

# Retirement Plan for Employees of Brazos River Authority

Actuarial Valuation

March 1, 2022



**Gallagher**

Insurance | Risk Management | Consulting

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# Retirement Plan for Employees of Brazos River Authority

## Actuarial Certification

March 1, 2022 to February 28, 2023

This actuarial valuation report measured as of March 1, 2022 for the Retirement Plan for Employees of Brazos River Authority (the "Plan") was prepared in accordance with generally accepted actuarial principles and practices to determine the annual recommended contribution as well as the Brazos River Authority Funding Policy. Determinations for other purposes may be significantly different from those contained in this report; the results in this report should not be used for other purposes.

Our Actuarial Valuation has been conducted with reliance upon Participant information and financial information provided to us by Brazos River Authority and Wells Fargo Bank. We have reviewed the data provided to us for general reasonableness but did not audit the data. The accuracy of the information in this report is dependent on the quality and completeness of the data provided to us. Each assumption not specified by statute or regulations is reasonable taking into account the experience of the Plan, Plan-specific features, the purpose of the measurement and reasonable expectations.

The actuarial assumptions used in this report were selected by Brazos River Authority, with the agreement of Arthur J. Gallagher & Co. In our opinion, the actuarial assumptions used (a) each, and in the aggregate, are reasonably related to the experience of the Plan and to reasonable expectations, and (b) in the aggregate, represent our best estimate of anticipated experience under the Plan.

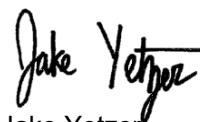
There were no changes in plan provisions, cost allocation procedures, contribution allocation procedures, or methods from the previous measurement. There were no adjustments of prior measurements or use of approximations which would materially impact the results. The accrued benefits valued in this report reflect the benefit attribution pattern described by the plan provisions. Effective with the March 1, 2022 report, the actuarial assumption for termination rates was updated from the Sarason T-7 table to the 2003 Society of Actuaries Pension Plan Turnover Study table for small pension plans, and the mortality improvement scale was updated from MP-2018 to MP-2021. The mortality improvement scale was updated to keep the assumption current and reflect the most recent available data. The turnover table was updated to use the most current general population turnover tables available. Please see Exhibit 8 for a description of all other assumptions and methods.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in Plan provisions or applicable law. Due to the limited scope of this engagement, we did not complete an analysis of the potential range of such future measurements. Liabilities shown in this report were determined using actuarial valuation software designed for the specific purpose of modeling pension plan liabilities and costs. In our opinion, except as stated elsewhere in this report, the software is appropriate and produces reasonable results for this purpose.

To the best of our knowledge, the information contained in this report is complete, accurate and in accordance with generally accepted actuarial principles as recommended by the American Academy of Actuaries. The actuary indicated below is an Enrolled Actuary and a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this valuation.



Larry McNamara, EA, MAAA, CFA  
Enrollment Number 20-06568



Jake Yetzer  
Actuarial Analyst

May 2022

# Retirement Plan for Employees of Brazos River Authority

## Risk Assessment

March 1, 2022

This report provides values of Plan liabilities as of the measurement date as well as minimum required contribution amounts for purposes of satisfying ERISA and the Internal Revenue Code. These amounts are estimates based on current data, plan provisions, legal requirements and assumptions regarding future experience. This section assesses the risk that future measurements deviate from expected future measurements. This is not intended to be a comprehensive risk analysis, but rather, an overview of the nature and magnitude of various risks.

### Nature of Pension Risk

Pension plans are exposed to numerous risks. The following table summarizes many of the most important risks. Items highlighted in red and yellow are discussed in greater detail.

Higher Cost Impact	Interest Rate Risk	Asset / Liability Mismatch Risk	Investment Risk
	Regulatory Risk		
	Longevity Risk		
Lower Cost Impact		Retirement Risk	
		Disability Risk	Turnover Risk
		Payment Form Risk	Expense Risk
			Contribution Risk
	Lower Plan Sponsor Control	Higher Plan Sponsor Control	

### Sensitivity Analysis

The red factors above represent the most significant risks to the Plan:

1. Interest Rate Risk: risk that interest rates will be different than expected
2. Investment Risk: risk that investment returns will be different than expected
3. Asset/Liability Mismatch Risk: risk that changes in asset values are not matched by changes in the value of liabilities

### Historical Information

The risk factors highlighted in yellow are assumptions which we routinely review as part of our annual gain/loss analysis for the Plan. The average impact of each of these assumptions on Plan liabilities has not been significant.

## Retirement Plan for Employees of Brazos River Authority

We estimated the impact of changes in assets and liabilities on the Plan's funded status in the table below. Our estimates are based on a 1% decrease in the funding interest rate and a 10% decrease in Plan asset values. Additional funding liability and recommended contributions can be found based on alternate funding interest rates in Exhibit 10 of this report.

	<b>Funding Baseline</b>	<b>Lower Interest Assumption 100bp</b>	<b>Baseline with 10% Asset Decline</b>
Actuarial Value of Assets	\$ 22,539,914	\$ 22,539,914	\$ 20,285,923
Liabilities	\$ 31,178,500	\$ 34,283,059	\$ 31,178,500
Funded Ratio	72%	66%	65%
Interest Rate	6.50%	5.50%	6.50%
Contribution	Exhibit 9	Exhibit 10	

### Maturity Measures

Pension plan maturity provides another way to assess risk. Shown below are certain maturity measures for the plan and a high level explanation of each measure.

	<b>3/1/2021</b>	<b>3/1/2022</b>
Retiree liability / Total funding liability	72.74%	75.31%
Benefit payments / Market value of assets	9.54%	9.46%
Contributions / Benefit payments	61.82%	59.69%

**Retiree liability / Total liability:** Illustrates the maturity of the plan, with a higher percentage indicating greater risk.

**Benefit payments / Market value of assets:** This cash flow indicator illustrates the portion of plan assets used each year to pay benefits. The measure is lower this year primarily due to better investment returns and contributions which have increased the asset value.

**Contributions / Benefit payments:** This net cash flow figure illustrates how much is being contributed to the plan compared to how much is being paid to participants.

This is not intended to be a comprehensive risk analysis, but rather, an overview of the nature and magnitude of various risks faced by the Plan. We are available to complete a more in-depth review if Brazos River Authority decides that additional detail is warranted.

## Retirement Plan for Employees of Brazos River Authority

### Executive Summary

March 1, 2021 and March 1, 2022

The following table highlights the changes since the last Actuarial Valuation:

	March 1, 2021	March 1, 2022	Percent Change
<b>Recommended Contributions*</b>			
• Dollar Amount – Beginning of Year	1,333,795	1,128,327	-15.4%
• Dollar Amount – Mid-Year	1,377,143	1,164,997	-15.4%
<b>Participants</b>			
• Active	64	56	-12.5%
• Retired and Beneficiaries	158	164	3.8%
• Terminated Vested	104	100	-3.8%
• Transferred Canal Employees	4	4	0.0%
• Total	330	324	-1.8%
<b>Assets</b>			
• Actuarial Value of Assets	\$ 21,536,819	\$ 22,539,914	4.7%
• Market Value of Assets	\$ 23,571,124	\$ 24,414,644	3.6%
• Rate of return on Market Value (net of expenses)	20.25%	8.07%	
<b>Accumulated Benefit Liability</b>			
• Total	\$ 32,459,039	\$ 31,178,500	-3.9%
<b>Funding Ratios</b>			
• Actuarial Value Basis	66%	72%	
• Market Value Basis	73%	78%	

*\*The Executive Summary in the March 1, 2021 Actuarial Valuation incorrectly listed the March 1, 2021 Recommended Contribution as \$1,335,615 at the beginning of the year, and \$1,379,022 at mid-year.*

# Input Information

# Retirement Plan for Employees of Brazos River Authority

## Exhibit 1

### Summary of Plan Provisions

This summary has been prepared for valuation purposes only. It summarizes the plan provisions necessary to perform the actuarial valuation.

