RETIREMENT PLAN FOR EMPLOYEES OF GBRA

ACTUARIAL VALUATION

AS OF JANUARY 1, 2022

AUGUST 31, 2022

Rudd and Wisdom, Inc.

Rudd and Wisdom, Inc.

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August 31, 2022

GBRA Retirement and Benefit Committee
Guadalupe-Blanco River Authority
933 E. Court Street
Seguin, TX 78155

Re: Actuarial Valuation as of January 1, 2022

Dear Committee Members:

Enclosed is the report of the Actuarial Valuation of the Retirement Plan for Employees of the Guadalupe-Blanco River Authority as of January 1, 2022. The purpose of this report is to present the actuarial condition of the plan as of January 1, 2022 and to recommend the GBRA minimum contribution for the plan year ending December 31, 2022.

Plan Provisions

There have been no changes in plan provisions since the plan was amended to be frozen and to provide a supplemental benefit in addition to the frozen accrued benefit as of December 31, 2018. The supplemental benefit was designed to make up for the difference between (1) the projected benefit if the plan were to continue as it was before the amendment and (2) the sum of (a) the frozen accrued benefit in the plan and (b) the employer-funded portion of the benefit in the Texas County and District Retirement System (TCDRS) plan that began January 1,2019. Plan provisions are outlined and summarized in Section V of this report.

Review of Actuarial Assumptions

As a part of each actuarial valuation, we review the actuarial assumptions used in the prior actuarial valuation. We analyze the economic assumptions every year. As the result of our overall review and our economic assumptions analysis, we have selected actuarial assumptions that we consider to be reasonable and appropriate for the plan for the long term future. Their selection complies with the applicable actuarial standards of practice. The demographic actuarial assumptions selected for this actuarial valuation are the same as those used in the actuarial valuation as of January 1, 2021. However, the economic actuarial assumptions were changed with the investment return assumption reduced from 6.5% to 6.25% and the compensation increase assumption increased from 3% to 3.5%.

Funding Policy

With the freezing of this plan and the adoption of the new plan in TCDRS for all employees, a new funding policy for this plan was adopted in November 2019. GBRA management intends to fully fund the plan over the 10 years that began January 1, 2019. GBRA anticipates contributing at least the minimum amount each year, usually in December, that will amortize the unfunded actuarial liability (UAL) over the closed 10-year period.

Even though the definition of the plan's supplemental benefit makes the plan not truly frozen, we have projected the supplemental benefits for the active participants and treated those benefits in the same manner as the deferred frozen benefits. So there is no normal cost for the supplemental benefits.

Recommended Contribution

Based on the funding policy above, we recommend a minimum contribution of $708,115 for the plan year ending December 31, 2022 payable as of that date. Based on this actuarial valuation, this recommended annual contribution as a level dollar amount is expected to amortize the UAL of $3,918,081 over the remaining seven years of the 10-year period that began January 1, 2019. This assumes there will be no future gains or losses or changes in assumptions. To the extent that there are future changes, the future valuations will modify the recommended contribution amount.

Changes in the Unfunded Actuarial Liability

In comparing this year's valuation to last year's valuation, the UAL decreased by $1,820,126 from $5,738,207 to $3,918,081 for the following reasons:

- The passing of one year with the experience following the assumptions would have resulted in a decrease in the UAL of $604,444 because the contribution to amortize the UAL was more than the assumed interest on the UAL for the plan year.

- The investment rate of return for 2021, net of all investment-related expenses paid by the plan, was 9.36% based on the audited market value of assets for the plan year ending December 31, 2021. However, based on the smoothed actuarial value of assets from last year's valuation to this valuation, the net investment rate of return was 11.58%. Since that rate of return is more than the assumed rate of 6.5% during 2021, the UAL decreased by $1,665,603 due to the favorable actuarial investment experience.

- The difference between all other actual experience compared to that assumed decreased the UAL by $907,550, due to primarily smaller than assumed compensation increases.

- The change in the investment return and compensation increase assumptions increased the UAL by $1,357,471.

Variability in Future Actuarial Measurement

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 current economic or demographic assumptions;
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements;
- Changes in economic or demographic assumptions; and
- Changes in plan provisions.

We provided Mr. Randy Staats with a sensitivity analysis of the effects on key results of five scenarios of increasing the compensation increase assumption and/or reducing the investment return assumption. Based on that information, reducing the investment return assumption from 6.5% to 6.25% and increasing the compensation increase assumption from 3% to 3.5% were selected for this year's actuarial valuation. We did not provide any additional analysis of the potential range of future measurements resulting from the possible sources of measurement variability listed above. However, if requested, additional analysis could be provided.

Summary

As a result of our January 1, 2022 actuarial valuation of the GBRA Retirement Plan, we recommend a minimum contribution of at least $708,115 for the plan year ending December 31, 2022. This minimum recommended year end contribution is based on a funding policy which is expected to be an adequate contribution arrangement. The actuarial valuation of the plan reported herein has been performed in accordance with appropriate actuarial methodology, actuarial code of conduct and actuarial standards of practice.

