. At such time as a Series 2024 Bond shall be deemed to be a Defeased Bond hereunder, as aforesaid, such Series 2024 Bond and the interest thereon shall no longer be secured by, payable from, or entitled to the benefits of, the revenues herein pledged as provided in this Resolution, and such principal and interest shall be payable solely from such money or Defeasance Securities. Notwithstanding any other provision of this Resolution to the contrary, it is hereby provided that any determination not to redeem Defeased Bonds that is made in conjunction with the payment arrangements specified in subsection 20(a)(i) or (ii) shall not be irrevocable, provided that: (1) in the proceedings providing for such payment arrangements, the Issuer expressly reserves the right to call the Defeased Bonds for redemption; (2) the Issuer gives notice of the reservation of that right to the owners of the Defeased Bonds immediately following the making of the payment arrangements, and (3) the Issuer directs that notice of the reservation be included in any redemption notices that it authorizes.

(b) Any moneys so deposited with the Paying Agent/Registrar may at the written direction of the Issuer also be invested in Defeasance Securities, maturing in the amounts and times as hereinbefore set forth, and all income from such Defeasance Securities received by the Paying Agent/Registrar that is not required for the payment of the Series 2024 Bonds and interest thereon, with respect to which such money has been so deposited, shall be turned over to the Issuer, or deposited as directed in writing by the Issuer. Any Future Escrow Agreement pursuant to which the money and/or Defeasance Securities are held for the payment of Defeased Bonds may contain provisions permitting the investment or reinvestment of such moneys in Defeasance Securities or the substitution of other Defeasance Securities upon the satisfaction of the requirements specified

in subsection 20(a)(i) or (ii). All income from such Defeasance Securities received by the Paying Agent/Registrar which is not required for the payment of the Defeased Bonds, with respect to which such money has been so deposited, shall be remitted to the Issuer or deposited as directed in writing by the Issuer.

(c) The term "Defeasance Securities" means (i) direct, noncallable obligations of the United States of America, including obligations that are unconditionally guaranteed by the United States of America, and (ii) noncallable obligations of an agency or instrumentality of the United States of America, including obligations that are unconditionally guaranteed or insured by the agency or instrumentality and that are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent.

(d) Until all Defeased Bonds shall have become due and payable, the Paying Agent/Registrar shall perform the services of Paying Agent/Registrar for such Defeased Bonds the same as if they had not been defeased, and the Issuer shall make proper arrangements to provide and pay for such services as required by this Resolution.

(e) In the event that the Issuer elects to defease less than all of the principal amount of Series 2024 Bonds of a maturity, the Paying Agent/Registrar shall select, or cause to be selected, such amount of Series 2024 Bonds by such random method as it deems fair and appropriate.

Section 21. **ADDITIONAL BONDS.** (a) That the District shall have the right and power at any time and from time to time, and in one or more Series or issues, to authorize, issue, and deliver additional bonds (herein called "Additional Bonds"), which may be payable from and secured by a first lien on and pledge of the Pledged Revenues. No Additional Bonds shall be payable from or secured by ad valorem or other taxes.

(b) Additional Bonds, if and when authorized, issued, and delivered in accordance with the provisions hereof, shall be payable from the Interest and Redemption Fund, and shall be payable from and secured by a first lien on and pledge of the Pledged Revenues, equally and ratably on a parity with the Bonds and all other outstanding Additional Bonds.

(c) That the principal of all Additional Bonds must be scheduled to be paid or mature on March 1 of the years in which such principal is scheduled to be paid or mature; and all interest thereon must be payable on March 1 and September 1.

Section 22. **FURTHER REQUIREMENTS FOR ADDITIONAL BONDS.** (a) That Additional Bonds shall be issued only in accordance with the provisions hereof, and then applicable laws, and may be issued in any amounts, for any lawful purpose relating to the System, including the refunding of any Bonds or Additional Bonds. No installment, Series, or issue of Additional Bonds shall be issued or delivered unless the President and the Secretary of the Board sign a written certificate to the effect (i) that the District is not in default as to any covenant, condition, or obligation in connection with all outstanding Bonds and Additional Bonds, and the resolutions authorizing the same, (ii) that the Interest and Redemption Fund and the Reserve Fund contain the amount then required to be therein, and (iii) that either (1) the Pledged Revenues in each fiscal year, commencing (A) with the third complete fiscal year following the execution of such certificate or report, or (B) with the fiscal year following the estimated completion date of any project for which the then proposed Additional Bonds are being issued (whichever of (A) or (B) is later) are estimated, based on a report of an independent engineer or firm of engineers, to be at least equal to

1.25 times the average annual principal and interest requirements of all Bonds and Additional Bonds to be outstanding after delivery of the then proposed Additional Bonds, or (2) based upon an opinion of legal counsel to the District, there are Contracts then in effect pursuant to which parties to such Contracts are obligated to make minimum payments to the District on a "take or pay" basis at such times and in such amounts as shall be necessary to provide to the District Pledged Revenues sufficient to pay when due all principal of and interest on all Bonds and Additional Bonds.

(b) That each resolution authorizing the issuance of Additional Bonds shall confirm the Reserve Fund as additional security for all such Additional Bonds, and the Reserve Fund shall be increased to the extent required to cause the Reserve Fund to be maintained in an amount not less than the principal and interest requirements, during the fiscal year in which such requirements are scheduled to be the greatest, of all Bonds and Additional Bonds to be outstanding after the issuance of such then proposed Additional Bonds (or any greater amount as may, at the option of the District, be provided for in any resolution authorizing the issuance of any Additional Bonds), and shall make provision for funding such Reserve Fund from Pledged Revenues, or, at the option of the District, from bond proceeds or other available sources. Such Reserve Fund may be funded in whole or in part initially, or may be funded in whole or in part from Pledged Revenues by approximately equal periodic payments, not less than annual, and within not more than five years from the date of such then proposed Additional Bonds.

(c) That all calculations of principal and interest requirements of any bonds made in connection with the issuance of any then proposed Additional Bonds shall be made as of the date of such Additional Bonds; and also in making calculations for such purpose, or for any other purpose under any resolution authorizing any Bonds or Additional Bonds, the principal amounts of any Bonds or Additional Bonds which must be redeemed prior to maturity pursuant to any applicable mandatory redemption requirements shall be deemed to be maturing amounts of principal.

Section 23. GENERAL COVENANTS, REPRESENTATIONS, AND WARRANTIES.  
That the District further covenants, represents, warrants, and agrees that:

(a) PERFORMANCE. It will faithfully perform at all times any and all covenants, undertakings, stipulations, and provisions contained in each resolution authorizing the issuance of the Bonds and any Additional Bonds, and in each and every Bond and Additional Bond; that it will promptly pay or cause to be paid the principal of and interest on every Bond and Additional Bond, on the dates and in the places and manner prescribed in such resolutions and Bonds or Additional Bonds, and that it will, at the times and in the manner prescribed, deposit or cause to be deposited the amounts required to be deposited into the Interest and Redemption Fund; and any holder of the Bonds or Additional Bonds may require the District, its Board, and its officials and employees, to carry out, respect, or enforce the covenants and obligations of each resolution authorizing the issuance of the Bonds and any Additional Bonds, by all legal and equitable means, including specifically, but without limitation, the use and filing of mandamus proceedings, in any court of competent jurisdiction, against the District, its Board, and its officials and employees.

(b) DISTRICT'S LEGAL AUTHORITY. It is a duly created and existing conservation and reclamation district of the State of Texas pursuant to Article 16, Section 59, of the Texas Constitution, and the laws of the State of Texas, and is duly authorized under the laws of the State of Texas to create and issue the Bonds; that all action on its part for the creation and issuance of the

Bonds has been duly and effectively taken, and that the Bonds in the hands of the holders and owners thereof are and will be valid and enforceable obligations of the District in accordance with their terms.

(c) TITLE. It has acquired and constructed, and will operate and maintain the System, and has or will obtain lawful title to, or the lawful right to use and operate, the lands, buildings, and facilities constituting the System, that it warrants that it will defend the title to or lawful right to use and operate, all of the aforesaid lands, buildings, and facilities, and every part thereof, for the benefit of the holders and owners of the Bonds and Additional Bonds against the claims and demands of all persons whomsoever, and is lawfully qualified to pledge the Pledged Revenues to the payment of the Bonds and Additional Bonds in the manner prescribed herein, and has lawfully exercised such rights.

(d) LIENS. It will from time to time and before the same become delinquent pay and discharge all taxes, assessments, and governmental charges, if any, which shall be lawfully imposed upon it, or the System, that it will pay all lawful claims for rents, royalties, labor, materials, and supplies which if unpaid might by law become a lien or charge thereon, the lien of which would be prior to or interfere with the liens hereof, so that the priority of the liens granted hereunder shall be fully preserved in the manner provided herein, and that it will not create or suffer to be created any mechanic's, laborer's, materialman's, or other lien or charge which might or could be prior to the liens hereof, or do or suffer any matter or thing whereby the liens hereof might or could be impaired; provided, however, that no such tax, assessment, or charge, and that no such claims which might be used as the basis of a mechanic's, laborer's, materialman's, or other lien or charge, shall be required to be paid so long as the validity of the same shall be contested in good faith by the District.

(e) OPERATION OF THE SYSTEM. While the Bonds or any Additional Bonds are outstanding and unpaid it will cause the System to be continuously and efficiently operated and maintained in good condition, repair, and working order, and at a reasonable cost.

(f) FURTHER ENCUMBRANCE. While the Bonds or any Additional Bonds are outstanding and unpaid, it will not additionally encumber the Pledged Revenues in any manner, except as permitted hereby in connection with Additional Bonds, unless said encumbrance is made junior and subordinate in all respects to the liens, pledges, covenants, and agreements of each resolution authorizing the issuance of the Bonds and any Additional Bonds; but the right of the District and the Board to issue revenue bonds for any lawful purpose payable from a subordinate lien on the Pledged Revenues is specifically recognized and retained. This Resolution does not and is not intended to affect, limit, or prohibit the issuance of bonds payable solely from ad valorem taxes.

(g) SALE OF PROPERTY. While the Bonds or any Additional Bonds, are outstanding and unpaid, it will maintain its current legal corporate status as a conservation and reclamation district, and it will not sell, convey, mortgage, or in any manner transfer title to, or lease or otherwise dispose of the entire System, or any significant or substantial part thereof; provided that whenever the District deems it necessary to dispose of any real or personal property, machinery, fixtures, or equipment, it may sell or otherwise dispose of such real or personal property, machinery, fixtures, or equipment when it has made arrangements to replace the same or provide substitutes therefor, unless it is determined by resolution of the Board that no such replacement or substitute is necessary; and all proceeds from the sale thereof shall be credited to the Revenue Fund. In all events counsel to the Issuer shall opine as to the validity of the Resolution, as supplemented and

amended and counsel to the Contracting Parties shall opine on the validity of the obligation of the Contracting Parties under the Contract.

(h) INSURANCE. (1) It will carry or cause to be carried such insurance as usually would be carried by corporations or other business entities operating like properties and engaged in similar activities, with a responsible insurance company or companies; provided that no insurance shall be required to the extent that the Board determines, based on the advise of legal counsel, that no substantial liability can or will arise under a particular hazard. At any time while any contractor engaged in construction work shall be fully responsible therefor, the District shall not be required to carry insurance on the works being constructed, if the contractor is required to carry appropriate insurance. All such policies shall be open to the inspection of the owners or holders of the Bonds and Additional Bonds and their representatives at all reasonable times.

(2) Upon the happening of any loss or damage covered by insurance from one or more of said causes, the District shall make due proof of loss and shall do all things necessary or desirable to cause the insuring companies to make payment in full directly to the District. The proceeds of insurance covering such property, together with any other funds necessary and available for such purpose, shall be used forthwith by the District for repairing the property damaged or replacing the property destroyed; provided, however, that if said insurance proceeds and other funds are insufficient for such purpose, then said insurance proceeds pertaining to the System shall be used promptly as follows:

(a) for the redemption prior to maturity of the Bonds and Additional Bonds, if any, ratably in the proportion that the outstanding principal of each Series or issue of Bonds or Additional Bonds bears to the total outstanding principal of all Bonds and Additional Bonds; provided that if on any such occasion the principal of any such Series or issue is not subject to redemption, it shall not be regarded as outstanding in making the foregoing computation; or

(b) if none of the outstanding Bonds or Additional Bonds is subject to redemption, then for the purchase on the open market and retirement of said Bonds and Additional Bonds, in the same proportion as prescribed in the foregoing clause (a), to the extent practicable; provided that the purchase price for any such Bond or Additional Bonds shall not exceed the redemption price of such Bond or Additional Bond on the first date upon which it becomes subject to redemption; or

(c) to the extent that the foregoing clauses (a) and (b) cannot be complied with at the time, the insurance proceeds, or the remainder thereof, shall be deposited in a special and separate trust fund, at an official depository of the District, to be designated the Insurance Account. The Insurance Account shall be held until such time as the foregoing clauses (a) and/or (b) can be complied with, or until other funds become available which, together with the Insurance Account, will be sufficient to make the repairs or replacements originally required, whichever of said events occurs first.

(3) The annual audit hereinafter required shall contain a list of all such insurance policies carried, together with a statement as to whether or not all insurance premiums upon such policies have been paid.

(i) **RATE COVENANT.** It will fix, establish, maintain, revise (if and when necessary), and collect such rates, charges, and fees for the sale of water from the System and for the use and availability of the System as are necessary to produce Gross Revenues of the System sufficient, together with any other Pledged Revenues and any taxes as may be levied by the District for such purpose, (1) to pay all Operation and Maintenance Expenses of the System, and (2) to produce Pledged Revenues adequate to provide for all payments and deposits required to be made into the Interest and Redemption Fund, the Reserve Fund, and the Contingency Fund, when and as required by the resolutions authorizing all Bonds and Additional Bonds.

(j) **RECORDS.** It will keep proper books of records and accounts in which full, true, and correct entries will be made of all dealings, activities, and transactions relating to the System, the Pledged Revenues, and all Funds created pursuant to each resolution authorizing the issuance of the Bonds and Additional Bonds; and all books, documents, and vouchers relating thereto shall at all reasonable times be made available for inspection upon request of any bondholder.