#### Definitions

Accrued Benefit	Calculated in the same manner as a participant's Normal Retirement Benefit, but using Compensation and Service to the determination date prior to the participant's normal retirement age.
Average Monthly Compensation	Average Monthly Compensation for the five complete and consecutive calendar years out of the last ten that produce the highest average. Compensation for the 2007 calendar year is included in Average Monthly Compensation, if applicable, but no compensation after December 31, 2007 is considered for any Plan purposes. For participants with less than five years of service, the average is determined based on the Compensation for all years of service prior to 2008 and the actual number of months and portions thereof that the participant received that Compensation.
Compensation	An Employee's total wages for the calendar year ending in the plan year but excluding any bonuses designated as non-retirement qualifying bonuses.
Early Retirement Date	First day of the month coincident with or next following either: <ul style="list-style-type: none"><li>• attainment of age 55 and completion of 15 years Vesting Service, or</li><li>• attainment of age 62 and completion of 10 years Vesting Service</li></ul>
Effective Date of Plan	June 1, 1959 (Most recent restatement date is October 25, 2010).
Excess Earnings	Excess, if any, of Average Monthly Compensation over the monthly average of the Code Section 401(1)(5)(E) "Covered Compensation" that applies to an individual who attains their Social Security Normal Retirement Age in the year of a participant's termination or retirement, to Normal Retirement Age, if earlier, rounded to the nearest \$50. For valuation dates after September 30, 2007, the applicable Covered Compensation amount for participants who are not past their Normal Retirement Date is \$4,300.
Normal Form of Benefit	Life-Only Annuity.
Normal Retirement Date	First day of the month coincident with or next following 65th birthday
Plan Year	The 12-consecutive-month period beginning each March 1 <sup>st</sup>
Service	Service credited for Eligibility, Benefit, and Vesting purposes means the period of full-time employment measured in years and days / 365. Benefit Service is frozen as of September 30, 2007. Vesting service continues to accrue after September 30, 2007.



# Retirement Plan for Employees of Brazos River Authority

## Exhibit 1

### Summary of Plan Provisions

#### Plan Provisions

##### Eligibility

Each employee (who is not a part-time or temporary or who customarily works less than 20 hours a week or 5 months a year) is eligible to participate on the first of the month on or following completion of one year of service. No employees are allowed to enter or re-enter the plan after September 30, 2007.

##### Normal Retirement Benefit

Participants as of August 31, 1997 electing prior plan:

Monthly benefit equal to the greater of:

- 1.75% of Average Monthly Compensation multiplied by Benefit Service plus 0.52% of Excess Earnings multiplied by Benefit Service (maximum 35 years), and
- 2.70% of Average Monthly Compensation multiplied by Benefit Service (maximum 22 years) plus 0.52% of Average Monthly Compensation multiplied by Benefit Service in excess of 22 years (maximum 6 years) plus 0.52% of Excess Earnings multiplied by Benefit Service (maximum 28 years).

Participants as of August 31, 1997 not electing prior plan:

Monthly benefit equal to 1.0% of Average Monthly Compensation multiplied by Benefit Service, plus the excess, if any, of:

- the amount of Accrued Benefit as of the date of termination that the participant would have received under the terms in effect on August 31, 1997, over
- the sum of the participant's actual Accrued Benefit plus the monthly income payable at Normal Retirement Age in the Normal Form which is actuarially equivalent to the participant's account balance at termination of employment attributable to both employer and participant contributions.

Participants after August 31, 1997:

Monthly benefit equal to 1.0% of Average Monthly Compensation multiplied by Benefit Service.

Former Canal Division employees:

Monthly benefit based on service, pay, and plan provisions as of July 21, 1988. Participants who transferred from the Canal Division to Galveston County Water Authority on July 21, 1988, will continue to accrue Vesting Service as long as they remain employed by Galveston County Water Authority.

# Retirement Plan for Employees of Brazos River Authority

## Exhibit 1

### Summary of Plan Provisions

Early Retirement Benefit	Determined in the same way as the Normal Retirement Benefit but based on Service and Average Monthly Compensation to Early Retirement Date. This benefit is reduced by the application of two early retirement reduction factors: <ol style="list-style-type: none"><li>1/2% reduction for each month that a participant's Early Retirement Date precedes age 62 (applies to all portions of a participant's Normal Retirement Benefit except those listed in [2] below).</li><li>2/3% reduction for the first 36 months and 1/3% for each additional month that a participant's Early Retirement Date precedes age 65 (applies to the Normal Retirement Benefit components that involve Excess Earnings).</li></ol>
Delayed Retirement Benefit	Determined in the same way as the Normal Retirement Benefit but based on Service and Average Monthly Compensation to Delayed Retirement Date. The benefit must be at least as great as the actuarial equivalent of the benefit the participant would have received had s/he retired on his/her Normal Retirement Date. For this purpose, only interest is used during the deferral period.
Disability Benefit	Monthly benefit the participant would have been entitled to at his/her Normal Retirement Date had his/her Service and rate of Compensation continued until his/her Normal Retirement Date, under Plan provisions applicable at his/her date of termination.
Death Benefit	In the event of a participant's death prior to retirement, his/her beneficiary will be entitled to a benefit equal to the actuarial equivalent of the greater of: <ul style="list-style-type: none"><li>the lump sum value of the participant's accrued benefit, and</li><li>12 (or 30 if a participant had attained age 45 and completed 5 years of service or had attained age 55) times the participant's average Monthly Compensation, limited to</li><li>100 times the monthly retirement income the participant would have been entitled to at his/her Normal Retirement Date had his/her Service and rate of Compensation continued until his/her Normal Retirement Date</li></ul>
Termination Benefit	Monthly benefit payable at Normal Retirement Date equal to monthly Accrued Benefit at the participant's date of termination. Participants must be vested, per the table below, to receive the Termination Benefit

<b>Participant Group</b>	<b>Vesting Condition</b>
Prior Plan Electing Participants	Age 45 and 5 years of Vesting Service, or 15 years of Vesting Service
All Other Participants	5 years of Vesting Service

Participants may elect to receive his/her Termination Benefit prior to his/her Normal Retirement Date if s/he satisfies the Early Retirement Date conditions, and the benefit would be actuarially reduced.

# Retirement Plan for Employees of Brazos River Authority

## Exhibit 2

### Census Summary and Reconciliation

	March 1, 2021	March 1, 2022
<b>Active Participants</b>		
• Number		
– Fully Vested	64	56
– Non-Vested	-	-
– Total	64	56
• Average Age	55.6	55.4
• Average Vesting Service	22.1	23.5
• Average Frozen Monthly Benefit at Normal Retirement	\$ 614	\$ 596
<b>Retired Participants and Beneficiaries</b>		
• Number	158	164
• Average Age	71.5	71.2
• Average Years Since Retirement	9.1	8.6
• Average Monthly Benefit	\$ 1,213	\$ 1,153
<b>Terminated Vested Participants</b>		
• Number	104	100
• Average Age	56.4	57.1
• Average Monthly Benefit at Normal Retirement	\$ 422	\$ 385
<b>Canal Division Employees</b>		
• Number	4	4
• Average Age	59.2	58.7
• Average Monthly Benefit at Normal Retirement	\$ 155	\$ 80