Respectfully submitted,

RUDD AND WISDOM, INC.

Mark R. Fenlaw

Mark R. Fenlaw, F.S.A.

Rebecca B. Morris

Rebecca B. Morris, A.S.A.

MRF/RBM:nlg

Enclosures

cc: Mr. Randy Staats

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Section I – GBRA Retirement Plan

Certification of Actuarial Valuation
(As of January 1, 2022)

At the request of the GRBA Retirement and Benefit Committee, we have performed an actuarial valuation of the plan as of January 1, 2022. The purpose of this report is to present the actuarial condition of the plan as of January 1, 2022 and to recommend a contribution for the January 1, 2022 to December 31, 2022 plan year based on a funding policy which is expected to be an adequate contribution arrangement.

We have relied on and based our valuation on employee data, pensioner data, and asset data provided by GBRA. The financial information we received for the plan year was from the audited financial report for the plan year ending December 31, 2021. We have used the actuarial methods and assumptions described in Section IV of this report. The actuarial valuation has been performed on the basis of the plan benefits described in Section V.

To the best of our knowledge, no material biases exist with respect to any imperfections in the census data provided. We have not audited the data provided but have reviewed it for reasonableness and consistency relative to the census data received for the January 1, 2021 actuarial valuation.

All current employees eligible to participate in the plan as of the valuation date and all other individuals who either are now receiving a monthly benefit or will later receive a vested deferred monthly benefit under the plan have been included in the valuation. Further, all plan benefits have been considered in the development of plan costs.

To the best of our knowledge, the actuarial information supplied in this report is complete and accurate. In our opinion the assumptions used, both in the aggregate and individually, are reasonably related to the experience of the plan and to reasonable expectations. The assumptions represent a reasonable estimate of anticipated experience of the plan over the long-term future, and their selection complies with the applicable actuarial standards of practice.

We certify that we are members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Mark R. Fenlaw

Mark R. Fenlaw, F.S.A.

Rebecca B. Morris

Rebecca B. Morris, A.S.A.

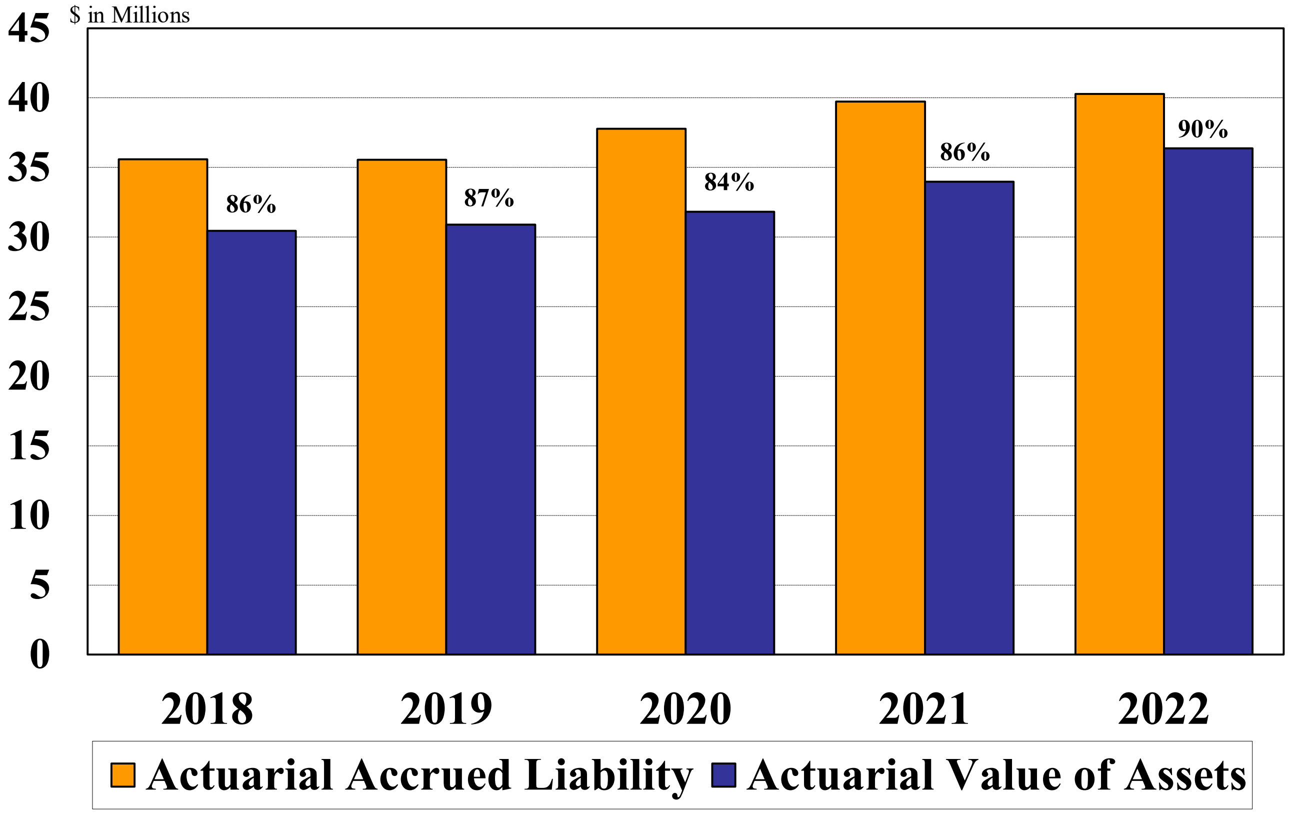
Section II –Summary of Actuarial Valuations

