



November 7, 2022

Board of Trustees
Teacher Retirement System of Texas
1000 Red River Street
Austin, TX 78701

**Subject: **GASB 67 Reporting and Disclosure Information for the year ending
August 31, 2022****

Dear Board of Trustees,

This report provides information required by the Teacher Retirement System of Texas (TRS) in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 “Financial Reporting for Pension Plans.” The information provided herein was prepared for the purpose of assisting TRS to comply with the financial reporting and disclosure requirements of GASB No. 67.

The calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB No. 67 and is not applicable for purposes of funding the plan. A calculation of the plan’s liability for other purposes may produce significantly different results. This report may be provided to parties other than TRS only in its entirety and only with the permission of TRS.

The total pension liability, net pension liability, and certain sensitivity information shown in this report are based on an actuarial valuation performed as of August 31, 2021. The total pension liability was rolled forward from the valuation date to the measurement date of August 31, 2022 using generally accepted actuarial principles. The liabilities reflect the actuarial assumptions adopted by the Board in July of 2022. It is our opinion that the assumptions are internally consistent, reasonable, and comply with the requirements under GASB No. 67. There were no significant events or changes in the benefit provisions that required an adjustment to the rolled forward liabilities.

This report is based upon information, furnished to us by TRS, which include benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided to us by TRS.

The final section of the report titled “Calculation of the Single Discount Rate” is not a required disclosure item for your financial statements. However, it is possible that your auditors will request this information which is why it is included in the report.

Certain tables included in the Required Supplementary Information should include a 10-year history of information. As provided for in GASB No. 67, this historical information is only presented for the years in which the information was measured in conformity with the requirements of GASB No. 67. The historical information in this report begins with the information presented for the fiscal year ending August 31, 2014.

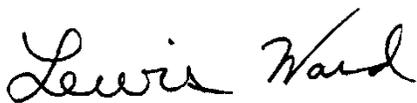
This report compliments the August 31, 2021 actuarial valuation report dated November 12, 2021 that was provided to TRS and should be considered together as a complete report for the plan year ending August 31, 2022. Please see the actuarial valuation report as of August 31, 2021 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. Also, please see the experience study report dated July 15, 2022 which details the actuarial assumptions used in the determination of the net pension liability. The actuarial cost method used to determine the GASB No. 67 net pension liability is the Individual Entry Age Normal method as prescribed in GASB No. 67.

The projected cash flows from the employer are based on contributions for the most recent five-year period, modified on consideration of subsequent events. Changes in statute in the 2013 legislative session and the subsequent follow through are indicators that the legislature is committed to an increase in funding levels for the pension funds. Additional changes to the contribution levels were adopted in the 2019 legislative session. Based on these events, projected employer contributions are based on the contribution rates adopted by the 2019 legislature.

The actuarial methods and assumptions have been selected by the Board of Trustees of the Teacher Retirement System of Texas based upon GRS analysis and recommendations. The Board of Trustees has sole authority to determine the actuarial assumptions used for the plan. The actuarial methods and assumptions are primarily based on a study of actual experience for the four-year period ending August 31, 2021 and were adopted in July 2022. New assumptions were adopted based on this study and are reflected in the Net Pension Liability as of August 31, 2022.

To the best of our knowledge, the information contained with this report is accurate and fairly represents the actuarial position of the Teacher Retirement System of Texas. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Mr. Newton is a member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
Gabriel, Roeder, Smith & Company



Lewis Ward
Consultant



Joe Newton, FSA, EA, MAAA
Pension Market Leader and Actuary

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	458,133
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	501,241
Active Plan Members	<u>918,545</u>
Total Plan Members	1,877,919

All counts are as of the valuation date August 31, 2021

The Average Expected Remaining Service Life (AERSL) of 5.7052 is based on the membership information as of the beginning of the fiscal year. The AERSL of the active employees was 11.6640 years. This calculates to a total remaining service years of $11.6640 \times 918,545 = 10,713,908.88$ years. Divided by the total membership of 1,877,919 as of August 31, 2021 yields an AERSL of 5.7052 years.