(k) **AUDITS.** Each year while any of the Bonds or Additional Bonds are outstanding, an audit will be made of its books and accounts relating to the System and the Pledged Revenues by an independent certified public accountant or an independent firm of certified public accountants. As soon as practicable after the close of each year, and when said audit has been completed and made available to the District, a copy of such audit for the preceding year shall be mailed to the Municipal Advisory Council of Texas and to any bondholders who shall so request in writing. Such annual audit reports shall be open to the inspection of the owners or holders of the Bonds and Additional Bonds and their agents and representatives at all reasonable times.

(l) **GOVERNMENTAL AGENCIES.** It will comply with all of the terms and conditions of any and all franchises, permits, and agreements applicable to the System and the Bonds or Additional Bonds entered into between the District and any governmental agency, and the District will take all action necessary to enforce said terms and conditions; and the District will obtain and keep in full force and effect all franchises, permits, and other requirements necessary with respect to the acquisition, construction, operation, and maintenance of the System.

(m) **CONTRACTS.** It will comply with the terms and conditions of the Contracts and will cause the other parties to the Contracts to comply with all of their obligations thereunder by all lawful means; and the Contracts will not be rescinded, modified, or amended in any way which would have a materially adverse effect on the operation of the System or the rights of the owners of the Bonds and Additional Bonds.

(n) **ANNUAL BUDGET.** On or before August 1 of each calendar year, it will prepare the preliminary Annual Budget of Operation and Maintenance Expenses of the System for the ensuing fiscal year, and such budget shall include a showing as to the proposed expenditures for such ensuing fiscal year, and shall show the estimated amount of Net Revenues of the System for such year. If the owners or holders of 25% in aggregate principal amount of the Bonds and Additional Bonds then outstanding shall so request on or before the 15th day of the aforesaid month, the Board shall hold a public hearing on or before the 15th day of the following month, at which any bondholder may appear in person or by agent or attorney and present any objections he may have to the final adoption of such budget. Notice of the time and place of such hearing shall be published twice, once in each of two successive weeks, in a newspaper of general circulation published in the District, with the date of the first publication to be at least fourteen days before the



date fixed for the hearing; and copies of such notice shall be mailed at least ten days before the hearing to each bondholder who shall have filed his name and address with the Secretary of the Board for such purpose. The District further covenants that on or before October 1 of each calendar year it will finally adopt the Annual Budget of Operation and Maintenance Expenses of the System for such fiscal year (hereinafter sometimes called the "Annual Budget"). If for any reason the Board shall not have adopted the Annual Budget before the first day of any fiscal year, the budget for the preceding fiscal year shall be deemed to be in force until the adoption of the Annual Budget. The Operation and Maintenance Expenses of the System incurred in any fiscal year will not exceed the reasonable and necessary amount thereof. The District may, at any time deemed necessary by the Board, adopt an Amended or Supplemental Budget for the remainder of the then current fiscal year.

Section 24. AMENDMENT OF RESOLUTION. (a) The holders and registered owners of Bonds and Additional Bonds (hereinafter collectively called "holders") aggregating 51% in principal amount of the aggregate principal amount of then outstanding Bonds and Additional Bonds shall have the right from time to time to approve any amendment to any resolution authorizing the issuance of any Bonds or Additional Bonds, which may be deemed necessary or desirable by the District, provided, however, that nothing herein contained shall permit or be construed to permit the amendment of the terms and conditions in said resolutions or in the Bonds or Additional Bonds so as to:

- (1) Make any change in the maturity of the outstanding Bonds or Additional Bonds;
- (2) Reduce the rate of interest borne by any of the outstanding Bonds or Additional Bonds;
- (3) Reduce the amount of the principal payable on the outstanding Bonds or Additional Bonds;
- (4) Modify the terms of payment of principal or interest on the outstanding Bonds or Additional Bonds, or impose any conditions with respect to such payment;
- (5) Effect any change in the rights of the holders of the Bonds and Additional Bonds then outstanding, other than a change which similarly affects all such holders;
- (6) Change the minimum percentage of the principal amount of Bonds and Additional Bonds necessary for consent to such amendment.

(b) If at any time the District shall desire to amend a resolution under this Section, the District shall cause notice of the proposed amendment to be published in a financial newspaper or journal published in The City of New York, New York, once during each calendar week for at least two successive calendar weeks. Such notice shall briefly set forth the nature of the proposed amendment and shall state that a copy thereof is on file at the principal office of each Paying Agent/Registrar for the Bonds and Additional Bonds, for inspection by all holders of Bonds and Additional Bonds. Such publication is not required, however, if notice in writing is given to each holder of Bonds and Additional Bonds.

(c) Whenever at any time not less than thirty days, and within one year, from the date of the first publication of said notice or other service of written notice the District shall receive an

instrument or instruments executed by the holders of at least 51% in aggregate principal amount of all Bonds and Additional Bonds then outstanding, which instrument or instruments shall refer to the proposed amendment described in said notice and which specifically consent to and approve such amendment in substantially the form of the copy thereof on file as aforesaid, the District may adopt the amendatory resolution in substantially the same form.

(d) Upon the adoption of any amendatory resolution pursuant to the provisions of this Section, the resolution being amended shall be deemed to be amended in accordance with the amendatory resolution, and the respective rights, duties, and obligations of the District and all the holders of then outstanding Bonds and Additional Bonds and all future Additional Bonds shall thereafter be determined, exercised, and enforced hereunder, subject in all respects to such amendment.

(e) Any consent given by the holder of a Bond or Additional Bonds pursuant to the provisions of this Section shall be irrevocable for a period of six months from the date of the first publication of the notice provided for in this Section, and shall be conclusive and binding upon all future holders of the same Bond or Additional Bond during such period. Such consent may be revoked at any time after six months from the date of the first publication of such notice by the holder who gave such consent, or by a successor in title, by filing notice thereof with each Paying Agent/Registrar for the Bonds and Additional Bonds, and the District, but such revocation shall not be effective if the holders of 51% in aggregate principal amount of the then outstanding Bonds and Additional Bonds as in this Section defined have, prior to the attempted revocation, consented to and approved the amendment.

(f) For the purpose of this Section, the fact of the holding of Bonds or Additional Bonds by any holder of Bonds or Additional Bonds which are not registered and which are payable to bearer, and the amount and numbers of such registered Bonds and Additional Bonds, and the date of their holding same, may be provided by the affidavit of the person claiming to be such holder, or by a certificate executed by any trust company, bank, banker, or any other depository wherever situated showing that at the date therein mentioned such person had on deposit with such trust company, bank, banker, or other depository, the Bonds or Additional Bonds described in such certificate. The District may conclusively assume that such ownership continues until written notice to the contrary is served upon the District. All matters relating to the ownership of registered Bonds and Additional Bonds shall be determined from the bond registration books kept by the registrar therefor.

Section 25. DAMAGED, MUTILATED, LOST, STOLEN, OR DESTROYED SERIES 2024 BONDS. (a) Replacement Bonds. In the event any outstanding Series 2024 Bond is damaged, mutilated, lost, stolen, or destroyed, the Paying Agent/Registrar shall cause to be printed, executed, and delivered, a new bond of the same principal amount, maturity, and interest rate, as the damaged, mutilated, lost, stolen, or destroyed Series 2024 Bond, in replacement for such Series 2024 Bond in the manner hereinafter provided.

(b) Application for Replacement Bonds. Application for replacement of damaged, mutilated, lost, stolen, or destroyed Series 2024 Bonds shall be made by the registered owner thereof to the Paying Agent/Registrar. In every case of loss, theft, or destruction of a Series 2024 Bond, the registered owner applying for a replacement bond shall furnish to the Issuer and to the Paying Agent/Registrar such security or indemnity as may be required by them to save each of them harmless from any loss or damage with respect thereto. Also, in every case of loss, theft, or

destruction of a Series 2024 Bond, the registered owner shall furnish to the Issuer and to the Paying Agent/Registrar evidence to their satisfaction of the loss, theft, or destruction of such Series 2024 Bond, as the case may be. In every case of damage or mutilation of a Series 2024 Bond, the registered owner shall surrender to the Paying Agent/Registrar for cancellation the Series 2024 Bond so damaged or mutilated.

(c) No Default Occurred. Notwithstanding the foregoing provisions of this Section, in the event any such Series 2024 Bond shall have matured, and no default has occurred which is then continuing in the payment of the principal of, redemption premium, if any, or interest on the Series 2024 Bond, the Issuer may authorize the payment of the same (without surrender thereof except in the case of a damaged or mutilated Series 2024 Bond) instead of issuing a replacement Series 2024 Bond, provided security or indemnity is furnished as above provided in this Section.

(d) Charge for Issuing Replacement Bonds. Prior to the issuance of any replacement bond, the Paying Agent/Registrar shall charge the registered owner of such Series 2024 Bond with all legal, printing, and other expenses in connection therewith. Every replacement bond issued pursuant to the provisions of this Section by virtue of the fact that any Series 2024 Bond is lost, stolen, or destroyed shall constitute a contractual obligation of the Issuer whether or not the lost, stolen, or destroyed Series 2024 Bond shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of this Resolution equally and proportionately with any and all other Series 2024 Bonds duly issued under this Resolution.

(e) Authority for Issuing Replacement Bonds. In accordance with Chapter 1201, Texas Government Code, this Section of this Resolution shall constitute authority for the issuance of any such replacement bond without necessity of further action by the governing body of the Issuer or any other body or person, and the duty of the replacement of such bonds is hereby authorized and imposed upon the Paying Agent/Registrar, and the Paying Agent/Registrar shall authenticate and deliver such Series 2024 Bonds in the form and manner and with the effect, as provided in this Resolution for Series 2024 Bonds issued in conversion and exchange for other Series 2024 Bonds.

Section 26. CUSTODY, APPROVAL, AND REGISTRATION OF SERIES 2024 BONDS; BOND COUNSEL'S OPINION, CUSIP NUMBERS, PREAMBLE, AND INSURANCE. The President of the Board of Directors of the Issuer is hereby authorized to have control of the Initial Bond issued hereunder and all necessary records and proceedings pertaining to said Initial Bond pending its delivery and its investigation, examination, and approval by the Attorney General of the State of Texas, and its registration by the Comptroller of Public Accounts of the State of Texas. Upon registration of said Initial Bond said Comptroller of Public Accounts (or a deputy designated in writing to act for said Comptroller) shall manually sign the Comptroller's Registration Certificate on said Initial Bond, and the seal of said Comptroller shall be impressed, or placed in facsimile, on said Initial Bond. The approving legal opinion of the Issuer's Co-Bond Counsel and the assigned CUSIP numbers may, at the option of the Issuer, be printed on said Initial Bond or on any Series 2024 Bonds issued and delivered in conversion of and exchange or replacement of any Series 2024 Bond, but neither shall have any legal effect, and shall be solely for the convenience and information of the registered owners of the Series 2024 Bonds. The preamble to this Resolution is hereby adopted and made a part hereof for all purposes. If insurance is obtained by the Underwriters (as defined in Section 31 hereof) on any of the Series 2024 Bonds, the Initial Bond and all the Series 2024 Bonds so insured shall bear an appropriate legend concerning insurance as provided by the insurer.

Section 27. COVENANTS REGARDING TAX EXEMPTION. (a) Covenants. The Issuer covenants to take any action necessary to assure, or refrain from any action that would adversely affect, the treatment of the Series 2024 Bonds as obligations described in section 103 of the Internal Revenue Code of 1986, as amended (the "Code"), the interest on which is not includable in the "gross income" of the Series 2024 Bonds holder for purposes of federal income taxation. In furtherance thereof, the Issuer covenants as follows:

(1) to take any action to assure that no more than 10 percent of the proceeds of the Series 2024 Bonds (less amounts deposited to a reserve fund, if any) are used for any "private business use," as defined in section 141(b)(6) of the Code or, if more than 10 percent of the proceeds or the projects financed therewith are so used, such amounts, whether or not received by the Issuer, with respect to such private business use, do not, under the terms of this Resolution or any underlying arrangement, directly or indirectly, secure or provide for the payment of more than 10 percent of the debt service on the Series 2024 Bonds, in contravention of section 141(b)(2) of the Code;

(2) to take any action to assure that in the event that the "private business use" described in subsection (1) hereof exceeds 5 percent of the proceeds of the Series 2024 Bonds or the projects financed therewith (less amounts deposited into a reserve fund, if any) then the amount in excess of 5 percent is used for a "private business use" that is "related" and not "disproportionate," within the meaning of section 141(b)(3) of the Code, to the governmental use;

(3) to take any action to assure that no amount that is greater than the lesser of \$5,000,000, or 5 percent of the proceeds of the Series 2024 Bonds (less amounts deposited into a reserve fund, if any) is directly or indirectly used to finance loans to persons, other than state or local governmental units, in contravention of section 141(c) of the Code;

(4) to refrain from taking any action that would otherwise result in the Series 2024 Bonds being treated as "private activity bonds" within the meaning of section 141(b) of the Code;

(5) to refrain from taking any action that would result in the Series 2024 Bonds being "federally guaranteed" within the meaning of section 149(b) of the Code;

(6) to refrain from using any portion of the proceeds of the Series 2024 Bonds, directly or indirectly, to acquire or to replace funds that were used, directly or indirectly, to acquire investment property (as defined in section 148(b)(2) of the Code) that produces a materially higher yield over the term of the Series 2024 Bonds, other than investment property acquired with –

(A) proceeds of the Series 2024 Bonds invested for a reasonable temporary period of 3 years or less or, in the case of a refunding bond, for a period of 90 days or less until such proceeds are needed for the purpose for which the Series 2024 Bonds are issued,

(B) amounts invested in a bona fide debt service fund, within the meaning of section 1.148-1(b) of the Treasury Regulations, and

(C) amounts deposited in any reasonably required reserve or replacement fund to the extent such amounts do not exceed 10 percent of the proceeds of the Series 2024 Bonds;

(7) to otherwise restrict the use of the proceeds of the Series 2024 Bonds or amounts treated as proceeds of the Series 2024 Bonds, as may be necessary, so that the Series 2024 Bonds do not otherwise contravene the requirements of section 148 of the Code (relating to arbitrage);

(8) to refrain from using the proceeds of the Series 2024 Bonds or proceeds of any prior bonds to pay debt service on another issue more than 90 days after the date of issue of the Bonds in contravention of the requirements of section 149(d) of the Code (relating to advance refundings); and

(9) to pay to the United States of America at least once during each five-year period (beginning on the date of delivery of the Series 2024 Bonds) an amount that is at least equal to 90 percent of the "Excess Earnings," within the meaning of section 148(f) of the Code and to pay to the United States of America, not later than 60 days after the Series 2024 Bonds have been paid in full, 100 percent of the amount then required to be paid as a result of Excess Earnings under section 148(f) of the Code; and

(b) Rebate Fund. In order to facilitate compliance with the above covenant (a)(9), a "Rebate Fund" is hereby established by the Issuer for the sole benefit of the United States of America, and such Fund shall not be subject to the claim of any other person, including without limitation the Bondholders. The Rebate Fund is established for the additional purpose of compliance with section 148 of the Code.