	January 1, 2021	January 1, 2022
1. **Participant Census at Valuation Date**		
a. Covered employees	66	60
b. Vested terminated due deferred benefit	38	37
c. Retirees and beneficiaries in pay status	105	110
d. Total	209	207
2. **Projected Active Participant Compensation for Plan Year Following the Valuation Date**	N/A	N/A
3. **Actuarial Present Value of Future Benefits**		
a. Active participants	$ 14,586,654	$ 12,641,509
b. Inactive participants	25,144,877	27,637,730
c. Total	$ 39,731,531	$ 40,279,239
4. **Actuarial Present Value of Future Normal Cost**	$ 0	$ 0
5. **Actuarial Liability (Item 3e – Item 4)**	$ 39,731,531	$ 40,279,239
6. **Actuarial Value of Assets**	$ 33,993,324	$ 36,361,158
7. **Unfunded Actuarial Liability (UAL) (Item 5 – Item 6)**	$ 5,738,207	$ 3,918,081
8. **Years Remaining in Amortization Period**	8 years	7 years
9. **GBRA Minimum Contribution to be Paid December 31**	$ 942,428	$ 708,115
10. **Funded Ratio (Item 6 ÷ Item 5)**[1]	85.6%	90.3%

[1] The funded ratio is not appropriate for assessing either the need for or the amount of future contributions or the adequacy of the funding policy of an ongoing plan. However, for a frozen plan, a funded ratio of 100% or more would indicate that contributions could cease. Subsequent experience would determine whether or not any additional contributions might be required. Using market value of assets (fiduciary net position) instead of the actuarial value of assets for item 10 would have resulted in funded ratios of 95.5% as of January 1, 2021 and 99.2% as of January 1, 2022.

Section II – Summary of Actuarial Valuations (Continued)

**Historical Comparison of Actuarial Accrued Liability and Actuarial Value of Assets
(Present Plan Valuations as of January 1)**



Section III – Plan Asset Information

Summary of Assets as of January 1, 2022

Investment Category	Market Value*	Allocation Percent
1. Equities		
a. Domestic large cap	$ 14,116,257	35.4%
b. Domestic small cap	3,367,745	8.4
c. Developed international	6,434,472	16.1
d. Emerging markets	0	0.0
	23,918,474	59.9
2. Fixed Income		
a. Global	2,761,742	6.9
b. Emerging market	2,094,628	5.2
c. Domestic core	4,590,560	11.5
d. Distressed debt	20,923	0.1
	9,467,853	23.7
3. Alternatives		
a. Hedge fund	3,526,990	8.8
b. Real estate (timberland)	1,203,745	3.0
c. Private real estate	1,506,883	3.8
	6,237,618	15.6
4. Cash and Cash Equivalents	333,810	0.8
5. Grand Total	$ 39,957,755	100.0%

* The amounts by investment category (items 1-3) are from the December 31, 2021 report by the plan's investment consultant. Item 4 is the balancing item to bring the grand total to equal the market value of assets in the plan's audited financial report for the year ending December 31, 2021 (item 5). The term "market value of assets" in this report is a synonym of the accounting term "fiduciary net position."

Section III – Plan Asset Information (Continued)

Statement of Changes in Audited Assets for the Years Ended December 31, 2021 and 2020

	12/31/2021	12/31/2020
Additions		
1. Contributions		
a. Employer	$ 977,428	$ 1,035,000
b. Employees	0	0
c. Total	$ 977,428	$ 1,035,000
2. Investment Income		
a. Interest and dividends	$ 574,191	$ 514,718
b. Net appreciation in fair value	2,960,491	5,028,679
c. Total	$ 3,534,682	$ 5,543,397
3. Other Additions	0	0
Total Additions	**$ 4,512,110**	**$ 6,578,397**
Deductions		
4. Benefit Payments	$ 2,406,550	$ 1,945,699
5. Expenses		
a. Investment-related	$ 94,946	$ 78,080
b. Administrative[1]	0	0
c. Total	$ 94,946	$ 78,080
Total Deductions	**$ 2,501,496**	**$ 2,023,779**
Net Increase in Assets	**$ 2,010,614**	**$ 4,554,618**
Market Value of Assets (Fiduciary Net Position)		
Beginning of Year	$ 37,947,141	$ 33,392,523
End of Year	$ 39,957,755	$ 37,947,141
Rate of Return		
Net of Investment-Related Expenses	9.36%	16.86%
Gross	9.63%	17.11%
Investment-Related Expenses (Direct)	0.27%	0.25%

[1] GBRA pays all administrative expenses from other than plan assets.