Measurement of the Net Pension Liability

The net pension liability is measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the fair value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

A single discount rate of 7.00% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.00%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions, the employer contributions, and the state contributions will be made at the rates set by the legislature during the 2019 legislative session (please see the actuarial valuation report for a description of these rates). It is assumed that future non-member contributions will be 8.50% of payroll in fiscal year 2020 gradually increasing to 9.55% of payroll over the next several fiscal years (these contributions include contributions by the State and the employers for active employees and rehired retirees).

Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

A brief summary of the primary assumptions used in the determination of the net pension liability is shown in the table on the following page.

Changes in Assumptions Since Prior Valuation

The actuarial assumptions and methods have been modified since the determination of the prior year's Net Pension Liability. These new assumptions were adopted in conjunction with an actuarial experience study. The primary assumption change was the lowering of the single discount rate from 7.25% to 7.00%.

Changes in Benefit Provisions Since Prior Valuation

The benefit provisions are the same as used in determining the prior year's Net Pension Liability.



Actuarial Assumptions - The total pension liability is determined by an actuarial valuation. The actuarial assumptions used to determine the total pension liability were based on the results of an experience study for the four-year period ending August 31, 2021. The post-retirement mortality rates for healthy lives were based on the 2021 TRS of Texas Healthy Pensioner Mortality Tables, with full generational projection using the ultimate improvement rates from the most recently published projection scale ("U-MP"). The active mortality rates were based on the published PUB(2010) Mortality Tables for Teachers, below median, also with full generational mortality.

The following methods and assumptions were applied to this measurement period:

Valuation Date	August 31, 2021 (total pension liability rolled forward from valuation date to measurement date of August 31, 2022)
Actuarial Cost Method	Individual Entry Age Normal actuarial cost method
Asset Valuation Method	Fair Value
Actuarial Assumptions:	
Single Discount Rate	7.00%
Long-term Expected Return	7.00%
Municipal Bond Rate*	3.91%
Last year ending August 31 in projection period (100 years)	2121
Inflation	2.30%
Salary Increases	2.95% to 8.95% including inflation
Ad hoc post-employment benefit changes	None

* *The municipal bond rate used is 3.91% as of August 31, 2022 (i.e. the rate closest to but not later than the Measurement Date). The source for the rate is the Fixed Income Market Data/Yield Curve/Data Municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index."*



Below is a table providing the sensitivity of the net pension liability to changes in the discount rate. In particular, the table presents the plan's net pension liability, if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher than the single discount rate:

Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption

1% Decrease 6.000%	Current Single Discount Rate Assumption 7.000%	1% Increase 8.000%
\$92,353,208,735	\$59,367,428,259	\$32,630,904,839

Reconciliation of Fiduciary Net Position

for Year Ended August 31, 2022

	Year Ending August 31, 2022
Additions	
Contributions	
Non-Employer Contributing Entity	\$ 2,153,483,006
Employer	2,504,170,115
Employee	4,213,621,873
Other	87,058,436
Total Contributions	\$ 8,958,333,430
Investment Income	
Net Appreciation in Fair Value of Investments	\$ (13,080,092,851)
Interest and Dividends	0
Less Investment Expense	(303,657,715)
Net Investment Income	\$ (13,383,750,566)
Other	\$ 707,053,894
Total Additions	\$ (3,718,363,242)
Deductions	
Benefit payments, including refunds of employee contributions	\$ 13,710,035,661
Pension Plan Administrative Expense	62,052,780
Other*	130,933,617
Total Deductions	\$ 13,903,022,058
Net Increase (Decrease) in Net Position	\$ (17,621,385,300)
Net Position Restricted for Pensions	
Beginning of Year	\$ 201,807,002,496
End of Year	\$ 184,185,617,196

*The \$519,196 prior period adjustment to the beginning of year Net Position was reflected as an "Other" deduction.