(c) Compliance with Code. For purposes of the foregoing covenants (a)(1) and (a)(2), the Issuer understands that the term "proceeds" includes "disposition proceeds" as defined in the Treasury Regulations and, in the case of refunding bonds, transferred proceeds (if any) and proceeds of the refunded bonds expended prior to the date of issuance of the Series 2024 Bonds. It is the understanding of the Issuer that the covenants contained herein are intended to assure compliance with the Code and any regulations or rulings promulgated by the U.S. Department of the Treasury pursuant thereto. In the event that regulations or rulings are hereafter promulgated that modify or expand provisions of the Code, as applicable to the Series 2024 Bonds, the Issuer will not be required to comply with any covenant contained herein to the extent that such failure to comply, in the opinion of nationally recognized bond counsel, will not adversely affect the exemption from federal income taxation of interest on the Series 2024 Bonds under section 103 of the Code. In the event that regulations or rulings are hereafter promulgated that impose additional requirements applicable to the Series 2024 Bonds, the Issuer agrees to comply with the additional requirements to the extent necessary, in the opinion of nationally recognized bond counsel, to preserve the exemption from federal income taxation of interest on the Series 2024 Bonds under section 103 of the Code. In furtherance of such intention, the Issuer hereby authorizes and directs the President of the Board of Directors, the General Manager, or the Chief Financial Officer to execute any documents, certificates or reports required by the Code and to make such elections, on behalf of the Issuer, that may be permitted by the Code as are consistent with the purpose for the issuance of the Series 2024 Bonds.

(d) Written Procedures. Unless superseded by another action of the Issuer to ensure compliance with the covenants contained herein regarding private business use, remedial actions, arbitrage and rebate, the Issuer hereby adopts and establishes the instructions attached hereto as Exhibit A as their written procedures applicable to the Bonds and any Additional Bonds.

Section 28. ALLOCATION OF, AND LIMITATION ON, EXPENDITURES FOR THE PROJECT. The Issuer covenants to account for the expenditure of sale proceeds and investment earnings to be used for the purposes described in Section 1 of this Resolution (the "Project") on its books and records by allocating proceeds to expenditures within 18 months of the later of the date that (1) the expenditure is made, or (2) the Project is completed. The foregoing notwithstanding, the Issuer shall not expend sale proceeds or investment earnings thereon more than 60 days after the earlier of (1) the fifth anniversary of the delivery of the Series 2024 Bonds, or (2) the date the Series 2024 Bonds are retired, unless the Issuer obtains an opinion of nationally-recognized bond counsel that such expenditure will not adversely affect the tax-exempt status of the Series 2024 Bonds. For purposes hereof, the Issuer shall not be obligated to comply with this covenant if it obtains an opinion that such failure to comply will not adversely affect the excludability for federal income tax purposes from gross income of the interest.

Section 29. DISPOSITION OF PROJECT. The Issuer covenants that the property constituting the Project will not be sold or otherwise disposed in a transaction resulting in the receipt by the Issuer of cash or other compensation, unless the Issuer obtains an opinion of nationally recognized bond counsel that such sale or other disposition will not adversely affect the tax-exempt status of the Series 2024 Bonds. For purposes of the foregoing, the portion of the property comprising personal property and disposed in the ordinary course shall not be treated as a transaction resulting in the receipt of cash or other compensation. For purposes hereof, the Issuer shall not be obligated to comply with this covenant if it obtains an opinion that such failure to comply will not adversely affect the excludability for federal income tax purposes from gross income of the interest.

Section 30. CONTINUING DISCLOSURE. (a) Definitions. As used in this Section, the following terms have the meanings ascribed to such terms below:

"*Authority*" means Trinity River Authority.

"*Cities*" means the Cities of Arlington, Fort Worth and Mansfield.

"*MSRB*" means the Municipal Securities Rulemaking Board.

"*Rule*" means SEC Rule 15c2-12, as amended from time to time.

"*SEC*" means the United States Securities and Exchange Commission.

(b) General. Pursuant to a Continuing Disclosure Agreement by and among the Issuer, the Cities, and the Authority, the Issuer, the Cities and the Authority have undertaken for the benefit of the beneficial owners of the Series 2024 Bonds, to the extent set forth therein, to provide continuing disclosure of financial information and operating data with respect to the Issuer, Cities and Authority in accordance with the Rule as promulgated by the SEC.

(c) Annual Reports. (i) The Issuer shall provide annually to the MSRB, within six months after the end of each fiscal year ending in or after 2024, financial information and operating data with respect to the Issuer of the general type included in the final Official Statement authorized by Section 32 of this Resolution, being the information described in Exhibit B hereto. Any financial statements so to be provided shall be prepared in accordance with the accounting principles described in Exhibit B hereto, or such other accounting principles as the Issuer may be required to employ from time to time pursuant to state law or regulation, and audited, if the Issuer commissions an audit of such statements and the audit is completed within the period during which they must be provided. If the audit of such financial statements is not complete within such period, then the Issuer shall provide unaudited financial information containing the information described in the tables referenced in Exhibit B hereto under the heading “Annual Financial Statement and Operating Data of the Issuer” by the required time, and shall provide audited financial statements for the applicable fiscal year to the MSRB, when and if the audit report on such statements become available.

(ii) If the Issuer changes its fiscal year, it will notify the MSRB of the change (and of the date of the new fiscal year end) prior to the next date by which the Issuer otherwise would be required to provide financial information and operating data pursuant to this Section. The financial information and operating data to be provided pursuant to this Section may be set forth in full in one or more documents or may be included by specific reference to any document (including an official statement or other offering document, if it is available from the MSRB) that theretofore has been provided to the MSRB, or filed with the SEC.

(d) Disclosure Event Notices. The Issuer shall notify the MSRB, in a timely manner, of any of the following events with respect to the Series 2024 Bonds, not in excess of ten Business Days after occurrence of the event:

1. Principal and interest payment delinquencies;
2. Non-payment related defaults, if material;
3. Unscheduled draws on debt service reserves reflecting financial difficulties;
4. Unscheduled draws on credit enhancements reflecting financial difficulties;
5. Substitution of credit or liquidity providers, or their failure to perform;
6. Adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determination of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax-exempt status of the Bonds, or other material events affecting the tax-exempt status of the Bonds;
7. Modifications to the rights of holders of the Bonds, if material;
8. Bond calls, if material, and tender offers;
9. Defeasances;

10. Release, substitution or sale of property securing repayment of the Bonds, if material;
11. Rating changes;
12. Bankruptcy, insolvency, receivership or similar event of the Issuer or an Obligated Person;
13. The consummation of a merger, consolidation, or acquisition involving the Issuer or an Obligated Person or the sale of all or substantially all of the assets of the Issuer or an Obligated Person, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material;
14. Appointment of a successor or additional trustee or the change of name of a trustee, if material;
15. Incurrence of a Financial Obligation of the Issuer, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the Issuer or an Obligated Person, any of which affect security holders, if material; and
16. Default, event of acceleration, termination event, modification of terms, or other similar event under the terms of a Financial Obligation of the Issuer or an Obligated Person, any of which reflect financial difficulties.

For these purposes, (a) any event described in clause 12 above is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent, or similar officer for the Issuer in a proceeding under the United States Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the Issuer, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers of the Issuer in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement, or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the Issuer, and (b) as used in clauses 15 and 16 above, the term "Financial Obligation" means: (i) a debt obligation; (ii) a derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation; or (iii) a guarantee of (i) or (ii). The term Financial Obligation shall not include Municipal Securities as to which a final official statement has been provided to the MSRB consistent with the Rule; the term "Municipal Securities" means securities which are direct obligations of, or obligations guaranteed as to principal or interest by, a state or any political subdivision thereof, or any agency or instrumentality of a state or any political subdivision thereof, or any municipal corporate instrumentality of one or more states and any other Municipal Securities described by Section 3(a)(29) of the Securities Exchange Act of 1934, as the same may be amended from time to time.



The Issuer shall notify the MSRB, in a timely manner, of any failure by the Issuer to provide financial information or operating data in accordance with Section 30(c) of this Resolution by the time required by such Section.

(e) Limitations, Disclaimers, and Amendments. (i) The Issuer shall be obligated to observe and perform the covenants specified in this Section for so long as, but only for so long as, the Issuer remains an Obligated Person with respect to the Series 2024 Bonds within the meaning of the Rule, except that the Issuer in any event will give notice of any deposit made in accordance with this Resolution or applicable law that causes Series 2024 Bonds no longer to be outstanding.

(ii) The provisions of this Section are for the sole benefit of the holders and beneficial owners of the Series 2024 Bonds, and nothing in this Section, express or implied, shall give any benefit or any legal or equitable right, remedy, or claim hereunder to any other person. The Issuer undertakes to provide only the financial information, operating data, financial statements, and notices which it has expressly agreed to provide pursuant to this Section and does not hereby undertake to provide any other information that may be relevant or material to a complete presentation of the Issuer's financial results, condition, or prospects or hereby undertake to update any information provided in accordance with this Section or otherwise, except as expressly provided herein. The Issuer does not make any representation or warranty concerning such information or its usefulness to a decision to invest in or sell Series 2024 Bonds at any future date.

(iii) UNDER NO CIRCUMSTANCES SHALL THE ISSUER BE LIABLE TO THEHOLDER OR BENEFICIAL OWNER OF ANY SERIES 2024 BOND OR ANY OTHER PERSON, IN CONTRACT OR TORT, FOR DAMAGES RESULTING IN WHOLE OR IN PART FROM ANY BREACH BY THE ISSUER, WHETHER NEGLIGENT OR WITHOUT FAULT ON ITS PART, OF ANY COVENANT SPECIFIED IN THIS SECTION, BUT EVERY RIGHT AND REMEDY OF ANY SUCH PERSON, IN CONTRACT OR TORT, FOR OR ON ACCOUNT OF ANY SUCH BREACH SHALL BE LIMITED TO AN ACTION FOR MANDAMUS OR SPECIFIC PERFORMANCE.

(iv) No default by the Issuer in observing or performing its obligations under this Section shall comprise a breach of or default under this Resolution for purposes of any other provision of this Resolution. Nothing in this Section is intended or shall act to disclaim, waive, or otherwise limit the duties of the Issuer under federal and state securities laws.

(v) The provisions of this Section may be amended by the Issuer from time to time to adapt to changed circumstances that arise from a change in legal requirements, a change in law, or a change in the identity, nature, status, or type of operations of the Issuer, but only if (1) the provisions of this Section, as so amended, would have permitted an underwriter to purchase or sell Series 2024 Bonds in the primary offering of the Series 2024 Bonds in compliance with the Rule, taking into account any amendments or interpretations of the Rule since such offering as well as such changed circumstances and (2) either (a) the holders of a majority in aggregate principal amount (or any greater amount required by any other provision of this Resolution that authorizes such an amendment) of the Outstanding Series 2024 Bonds consent to such amendment or (b) a person that is unaffiliated with the Issuer (such as bond counsel) determines that such amendment will not materially impair the interest of the holders and beneficial owners of the Series 2024 Bonds. If the Issuer so amends the provisions of this Section, it shall include with any amended financial information or operating data next provided in accordance with subsection (a) of this Section an explanation, in narrative form, of the reason for the amendment and of the impact of any change in

the type of financial information or operating data so provided. The Issuer may also amend or repeal the provisions of this continuing disclosure agreement if the SEC amends or repeals the applicable provision of the Rule or a court of final jurisdiction enters judgment that such provisions of the Rule are invalid, but only if and to the extent that the provisions of this sentence would not prevent an underwriter from lawfully purchasing or selling Series 2024 Bonds in the primary offering of the Series 2024 Bonds.

Section 31. SALE OF SERIES 2024 BONDS. Pursuant to the authorizations in Section 3 hereof, as approved by the Authorized Officer, the Series 2024 Bonds may be sold either pursuant to the taking of bids therefor as provided in an Official Notice of Sale or pursuant to a purchase agreement (the "Purchase Agreement") with a purchaser or purchasers (collectively, the "Underwriters") to be approved by the Authorized Officer, and any supplements thereto which may be necessary to accomplish the issuance of the Series 2024 Bonds. Such Purchase Agreement is hereby authorized to be dated, executed and delivered on behalf of the Issuer by an Authorized Officer, with such changes therein as shall be approved by the Authorized Officer, the execution thereof by the Authorized Officer to constitute evidence of such approval. The delegation of authority to the Authorized Officer to approve the final terms of the Series 2024 Bonds as set forth in this Resolution is, and the decisions made by the Authorized Officer pursuant to such delegated authority will be, in the best interests of the Issuer, and the Authorized Officer is authorized to make a finding to such effect in the Approval Certificate.