Section III – Plan Asset Information (Continued)

Development of Actuarial Value of Assets

Calculation of Actuarial Investment Gain/(Loss) Based on Market Value for Plan Years				
	2021	**2020**	**2019**	**2018**
1. Market Value of Assets as of Beginning of Year	$ 37,947,141	$ 33,392,523	$ 28,731,703	$ 30,638,650
2. Employer Contributions	977,428	1,035,000	1,003,540	1,128,049
3. Benefit Payments	(2,406,550)	(1,945,699)	(1,817,087)	(1,644,165)
4. Expected Investment Return [1]	2,388,351	2,107,279	1,883,708	2,087,160
5. Expected Market Value of Assets as of End of Year	$ 38,906,370	$ 34,589,103	$ 29,801,864	$ 32,209,694
6. Actual Market Value of Assets as of End of Year	39,957,755	37,947,141	33,392,523	28,731,703
7. Actuarial Investment Gain/(Loss)	$ 1,051,385	$ 3,358,038	$ 3,590,659	$ (3,477,991)
8. Market Value Rate of Return Net of Expenses	9.36%	16.86%	19.62%	(4.66)%
9. Rate of Actuarial Investment Gain/(Loss)	2.86%	10.36%	12.87%	(11.66)%

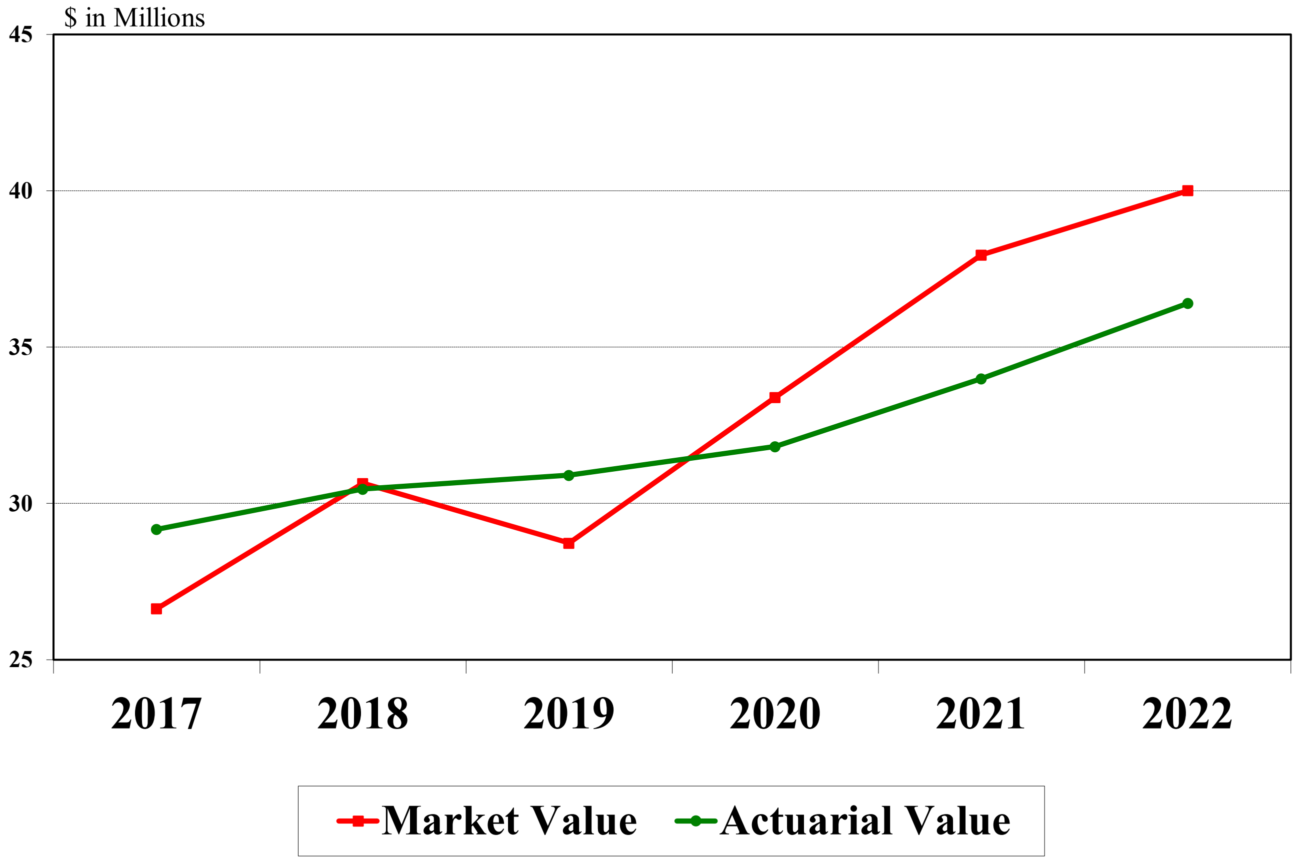
[1] Assuming (1) uniform distribution of payments during the plan year, (2) contributions at the end of the plan year (except end of November for 2019), and (3) expected rate of return of 7% for 2018, 6.75% for 2019, and 6.5% for 2020 and 2021.