Schedules of Required Supplementary Information

Schedule of Changes in the Employer's Net Pension Liability and Related Ratios

Fiscal year ending August 31,	2022	2021	2020	2019	2018
Total Pension Liability					
Service Cost	\$ 6,093,118,860	\$ 5,793,397,669	\$ 5,651,646,985	\$ 5,642,074,695	\$ 4,654,171,138
Interest on the Total Pension Liability	16,201,212,879	15,645,734,217	15,014,048,172	14,267,256,072	14,109,276,321
Benefit Changes	-	0	0	588,827,787	-
Difference between Expected and Actual Experience	1,043,774,303	(1,004,526,652)	(259,157,014)	(982,693,577)	-
Assumption Changes	6,651,511,444	0	0	(7,425,278,607)	22,106,679,263
Benefit Payments	(13,130,573,776)	(11,686,211,054)	(10,972,292,168)	(11,253,728,973)	(10,172,997,008)
Refunds	(579,461,885)	(449,135,634)	(421,366,179)	(486,460,902)	(422,335,740)
Net Change in Total Pension Liability	16,279,581,825	\$ 8,299,258,546	\$ 9,012,879,796	349,996,495	30,274,793,974
Total Pension Liability - Beginning	227,273,463,630	\$ 218,974,205,084	\$ 209,961,325,288	209,611,328,793	179,336,534,819
Total Pension Liability - Ending (a)	\$ 243,553,045,455	\$ 227,273,463,630	\$ 218,974,205,084	\$ 209,961,325,288	\$ 209,611,328,793
Plan Fiduciary Net Position					
Non-Contributing Entity	\$ 2,153,483,006	2,140,553,293	2,107,999,393	\$ 1,737,852,502	\$ 1,715,784,550
Employer Contributions	2,504,170,115	2,124,027,701	2,016,481,636	1,761,821,902	1,671,257,303
Employee Contributions	4,213,621,873	3,839,243,646	3,736,877,464	3,482,869,726	3,360,773,197
Pension Plan Net Investment Income	(13,383,750,566)	40,512,139,247	11,068,916,613	7,669,028,874	11,242,813,657
Benefit Payments	(13,130,573,776)	(11,686,211,054)	(10,972,292,168)	(11,253,728,973)	(10,172,997,008)
Refunds	(579,461,885)	(449,135,634)	(421,366,179)	(486,460,902)	(422,335,740)
Pension Plan Administrative Expense	(62,052,780)	(71,359,850)	(67,135,880)	(60,485,645)	(64,926,169)
Other	663,178,713	(18,500,096)	(31,434,711)	558,399,758	(123,390,077)
Net Change in Plan Fiduciary Net Position	(17,621,385,300)	\$ 36,390,757,253	\$ 7,438,046,168	3,409,297,242	7,206,979,713
Plan Fiduciary Net Position - Beginning	201,807,002,496	\$ 165,416,245,243	\$ 157,978,199,075	154,568,901,833	147,361,922,120
Plan Fiduciary Net Position - Ending (b)	\$ 184,185,617,196	\$ 201,807,002,496	\$ 165,416,245,243	\$ 157,978,199,075	\$ 154,568,901,833
Net Pension Liability - Ending (a) - (b)	\$ 59,367,428,259	\$ 25,466,461,134	\$ 53,557,959,841	\$ 51,983,126,213	\$ 55,042,426,960
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	75.62 %	88.79 %	75.54 %	75.24 %	73.74 %
Covered Employee Payroll	\$ 52,670,273,413	\$ 49,860,307,091	\$ 48,530,876,156	\$ 45,232,074,364	\$ 43,646,405,156
Net Pension Liability as a Percentage of Covered Employee Payroll	112.72 %	51.08 %	110.36 %	114.93 %	126.11 %

Notes to Schedule:

- 2018 - Changes of assumptions: The discount rate changed from 8.0% as of August 31, 2017 to a blended rate of 6.907% as of August 31, 2018. The long-term assumed rate of return changed from 8.0% as of August 31, 2017 to 7.25% as of August 31, 2018. Demographic and economic assumptions were updated based on the experience study performed for TRS for the period ending August 31, 2017. The total pension liability as of August 31, 2018 was developed using a roll-forward method from the August 31, 2017 valuation.
- 2020 - Change of assumptions: The state and employer contribution rate changed from 6.8% to 7.5%. The 1.5% public education employer contribution applied to just employers whose employees were not covered by OASDI in 2019 and it changed in 2020 to apply to all public schools, charter schools and regional education centers irrespective of participation in OASDI.
- 2021 - Changes of assumptions: The public education employer contribution rate changed from 1.5% in 2020 to 1.6% in 2021.
- 2022 - Changes of assumptions: Demographic and economic assumptions were updated based on experience study performed for TRS for the period ending August 31, 2021. The primary change was the lowering of the discount rate from 7.25% to 7.00%.