Section 32. APPROVAL OF OFFICIAL STATEMENT. A Preliminary Official Statement relating to the Series 2024 Bonds, in substantially the form as submitted to the Board of Directors at this meeting, is hereby approved and authorized to be distributed to prospective investors and other interested parties in connection with the underwriting and sale of the Series 2024 Bonds, with such changes therein as shall be approved by the President of the Board of Directors or the General Manager of the Issuer, including such changes as are necessary for distribution as a final Official Statement. It is further officially found, determined, and declared that the statements and representations contained in said Preliminary Official Statement are true and correct in all material respects. The use and distribution by the Purchaser of the Official Statement relating to the Series 2024 Bonds, is hereby approved. For the purpose of review by the Purchaser prior to purchasing the Series 2024 Bonds, the Issuer deems said Preliminary Official Statement to have been "final as of its date" within the meaning of Securities and Exchange Commission Rule 15c2-12.

Section 33. PURCHASE OR DEFEASANCE OF REFUNDED BONDS. (a) The Purchased Bonds are hereby directed to be purchased on the date(s) set forth in the Approval Certificate. Each holder of the Purchased Bonds identified in the Pricing Certificate hereto will deliver or cause to be delivered its Refunded Bonds to the District's DTC ATOP Account as described in the Invitation. On the Closing Date, the paying agent for the Purchased Bonds, on behalf of the District, will complete the purchase by paying the purchase price for the Purchased Bonds according to the instructions described in the Approval Certificate or other written instructions from the District or its financial advisor. It is hereby found and determined that the refunding of the Purchased Bonds is advisable and necessary in order to achieve a net present value savings in debt service.

(b) Concurrently with the delivery of the Series 2024 Bonds, the Issuer shall cause to be deposited an amount from the proceeds from the sale of the Series 2024 Bonds, together with, to the extent necessary, available funds of the Issuer, with the paying agent/registrars for the

Defeased 2020 Bonds, sufficient to provide for the refunding, of all of the Defeased 2020 Bonds, in accordance with Subchapter C of Chapter 1207, Texas Government Code, as amended. The President of the Board of Directors of the Issuer and the Vice President/Secretary of the Board of Directors of the Issuer are hereby authorized, for and on behalf of the Issuer, to execute an Escrow Agreement in substantially the form set forth in Exhibit C hereto to accomplish such purpose, which escrow agreement or deposit agreement will provide for the payment in full of the Defeased Bonds (the "Escrow Agreement") . In addition, the Authorized Officer is authorized to transfer and deposit such cash from available funds (including surplus funds in the Interest and Redemption Fund and/or the Reserve Fund), as may be necessary or appropriate for the Escrow Fund described in such Escrow Agreement. It is hereby found and determined that the refunding of the Defeased 2020 Bonds is advisable and necessary in order to achieve a net present value savings in debt service.

Section 34. ATTORNEY GENERAL FEES. The Issuer hereby authorizes and directs payment, from legally available funds of the Issuer, of the nonrefundable examination fee of the Attorney General of the State of Texas required by Section 1202.004, Texas Government Code, as amended.

Section 35. FURTHER PROCEDURES. The President and the Secretary of the Board of Directors and the General Manager and the Chief Financial Officer of the Issuer, and all other officers, employees, and agents of the Issuer, and each of them, shall be and they are hereby expressly authorized, empowered, and directed from time to time and at any time to do and perform all such acts and things and to execute, acknowledge, and deliver in the name and on behalf of the Issuer all such instruments, whether or not herein mentioned, as may be necessary or desirable in order to carry out the terms and provisions of this Resolution, and all details in connection therewith. In case any officer whose signature shall appear on any Series 2024 Bond shall cease to be such officer before the delivery of such Series 2024 Bond, such signature shall nevertheless be valid and sufficient for all purposes the same as if such officer had remained in office until such delivery.

Section 36. REPEAL OF CONFLICTING RESOLUTIONS. All resolutions and all parts of any resolutions which are in conflict or inconsistent with this Resolution are hereby repealed and shall be of no further force or effect to the extent of such conflict or inconsistency.

Section 37. PUBLIC NOTICE. It is hereby officially found and determined that public notice of the time, place and purpose of said meeting was given, all as required by the Government Code, Chapter 551, as amended.

## EXHIBIT "A"

### WRITTEN PROCEDURES RELATING TO CONTINUING COMPLIANCE WITH FEDERAL TAX COVENANTS

A. Arbitrage. With respect to the investment and expenditure of the proceeds of the Series 2024 Bonds and any Additional Bonds (the "Obligations") the Issuer's General Manager, Assistant General Manager, and Chief Financial Officer (the "Responsible Persons") will:

For Obligations issued for newly acquired property or constructed property:

- instruct the appropriate person or persons that the construction, renovation or acquisition of the facilities must proceed with due diligence and that binding contracts for the expenditure of at least 5% of the proceeds of the Obligations will be entered into within 6 months of the Issue Date;
- monitor that at least 85% of the proceeds of the Obligations to be used for the construction, renovation or acquisition of any facilities are expended within 3 years of the date of delivery of the Obligations ("Issue Date");
- restrict the yield of the investments (other than those in the Reserve Fund) to the yield on the Obligations after 3 years of the Issue Date;
- monitor all amounts deposited into a sinking fund or funds, e.g., the Interest and Redemption Fund and the Reserve Fund, to assure that the maximum amount invested at a yield higher than the yield on the Obligations does not exceed an amount equal to the debt service on the Obligations in the succeeding 12 month period plus a carryover amount equal to one-twelfth of the principal and interest payable on the Obligations for the immediately preceding 12-month period;
- assure that no more than 50% of the proceeds of the Obligations are invested in an investment with a guaranteed yield for 4 years or more;
- assure that the maximum amount of the Reserve Fund invested at a yield higher than the yield on the Obligations will not exceed the lesser of (1) 10% of the original principal amount of the Obligations, (2) 125% of the average annual debt service on the Obligations measured as of the Issue Date, or (3) 100% of the maximum annual debt service on the Obligations as of the Issue Date;

For Obligations issued for refunding purposes:

- monitor the actions of the escrow agent (to the extent an escrow is funded with proceeds) to assure compliance with the applicable provisions of the escrow agreement, including with respect to reinvestment of cash balances;

For all Obligations:

- maintain any official action of the Issuer (such as a reimbursement resolution) stating its intent to reimburse itself with the proceeds of the Obligations any amount expended prior to the Issue Date for the acquisition, renovation or construction of the facilities;
- assure that the applicable information return (e.g., IRS Form 8038-G, 8038-GC, or any successor forms) is timely filed with the IRS;
- assure that, unless excepted from rebate and yield restriction under section 148(f) of the Code, excess investment earnings are computed and paid to the U.S. government at such time and in such manner as directed by the IRS (i) at least every 5 years after the Issue Date and (ii) within 30 days after the date the Obligations are retired.

**B. Private Business Use.** With respect to the use of the facilities financed or refinanced with the proceeds of the Obligations the Responsible Persons will:

- monitor the date on which the facilities are substantially complete and available to be used for the purpose intended;
- monitor whether, at any time the Obligations are outstanding, any person, other than the Issuer, the employees of the Issuer, the agents of the Issuer or members of the general public has any contractual right (such as a lease, purchase, management or other service agreement) with respect to any portion of the facilities;
- monitor whether, at any time the Obligations are outstanding, any person, other than the Issuer, the employees of the Issuer, the agents of the Issuer or members of the general public has a right to use the output of the facilities (e.g., water, gas, electricity);
- monitor whether, at any time the Obligations are outstanding, any person, other than the Issuer, the employees of the Issuer, the agents of the Issuer or members of the general public has a right to use the facilities to conduct or to direct the conduct of research;
- determine whether, at any time the Obligations are outstanding, any person, other than the Issuer, has a naming right for the facilities or any other contractual right granting an intangible benefit;
- determine whether, at any time the Obligations are outstanding, the facilities are sold or otherwise disposed of; and
- take such action as is necessary to remediate any failure to maintain compliance with the covenants contained in the resolution authorizing the Obligations.

C. Record Retention. The Responsible Persons will maintain or cause to be maintained all records relating to the investment and expenditure of the proceeds of the Obligations and the use of the facilities financed or refinanced thereby for a period ending three (3) years after the complete extinguishment of the Obligations. If any portion of the Obligations is refunded with the proceeds of another series of tax-exempt obligations, such records shall be maintained until the three (3) years after the refunding obligations are completely extinguished. Such records can be maintained in paper or electronic format.

D. Responsible Persons. Each Responsible Person shall receive appropriate training regarding the Issuer's accounting system, contract intake system, facilities management and other systems necessary to track the investment and expenditure of the proceeds and the use of the facilities financed with the proceeds of the Obligations. The foregoing notwithstanding, the Responsible Persons are authorized and instructed to retain such experienced advisors and agents as may be necessary to carry out the purposes of these instructions.

## EXHIBIT "B"

### DESCRIPTION OF ANNUAL FINANCIAL INFORMATION

The following information is referred to in Section 30 of this Resolution.

#### I. Annual Financial Statements and Operating Data of the Issuer

The financial information and operating data with respect to the Issuer to be provided annually in accordance with such Section are as specified (and included in the Appendix or under the headings of the Official Statement and Tables referred to) below:

Tables 1 through 9, inclusive, contained in the Official Statement and in Appendix B to such Official Statement, "Audited Financial Statements"

#### Accounting Principles

The accounting principles referred to in Section 30 of this Resolution are the accounting principles described in the notes to the financial statements referred to above.

EXHIBIT C

FORM OF ESCROW AGREEMENT

ESCROW AGREEMENT

Tarrant Regional Water District, a Water Control and Improvement District Water Revenue Refunding Bonds, Taxable Series 2020 and Water Revenue Refunding Bonds, Taxable Series 2020B

THIS ESCROW AGREEMENT, dated as of \_\_\_\_\_ (herein, together with any amendments or supplements hereto, called the "Agreement") is entered into by and between Tarrant Regional Water District, a Water Control and Improvement District (the "Issuer") and BOKF, NA, as escrow agent (herein, together with any successor in such capacity, called the "Escrow Agent"). The addresses of the Issuer and the Escrow Agent are shown on Exhibit "A" attached hereto and made a part hereof.

WITNESSETH:

WHEREAS, the Issuer heretofore issued and there presently remain outstanding the obligations (the "Refunded Obligations") described in the Verification Report of \_\_\_\_\_ (the "Report") relating to the Refunded Obligations, attached hereto as Exhibit "B" and made a part hereof ; and

WHEREAS, the Refunded Obligations are scheduled to mature in such years, bear interest at such rates, and be payable at such times and in such amounts as are set forth in the Report; and

WHEREAS, when firm banking arrangements have been made for the payment of principal and interest to the maturity or redemption dates of the Refunded Obligations, then the Refunded Obligations shall no longer be regarded as outstanding except for the purpose of receiving payment from the funds provided for such purpose; and

WHEREAS, Chapter 1207, Texas Government Code ("Chapter 1207") authorizes the Issuer to issue refunding bonds and to deposit the proceeds from the sale thereof, and any other available funds or resources, directly with any place of payment (paying agent) for any of the Refunded Obligations, and such deposit, if made before such payment dates and in sufficient amounts, shall constitute the making of firm banking and financial arrangements for the discharge and final payment of the Refunded Obligations; and

WHEREAS, Chapter 1207 further authorizes the Issuer to enter into an escrow agreement with any such paying agent for any of the Refunded Obligations with respect to the safekeeping, investment, administration and disposition of any such deposit, upon such terms and conditions as the Issuer and such paying agent may agree, provided that such deposits may be invested only in direct obligations of the United States of America, including obligations the principal of and



interest on which are unconditionally guaranteed by the United States of America, and which may be in book entry form, and which shall mature and/or bear interest payable at such times and in such amounts as will be sufficient to provide for the scheduled payment of principal and interest on the Refunded Obligations when due; and

WHEREAS, the Escrow Agent is the paying agent for the Refunded Obligations and this Agreement constitutes an escrow agreement of the kind authorized and required by said Chapter 1207; and

WHEREAS, Chapter 1207 makes it the duty of the Escrow Agent to comply with the terms of this Agreement and timely make available to the other places of payment (paying agents) for the Refunded Obligations the amounts required to provide for the payment of the principal of and interest on such obligations when due, and in accordance with their terms, but solely from the funds, in the manner, and to the extent provided in this Agreement; and

WHEREAS, the issuance, sale, and delivery of Tarrant Regional Water District, a Water Control and Improvement District, Water Revenue Refunding and Improvement Bonds, Series 2024 (the "Refunding Obligations") have been issued, sold and delivered for the purpose, among others, of obtaining the funds required to provide for the payment of the principal of the Refunded Obligations at their respective maturity dates or dates of redemption and the interest thereon to such dates; and

WHEREAS, the Issuer desires that, concurrently with the delivery of the Refunding Obligations to the purchasers thereof, certain proceeds of the Refunding Obligations, together with certain other available funds of the Issuer, if applicable, shall be applied to purchase certain direct obligations of the United States of America hereinafter defined as the "Escrowed Securities" for deposit to the credit of the Escrow Fund created pursuant to the terms of this Agreement and to establish a beginning cash balance (if needed) in such Escrow Fund; and

WHEREAS, the Escrowed Securities shall mature and the interest thereon shall be payable at such times and in such amounts so as to provide moneys which, together with cash balances from time to time on deposit in the Escrow Fund, will be sufficient to pay interest on the Refunded Obligations as it accrues and becomes payable and the principal of the Refunded Obligations on their maturity dates or dates of redemption; and

WHEREAS, to facilitate the receipt and transfer of proceeds of the Escrowed Securities, particularly those in book entry form, the Issuer desires to establish the Escrow Fund at the principal corporate trust office of the Escrow Agent; and

WHEREAS, the Escrow Agent is herein also referred to as the "Paying Agent," and any paying agent for the Refunded Obligations, acting through the Escrow Agent, is also a party to this Agreement, as a paying agent for the Refunded Obligations to acknowledge their acceptance of the terms and provisions of this Agreement in such capacity.