Deferred Actuarial Investment Gains/(Losses) to be Recognized in Future Years			
Plan Year	**Investment Gain/(Loss)**	**Deferral Percentage**	**Deferred Gain/(Loss) Amount as of 12/31/2021**
2021	$1,051,385	80%	$ 841,108
2020	3,358,038	60%	2,014,823
2019	3,590,659	40%	1,436,264
2018	(3,477,991)	20%	(695,598)
Total			$ 3,596,597

Actuarial Value of Assets as of December 31, 2021	
10. Market Value of Assets as of December 31, 2021	$ 39,957,755
11. Deferred Gain/(Loss) to be Recognized in Future	3,596,597
12. Actuarial Value of Assets as of December 31, 2021 (Item 10 – Item 11)	$ 36,361,158
13. Write Up/(Down) of Assets (Item 12 – Item 10)	$ (3,596,597)

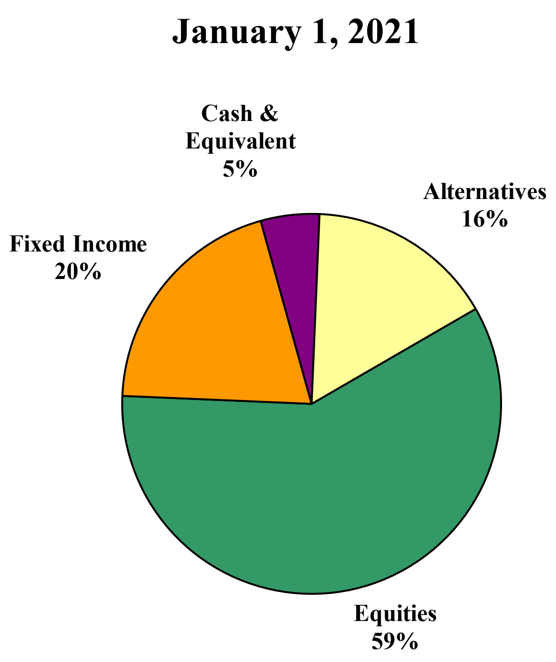
Section III – Plan Asset Information (Continued)

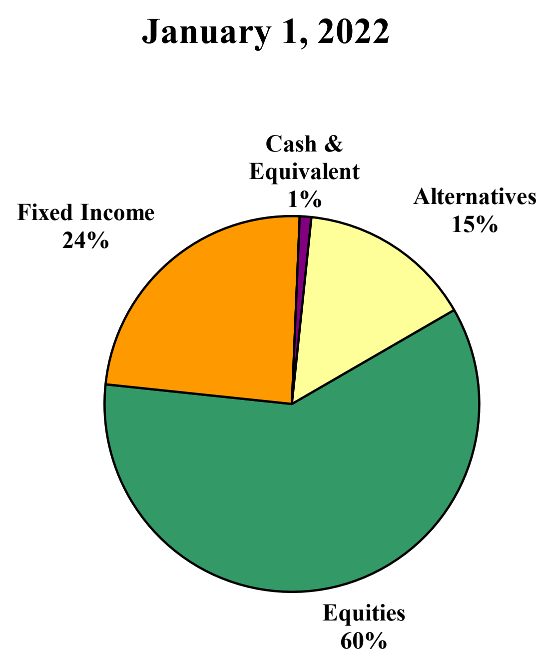
Historical Comparison of Market and Actuarial Value of Assets
(Valuation as of January 1)



Section III – Plan Asset Information (Continued)

Comparison of Market Value Asset Allocation as of the Prior and Current Actuarial Valuation Dates





Section IV – Actuarial Methods and Assumptions

A. Actuarial Methods

1. Actuarial Cost Method

For a frozen plan, no actuarial cost method is required. Even though the definition of the plan's supplemental benefit makes the plan not truly frozen, we have projected the supplemental benefits for the active participants and treated those benefits in the same manner as the deferred frozen benefits. So there is no normal cost for the supplemental benefits. The primary calculations are the actuarial present value of future benefits of benefits in pay status and of deferred benefits. The unfunded actuarial liability (UAL) is the amount by which the present value of future benefits exceeds the current plan assets. The UAL is recalculated each time a valuation is performed. Experience gains and losses, which represent deviations of the UAL from its expected value based on the prior valuation, are determined at each valuation and are amortized as part of the newly calculated UAL.