## Retirement Plan for Employees of Brazos River Authority

### Exhibit 2

#### Census Summary and Reconciliation

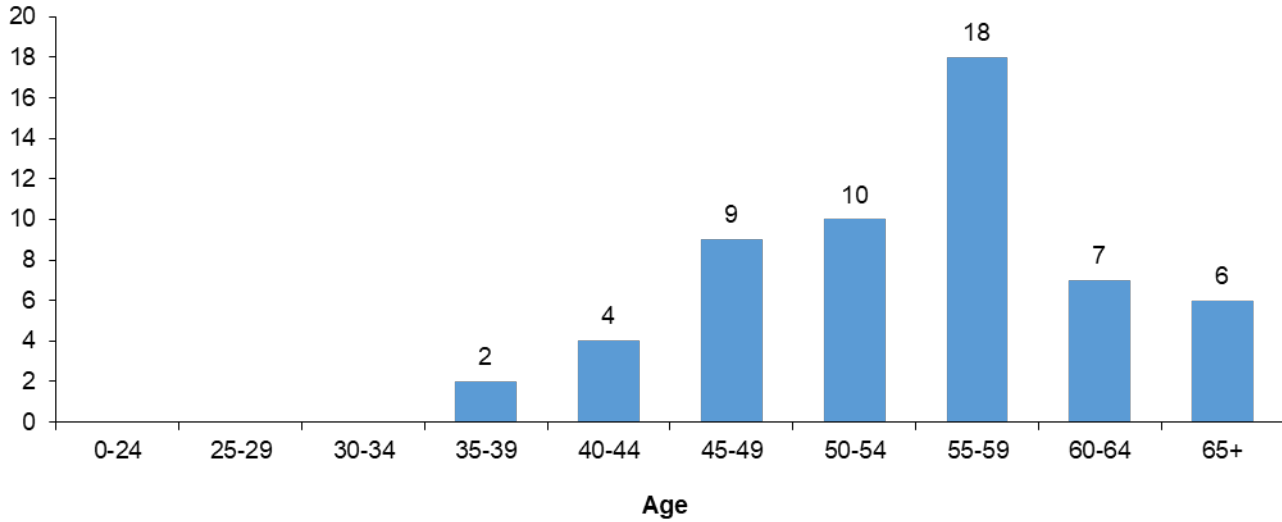
	Actives	Terminated Vested	Retirees	Beneficiaries Receiving Benefits	Deferred Beneficiaries	Transferred Canal Employees	Total
<b>March 1, 2021 Participants</b>	<b>64</b>	<b>100</b>	<b>126</b>	<b>32</b>	<b>4</b>	<b>4</b>	<b>330</b>
New Entrants	-	-	-	-	-	-	0
Rehired	-	-	-	1	(1)	-	0
Terminated Vested	(1)	1	-	-	-	-	0
Terminated Non-Vested	-	-	-	-	-	-	0
Paid-Out Lump Sum	-	-	-	-	-	-	0
Retired	(6)	(4)	11	-	-	(1)	0
Disabled	-	-	-	-	-	-	0
Died with Beneficiary	(1)	-	(6)	-	1	-	(6)
Died without Beneficiary	-	-	(4)	(2)	-	-	(6)
New Beneficiaries Receiving	-	-	-	6	-	-	6
Data Corrections	-	(1)	-	-	-	1	0
<b>March 1, 2022 Participants</b>	<b>56</b>	<b>96</b>	<b>127</b>	<b>37</b>	<b>4</b>	<b>4</b>	<b>324</b>

# Retirement Plan for Employees of Brazos River Authority

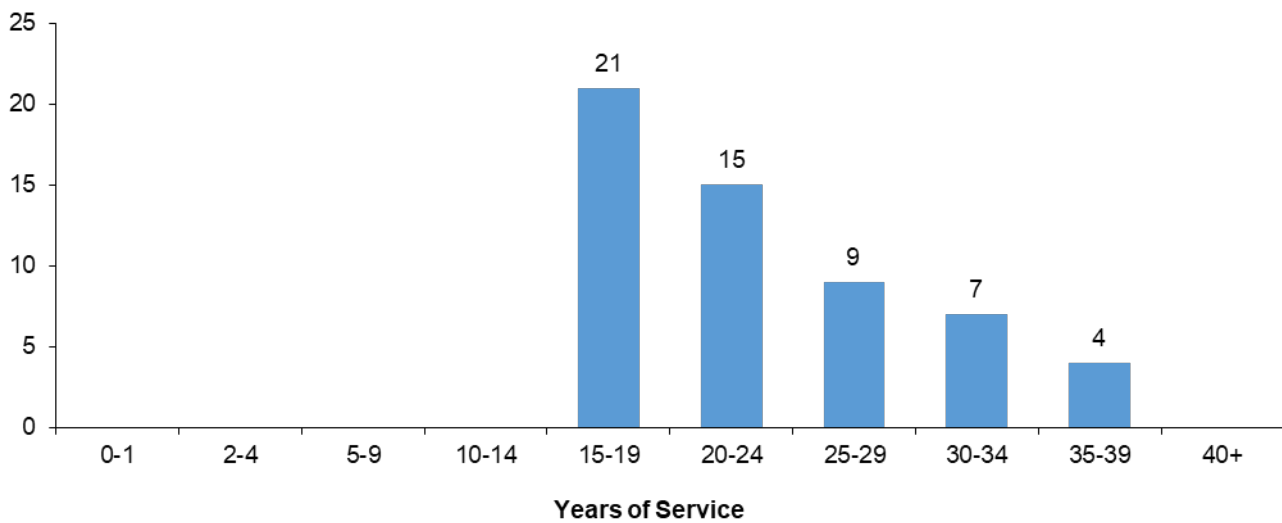
## Exhibit 3

Distribution of Active Participants by Age and Service as of March 1, 2022

### Active Participants by Age as of March 1, 2022



### Active Participants by Years of Service as of March 1, 2022

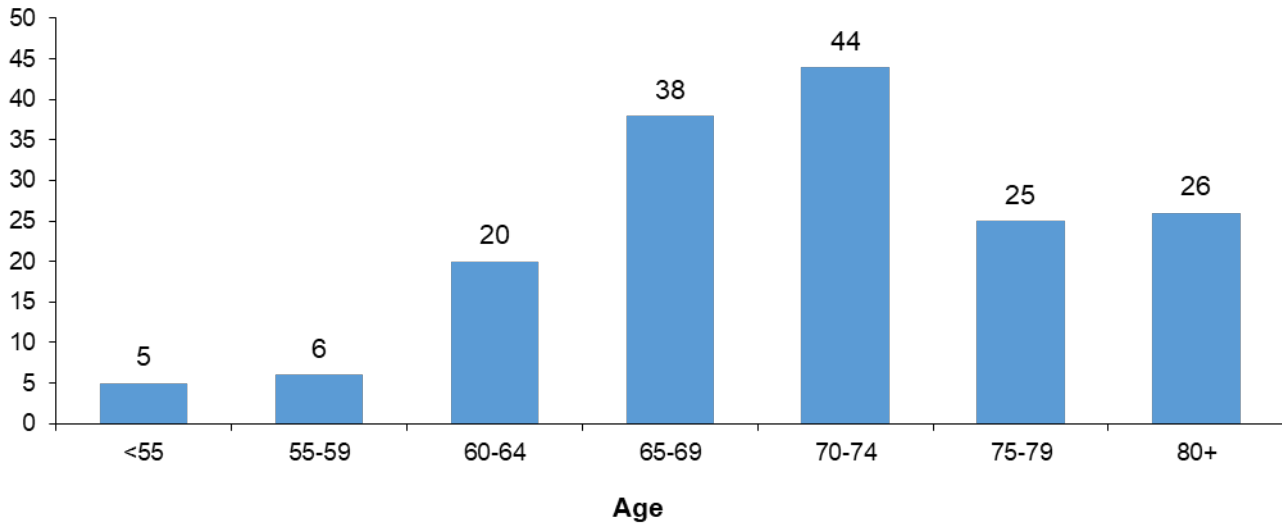


# Retirement Plan for Employees of Brazos River Authority

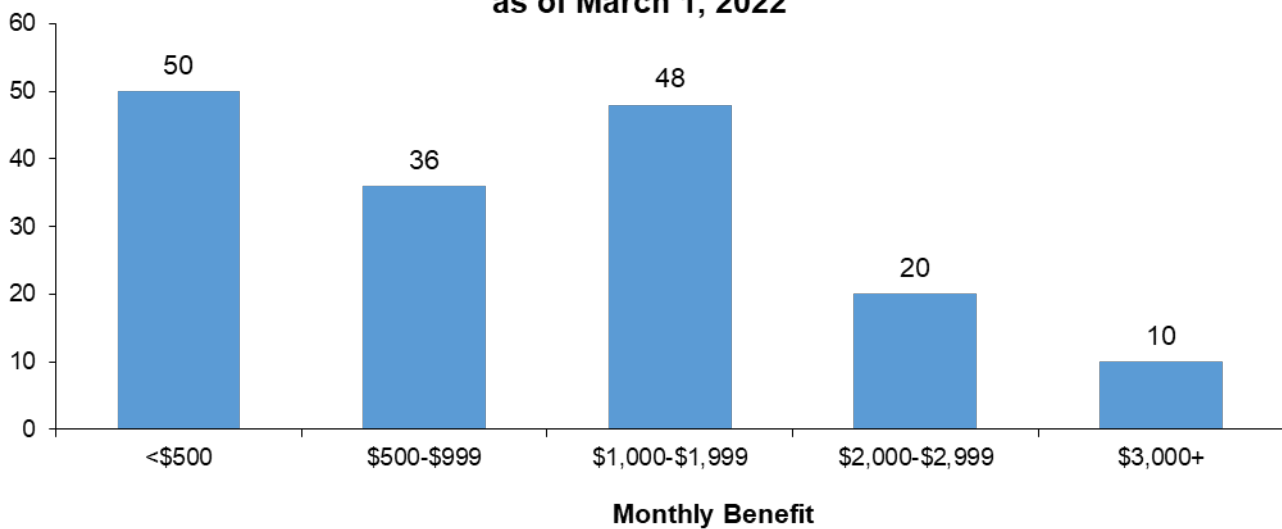
## Exhibit 4

Distribution of Retired Participants by Age and Monthly Benefit as of March 1, 2022