NOW, THEREFORE, in consideration of the mutual undertakings, promises and agreements herein contained, the sufficiency of which hereby are acknowledged, and to secure the full and timely payment of principal of and the interest on the Refunded Obligations, the Issuer and the Escrow Agent mutually undertake, promise, and agree for themselves and their respective representatives and successors, as follows:

## ARTICLE I

### DEFINITIONS AND INTERPRETATIONS

Section 1.01. Definitions. Unless the context clearly indicates otherwise, the following terms shall have the meanings assigned to them below when they are used in this Agreement:

"Code" means the Internal Revenue Code of 1986, as amended, or to the extent applicable the Internal Revenue Code of 1954, together with any other applicable provisions of any successor federal income tax laws.

"Escrow Fund" means the fund created by this Agreement to be administered by the Escrow Agent pursuant to the provisions of this Agreement.

"Escrowed Securities" means (i) direct, noncallable obligations of the United States of America, including obligations that are unconditionally guaranteed by the United States of America, (ii) noncallable obligations of an agency or instrumentality of the United States of America, including obligations that are unconditionally guaranteed or insured by the agency or instrumentality and that, on the date of the purchase thereof are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent, and (iii) noncallable obligations of a state or an agency or a county, municipality, or other political subdivision of a state that have been refunded and that, on the date the governing body of the Issuer adopts or approves the proceedings authorizing the financial arrangements are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent described in the Report or cash or other direct obligations of the United States of America substituted therefor pursuant to Article IV of this Agreement.

Section 1.02. Other Definitions. The terms "Agreement", "Issuer", "Escrow Agent", "Refunded Obligations", "Refunding Obligations," "Report" and "Paying Agent", when they are used in this Agreement, shall have the meanings assigned to them in the preamble to this Agreement.

Section 1.03. Interpretations. The titles and headings of the articles and sections of this Agreement have been inserted for convenience and reference only and are not to be considered a part hereof and shall not in any way modify or restrict the terms hereof. This Agreement and all of the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to achieve the intended purpose of providing for the refunding of the Refunded Obligations in accordance with applicable law.

## ARTICLE II

### DEPOSIT OF FUNDS AND ESCROWED SECURITIES

Section 2.01. Deposits in the Escrow Fund. Concurrently with the sale and delivery of the Refunding Obligations the Issuer shall deposit, or cause to be deposited, with the Escrow Agent, for deposit in the Escrow Fund, the funds and Escrowed Securities described in the Report, and the Escrow Agent shall, upon the receipt thereof, acknowledge such receipt to the Issuer in writing.

## ARTICLE III

### CREATION AND OPERATION OF ESCROW FUND

Section 3.01. Escrow Fund. The Escrow Agent has created on its books a special trust fund and irrevocable escrow to be known as the "Tarrant Regional Water District, a Water Control and Improvement District Water Revenue Refunding and Improvement Bonds, Series 2024 Escrow Fund" (the "Escrow Fund"). The Escrow Agent hereby agrees that upon receipt thereof it will irrevocably deposit to the credit of the Escrow Fund the funds and the Escrowed Securities described in the Report. Such deposit, all proceeds therefrom, and all cash balances from time to time on deposit therein (a) shall be the property of the Escrow Fund, (b) shall be applied only in strict conformity with the terms and conditions of this Agreement, and (c) are hereby irrevocably pledged to the payment of the principal of and interest on the Refunded Obligations, which payment shall be made by timely transfers of such amounts at such times as are provided for in Section 3.02 hereof. When the final transfers have been made for the payment of such principal of and interest on the Refunded Obligations, any balance then remaining in the Escrow Fund shall be transferred to the Issuer, and the Escrow Agent shall thereupon be discharged from any further duties hereunder.

Section 3.02. Payment of Principal and Interest. The Escrow Agent is hereby irrevocably instructed to transfer from the cash balances from time to time on deposit in the Escrow Fund, the amounts required to pay the principal of the Refunded Obligations at their respective maturity dates and interest thereon to such maturity dates in the amounts and at the times shown in the Report.

Section 3.03. Sufficiency of Escrow Fund. The Issuer represents that the successive receipts of the principal of and interest on the Escrowed Securities will assure that the cash balance on deposit from time to time in the Escrow Fund will be at all times sufficient to provide moneys for transfer to the Paying Agent at the times and in the amounts required to pay the interest on the Refunded Obligations as such interest comes due and the principal of the Refunded Obligations as the Refunded Obligations mature, all as more fully set forth in the Report. If, for any reason, at any time, the cash balances on deposit or scheduled to be on deposit in the Escrow Fund shall be insufficient to transfer the amounts required by each place of payment (paying agent) for the Refunded Obligations to make the payments set forth in Section 3.02 hereof, the Issuer shall timely deposit in the Escrow Fund, from any funds that are lawfully available therefor,

additional funds in the amounts required to make such payments. Notice of any such insufficiency shall be given as promptly as practicable as hereinafter provided, but the Escrow Agent shall not in any manner be responsible for any insufficiency of funds in the Escrow Fund or the Issuer's failure to make additional deposits thereto.

Section 3.04. Trust Fund. The Escrow Agent shall hold at all times the Escrow Fund, the Escrowed Securities and all other assets of the Escrow Fund, wholly segregated from all other funds and securities on deposit with the Escrow Agent; it shall never allow the Escrowed Securities or any other assets of the Escrow Fund to be commingled with any other funds or securities of the Escrow Agent; and it shall hold and dispose of the assets of the Escrow Fund only as set forth herein. The Escrowed Securities and other assets of the Escrow Fund shall always be maintained by the Escrow Agent as trust funds for the benefit of the owners of the Refunded Obligations; and a special account thereof shall at all times be maintained on the books of the Escrow Agent. The owners of the Refunded Obligations shall be entitled to the same preferred claim and first lien upon the Escrowed Securities, the proceeds thereof, and all other assets of the Escrow Fund to which they are entitled as owners of the Refunded Obligations. The amounts received by the Escrow Agent under this Agreement shall not be considered as a banking deposit by the Issuer, and the Escrow Agent shall have no right to title with respect thereto except as a constructive trustee and Escrow Agent under the terms of this Agreement. The amounts received by the Escrow Agent under this Agreement shall not be subject to warrants, drafts or checks drawn by the Issuer or, except to the extent expressly herein provided, by the Paying Agent.

Section 3.05. Security for Cash Balances. Cash balances from time to time on deposit in the Escrow Fund shall, to the extent not insured by the Federal Deposit Insurance Corporation or its successor, be continuously secured by a pledge of direct obligations of, or obligations unconditionally guaranteed by, the United States of America, having a market value at least equal to such cash balances.

## ARTICLE IV

### LIMITATION ON INVESTMENTS

Section 4.01. Except as provided in Sections 3.02, 4.02, 4.03 and 4.04 hereof, the Escrow Agent shall not have any power or duty to invest or reinvest any money held hereunder, or to make substitutions of the Escrowed Securities, or to sell, transfer or otherwise dispose of the Escrowed Securities.

Section 4.02. Reinvestment of Certain Cash Balances in Escrow by Escrow Agent. In addition to the Escrowed Securities listed in the Report, the Escrow Agent shall reinvest cash balances shown in the Report in United States Treasury Certificates of Indebtedness, Notes or Bonds - State and Local Government Series with an interest rate equal to zero percent (0%) (the "Zero SLGs") to the extent such Obligations are available from the Department of Treasury. All such re-investments shall be made only from the portion of cash balances derived from the maturing principal of and interest on any Escrowed Securities. Unless otherwise instructed by the Issuer in accordance with Section 4.03 hereof, the Escrow Agent shall acquire any Zero SLGs on the dates the Escrowed Securities listed in the Report mature, as shown in the Report, or on

the first date Zero SLGs become available thereafter. The Escrow Agent shall purchase Zero SLGs that only mature on the dates shown in the Report.

Section 4.03. Substitutions and Reinvestments. At the discretion of the Issuer, the Escrow Agent shall reinvest cash balances representing receipts from the Escrowed Securities, make substitutions of the Escrowed Securities or redeem the Escrowed Securities and reinvest the proceeds thereof or hold such proceeds as cash, together with other moneys or securities held in the Escrow Fund provided that the Issuer delivers to the Escrow Agent the following:

(1) an opinion by an independent certified public accountant that after such substitution or reinvestment the principal amount of the securities in the Escrow Fund (which shall be noncallable, not pre-payable direct obligations of the United States of America), together with the interest thereon and other available moneys, will be sufficient to pay, without further investment or reinvestment, as the same become due in accordance with the Report, the principal of, interest on and premium, if any, on the Refunded Obligations which have not previously been paid, and

(2) an unqualified opinion of nationally recognized municipal bond counsel to the effect that (a) such substitution or reinvestment will not cause the Refunded Obligations to be "arbitrage bonds" within the meaning of Section 103 of the Code or the regulations thereunder in effect on the date of such substitution or reinvestment, or otherwise make the interest on the Refunded Obligations subject to federal income taxation, and (b) such substitution or reinvestment complies with the Constitution and laws of the State of Texas and with all relevant documents relating to the issuance of the Refunded Obligations.

The Escrow Agent shall have no responsibility or liability for loss or otherwise with respect to investments made at the direction of the Issuer.

Section 4.04. Substitution for Escrowed Securities. Concurrently with the initial deposit by the Issuer with the Escrow Agent, but not thereafter, the Issuer, at its option, may substitute cash or direct noncallable and not pre-payable obligations of the United States Treasury (i.e., Treasury obligations which mature and are payable in a stated amount on the maturity date thereof, and for which there are no payments other than the payment made on the maturity date) (the "Substitute Obligations") for Escrowed Securities, if any, but only if such Substitute Obligations

- (a) are in an amount, and/or mature in an amount, which is equal to or greater than the amount payable on the maturity date of the obligation listed in the Report for which such Substitute Obligation is substituted,
- (b) mature on or before the maturity date of the obligation listed in the Report for which such Substitute Obligation is substituted, and
- (b) produce the amount necessary to pay the interest on and principal of the Refunded Obligations, as set forth in the Report, as verified by a certified public accountant or a firm of certified public accountants.

If, concurrently with the initial deposit by the Issuer with the Escrow Agent, any such Substitute Obligations are so substituted for any Escrowed Securities, the Issuer may, at any time

thereafter, substitute for such Substitute Obligations the same Escrowed Securities for which such Substitute Obligations originally were substituted.

Section 4.05. Arbitrage. The Issuer hereby covenants and agrees that it shall never request the Escrow Agent to exercise any power hereunder or permit any part of the money in the Escrow Fund or proceeds from the sale of Escrowed Securities to be used directly or indirectly to acquire any securities or obligations if the exercise of such power or the acquisition of such securities or obligations would cause any Refunding Obligations or Refunded Obligations to be an "arbitrage bond" within the meaning of the Code.

## ARTICLE V

### APPLICATION OF CASH BALANCES

Section 5.01. In General. Except as provided in Sections 3.02, 4.02, 4.03 and 4.04 hereof, no withdrawals, transfers, or reinvestment shall be made of cash balances in the Escrow Fund.

## ARTICLE VI

### RECORDS AND REPORTS

Section 6.01. Records. The Escrow Agent will keep books of record and accounts in which complete and correct entries shall be made of all transactions relating to the receipts, disbursements, allocations and application of the money and Escrowed Securities deposited to the Escrow Fund and all proceeds thereof, and such books shall be available for inspection at reasonable hours and under reasonable conditions by the Issuer and the owners of the Refunded Obligations.

Section 6.02. Reports. While this Agreement remains in effect, the Escrow Agent annually shall prepare and send to the Issuer a written report summarizing all transactions relating to the Escrow Fund during the preceding year, including, without limitation, credits to the Escrow Fund as a result of interest payments on or maturities of the Escrowed Securities and transfers from the Escrow Fund for payments on the Refunded Obligations or otherwise, together with a detailed statement of all Escrowed Securities and the cash balance on deposit in the Escrow Fund as of the end of such period.

## ARTICLE VII

### CONCERNING THE PAYING AGENTS AND ESCROW AGENT

Section 7.01. Representations. The Escrow Agent hereby represents that it has all necessary power and authority to enter into this Agreement and undertake the obligations and responsibilities imposed upon it herein, and that it will carry out all of its obligations hereunder.

Section 7.02. Limitation on Liability. The liability of the Escrow Agent to transfer funds for the payment of the principal of and interest on the Refunded Obligations shall be limited to the proceeds of the Escrowed Securities and the cash balances from time to time on deposit in the Escrow Fund. Notwithstanding any provision contained herein to the contrary, neither the Escrow Agent nor the Paying Agent shall have any liability whatsoever for the insufficiency of funds from time to time in the Escrow Fund or any failure of the obligors of the Escrowed Securities to make timely payment thereon, except for the obligation to notify the Issuer as promptly as practicable of any such occurrence.

The recitals herein and in the proceedings authorizing the Refunding Obligations shall be taken as the statements of the Issuer and shall not be considered as made by, or imposing any obligation or liability upon, the Escrow Agent. The Escrow Agent is not a party to the proceedings authorizing the Refunding Obligations or the Refunded Obligations and is not responsible for nor bound by any of the provisions thereof (except as a place of payment and paying agent and/or a Paying Agent/Registrar therefor). In its capacity as Escrow Agent, it is agreed that the Escrow Agent need look only to the terms and provisions of this Agreement.

The Escrow Agent makes no representations as to the value, conditions or sufficiency of the Escrow Fund, or any part thereof, or as to the title of the Issuer thereto, or as to the security afforded thereby or hereby, and the Escrow Agent shall not incur any liability or responsibility in respect to any of such matters.

It is the intention of the parties hereto that the Escrow Agent shall never be required to use or advance its own funds or otherwise incur personal financial liability in the performance of any of its duties or the exercise of any of its rights and powers hereunder.

The Escrow Agent shall not be liable for any action taken or neglected to be taken by it in good faith in any exercise of reasonable care and believed by it to be within the discretion or power conferred upon it by this Agreement, nor shall the Escrow Agent be responsible for the consequences of any error of judgment; and the Escrow Agent shall not be answerable except for its own action, neglect or default, nor for any loss unless the same shall have been through its negligence or willful misconduct.