2. Amortization Method

The UAL would be amortized with level dollar payments over the remainder of the 10-year closed period beginning January 1, 2019, with the annual payment at the end of each year. Additional payments may be made in accordance with the funding policy determined by GBRA.

3. Actuarial Value of Assets Method

All assets are valued at market value, with an adjustment made to uniformly spread actuarial gains or losses (as measured by actual market value investment return vs. expected market value investment return) over a five-year period.

B. Actuarial Assumptions

1. Mortality

PubG-2010 (general employees) total dataset mortality tables for employees and for retirees (sex distinct), projected for mortality improvement generationally using the projection scale MP-2018.

2. Termination

There is no need for assumed termination rates with a frozen plan. For the frozen benefit, all employees are assumed to have terminated employment as of December 31, 2018. For the supplemental benefit, all employees are assumed to work for GBRA to the later of December 31, 2022 and the end of the month of attaining age 65.

3. **Investment Return**

Current and future plan assets are assumed to reflect an annual investment return of 6.25% net of investment-related expenses. See Exhibit 1 for our review of the economic assumptions.

4. **Compensation Increase**

There is no need to project compensation after 2018 for the frozen benefit as of December 31, 2018. However, the supplemental benefit is based on a projected Plan benefit if the Plan were to continue with its provisions in effect just before December 31, 2018. In addition, the supplemental benefit is based on a projected benefit in the TCDRS plan that was effective January 1, 2019. For both of those projected benefits, the compensation of each active participant was projected to increase 3.5% per year.

5. **Retirement Rates**

All participating employees are assumed to work for GBRA to the later of December 31, 2022 or the end of the month of attaining age 65. However, three employees who retired in the first part of 2022 were assumed to be in pay status reflecting their actual retirement dates for determining the present value of future benefits.

6. **Disability**

None were assumed.

7. **Inflation Component in Investment Return and Compensation Increase Assumptions**

2.75%

8. **Form of Payment**

a. Current pensioners: Actual form of payment.
b. Future pensioners: Normal form of payment (10 years certain and life).
c. Monthly benefits are payable the first of each month.

9. **Administrative Expenses**

The expenses will continue to be paid by GBRA and not from Plan assets.

Section V - Outline of Principal Plan Eligibility and Benefit Provisions Reflected in the Actuarial Valuation as of January 1, 2022

1. **Identifying Data**
   a. Plan name: Retirement Plan for Employees of Guadalupe-Blanco River Authority
   b. Type of plan: Defined benefit
   c. Plan sponsor: Guadalupe-Blanco River Authority
   d. Plan Year: January 1 – December 31

2. **Participation**
   a. Minimum Age: none
   b. Maximum Age at Hire: none
   c. Service: 1 year in which 1,000 or more hours are completed
   d. Employee Classification: All except a Leased Employee or an independent contractor
   e. Hire Date: first employed by the plan sponsor before January 1, 2011

3. **Contributions**
   a. Participant: none required
   b. Employer: all amounts necessary to adequately finance plan benefits

4. **Eligibility for Retirement**
   a. Normal Retirement: age 65
   b. Early Retirement: age 55 plus 15 years of vesting service

5. **Retirement Benefit Monthly Amounts**
   a. Normal Retirement: 1.30% of average monthly compensation per year of credited service
   b. Late Retirement: same as Normal Retirement increased by 5/9% for every month late retirement follows normal retirement
   c. Early Retirement:
      1) With Satisfaction of Rule of 85 (age and Accrual Service equal to eighty-five (85) or more years and age of sixty (60) or more years): amount equal to monthly normal retirement benefit accrued at early retirement date
      2) Without Satisfaction of Rule of 85: amount equal to monthly normal retirement benefit accrued at early retirement date reduced by 5/12% for every month early retirement precedes normal retirement
   d. Disability: amount payable at normal retirement age assuming continuation of service from date of disability to normal retirement age, but based on average monthly compensation at the date of disability

6. **Normal Form of Monthly Payment**
   10 years certain and life; other actuarially equivalent monthly payment forms are available

7. **Frozen DB Benefit**

The plan was frozen as of December 31, 2018 and no additional benefits will accrue. All active participants became 100% vested in their accrued benefit as of that date, referred to as the Frozen DB Benefit. It is payable in the normal form of payment at normal retirement age. It was calculated using the normal retirement benefit formula but using the amount of credited service and the average monthly compensation as of December 31, 2018. It excluded any unused sick leave.

This benefit is payable following termination of employment and upon either (a) reaching normal retirement age or (b) satisfying an early retirement or other commencement of benefit provision. It will be actuarially reduced if the participant's benefit commencement date is prior to his or her normal retirement date.