### Retired Participants and Beneficiaries by Age as of March 1, 2022



### Retired Participants and Beneficiaries by Monthly Benefit Amount as of March 1, 2022



## Retirement Plan for Employees of Brazos River Authority

### Exhibit 5

#### Reconciliation of Assets

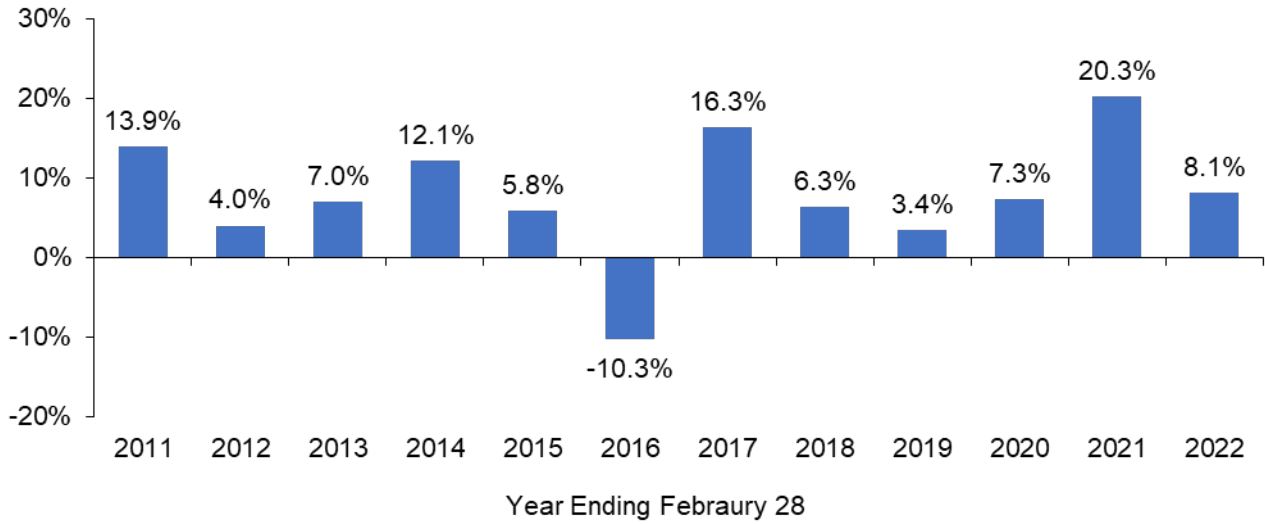
1. Beginning Balance March 1, 2021	\$	23,571,124
2. Contributions	\$	1,379,022
3. Investment Income		
a. Interest and Dividends	\$	376,804
b. Net Appreciation in Fair Value of Investments		<u>1,483,009</u>
c. Total Investment Income	\$	1,859,813
4. Benefit Payments		(2,310,213)
5. Expenses		<u>(77,559)</u>
6. Ending Balance February 28, 2022	\$	24,422,187
7. Year-End Adjustments		
a. Benefits Payable		-
b. Accrued Income/Expenses		<u>(7,543)</u>
c. Total Adjustments		(7,543)
8. Market Value of Assets as of March 1, 2022	\$	24,414,644

# Retirement Plan for Employees of Brazos River Authority

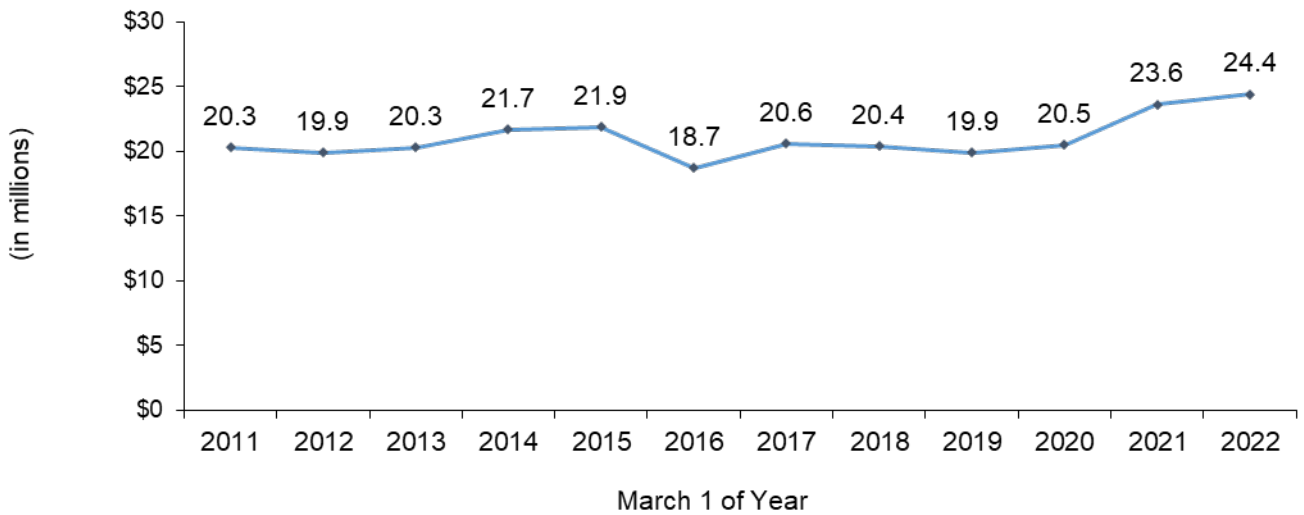
## Exhibit 6

### Historical Market Value of Assets and Rates of Return

#### Annual Rate of Return on Assets (prior to expenses)



#### Historical Market Value of Assets





# Retirement Plan for Employees of Brazos River Authority

## Exhibit 7

### Development of Actuarial Value of Assets

#### Determination of Investment Gain/(Loss)

1. Market Value as of March 1, 2021	\$ 23,571,124
2. Actual Benefit Payments and Administrative Expenses	(2,395,315)
3. Actual Authority Contributions	1,379,022
4. Expected Return at 6.50%	1,499,614
5. Benefits Payable	0
6. Expected Market Value as of February 28, 2022	<u>24,054,445</u>
7. Actual Market Value as of March 1, 2022	<u>24,414,644</u>
8. Asset Gain/(Loss) = (7) – (6)	360,200

#### Determination of Actuarial Value of Assets

1. Market value of assets at March 1, 2022	\$ 24,414,644
2. Deferred gains/(losses) on assets since March 1, 2017	

(a) Plan Year Ending	(b) Investment Gain/(Loss)	(c) Percent Deferred	(d) Amount Deferred
February 28, 2018	(47,372)	0%	0
February 28, 2019	(611,774)	20%	(122,355)
February 29, 2020	148,822	40%	59,529
February 28, 2021	2,748,994	60%	1,649,396
February 28, 2022	<u>360,200</u>	80%	<u>288,160</u>
Total	2,598,870		1,874,730

3. Preliminary Actuarial Value of Assets as of March 1, 2022: (1) – (2)	\$ 22,539,914
4. Minimum Actuarial Value of Assets as of March 1, 2022: 80% of (1)	19,531,715
5. Maximum Actuarial Value of Assets as of March 1, 2022: 120% of (1)	29,297,573
6. Actuarial Value of Assets as of March 1, 2022: Maximum (3) and (4), not more than (5)	\$ 22,539,914