Unless it is specifically otherwise provided herein, the Escrow Agent has no duty to determine or inquire into the happening or occurrence of any event or contingency or the performance or failure of performance of the Issuer with respect to arrangements or contracts with others, with the Escrow Agent's sole duty hereunder being to safeguard the Escrow Fund, to dispose of and deliver the same in accordance with this Agreement. If, however, the Escrow Agent is called upon by the terms of this Agreement to determine the occurrence of any event or contingency, the Escrow Agent shall be obligated, in making such determination, only to exercise reasonable care and diligence, and in event of error in making such determination the Escrow Agent shall be liable only for its own willful misconduct or its negligence. In determining the occurrence of any such event or contingency the Escrow Agent may request from the Issuer or any other person such reasonable additional evidence as the Escrow Agent in its discretion may

deem necessary to determine any fact relating to the occurrence of such event or contingency, and in this connection may make inquiries of, and consult with, among others, counsel at any time.

The Escrow Agent may rely and shall be protected in acting or refraining from acting upon any resolution, certificate, written investment direction, statement, instrument, opinion, notice or other paper or document believed by it to be genuine and to have been signed or presented by the property party. The Escrow Agent need not investigate any fact or matter stated in the document.

The Escrow Agent may execute any of the trusts or powers hereunder or perform any duties hereunder with directly or by or through its agents or attorneys and may in all cases pay reasonable compensation to any agent or attorney retained or employed by it in connection therewith.

Section 7.03. Compensation. (a) Concurrently with the sale and delivery of the Refunding Obligations, the Issuer shall pay to the Escrow Agent, as a fee for performing the services hereunder and for all expenses incurred or to be incurred by the Escrow Agent in the administration of this Agreement, the sum of \$\_\_\_\_\_, the sufficiency of which is hereby acknowledged by the Escrow Agent. In the event that the Escrow Agent is requested to perform any extraordinary services hereunder, the Issuer hereby agrees to pay reasonable fees to the Escrow Agent for such extraordinary services and to reimburse the Escrow Agent for all expenses incurred by the Escrow Agent in performing such extraordinary services, and the Escrow Agent hereby agrees to look only to the Issuer for the payment of such fees and reimbursement of such expenses. The Escrow Agent hereby agrees that in no event shall it ever assert any claim or lien against the Escrow Fund for any fees for its services, whether regular or extraordinary, as Escrow Agent, or in any other capacity, or for reimbursement for any of its expenses.

(b) The Paying Agent is the place of payment (paying agent) for the Refunded Obligations. Concurrently with the sale and delivery of the Refunding Obligations the Issuer shall pay to the Paying Agent the sum of \$\_\_\_\_\_, the sufficiency of which is hereby acknowledged by the Paying Agent, for redemption fees for the Refunded Obligations; and the Paying Agent warrants that such sum is sufficient for such purpose. The Issuer covenants to timely pay for all future paying agency services of the Paying Agent for the Refunded Obligations in accordance with the paying agent fee schedule now in effect through the final payment of the Refunded Obligations, the sufficiency of which is hereby acknowledged by the Paying Agent. Additionally, the Paying Agent has agreed to look only to the Issuer for the payment of such fees and reimbursement of such expenses, and for the benefit of the registered owners of the Refunded Obligations, to perform the services as Paying Agent without regard to the future payment of such fees and expenses. The Paying Agent shall in no event assert any claim or lien against the Escrow Fund for any fees for their services, whether regular or extraordinary, as Paying Agent, or in any other capacity, or for reimbursement for any of its expenses.

(c) Upon receipt of the aforesaid specific sums stated in subsections (a) and (b) of this Section 7.03 for Escrow Agent and paying agency fees, expenses, and services, the Escrow Agent shall acknowledge such receipt to the Issuer in writing.



Section 7.04. Successor Escrow Agents. If at any time the Escrow Agent or its legal successor or successors should become unable, through operation of law or otherwise, to act as escrow agent hereunder, or if its property and affairs shall be taken under the control of any state or federal court or administrative body because of insolvency or bankruptcy or for any other reason, a vacancy shall forthwith exist in the office of Escrow Agent hereunder. In such event the Issuer, by appropriate action, promptly shall appoint an Escrow Agent to fill such vacancy. If no successor Escrow Agent shall have been appointed by the Issuer within 60 days, a successor may be appointed by the owners of a majority in principal amount of the Refunded Obligations then outstanding by an instrument or instruments in writing filed with the Issuer, signed by such owners or by their duly authorized attorneys-in-fact. If, in a proper case, no appointment of a successor Escrow Agent shall be made pursuant to the foregoing provisions of this section within three months after a vacancy shall have occurred, the owner of any Refunded Obligation may apply to any court of competent jurisdiction to appoint a successor Escrow Agent. Such court may thereupon, after such notice, if any, as it may deem proper, prescribe and appoint a successor Escrow Agent.

Any successor Escrow Agent shall be a corporation organized and doing business under the laws of the United States or the State of Texas, authorized under such laws to exercise corporate trust powers, authorized under Texas law to act as an escrow agent, having its principal office and place of business in the State of Texas, having a combined capital and surplus of at least \$5,000,000 and subject to the supervision or examination by Federal or State authority.

Any successor Escrow Agent shall execute, acknowledge and deliver to the Issuer and the Escrow Agent an instrument accepting such appointment hereunder, and the Escrow Agent shall execute and deliver an instrument transferring to such successor Escrow Agent, subject to the terms of this Agreement, all the rights, powers and trusts of the Escrow Agent hereunder. Upon the request of any such successor Escrow Agent, the Issuer shall execute any and all instruments in writing for more fully and certainly vesting in and confirming to such successor Escrow Agent all such rights, powers and duties.

The Escrow Agent at the time acting hereunder may at any time resign and be discharged from the trust hereby created by giving not less than sixty (60) days' written notice to the Issuer and publishing notice thereof, specifying the date when such resignation will take effect, in a newspaper printed in the English language and with general circulation in New York, New York, such publication to be made once at least three (3) weeks prior to the date when the resignation is to take effect. No such resignation shall take effect unless a successor Escrow Agent shall have been appointed by the owners of the Refunded Obligations or by the Issuer as herein provided and such successor Escrow Agent shall be a paying agent for the Refunded Obligations and shall have accepted such appointment, in which event such resignation shall take effect immediately upon the appointment and acceptance of a successor Escrow Agent.

Under any circumstances, the Escrow Agent shall pay over to its successor Escrow Agent proportional parts of the Escrow Agent's fee and, if applicable, its Paying Agent's fee hereunder.

## ARTICLE VIII

### MISCELLANEOUS

Section 8.01. Notice. Any notice, authorization, request, or demand required or permitted to be given hereunder shall be in writing and shall be deemed to have been duly given when mailed by registered or certified mail, postage prepaid addressed to the Issuer or the Escrow Agent at the address shown on Exhibit "A" attached hereto. The United States Post Office registered or certified mail receipt showing delivery of the aforesaid shall be conclusive evidence of the date and fact of delivery. Any party hereto may change the address to which notices are to be delivered by giving to the other parties not less than ten (10) days prior notice thereof. Prior written notice of any amendment to this Agreement contemplated pursuant to Section 8.08 and immediate written notice of any incidence of a severance pursuant to Section 8.04 shall be sent to Moody's Investors Service, Attn: Public Finance Rating Desk/Refunded Bonds, 99 Church Street, New York, New York 10007, S&P Global Ratings, a business unit of Standard & Poor's Financial Services LLC, Attn: Municipal Bond Department, 25 Broadway, New York, New York 10004, and Fitch, Inc., One State Street Plaza, New York, New York 10004.

Section 8.02. Termination of Responsibilities. Upon the taking of all the actions as described herein by the Escrow Agent, the Escrow Agent shall have no further obligations or responsibilities hereunder to the Issuer, the owners of the Refunded Obligations or to any other person or persons in connection with this Agreement.

Section 8.03. Binding Agreement. This Agreement shall be binding upon the Issuer and the Escrow Agent and their respective successors and legal representatives, and shall inure solely to the benefit of the owners of the Refunded Obligations, the Issuer, the Escrow Agent and their respective successors and legal representatives.

Section 8.04. Severability. In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement, but this Agreement shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein.

Section 8.05. Texas Law Governs. This Agreement shall be governed exclusively by the provisions hereof and by the applicable laws of the State of Texas.

Section 8.06. Time of the Essence. Time shall be of the essence in the performance of obligations from time to time imposed upon the Escrow Agent by this Agreement.

Section 8.07. Effective date of Agreement. This Agreement shall be effective upon receipt by the Escrow Agent of the funds described in the Report and the Escrowed Securities, together with the specific sums stated in subsections (a) and (b) of Section 7.03 for Escrow Agent and paying agency fees, expenses, and services.

Section 8.08. Amendments. This Agreement shall not be amended except to cure any ambiguity or formal defect or omission in this Agreement. No amendment shall be effective unless the same shall be in writing and signed by the parties thereto. No such amendment shall adversely affect the rights of the holders of the Refunded Obligations.

Section 8.09. State Law Verification Requirements.

(A) Pursuant to sections 2252.152 and 2271.002, Texas Government Code, as amended, the Escrow Agent and any parent company, wholly owned subsidiary, majority-owned subsidiary, and affiliate:

- 1) Do not boycott Israel and agree not to boycott Israel during the term of this Agreement. "Boycott Israel" has the meaning provided in section 808.001 of the Texas Government Code.
- 2) Unless affirmatively declared by the United States government to be excluded from the federal sanctions regime relating to Sudan or Iran or any federal sanctions regime relating to a foreign terrorist organization, are not identified on a list prepared and maintained by the Texas Comptroller of Public Accounts under section 2252.153 or section 2270.0201 of the Texas Government Code.

For purposes of the foregoing, "affiliate" means any entity that controls, is controlled by, or is under common control with the applicable entity within the meaning of SEC Rule 405, 17. C.F.R. 230.405 and exists to make a profit. The verifications contained in this section 6.12(A) shall survive termination of the Agreement until the statute of limitations has run.

(B) Pursuant to Section 2276.002, Texas Government Code, as amended, and Section 2274.002, Texas Government Code, as amended, the Escrow Agent and the District acknowledge and agree that this Agreement has an aggregate value of less than \$100,000, and in no event will the District pay the Escrow Agent in excess of \$100,000 for its services hereunder.

(C) The Escrow Agent represents and warrants, for purposes of Section 2252.908 of the Texas Government Code, that the Escrow Agent is a publicly traded business entity or a wholly owned subsidiary of a publicly traded business entity.

IN WITNESS WHEREOF, the parties hereto have each caused this Agreement to be executed by their duly authorized officers and attested as of the date first written above.

TARRANT REGIONAL WATER DISTRICT,  
A WATER CONTROL AND IMPROVEMENT  
DISTRICT

\_\_\_\_\_  
President

ATTEST:

\_\_\_\_\_  
Secretary

(Issuer Seal)

BOKF, NA

By: \_\_\_\_\_  
Title: \_\_\_\_\_

## INDEX TO EXHIBITS

- Exhibit "A" Addresses of the Issuer and the Escrow Agent
- Exhibit "B" Verification Report of Public Finance Partners LLC

EXHIBIT A

ADDRESSES OF THE ISSUER AND THE ESCROW AGENT

ISSUER

Tarrant Regional Water District  
800 E. Northside Drive  
Fort Worth, Texas 76102

Attention: General Manager

ESCROW AGENT

BOKF, NA  
5956 Sherry Lane, Suite 1201  
Dallas, TX 75225

Attention: Corporate Trust Department

EXHIBIT "B"

VERIFICATION REPORT OF PUBLIC FINANCE PARTNERS LLC

## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 16

**DATE:** April 16, 2024

**SUBJECT:** Executive Session

**FUNDING:** N/A

**RECOMMENDATION:**

Section 551.071 of the Texas Government Code, for Private Consultation with its Attorney about Pending or Contemplated Litigation or on a Matter in which the Duty of the Attorney to the Governmental Body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas Clearly Conflicts with this Chapter; and

Section 551.072 of the Texas Government Code, to Deliberate the Purchase, Exchange, Lease or Value of Real Property; and

Section 551.074 of the Texas Government Code, Regarding Personnel Matters

**DISCUSSION:**

- Pending litigation
- Real property issues
- Personnel Matters

**Submitted By:**

Stephen Tatum  
General Counsel



**TARRANT REGIONAL WATER DISTRICT**

**AGENDA ITEM 17**

**DATE:** April 16, 2024

**SUBJECT:** Consider Consent to Voluntary Annexation of 5.621 Acres of TRWD-Owned Land Described as 262 CUAD IRR CO; 1280 R M WYATT and Identified by Ellis County Appraisal District Property ID 261510 into the City of Grand Prairie, Texas

**DISCUSSION:**

This agenda item is pending negotiations and is subject to review and approval by the TRWD Board of Directors.

## TARRANT REGIONAL WATER DISTRICT

### AGENDA ITEM 18

**DATE:** April 16, 2024

**SUBJECT:** Consider Approval of Revised Electric Service Agreement with the Navarro County Electric Cooperative related to Settlement of Cause No: D-1-GN-23-003173, *TRWD v. Navarro County Electric Cooperative*, in the 201<sup>st</sup> District Court in Travis County, Texas

**FUNDING:** N/A

**RECOMMENDATION:**

Management recommends approval of the agreement that will resolve the litigation.

**DISCUSSION:**

In 2023 TRWD filed suit in Travis County, Texas against the Navarro County Electric Cooperative (“NCEC”)—one of TRWD’s pass-through retail electric service providers—requesting judicial review of NCEC’s revised rate setting resolution and claiming both the resolution and, by extension, its electric service agreement with TRWD violated the Texas Utilities Code. The parties have since agreed in principle on a settlement to resolve the dispute. The proposed settlement involves the execution of a revised Electric Service Agreement, which is attached.

If approved, the agreement will be fully executed and TRWD will then submit the necessary court filings to non-suit the case and bring the litigation to a close.

This item was reviewed by the Administration and Policy Committee on April 9, 2024.