8. **Supplemental Benefit**

Participants with a Frozen DB Benefit are eligible for a Supplemental Benefit. This benefit is designed in an attempt to make up for the difference, if any, between (a) the projected benefit of the plan if the plan were to continue as it was before being frozen and (b) the sum of the Frozen DB Benefit and the employer-funded portion of the benefit in the TCDRS plan. It includes unused sick leave as described in item 12.

9. **Pre-retirement Death Benefits**

Payment of benefit which is actuarially equivalent to the present value of the participant's Frozen DB Benefit and Supplemental Benefit.

10. **Basis of Actuarial Equivalence for Optional Forms of Monthly Benefit**

8% and UP84 Mortality Table set back one year

11. **Average Monthly Compensation**

Gross compensation averaged over the three consecutive complete calendar years of highest total compensation over the last ten completed calendar years of employment. Except that the year in which a member terminates shall be considered a complete calendar year of employment, and the compensation for such calendar year shall be deemed equal to the annualized rate of compensation which he actually received for such calendar year, excluding any amount paid for unused vacation or for unused sick leave or for any reason related to termination of employment, and with the portion of such calendar year following such member's termination of employment being included in determining the number of months for which such compensation was received.

12. **Unused Sick Leave**

The Supplemental Benefit is calculated using the lesser of the amount of unused sick leave as of December 31, 2018 and the amount as of termination of employment, converting the hours of unused sick leave into credited service at the rate of one month of credited service for each 173.33 hours of unusual sick leave.

Section VI - Summary of Participant Data

Participant Data Reconciliation

	Active Participants	Current Payment Status	Deferred Payment Status	Total
1. As of January 1, 2021	66	105	38	209
2. Change of status				
a. normal retirement	0	1	(1)	0
b. late retirement	(3)	3	0	0
c. early retirement	(2)	3	(1)	0
d. disability	0	0	0	0
e. death	0	(5)	0	(5)
f. nonvested termination	0	0	0	0
g. vested termination	(1)	0	1	0
h. completion of payment	0	0	0	0
i. alternate payee	0	0	0	0
j. start of survivor benefit	0	3	0	3
k. net changes	(6)	5	(1)	(2)
3. New participants (rehire)	0	0	0	0
4. As of January 1, 2022	60	110	37	207

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

	Years of Service										
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total	Percent
Under 25	0	0	0	0	0	0	0	0	0	0	0%
25-29	0	0	0	0	0	0	0	0	0	0	0
30-34	0	0	1	0	0	0	0	0	0	1	2
35-39	0	0	3	0	0	0	0	0	0	3	5
40-44	0	1	3	3	1	0	0	0	0	8	13
45-49	0	0	0	4	3	1	0	0	0	8	13
50-54	0	0	3	2	2	2	1	0	0	10	17
55-59	0	1	2	2	2	2	5	3	2	19	32
60-64	0	0	0	1	1	0	1	1	5	9	15
Over 65	0	0	0	0	0	1	0	0	1	2	3
Total	0	2	12	12	9	6	7	4	8	60	100%
Percent	0%	3%	20%	20%	15%	10%	12%	7%	13%	100%	

Average age = 52.7 years
Average service = 23.9 years

Section VII - Definitions

1. Actuarial Liability	The Actuarial Present Value of future pension plan benefits as of the Valuation Date.
2. Actuarial Assumptions	Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, termination, disablement and retirement; changes in compensation; rates of investment earnings and asset appreciation; and other relevant items.
3. Actuarially Equivalent	Of equal Actuarial Present Value, determined as of a given date, with each value based on the same set of Actuarial Assumptions.
4. Actuarial Gain (Loss)	A measure of the difference between actual experience and that expected based on the Actuarial Assumptions during the period between two Actuarial Valuation dates.
5. Actuarial Present Value	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date (the Valuation Date) by the application of the Actuarial Assumptions.
6. Actuarial Valuation	The determination, as of a Valuation Date, of the Actuarial Liability, Actuarial Value of Assets and related Actuarial Present Values for a pension plan.
7. Actuarial Value of Assets	The value of cash, investments and other property belonging to a pension plan, as determined by a method and used by the actuary for the purpose of an Actuarial Valuation.
8. Plan Year	A 12-month period beginning January 1 and ending December 31.
9. Projected Benefits	Those pension plan benefit amounts that are expected to be paid at various future times according to the Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future qualified service.
10. Overfunded Actuarial Liability	The excess, if any, of the Actuarial Value of Assets over the Actuarial Liability.

11. Unfunded Actuarial Liability	The excess, if any, of the Actuarial Liability over the Actuarial Value of Assets.
12. Valuation Date	The date upon which the Actuarial Liability and Actuarial Value of Assets are determined. Generally, the Valuation Date will coincide with the beginning of a Plan Year.
13. Years to Amortize the Unfunded Actuarial Liability	The period is determined according to GBRA's funding policy, to amortize the Unfunded Actuarial Liability with a level annual dollar contribution.