# Retirement Plan for Employees of Brazos River Authority

## Exhibit 8

### Actuarial Assumptions and Methods

<b>Funding Interest Rates</b>	6.5% Compounded Annually, net of expenses
<b>ASC 960 Interest Rates</b>	6.5% Compounded Annually, net of expenses
<b>Mortality</b>	Pub-2010 General table, Fully Generational with Scale MP-2021 Improvement scale ( <i>updated from MP-2018 effective March 1, 2022</i> ) See Illustrative Values on following page
<b>Retirement Age</b>	Based on age See Illustrative Values on following page
<b>Termination Rates</b>	2003 Society of Actuaries turnover study table for small pension plans ( <i>updated from Sarason T-7 table effective March 1, 2022</i> ) See Illustrative Values on following page
<b>Form of Payment</b>	
Retirees	Based on optional form elected
All Others	Life-annuity only
<b>Marital Status</b>	
Percent Married	100%
Age Difference	Males assumed to be 3 years older than females
<b>Disability Incidence</b>	Wyatt 1985 Disability Study Class I See Illustrative Values on following page
<b>Salary Scale</b>	N/A
<b>Actuarial Asset Value</b>	Effective March 1, 2009, Market Value with gains and losses smoothed over a 5 year period. Prior to March 1, 2009, all assets were valued at Market Value.

## **Retirement Plan for Employees of Brazos River Authority**

### **Funding Actuarial Cost Method**

Actuarial Cost Method Effective March 1, 2009, the funding method changed from the aggregate funding method to the Unit Credit funding method with Unfunded Actuarial Accrued Liability amortized over a closed 30 year period. Effective March 1, 2012, the funding method changed to a closed 20 year period.

### **Modeling Method**

Liabilities shown in this report were determined using actuarial valuation software designed by Winklevoss Technologies. This software is designed for the specific purpose of modeling pension plan liabilities and costs and is the standard pension valuation software used by Gallagher Benefit Services, Inc. The results in this report are based on various inputs into the software model, including the plan provisions and assumptions shown in this report, and demographic and financial information provided by Brazos River Authority. While the results have been tested and reviewed for overall accuracy and consistency, we have relied upon the validity of the underlying software coding in preparing this report

# Retirement Plan for Employees of Brazos River Authority

## Exhibit 8

### Actuarial Assumptions and Methods

#### Illustrative Values

Age	Rate of Mortality (EEs) (per 1,000)		Rate of Disability (per 1,000)		Rate of Termination (per 1,000)
	Male	Female	Male	Female	Unisex
25	0.28	0.09	0.38	0.47	195.0
30	0.36	0.15	0.48	0.80	155.0
35	0.47	0.23	0.69	1.36	121.0
40	0.66	0.36	1.17	2.11	94.0
45	0.98	0.56	2.02	3.23	73.0
50	1.49	0.83	3.58	5.33	56.0
55	2.19	1.23	7.22	9.52	42.0
60	3.19	1.86	12.56	11.59	30.0
65	4.68	2.96	17.53	13.58	19.0

Age	MP-2021 Mortality Improvement in 2022	
	Male	Female
25	-0.0066	-0.0080
30	-0.0146	-0.0145
35	-0.0239	-0.0197
40	-0.0257	-0.0158
45	-0.0162	-0.0033
50	-0.0014	0.0080
55	0.0068	0.0102
60	0.0052	0.0044
65	0.0016	0.0019

Age	Rate of Retirement
55-60	7.0%
61-69	15.0%
70+	100.0%

# Contribution Information

## Retirement Plan for Employees of Brazos River Authority

### Exhibit 9

#### Development of Recommended Contribution

##### Development of Unfunded Actuarial Accrued Liability

	March 1, 2021	March 1, 2022
1. Actuarial Accrued Liability		
(a) Participants Receiving Benefits	\$ 23,611,704	\$ 23,480,071
(b) Vested Terminated Participants*	4,071,255	3,835,684
(c) Active Participants	<u>4,776,080</u>	<u>3,862,745</u>
(d) Total: (a) + (b) + (c)	\$ 32,459,039	\$ 31,178,500
2. Actuarial Value of Assets (Exhibit 7)	<u>21,536,819</u>	<u>22,539,914</u>
3. Unfunded Actuarial Accrued Liability	\$ 10,922,220	\$ 8,638,586

\* Includes vested benefits of Transferred Canal Employees

##### Development of Recommended Contribution

	March 1, 2021	March 1, 2022
1. Total Normal Cost	\$ -	\$ -
2. Amortization of Unfunded Actuarial Accrued Liability*	<u>1,333,795</u>	<u>1,128,327</u>
3. Recommended Contribution, Beginning of Year: (1) + (2)	\$ 1,333,795	\$ 1,128,327
4. Interest to Mid-Year at 6.5%	<u>43,348</u>	<u>36,671</u>
5. Recommended Contribution, Mid-Year: (3) + (4)	\$ 1,377,143	\$ 1,164,997

\*Amortization period changed from a 30 year closed amortization period as of March 1, 2009 to a 20 year closed amortization period as of March 1, 2012. As of March 1, 2022 there are 10 years remaining in the amortization period.

## Retirement Plan for Employees of Brazos River Authority

### Exhibit 10

#### Development of Contributions under Alternative Assumptions

#### 2022 Contribution Based on Alternative Interest Rate Assumptions

	7.50% Investment Return Assumption	7.00% Investment Return Assumption	Baseline 6.5% Investment Return Assumption	6.00% Investment Return Assumption	5.50% Investment Return Assumption
1. Actuarial Accrued Liability	\$28,536,476	\$29,805,629	\$31,178,500	\$32,666,609	\$34,283,059
2. Actuarial Value of Assets (Exhibit 7)	<u>22,539,914</u>	<u>22,539,914</u>	<u>22,539,914</u>	<u>22,539,914</u>	<u>22,539,914</u>
3. Unfunded Actuarial Accrued Liability: (1) – (2)	\$5,996,562	\$7,265,715	\$8,638,586	\$10,126,695	\$11,743,145
4. Total Normal Cost	0	0	0	0	0
5. 10-Year Amortization of Unfunded Actuarial Accrued Liability	<u>812,665</u>	<u>966,798</u>	<u>1,128,327</u>	<u>1,298,013</u>	<u>1,476,717</u>
6. Recommended Contribution, Beginning of Year: (4) + (5)	\$812,665	\$966,798	\$1,128,327	\$1,298,013	\$1,476,717
7. Interest to Mid-Year at Specified Rate	<u>30,475</u>	<u>33,838</u>	<u>36,671</u>	<u>38,940</u>	<u>40,610</u>
8. Recommended Contribution, Mid-Year: (6) + (7)	\$843,140	\$1,000,636	\$1,164,997	\$1,336,953	\$1,517,327

Amortization charges are created when the plan has an Unfunded Actuarial Accrued Liability (page 16).

# Supplemental Information



## Retirement Plan for Employees of Brazos River Authority

### Exhibit 11

#### Accumulated Benefit Liability as of March 1, 2022

A measure of the degree of progress made in funding any plan is a comparison between the liability for benefits and the assets accumulated to date. For ongoing plans, these liabilities are determined using the regular valuation assumptions. The following table shows the actuarial present value of accumulated plan benefits using these assumptions:

	<b>Number of Participants</b>	<b>Plan Liability</b>
<b>Inactive Participants</b>		
• Receiving benefits	164	\$ 23,480,071
• Deferred Vested*	104	3,835,684
<b>Active Participants</b>		
• Vested	56	3,862,745
• Non-Vested	0	-
<b>Total Vested Benefits</b>	324	\$ 31,178,500
<b>Total Accrued Benefits</b>	324	\$ 31,178,500

\*Includes Vested Benefits of Transferred Canal Employees

The ratio of assets to the above liabilities (known as the Funding Ratio) represents the degree to which accumulated plan benefits have been funded. As of March, 1, 2022, the Actuarial Value of Assets was \$22,539,914. The table below outlines the Funding Ratios for both vested and total accrued benefits.