**Submitted By:**

Stephen Tatum  
General Counsel

## AGREEMENT FOR ELECTRIC SERVICE

This Agreement for Electric Service (this “**Agreement**”) is, subject to Section 8(b) below, entered into effective as of the first day of the first calendar month following thirty (30) days after execution of this Agreement by each of the parties hereto (the “**Effective Date**”), by and between Navarro County Electric Cooperative, Inc. (hereinafter called the “**Seller**”) and Tarrant Regional Water District (hereinafter called the “**Consumer**”) (Seller and Consumer are hereinafter sometimes referred to collectively as the “**Parties.**”

This Agreement supersedes as of the Effective Date all prior agreements between the Parties related to Seller’s provision of electric service to Consumer, including but not limited to that certain Amended and Restated Agreement for Electric Service executed on or about November 21, 2003 (the “**Prior Agreement**”).

**WHEREAS**, the Consumer currently takes retail electric service from the Seller pursuant to the Prior Agreement and Rate Schedule LP-3A, Large Commercial and Industrial, of Seller’s Tariff for Electric Service (as revised and in effect from time to time, the “**Tariff**”); and

**WHEREAS**, the Seller purchases wholesale distribution and transmission services and wholesale power supply in connection with providing retail electric service to the Consumer and, with respect to such distribution and transmission services and power supply, bills the Consumer for the Seller’s actual costs of such services and power supply without adding any profit markup for the Seller; and

**WHEREAS**, Consumer is a large user of power and has a particularized interest in arranging for Seller to acquire wholesale market-based energy products acceptable to Consumer for Seller’s provision of electric service to Consumer; and

**WHEREAS**, the Parties desire to enter into this Agreement to address Consumer’s power supply arrangement needs consistent with the above recitals.

**NOW, THEREFORE**, the Parties agree as follows:

1. **Electric Service.**

- a. During the Term, Seller shall sell and deliver to the Consumer, and the Consumer shall purchase and take, all of the electric power and energy which the Consumer may need for the Consumer’s accounts at the service locations described in **Exhibit A** attached hereto and by this reference made part hereof (whether one or more accounts, the “**Account**”), according to the terms and conditions of this Agreement and otherwise according to the Tariff. In the event of any conflict between the terms of the Tariff and the terms of this Agreement, the terms of this Agreement shall control.

## 2. Service Characteristics and Use.

- a. The electric service provided by the Seller hereunder shall not exceed 60,000 kilovolt-amperes and shall be alternating current, three-phase, four wire, sixty hertz, 4,160 volts. Delivery shall be at the Seller's distribution voltage. Frequency and voltage are subject to reasonable variations.
- b. The Consumer shall not use the electric power and energy furnished hereunder as an auxiliary or supplement to any other source of power and shall not sell electric power and energy furnished hereunder.
- c. Employees of the Consumer may use the electric power and energy furnished hereunder for residential purposes provided the residences served are located at the same location(s) as the service location(s) of the Consumer's industrial facilities for the Account.

## 3. Payment.

- a. The Consumer shall pay the Seller for electric service hereunder at the rates and upon the terms and conditions set forth in Section 10 of this Agreement.
- b. Bills for service hereunder shall be paid at the designated office address of the Seller within thirty (30) days after issuance unless the thirtieth (30<sup>th</sup>) day falls on a holiday or weekend, in which case payment is due on the next workday. Except as described in Section 3(c), if the Customer shall fail to make any such payment on or before the date such bill is due then a one-time penalty of five percent (5%) of the amount due shall be added to the bill and the Consumer's account will be considered delinquent and subject to disconnection in accordance with this Agreement and otherwise according to the Tariff; provided, however, that such discontinuance of service shall not relieve the Consumer of any of its obligations under this Agreement.
- c. If the Consumer disputes any of the charges included on a bill, the Consumer shall provide written notice (which may be via e-mail) of the dispute to the Seller within sixteen (16) days of receiving the bill. The notice of dispute must describe the basis for each contested charge, including (as applicable) the specific provisions of Section 10 that relate to the disputed amounts. Consumer shall pay all of the bill consistent with Section 3(b) above, except that the Consumer shall not be obligated to pay the disputed amount of a bill until resolution of the "Disputed Bill Investigation" described below is completed. The Seller shall not discontinue service to the Consumer for nonpayment of any such disputed

amounts until the dispute is resolved consistent with the below “Disputed Bill Investigation” procedures:

- i. The Seller shall acknowledge in writing (which may be via e-mail) receipt of a notice of dispute from the Consumer, within fifteen (15) days after receipt.
  - ii. The Seller shall discuss the dispute with the Consumer and the Parties shall attempt good-faith resolution of the dispute, with the Seller providing the Consumer with any information reasonably requested to substantiate the disputed charges.
  - iii. The Parties shall conclude a Disputed Bill Investigation within fifteen (15) days of the Seller receiving the notice of dispute.
  - iv. Following resolution of the Disputed Bill Investigation, the Consumer shall pay all amounts that remain owed (based on the results of such investigation) no later than fifteen (15) days after such resolution.
- d. If the Consumer fails to make any such payment within fifteen days after such resolution, the Seller may discontinue service to the Consumer upon giving not less than sixteen (16) days’ written notice to the Consumer of its intention to do so.

#### **4. Membership.**

The Consumer is currently and, subject to the terms of this Agreement, the Tariff (except as otherwise provided in the last sentence of Section 1(a) of this Agreement) and the Seller’s governing documents, shall remain a member of the Seller, shall maintain its membership fee and shall be bound by the Seller’s governing documents, this Agreement, the Tariff (except as otherwise provided in the last sentence of Section 1(a) of this Agreement) and such reasonable rules and regulations as may from time to time be adopted by the Seller.

#### **5. Continuity of Service.**

The Seller shall use reasonable diligence to provide a constant and uninterrupted supply of electric power and energy hereunder. If the supply of electric power and energy shall fail or be interrupted, or become defective through an act of God, governmental authority, action of the elements, public enemy, accident, strikes, labor trouble, required maintenance work, inability to secure right-of-way, or another cause beyond the reasonable control of the Seller, the Seller shall not be liable therefor or for damages caused thereby.

## **6. Right of Access.**

Duly authorized representatives of the Seller shall be permitted to enter the Consumer's premises at all reasonable times in order to carry out the provisions hereof.

## **7. Term and Termination.**

- a. This Agreement shall become effective on the Effective Date and shall remain in effect until December 31, 2029. Thereafter, the term of this Agreement shall automatically renew for consecutive periods of three (3) years, subject to termination by either of the Parties upon not less than six (6) months prior written notice to the other party. The effective date of such termination shall be the later of (i) the expiration of the term of any and all wholesale market-based energy products acquired by Seller pursuant to Section 10(f) of this Agreement for the benefit of Consumer, or (ii) the last day of the first wholesale power supply billing period that commences after the expiration of such six-month notice period.
- b. After the effective date of such termination, Seller shall continue to provide electric service to the Account pursuant to the Tariff until electric service is discontinued, and Consumer shall be obligated to pay for such electric service according to the Tariff and the applicable rate schedule in the Tariff. In addition, wholesale power supply provided after the date of termination shall be determined by Seller according to the Tariff and the applicable rate schedule in the Tariff and otherwise at Seller's sole discretion.
- c. If Seller's provision of electric service to Consumer is discontinued for any cause, the Consumer shall pay to the Seller a disconnection fee based on the direct labor and vehicle costs of disconnecting Consumer, plus any unamortized liability incurred by Seller to the owner of transmission and/or distribution substation facilities dedicated to serve Consumer, plus any stranded or unrecovered costs of the Seller in any new and/or existing facilities of the Seller or the owner of transmission and/or distribution substation facilities dedicated to serve Consumer, in the event the Consumer terminates receipt of electric service before the end of such facilities' economic life. Such stranded or unrecovered costs will be equal to the unamortized capital investment less salvage plus cost of removal. Stranded or unrecovered costs will be calculated using an economic life equal to thirty-four (34) years and eight (8) months. Salvage value will be determined using a straight-line depreciation method with a rate of 2.88% per year. Payment for such stranded or unrecovered costs will be made in full within thirty (30) days after the Consumer receives an invoice from the Seller.

## **8. Succession and Approval.**

- a. This Agreement shall be binding upon and inure to the benefit of the successors, legal representatives and permitted assigns of the Parties hereto; provided, however, that this Agreement may not be assigned by the Consumer without the express written approval of the Seller.
- b. This Agreement shall not be effective unless and until approved in writing by the Administrator of the Rural Utilities Service (“RUS”), the National Rural Utilities Cooperative Finance Corporation (“CFC”) and CoBank, ACB.

## 9. Charges for Electric Service

- a. During the Term, electric bills for the Account shall be calculated in accordance with the rate schedule in Section 10 below (the “**Contract Rate**”). Except as otherwise provided in the last sentence of Section 1(a) of this Agreement, all other applicable service rules, adjustments, fees and charges provided for in the Tariff shall remain unchanged and in effect for electric service to the Account.

## 10. Contract Rate.

- a. Application. Subject to Section 7(b), the Contract Rate shall apply to all electric service supplied to the Account. Except as provided for in this Section 10, terms of the Contract Rate shall not be adjusted without prior approval of the Consumer.
- b. Monthly Rate. Each billing period, the Consumer shall be obligated to pay the following charges:
  - i. Customer Charges as further described in Section 10(c);
  - ii. Substation and Transmission Charges as further described in Section 10(d);  
and
  - iii. Power Supply Charges as further described in Section 10(e).
- c. Customer Charges. The Consumer’s monthly customer charges consist of:
  - i. \$1,000 for each meter under the Account; and
  - ii. \$10,000 for each substation providing electric service under the Account.

The Seller and the Consumer agree that, as of the Effective Date, there are six (6) meters under the Account and two (2) substations providing electric service under the Account. Accordingly, the initial monthly customer charges shall be \$26,000.

Only for the initial term and any renewal terms under Section 7(a) of this Agreement, the Parties agree that the customer charges in this Section 10(c) are

just and reasonable and not unreasonably preferential, prejudicial, or discriminatory.

- d. Substation and Transmission Charges. All monthly charges incurred by Seller in the purchase by Seller of wholesale distribution substation and ERCOT transmission system services required for delivery of electric power and energy to the Account.
- e. Power Supply Charges. The term “**Power Supply Charges**” shall mean all power costs (including ERCOT Charges) incurred by Seller for wholesale power supply provided to Consumer, including charges described in any Confirmation Agreement and charges for power supply procured by the Seller for the Consumer from the ERCOT Real-Time Market. The term “**ERCOT Charges**” shall mean the ERCOT settlement charges or credits and other ERCOT charges applicable to Consumer used to settle financial obligations of the capacity and energy procured through ERCOT, and ERCOT charges that are applicable to Consumer’s electric consumption, as such rates and charges are designated by ERCOT and defined in the “**ERCOT Nodal Protocols**” (herein so called). ERCOT Charges include, but are not limited to, a load ratio share of applicable Ancillary Service obligations, ERCOT system administration fees (ISO fees), all other ERCOT uplift charges, and incremental charges related to credit support, if any, associated with Consumer’s wholesale power supply procured from ERCOT. Consumer shall be responsible for all initial, final, true-up and other applicable ERCOT settlement or other charges, or credits, for Consumer’s load incurred by Seller during a billing period as they become known. Charges and/or credits for all Ancillary Services allocated to Consumer will be based on ERCOT supplying the Ancillary Services.

Except for any wholesale power supply purchased by Seller for Consumer’s benefit pursuant to the provisions of Section 10(f), Seller shall purchase all wholesale power to serve Consumer’s load from the ERCOT Real-Time Market.

Seller shall pass through all Power Supply Charges with no mark-up and during the term of this Agreement shall only assess additional fees or charges for wholesale power supply as expressly described in Section 10 of this Agreement.

- f. Power Supply Selection Procedures. At Consumer’s request and as provided in a Confirmation Agreement (defined below), a wholesale market-based energy product (other than ancillary services) may be acquired by Seller (through Seller’s wholesale power provider(s)) in accordance with the terms of this Section 10(f) from third party wholesale counterparties within the ERCOT wholesale energy market, based on available standard wholesale market-based energy products, a predetermined length of time and projected electric usage capacity required.



- i. At Consumer's request, but not more than three times during any calendar month nor more than twelve times during any calendar year during the Term of this Agreement, Seller will provide or cause to be provided information to Consumer about available standard wholesale market-based energy products (other than ancillary services) that Consumer desires to purchase, including available options for length of purchase contract and other purchase terms and conditions. Seller and Consumer will mutually agree on the products, term of contract, and other terms and conditions to be evaluated and priced.
- ii. Seller will request pricing and availability for the desired wholesale market-based energy products from counterparties with whom Seller has entered into a power purchase agreement or other necessary enabling agreements for Seller to purchase wholesale power (the "**Enabling Agreements**"). Seller will present comparative pricing and other data to Consumer for the available wholesale market-based energy products.
- iii. Seller shall, at Consumer's request, provide to Consumer information on relevant costs, charges, obligations, and other information as is material in selecting a wholesale market-based energy product and information and cost estimates on any other applicable charges, including not limited to the Substation and Transmission Charges, the Power Supply Charges (including ERCOT Charges), and costs and fees as described in Section 10(i) (Billing Adjustments).
- iv. If a wholesale market-based energy product's pricing, term of contract and other terms and conditions are acceptable to Consumer, Consumer will execute a confirmation agreement ("**Confirmation Agreement**") with Seller (in form and substance acceptable to Seller) that defines the wholesale market-based product(s) being selected, the term of the purchase, and other terms and conditions of the purchase. Consumer agrees that the power supply terms in the confirmation agreement between Seller and Constellation Energy Generation, LLC attached hereto as **Exhibit B** are acceptable to Consumer.
- v. If during the term of this Agreement Consumer desires for Seller to purchase for Consumer's benefit wholesale market-based energy products from a wholesale power supplier ("**Consumer's Desired Power Provider**") that is not a wholesale power supplier with whom Seller has entered into Enabling Agreements, Consumer shall notify Seller of the name and applicable contact information for Consumer's Desired Power Provider and thereafter Seller shall promptly engage in discussions with

Consumer's Desired Power Provider for the purpose of negotiating the Enabling Agreements between Seller and Consumer's Desired Power Provider. Seller shall use commercially reasonable efforts to enter into the Enabling Agreements with Consumer's Desired Power Provider; provided, however, the terms of such Enabling Agreements must be acceptable to Seller in Seller's sole and absolute discretion. Seller shall have the right to recover from Consumer all costs (including legal fees) incurred in negotiating Enabling Agreements with Consumer's Desired Power Provider. These costs will be supported by detailed documentation from the Seller and capped at an amount not to exceed \$12,500 for the Enabling Agreements entered into by Seller with each wholesale power supplier that is a Consumer's Desired Power Provider.