Exhibit 1

Retirement Plan for the Employees of Guadalupe-Blanco River Authority
Review of the Actuarial Economic Assumptions
for the January 1, 2022 Actuarial Valuation

Asset Allocation and Investment Return Assumption Development

	Gross Annual Real Rate of Investment Return (ROR)[1]	Estimated Investment Expenses[2]	Net Real ROR	Asset Allocation 12/31/21 Actual[3]	Asset Allocation Current Target[4]	Asset Allocation More in Fixed Income
Domestic Equity						
Large Cap Growth (Alspring Growth)	6.5%	1.00%	5.50%	12.7%	15%	14%
Large Cap Value (Diamond Hill, Sustainable Insight)	6.5	0.85	5.65	22.7	15	12
Small Cap Blend (Eastern Shore)	7.0	1.15	5.85	8.4	7	5
				43.8	37	31
International Equity						
Developed Large Cap (Oppenheimer)	7.0	1.13	5.87	16.1	12	12
Emerging Markets (TBD)	8.5	1.10	7.40	0.0	3	0
				16.1	15	12
Fixed Income						
Global (Brandywine)	2.5	0.70	1.80	6.9	10	12
Domestic Core (Johnson)	2.0	0.50	1.50	11.5	5	15
Emerging Market (Aberdeen)	3.0	0.91	2.09	5.2	6	5
Distressed Debt (Courage Credit)	4.5	1.75	2.75	0.1	5	0
				23.7	26	32
Alternatives						
Private Real Estate (TerraCap Partners)	6.0	1.75	4.25	3.8	5	5
Multistrategy Fund (Ironwood)	4.0	1.45	2.55	8.8	12	10
Real Estate (BTG Global Timberland)	5.0	1.25	3.75	3.0	5	5
				15.6	22	20
Cash	0.0	0.00	0.00	0.8	0	5
				100.0%	100%	100%
Weighted Average Net Real ROR Assumption				4.32%	4.23%	3.65%
Possible Theoretical Annual Investment Return Assumption – Net Real ROR Plus Assumed Annual Rate of Inflation						
Assumed 2.75% Inflation				7.07%	6.98%	6.40%

[1] A gross annual real rate of investment return is the long-term total average annual rate of investment return, before any expenses, that is in excess of the assumed annual inflation rate. These are assumptions made by Rudd and Wisdom, Inc.
[2] These assumed investment-related expenses are based on information from the investment consulting firm CBIZ in their 12/31/2021 report and include both direct and indirect expenses, with an addition of 0.25% for bank custody fees and the fees of CBIZ.
[3] This allocation is from the investment consultant's 12/31/2021 report.
[4] The current target asset allocation for category totals was in investment consultant's 12/31/2021 report. A report from prior years showed subtotals within a category. The consultant confirmed that nothing has changed.

Exhibit 1 (continued)

Price Inflation in the USA – Average Annual Rates of Increase in the CPI-U

Years (Dec. to Dec.)	Number of Years	Average Annual Increase
1956 – 2021	65	3.62%
1961 – 2021	60	3.79
1966 – 2021	55	3.96
1971 – 2021	50	3.90
1976 – 2021	45	3.54
1981 – 2021	40	2.76
1986 – 2021	35	2.68
1991 – 2021	30	2.37
1996 – 2021	25	2.28
2001 – 2021	20	2.31

Most inflation forecasts are for 10 years or less. For example, the average 10-year forecast in the June 2022 Livingston Survey published by the Federal Reserve Bank of Philadelphia was 2.50%. However, 10 years is too short a forecast period for a public employee defined benefit pension plan. In the 2022 annual report of the OASDI Trust Funds (Social Security), the ultimate inflation assumptions for their 75-year projections are 3.0%, 2.4%, and 1.8% for the low-cost, intermediate, and high-cost assumptions, respectively. Looking at the average annual increase in the CPI-U over historical periods of 30 to 65 years above and considering the Social Security forecasts, we believe that reasonable assumed rates of inflation for the long-term future would range from 2.25% to 3.25%.

Comparison of Actuarial Economic Assumptions

Actuarial Assumption[A]	1/1/2021 Actuarial Economic Assumptions	1/1/2022 Actuarial Economic Assumptions Set 1	1/1/2022 Actuarial Economic Assumptions Set 2
Inflation (Price)	2.75%	2.75%	2.75%
Net real rate of return[B]	3.75	3.75%	3.50%
Net total investment return[B]	6.50%	6.50%	6.25%
Compensation increase[C]	3.00%	3.00%	3.50%
Administrative expenses[D]	N/A	N/A	N/A

(A) All assumptions are annual rates.
(B) Net of all investment-related expenses, direct and indirect, paid from plan assets.
(C) Annual general compensation increase used for projecting the supplemental benefit.
(D) There is no need for an assumption regarding administrative expenses paid from plan assets because GBRA pays those expenses.