	<b>Plan Liability</b>
<b>Funding Ratios</b>	
• Vested Accrued Benefits	72%
• Total Accrued Benefits	72%

## Retirement Plan for Employees of Brazos River Authority

### Exhibit 12

#### Statement of Accumulated Plan Benefits

##### Actuarial Present Value of Accumulated Plan Benefits

	March 1, 2021	March 1, 2022
<b>Vested Benefits</b>		
• Participants currently receiving payments	\$ 23,611,704	\$ 23,480,071
• Vested terminated and deferred beneficiary participants	3,998,410	3,803,795
• Transferred Canal Employees	72,845	31,889
• Active Participants	<u>4,776,080</u>	<u>3,862,745</u>
• Total Vested Benefits	\$ 32,459,039	\$ 31,178,500
<b>Non-Vested Benefits</b>	\$ -	\$ -
<b>Total</b>	\$ 32,459,039	\$ 31,178,500

##### Statement of Changes in Accumulated Plan Benefits

1. Beginning Value, March 1, 2021	\$ 32,459,039
2. Increases (Decreases)	
(a) Plan amendment	\$ -
(b) Change in actuarial assumptions*	\$ (226,982)
(c) Benefits accumulated, including experience gains and losses	(778,100)
(d) Increase for interest due to decrease in discount period at 6.5%	2,034,756
(e) Benefits paid	<u>(2,310,213)</u>
(f) Net increase (decrease)	\$ (1,280,539)
3. Ending Value, March 1, 2022	\$ 31,178,500

*\*Effective with the March 1, 2022 report, the actuarial assumption for termination rates was updated from the Sarason T-7 table to the 2003 Society of Actuaries Pension Plan Turnover Study table for small pension plans, and the mortality improvement scale was updated from MP-2018 to MP-2021*

## Retirement Plan for Employees of Brazos River Authority

### Exhibit 13

#### Projected Schedule of Benefit Payments

<b>Year Beginning March 1</b>	<b>Total Annual Benefits</b>	<b>Number of Active Participants</b>	<b>Number Retired &amp; Deferred Vested</b>
2022	2,437,680	56	268
2023	2,468,421	46	273
2024	2,472,365	42	273
2025	2,485,041	38	273
2026	2,486,267	34	273
2027	2,488,265	31	272
2028	2,495,633	27	271
2029	2,499,185	24	270
2030	2,514,787	21	267
2031	2,494,909	18	265
2032	2,487,840	16	262
2033	2,468,068	13	259
2034	2,445,742	11	254
2035	2,393,132	9	250
2036	2,339,041	8	245
2037	2,259,207	6	239
2038	2,174,541	5	233
2039	2,086,826	4	226
2040	2,001,719	4	219
2041	1,917,144	3	211

## Retirement Plan for Employees of Brazos River Authority

### Exhibit 14

#### Historical Valuation Results

Date	Number of participants	Assets				Accounting Information			
		Market Value	Rate of Return	Actuarial Value***	Beginning of Year Recommended Contribution	Actual Contribution	Vested Liability	Funded Ratio	
2004	344	\$ 19,877,854	**	\$ 19,877,854	\$ 659,486	\$ 659,486	**	**	
2005	346	20,287,134	**	20,287,134	780,379	780,379	19,094,613	106%	
2006	366	22,073,145	**	22,073,145	871,115	871,115	20,527,926	108%	
2007	371	23,929,592	10.16%	23,929,592	0	0	21,881,445	109%	
2008	373*	22,975,577	1.34%	22,975,577	13,654	12,998	23,114,662	99%	
2009	370	16,449,501	-22.64%	19,739,401	285,574	296,283	22,710,811	87%	
2010	367	18,998,609	22.75%	20,943,846	214,823	222,879	23,192,005	90%	
2011	365	20,332,382	13.92%	20,342,500	291,387	302,314	23,558,595	86%	
2012	360	19,886,106	3.99%	19,775,845	635,323	655,971	27,231,180	73%	
2013	356	20,288,366	6.97%	19,332,217	726,670	750,287	27,639,847	70%	
2014	351	21,728,957	12.10%	20,626,849	660,955	682,436	27,970,438	74%	
2015	351	21,895,301	5.78%	21,358,481	800,356	826,368	29,976,521	71%	
2016	349	18,726,771	-10.28%	21,199,575	882,735	911,424	30,382,378	70%	
2017	346	20,637,976	16.33%	21,201,895	986,158	1,018,208	31,077,124	68%	
2018	344	20,434,799	6.27%	20,867,108	1,102,085	1,137,903	31,446,838	66%	
2019	341	19,851,827	3.41%	20,372,827	1,380,306	1,425,166	33,014,673	62%	
2020	334	20,463,482	7.27%	20,372,697	1,347,148	1,390,930	32,078,119	64%	
2021	330	23,571,124	20.25%	21,536,819	1,335,615	1,379,022	32,459,039	66%	
2022	324	\$ 24,414,644	8.07%	\$ 22,539,914	\$ 1,128,327	TBD	\$ 31,178,500	72%	

\* Includes 14 participants hired after 3/1/2006 who were excluded from the 3/1/2008 valuation.

\*\* Values unknown.

\*\*\* Prior to 2009, all assets were valued at Market Value. Effective as of March 1, 2009, Actuarial Value is Market Value with gains and losses smoothed over a 5 year period.

# Retirement Plan for Employees of Brazos River Authority

GASB No. 67 & No. 68 Actuarial Valuation

March 1, 2022



**Gallagher**

Insurance | Risk Management | Consulting

# Retirement Plan for Employees of Brazos River Authority

## Actuarial Certification

**GASB Statement Nos. 67 and 68 Disclosures as of March 1, 2022**

These exhibits for the Retirement Plan for Employees of Brazos River Authority (the "Plan") are intended to comply with the Government Accounting Standards Board Statement Numbers 67 and 68. We understand these results as of March 1, 2022 are being used for reporting under GASB 67 & 68 for the fiscal year ending August 31, 2022. Determinations for other purposes may be significantly different from those contained in this report; the results in this report should not be used for other purposes.

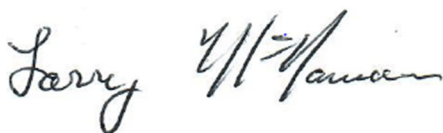
Our Actuarial Valuation has been completed with reliance upon participant and financial information provided to us by Brazos River Authority and Wells Fargo Bank. We have reviewed the data provided to us for general reasonableness but did not audit the data. The accuracy of the information in this report is dependent on the quality and completeness of the data provided to us. Each assumption not specified by statute or regulations is reasonable taking into account the experience of the Plan, Plan-specific features, the purpose of the measurement and reasonable expectations.

The actuarial assumptions used in this report (see March 1, 2022 actuarial valuation) were selected by Brazos River Authority, in consultation with Gallagher Benefit Services, Inc. Based on a review of historic experience, Plan-specific features, and anticipated future outlook, the actuarial assumptions not specified by statute or regulation, each and in the aggregate, are reasonably related to the experience of the Plan and reflect a reasonable estimate of anticipated experience under the Plan.

The mortality improvement scale was updated from Scale MP-2018 to Scale MP-2021. This change was made to keep the assumption current and is based on the most recent available data. The underlying mortality is Pub-2010 General table, Fully Generational and was not changed with this valuation. The turnover table was changed from Crocker-Sarason T-7 to the 2003 Society of Actuaries Turnover Study Small Plan Age-Based table. This change was made to update to the most current general population turnover tables available. There were no other changes in actuarial assumptions, plan provisions, cost allocation procedures, contribution allocation procedures, or methods from the previous measurement. There were no adjustments of prior measurements or use of approximations which would materially impact the results. The accrued benefits valued in this report reflect the benefit attribution pattern described by the plan provisions. Please see the March 1, 2022 funding valuation for a description of all other assumptions and methods.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in Plan provisions or applicable law. Due to the limited scope of this engagement, we did not complete an analysis of the potential range of such future measurements. Liabilities shown in this report were determined using actuarial valuation software designed for the specific purpose of modeling pension plan liabilities and costs. In our opinion, except as stated elsewhere in this report, the software is appropriate and produces reasonable results for this purpose.

To the best of our knowledge, the information contained in this report is complete, accurate and in accordance with generally accepted actuarial principles as recommended by the American Academy of Actuaries. The actuary indicated below is an Enrolled Actuary and is qualified to render the actuarial opinion contained in this report.