- g. ERCOT Risk Assessment. **Consumer understands and agrees that wholesale electric energy products purchased in the ERCOT market may expose Consumer to certain risks. These risks may include, but are not limited to, unforeseen ERCOT settlement or other ERCOT charges, exposure to Day-Ahead and/or Real Time Market (as defined in ERCOT Nodal Protocols) prices, future increases in the System Wide Offer Cap (as defined in ERCOT Nodal Protocols), future ERCOT power supply reserve margin or capacity market requirements, changes in ERCOT market rules, collateral requirements, availability of generation resources, transmission constraints, temperature sensitive conditions, and demand side management opportunities. Consumer understands and agrees that Seller is not responsible for ERCOT Day-Ahead or Real Time Market prices and that Seller shall have no obligation or responsibility to use its other wholesale power supply arrangements to mitigate any impact on Consumer due to charges incurred pursuant to this Section 10.**
- h. Billing Adjustments.
- i. Power Cost Recovery Factor. The Power Cost Recovery Factor ("PCRF") defined in the Tariff shall not be applicable to this Contract Rate and shall not be applied to the monthly charges.
  - ii. Other Billing Adjustments. Other than the PCRF (which shall not apply to the Contract Rate), the Contract Rate is subject to all other applicable billing adjustments provided for in the Tariff on the Effective Date. Except for future billing adjustments mandated by a regulatory authority with jurisdiction over the Seller, no other billing adjustments added to the Tariff after the Effective Date will apply to the Consumer without the prior written consent of the Consumer.

- i. Information Sharing. Throughout the term of this Agreement, Seller will provide Consumer with the detailed information it receives from its wholesale transmission and distribution substation service providers and its wholesale power supplier(s) providing electricity delivered to Consumer substantiating each wholesale transmission and distribution substation service-related charge and power supply-related charge passed through to Consumer under this Agreement, including an explanation of all billing determinants related to those charges. Seller agrees to provide Consumer with this information as soon as it is available to Seller from such wholesale provider(s) and supplier(s), but in no event, not more than ten (10) business days after receipt of such information from such wholesale provider(s) and supplier(s).
- l. Quarterly Meetings. During the term of this Agreement, the Parties agree to participate in quarterly meetings (which may be via videoconference) by and between Seller, Consumer and one of Seller's wholesale power suppliers mutually agreed upon by Seller and Consumer regarding rate trends and influences, so that Consumer is able to model its energy costs.
- m. Usage Updates. During the term of this Agreement, Consumer agrees to provide Seller each calendar quarter and at other times upon Seller's request with updates on Consumer's planned electric usage for the balance of the current calendar year and the upcoming calendar year.

## 11. Miscellaneous.

- a. Flicker Voltage. If motor starting or load fluctuations of the Consumer's loads cause objectionable flicker voltage, unless the problem is determined to be on the primary or high side of the substation, the Consumer shall install equipment approved by the Seller at the Consumer's expense or modify the Consumer's operations so as to reduce the flicker voltage to acceptable levels.
- b. Legal Construction. In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and this Agreement shall be construed as if such invalid, illegal, or unenforceable provision had never been included in this Agreement.
- c. Rights and Remedies Cumulative. The rights and remedies provided by this Agreement are cumulative, and the use of any one right or remedy by either party shall not preclude or waive its right to use any or all other remedies. These rights and remedies are given in addition to any other rights the parties may have by law, statute, ordinance, or otherwise.

- d. Waiver of Default. No waiver by either party of any default or breach of any term, condition, or covenant of this Agreement shall be deemed to be waiver of any other breach of the same or any other term, condition, or covenant of this Agreement.
- e. Attorneys' Fees and Costs. If, as a result of a breach of this Agreement by either Party, the other party employs an attorney or attorneys to enforce its rights under this Agreement, then the breaching or defaulting Party agrees to pay the other Party the reasonable attorneys' fees and costs incurred to enforce this Agreement.
- f. Headings. The descriptive headings of the provisions of this Agreement are formulated and used for convenience only and will not be deemed to affect the meaning or construction of any such provision.
- g. No Third-Party Beneficiaries. There is no third-party beneficiary to this Agreement, and the provisions of this Agreement shall not impart rights enforceable by any person, firm or organization not a party or a successor or assignee of a Party to this Agreement.
- h. Survival of Obligations. Obligations to make payments when due, as well as any other obligations that by their nature survive termination, shall survive termination of this Agreement.
- i. This Agreement shall be binding upon and inure to the benefit of the successors, legal representatives and permitted assigns of the respective parties hereto; provided, however, that any assignment of this Agreement (by operation of law or otherwise) shall not release the assigning party from its obligations under this Agreement.
- j. THIS AGREEMENT SHALL BE CONSTRUED IN ACCORDANCE WITH, AND UNDER THE LAWS OF, THE STATE OF TEXAS. EXCEPT TO THE EXTENT APPLICABLE LAW MANDATES VENUE IN A DIFFERENT COUNTY, EXCLUSIVE VENUE OF ANY ACTION BETWEEN THE SELLER AND THE CONSUMER ARISING OUT OF OR RELATED TO THIS AGREEMENT SHALL BE IN THE STATE COURTS LOCATED IN TARRANT COUNTY OR NAVARRO COUNTY, TEXAS, AND EACH OF THE PARTIES HEREBY SUBMITS TO THE PERSONAL JURISDICTION OF SUCH COURTS FOR SUCH PURPOSE.
- k. This Agreement may be executed in multiple counterparts, and each counterpart shall be considered as if it were an original. The parties agree that execution of this Agreement by a party and the delivery of such party's signature by facsimile

transmission or electronic (e-mail) transmission shall be fully effective as the original signature of such party to the fullest extent as if it were the original copy thereof.

- l. This Agreement and the Tariff constitute the complete and final agreement between the parties with respect to the subject matter hereof and thereof and may not be contradicted by evidence of prior or contemporaneous oral agreements of the parties. There are no oral agreements between the parties. This Agreement may not be amended except by written agreement signed by both parties.
  
- m. All notices given pursuant to this Agreement by any party shall be in writing and shall be deemed given (i) upon receipt when personally delivered or sent by e-mail (provided that if the e-mail is received by the addressee, as evidenced by the e-mail confirmation of the addressee, after 5:00 p.m. on the day the e-mail is sent, such notice shall be deemed effective on the next business day), or (ii) three (3) business days after sent by certified or registered mail, return receipt requested, or (iii) one (1) business day after sent by nationally recognized overnight courier, to the other party, in each instance addressed: (A) if to the Seller, to P.O. Box 616, 3800 West Highway 22, Corsicana, Texas 75151, Attention: General Manager/CEO, e-mail: [jsadberry@navarroec.com](mailto:jsadberry@navarroec.com), and (B) if to the Consumer, to 800 E. Northside Drive, Fort Worth, Texas 76102, Attention: General Manager, e-mail: [dan.buhman@trwd.com](mailto:dan.buhman@trwd.com).

**IN WITNESS WHEREOF**, the Parties hereto have executed this Agreement as of the dates indicated below but to be effective as of the Effective Date.

NAVARRO COUNTY ELECTRIC COOPERATIVE, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date of Signature: \_\_\_\_\_

TARRANT REGIONAL WATER DISTRICT

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date of Signature: \_\_\_\_\_

**EXHIBIT A**

**List of Service Locations**

[To be inserted, including meter numbers]

**EXHIBIT B**

***[Need to insert final form from Constellation]***  
**CONFIRMATION AGREEMENT**

This Confirmation Agreement (“Confirmation”) dated as of XXXXXX \_\_, 2024 (the “Execution Date”) shall confirm the agreement reached between Navarro County Electric Cooperative, Inc. (“Navarro” or “Party B”) and Constellation Energy Generation, LLC (“Constellation” or “Party A”) (each individually a “Party” and collectively the “Parties”) regarding the sale by Constellation to Navarro of Firm (LD) Energy to serve the load of Tarrant Regional Water District (“TRWD”) on the following terms and conditions.

**GENERAL TERMS:**

Seller: Constellation

Buyer: Navarro

Product: All requirements Firm (LD) Energy and all ERCOT expenses, currently existing as of the Execution Date or at any time during the Delivery Period, and all fees associated with serving the load in sufficient quantities to meet the Buyer’s load serving obligations related to the Tarrant Regional Water District (“TRWD”). All requirements Firm (LD) Energy means the supply by Constellation to the Delivery Point for all of the energy required by Navarro to serve the total TRWD Metered Load.

Delivery Point: The Delivery Point for the TRWD Gross Load shall be the North Load Zone.

Delivery Period: Shall begin at one (1) minute before 12:01 a.m. Central Prevailing Time (“CPT”) on xxxxx 1, 2024 through 11:59 p.m. CPT on December 31, 202x.

Contract Quantity: The total TRWD Gross Load as metered, in MWh, during each interval at the TRWD meter points set forth below.

“TRWD Gross Load” in any interval means the Metered Load in such interval adjusted upwards for Transmission Losses.

As used herein, “Metered Load” means the total of the loads metered at each of the TRWD meters listed in Schedule A during such interval.

As used herein, “Transmission Losses” means the ERCOT system wide transmission losses during such interval expressed as a percentage of the total energy on the ERCOT system, as reported by ERCOT.

Contract Price: North Load Zone Real Time Settlement Point Price, plus \$1.25 per MWh.

*Incremental Hedges: From time-to-time Constellation and Navarro may do block transactions for various terms that would be applicable to the TRWD Gross Load and transacted under separate distinct confirmations. Incremental Hedges would be charged and settled as follows:*

- 1) *For each Interval, the quantity and price agreed upon and the delivery point in the Incremental Hedge confirmation at the agreed to delivery point.*
- 2) *For each Interval, the quantity in the Incremental Hedge will be financially credited at the same delivery point as the Incremental Hedge confirmation and at the applicable ERCOT Real Time Settlement Price Point (SPP).*

Interval Payment: The Interval Payment for each interval shall be the product of (i) the Contract Quantity, in MWh, and (ii) the Contract Price, in \$/MWh, applicable to such interval.

Reimbursable Charges and Credits:

In addition to the Energy Payment set forth above, Buyer shall also be responsible for the following charges and/or credits (collectively, the "Reimbursable Charges and Credits"):

1. All Ancillary Services or A/S charged by ERCOT, which, for purposes of this Confirmation, includes Regulation Service-Up, Regulation Service-Down, Non-Spinning Reserve Service, Responsive Reserve Service, and ERCOT Contingency Reserve Service ("ECRS"), each as currently defined by ERCOT;
2. All currently known ERCOT fees that are uplifted to load including, but not limited to, Balancing Energy Neutrality Adjustment, UFE, RMR Service, Black Start Service, Voltage Support Service, Replacement Reserve Service, and ERCOT Administrative Fees (each as defined in the ERCOT Guides) and any additional ERCOT fees that are added in the future; and
3. Any other ancillary service, fee or cost charged by ERCOT which is directly attributable to Buyer's load residing in the Designated QSE not explicitly stated as Seller's responsibility herein.
4. All Congestion Revenue Rights or CRR, CARD and Balancing Account amounts credited by ERCOT applicable to Navarro and allocated to TRWD at the appropriate ratio share.

Monthly Payment: The Monthly Payment for each month during the Delivery Period shall be equal to:

1. The sum of the Interval Payments for all intervals in the month; and
2. The sum of all Reimbursable Charges and Credits incurred by Seller associated with the total Metered Load during such month.

QSE: Seller shall act as or shall engage a QSE, as defined below (the applicable entity acting as QSE, the "Designated QSE"), that shall be responsible for scheduling the Products as it determines in its sole discretion in accordance with the ERCOT Guides (the "QSE Services"). The Designated QSE shall be responsible for posting any credit support required by ERCOT with respect the QSE Services.



“QSE” means an entity which is responsible for performing the responsibilities defined for a "Qualified Scheduling Entity" as defined in the ERCOT Protocols under the ERCOT Guides. "ERCOT Guides" means the ERCOT Protocols and the operating guides, market guides, transaction guides, and/or procedures published by ERCOT, each as in effect as of the Execution Date and as they may be amended, restated, supplemented, replaced or otherwise modified from time to time. "ERCOT Protocols" means the ERCOT Nodal Protocols published by ERCOT, as in effect as of the Execution Date and as may be amended, restated, supplemented, replaced or otherwise modified from time to time.

Definitions: Terms that are capitalized, but not defined herein, shall have the meaning ascribed to them in the Master Agreement. Terms that are capitalized but not defined herein or in the Master Agreement shall have the meaning ascribed to them in the ERCOT Guides.

All provisions contained or incorporated by reference in the Master Power and Sale Agreement dated as of February 7, 2023, between Buyer and Seller will govern this Confirmation except as expressly modified herein.

**IN WITNESS WHEREOF**, the Parties have caused their duly authorized representatives to execute this Confirmation on their behalf as of the date first above written.

<b>CONSTELLATION ENERGY GENERATION COMPANY, LLC</b>	<b>NAVARRO COUNTY COOPERATIVE, INC.</b>
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By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

**SCHEDULE A  
TO  
CONFIRMATION AGREEMENT**

**TRWD ERCOT ESID**

Meter Name

ESID

1. Goodloe B
2. Goodloe C
3. Ennis A
4. Ennis B
5. Ennis C
6. Ennis D

Next Scheduled Board Meeting  
May 21, 2024 at 9:00 AM