Larry McNamara, EA, MAAA, CFA  
Enrollment Number 20-06568



Jake Yetzer  
Actuarial Analyst

May 2022

**Brazos River Authority Employees' Pension Plan**  
Schedule of Changes in Net Pension Liability

	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
<b>Total Pension Liability</b>										
Service Cost	\$ 24,463	\$ 35,457	\$ 45,935	\$ 65,624	\$ 76,016	\$ 105,788	\$ 127,126	\$ -	\$ -	\$ -
Interest	2,029,989	2,006,088	2,068,208	1,956,411	1,933,528	1,891,624	1,901,930	1,765,095	1,744,153	1,718,647
Changes of benefit terms	-	-	-	-	-	-	-	-	-	-
Differences between expected and actual experience	(777,333)	616,817	(861,349)	(16,086)	550,484	689,326	228,217	637,863	225,700	296,222
Changes of assumptions	(200,748)	-	-	1,938,617	-	-	(593,331)	1,259,465	-	-
Benefit payments, including refunds of member contribution:	(2,310,213)	(2,250,046)	(2,147,584)	(2,260,472)	(2,136,672)	(1,891,765)	(1,713,349)	(1,656,340)	(1,639,262)	(1,606,202)
Other	-	-	-	-	-	-	-	-	-	-
<b>Net change in total pension liability</b>	<u>\$ (1,233,842)</u>	<u>\$ 408,316</u>	<u>\$ (894,790)</u>	<u>\$ 1,684,094</u>	<u>\$ 423,356</u>	<u>\$ 794,973</u>	<u>\$ (49,407)</u>	<u>\$ 2,006,083</u>	<u>\$ 330,591</u>	<u>\$ 408,667</u>
<b>Total Pension Liability--Beginning</b>	<u>\$ 32,343,063</u>	<u>\$ 31,934,747</u>	<u>\$ 32,829,537</u>	<u>\$ 31,145,443</u>	<u>\$ 30,722,087</u>	<u>29,927,114</u>	<u>29,976,521</u>	<u>27,970,438</u>	<u>27,639,847</u>	<u>27,231,180</u>
<b>Total Pension Liability--Ending (a)</b>	<u>\$ 31,109,221</u>	<u>\$ 32,343,063</u>	<u>\$ 31,934,747</u>	<u>\$ 32,829,537</u>	<u>\$ 31,145,443</u>	<u>\$ 30,722,087</u>	<u>\$ 29,927,114</u>	<u>\$ 29,976,521</u>	<u>\$ 27,970,438</u>	<u>\$ 27,639,847</u>
<b>Plan fiduciary net position</b>										
Contributions--employer	\$ 1,379,022	\$ 1,390,930	\$ 1,425,166	\$ 1,137,903	\$ 1,018,208	\$ 911,424	\$ 826,368	\$ 682,436	\$ 750,287	\$ 655,971
Contributions--member	-	-	-	-	-	-	-	-	-	-
Net investment income	1,859,813	4,049,008	1,413,874	676,209	1,255,630	2,972,010	(2,200,950)	1,226,445	2,396,892	1,503,971
Benefit payments, including refunds of member contribution:	(2,310,213)	(2,250,046)	(2,147,584)	(2,260,472)	(2,136,672)	(1,891,765)	(1,713,349)	(1,656,340)	(1,639,262)	(1,606,202)
Administrative expense	(77,559)	(74,757)	(79,801)	(136,612)	(84,045)	(80,464)	(80,599)	(78,782)	(65,071)	(151,167)
Other	(7,543)	(7,493)	-	-	(256,298)	-	-	-	-	-
<b>Net change in plan fiduciary net position</b>	<u>\$ 843,520</u>	<u>\$ 3,107,642</u>	<u>\$ 611,655</u>	<u>\$ (582,972)</u>	<u>\$ (203,177)</u>	<u>\$ 1,911,205</u>	<u>\$ (3,168,530)</u>	<u>\$ 173,759</u>	<u>\$ 1,442,846</u>	<u>\$ 402,573</u>
<b>Plan fiduciary net position--beginning</b>	<u>\$ 23,571,124</u>	<u>\$ 20,463,482</u>	<u>\$ 19,851,827</u>	<u>\$ 20,434,799</u>	<u>\$ 20,637,976</u>	<u>18,726,771</u>	<u>21,895,301</u>	<u>21,721,542</u>	<u>20,278,696</u>	<u>19,876,123</u>
<b>Plan fiduciary net position--ending (b)</b>	<u>\$ 24,414,644</u>	<u>\$ 23,571,124</u>	<u>\$ 20,463,482</u>	<u>\$ 19,851,827</u>	<u>\$ 20,434,799</u>	<u>\$ 20,637,976</u>	<u>\$ 18,726,771</u>	<u>\$ 21,895,301</u>	<u>\$ 21,721,542</u>	<u>\$ 20,278,696</u>
<b>Net Pension Liability (asset)--ending (a) - (b)</b>	<u>\$ 6,694,577</u>	<u>\$ 8,771,939</u>	<u>\$ 11,471,265</u>	<u>\$ 12,977,710</u>	<u>\$ 10,710,644</u>	<u>\$ 10,084,111</u>	<u>\$ 11,200,343</u>	<u>\$ 8,081,220</u>	<u>\$ 6,248,896</u>	<u>\$ 7,361,151</u>

**Brazos River Authority Employees' Pension Plan**  
Schedule of Net Pension Liability

	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
Total Pension Liability	\$ 31,109,221	\$ 32,343,063	\$ 31,934,747	\$ 32,829,537	\$ 31,145,443	\$ 30,722,087	\$ 29,927,114	\$ 29,976,521	\$ 27,970,438	\$ 27,639,847
Plan fiduciary net position	24,414,644	23,571,124	20,463,482	19,851,827	20,434,799	20,637,976	18,726,771	21,895,301	21,721,542	20,278,696
Net pension liability (asset)	<u>\$ 6,694,577</u>	<u>\$ 8,771,939</u>	<u>\$ 11,471,265</u>	<u>\$ 12,977,710</u>	<u>\$ 10,710,644</u>	<u>\$ 10,084,111</u>	<u>\$ 11,200,343</u>	<u>\$ 8,081,220</u>	<u>\$ 6,248,896</u>	<u>\$ 7,361,151</u>
Plan fiduciary net position as a percentage of the total pension liability	78.48%	72.88%	64.08%	60.47%	65.61%	67.18%	62.57%	73.04%	77.66%	73.37%
Covered-employee Payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net pension liability (asset) as a percentage of covered-employee payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Sensitivity of the Net Pension Liability to Changes in the Discount Rate**

	<u>1% Decrease (5.5%)</u>	<u>Current Discount Rate (6.5%)</u>	<u>1% Increase (7.5%)</u>
Total Pension Liability	\$ 34,186,808	\$ 31,109,221	\$ 28,485,995
Plan fiduciary net position	24,414,644	24,414,644	24,414,644
Net pension liability (asset)	<u>\$ 9,772,164</u>	<u>\$ 6,694,577</u>	<u>\$ 4,071,351</u>
Plan fiduciary net position as a percentage of the total pension liability	71.42%	78.48%	85.71%



**Brazos River Authority Employees' Pension Plan**  
Schedule of Contributions

	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
Actuarially determined contribution	\$ 1,377,143	\$ 1,390,930	\$ 1,425,166	\$ 1,137,903	\$ 1,018,208	\$ 911,424	\$ 826,368	\$ 682,436	\$ 750,287	\$ 655,971
Contributions in relation to the actuarially determined contribution	\$ 1,379,022	1,390,930	1,425,166	1,137,903	1,018,208	911,424	826,368	682,436	750,287	655,971
Contribution deficiency (excess)	\$ <u>(1,879)</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>
Covered-employee Payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Contributions as a percentage of covered-employee payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Brazos River Authority Employees' Pension Plan**  
Schedule of Investment Returns

	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
Annual money-weighted rate of return, net of investment expenses	8.1%	20.3%	7.3%	3.4%	6.3%	16.3%	-10.3%	5.8%	12.1%	7.0%

## Brazos River Authority Employees' Pension Plan

Components of Pension Expense for the Fiscal Year Ended August 31, 2022

Description	Amount
Service Cost	\$ 24,463
Interest on the total pension liability	2,029,989
Differences between expected and actual experience	(471,545)
Changes of assumptions	(167,290)
Employee contributions	-
Projected earnings on pension plan investments	(1,499,855)
Differences between projected and actual earnings on plan investments	(519,745)
Pension plan administrative expenses	77,559
Other changes in fiduciary net position	7,543
	\$ (518,881)

Projected earnings on pension plan investments	Amount for Period (a)	Portion of Period (b)	Projected Rate of Return (c)	Projected Earnings (a) x (b) x (c)
Beginning plan fiduciary net position	\$ 23,571,124	100%	6.50%	\$ 1,532,123
Employer contributions	1,379,022	50%	6.50%	44,113
Employee contributions	-	50%	6.50%	-
Benefit payments, including refunds of employee contributions	(2,310,213)	50%	6.50%	(73,900)
Administrative expense	(77,559)	50%	6.50%	(2,481)
Total projected earnings				\$ 1,499,855

Interest cost on total pension liability	Amount for Period (a)	Portion of Period (b)	Interest Rate (c)	Interest on the Total Pension Liability (a) x (b) x (c)
Beginning total pension liability	\$ 32,343,063	100%	6.50%	\$ 2,102,299
Service cost	24,463	100%	6.50%	1,590
Benefit payments, including refunds of employee contributions	(2,310,213)	50%	6.50%	(73,900)
Total interest on the total pension liability				\$ 2,029,989

**Brazos River Authority Employees' Pension Plan**

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Year	Differences Between Expected and Actual Experience	Recognition Period (Years)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
2012	380,529	4.2	90,653	90,653	90,653	17,917							
2013	296,222	3.4	85,929	85,929	85,929	38,435							
2014	225,700	3.1		71,888	71,888	71,888	10,036						
2015	637,863	3.2			199,332	199,332	199,332	39,867					
2016	228,217	2.9				78,696	78,696	70,825					
2017	689,326	2.7					255,306	255,306	178,714				
2018	550,484	2.4						229,368	229,368	91,748			
2019	(16,086)	1.8							(8,937)	(7,149)			
2020	(861,349)	1.6								(538,343)	(323,006)	-	-
2021	616,817	1.4									440,584	176,233	-
2022	(777,333)	1.2										(647,778)	(129,555)
Net Increase (decrease) in pension expense			<u>\$ 180,796</u>	<u>\$ 252,684</u>	<u>\$ 451,494</u>	<u>\$ 406,268</u>	<u>\$ 543,370</u>	<u>\$ 595,366</u>	<u>\$ 399,145</u>	<u>\$ (453,744)</u>	<u>\$ 117,578</u>	<u>\$ (471,545)</u>	<u>\$ (129,555)</u>

Deferred outflows of resources and deferred inflows of resources arising from differences between expected and actual experience

Year	Experience Losses (a)	Experience Gains (b)	Balances at August 31, 2022		
			Amounts Recognized in Pension Expense through August 31, 2022 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2013	296,222		296,222	-	
2014	225,700		225,700	-	
2015	637,863		637,863	-	
2016	228,217		228,217	-	
2017	689,326		689,326	-	
2018	550,484		550,484	-	
2019		(16,086)	(16,086)		-
2020		(861,349)	(861,349)		-
2021	616,817		616,817		-
2022		(777,333)	(647,778)		(129,555)
			<u>\$ -</u>	<u>\$ -</u>	<u>\$ (129,555)</u>

**Brazos River Authority Employees' Pension Plan**

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions

Year	Changes of Assumptions	Recognition Period (Years)											
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
2012	2,690,814	4.2	641,026	641,026	641,026	126,710							
2013	-	3.4											
2014	-	3.1											
2015	1,259,465	3.2			393,583	393,583	393,583	78,716					
2016	(593,331)	1.0				(593,331)							
2017	-	2.7											
2018	-	2.4											
2019	1,938,617	1.8						1,077,009	861,608	-	-	-	-
2020	-	1.8							-	-	-	-	-
2021	-	1.4								-	-	-	-
2022	(200,748)	1.2								-	(167,290)	(33,458)	(33,458)
Net Increase (decrease) in pension expense			\$ 641,026	\$ 641,026	\$ 1,034,609	\$ (73,038)	\$ 393,583	\$ 78,716	\$ 1,077,009	\$ 861,608	\$ -	\$ (167,290)	\$ (33,458)

Deferred outflows of resources and deferred inflows of resources arising from changes of assumption:

Year	Experience Losses (a)	Experience Gains (b)	Balances at August 31, 2022		
			Amounts Recognized in Pension Expense through August 31, 2022 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2012	2,690,814		2,690,814	\$ -	
2013	-		-		
2014	-		-		
2015	1,259,465		1,259,465	\$ -	
2016		(593,331)	(593,331)		-
2017	-		-		
2018	-		-		
2019	1,938,617		1,938,617	\$ -	
2020	-		-		
2021	-		-		
2022		(200,748)	(167,290)		(33,458)
				\$ -	\$ (33,458)

**Brazos River Authority Employees' Pension Plan**

Increase (Decrease) in Pension Expense Arising from the Recognition of Differences between Projected and Actual Earnings on Pension Plan Investments

Year	Differences Between Projected and Actual Earnings on Pension Plan Investments	Recognition Period (Years)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
2012	528,466	5	105,693	105,693	105,693	105,694										
2013	(247,256)	5	(49,451)	(49,451)	(49,451)	(49,451)	(49,452)									
2014	(1,109,296)	5		(221,859)	(221,859)	(221,859)	(221,859)	(221,860)								
2015	151,781	5			30,356	30,356	30,356	30,356	30,357							
2016	3,593,194	5				718,639	718,639	718,639	718,639	718,638						
2017	(1,788,703)	5					(357,741)	(357,741)	(357,741)	(357,741)	(357,739)					
2018	47,372	5						9,474	9,474	9,474	9,474	9,476				
2019	611,774	5							122,355	122,355	122,355	122,355	122,354			
2020	(149,167)	5								(29,833)	(29,833)	(29,833)	(29,833)	(29,835)		
2021	(2,748,754)	5									(549,751)	(549,751)	(549,751)	(549,751)	(549,750)	
2022	(359,958)	5									(71,992)	(71,992)	(71,992)	(71,992)	(71,992)	(71,990)
Net Increase (decrease) in pension expense			\$ (736,875)	\$ (958,733)	\$ (413,393)	\$ 583,379	\$ 119,943	\$ 178,868	\$ 523,084	\$ 462,893	\$ (805,494)	\$ (519,745)	\$ (529,222)	\$ (651,578)	\$ (621,742)	\$ (71,990)

Deferred outflows of resources and deferred inflows of resources arising from differences between expected and actual experience

Year	Experience Losses (a)	Experience Gains (b)	Balances at August 31, 2022		
			Amounts Recognized in Pension Expense through August 31, 2022 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2014		(1,109,296)	(1,109,296)		-
2015	151,781		151,781	-	
2016	3,593,194		3,593,194	-	
2017		(1,788,703)	(1,788,703)		-
2018	47,372		47,372	-	
2019	611,774		489,420	122,354	
2020		(149,167)	(89,499)		(59,668)
2021		(2,748,754)	(1,099,502)		(1,649,252)
2022		(359,958)	(71,992)		(287,966)
			\$ 122,354	\$ (1,996,886)	

**Brazos River Authority Employees' Pension Plan**

Deferred Outflows of Resources and Deferred Inflows of Resources

<u>Source</u>	<b>Balances at August 31, 2022</b>	
	<b>Deferred Outflows of Resources</b>	<b>Deferred Inflows of Resources</b>
Differences between expected and actual experience	\$ -	\$ (129,555)
Changes of assumptions	-	(33,458)
Net difference between projected and actual earnings on investments	122,354	(1,996,886)
Total	<u>\$ 122,354</u>	<u>\$ (2,159,899)</u>

Deferred outflows of resources and deferred inflows of resources will be recognized in pension expense as follows:

<u>Year</u>	
2023	\$ (692,235)
2024	\$ (651,578)
2025	\$ (621,742)
2026	\$ (71,990)
2027	\$ -
Thereafter	\$ -