Schedules of Required Supplementary Information

Schedule of Changes in the Employer's Net Pension Liability and Related Ratios

Fiscal year ending August 31,	2017	2016	2015	2014
Total Pension Liability				
Service Cost	\$ 4,489,045,421	\$ 4,392,076,679	\$ 4,225,448,833	\$ 3,965,994,265
Interest on the Total Pension Liability	13,515,485,995	12,896,571,424	12,555,645,919	11,813,445,940
Benefit Changes	-	-	-	-
Difference between Expected and Actual Experience	(969,830,844)	373,668,629	(1,588,618,832)	482,638,639
Assumption Changes	700,880,288	-	(1,474,723,994)	2,028,541,342
Benefit Payments	(9,775,775,472)	(9,379,122,730)	(8,935,111,459)	(8,548,642,525)
Refunds	(420,421,056)	(373,418,687)	(391,341,181)	(410,600,319)
Net Change in Total Pension Liability	7,539,384,332	7,909,775,315	4,391,299,286	9,331,377,342
Total Pension Liability - Beginning	171,797,150,487	163,887,375,172	159,496,075,886	150,164,698,544
Total Pension Liability - Ending (a)	\$ 179,336,534,819	\$ 171,797,150,487	\$ 163,887,375,172	\$ 159,496,075,886
Plan Fiduciary Net Position				
Non-Contributing Entity	\$ 1,697,962,608	\$ 1,675,631,248	\$ 1,591,482,988	\$ 1,530,623,829
Employer Contributions	1,588,309,345	1,483,389,348	1,377,972,653	984,552,391
Employee Contributions	3,242,556,261	2,943,669,320	2,576,024,311	2,357,686,000
Pension Plan Net Investment Income	17,079,807,347	9,193,280,560	(412,759,100)	19,434,430,034
Benefit Payments	(9,775,775,472)	(9,379,122,730)	(8,935,111,459)	(8,548,642,525)
Refunds	(420,421,056)	(373,418,687)	(391,341,181)	(410,600,319)
Pension Plan Administrative Expense	(44,189,998)	(44,402,710)	(35,556,979)	(41,904,190)
Other	(14,964,388)	(29,095,088)	(11,248,106)	84,954,006
Net Change in Plan Fiduciary Net Position	13,353,284,647	5,469,931,261	(4,240,536,873)	15,391,099,226
Plan Fiduciary Net Position - Beginning	134,008,637,473	128,538,706,212	132,779,243,085	117,388,143,859
Plan Fiduciary Net Position - Ending (b)	\$ 147,361,922,120	\$ 134,008,637,473	\$ 128,538,706,212	\$ 132,779,243,085
Net Pension Liability - Ending (a) - (b)	\$ 31,974,612,699	\$ 37,788,513,014	\$ 35,348,668,960	\$ 26,716,832,801
Plan Fiduciary Net Position as a Percentage	82.17 %	78.00 %	78.43 %	83.25 %
Covered Employee Payroll	\$ 42,111,120,273	\$ 40,742,826,333	\$ 38,448,124,045	\$ 36,654,290,800
Net Pension Liability as a Percentage	75.93 %	92.75 %	91.94 %	72.89 %

Notes to Schedule:

See prior page



Schedules of Required Supplementary Information

Schedule of the Net Pension Liability (Historical)

Last 10 Fiscal Years

FY Ending August 31,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2013	\$ 150,164,698,544	\$ 117,388,143,859	\$ 32,776,554,685	78.17%	\$ 35,188,983,344	93.14%
2014	159,496,075,886	132,779,243,085	26,716,832,801	83.25%	36,654,290,800	72.89%
2015	163,887,375,172	128,538,706,212	35,348,668,960	78.43%	38,448,124,045	91.94%
2016	171,797,150,487	134,008,637,473	37,788,513,014	78.00%	40,742,826,333	92.75%
2017	179,336,534,819	147,361,922,120	31,974,612,699	82.17%	42,111,120,273	75.93%
2018	209,611,328,793	154,568,901,833	55,042,426,960	73.74%	43,646,405,156	126.11%
2019	209,961,325,288	157,978,199,075	51,983,126,213	75.24%	45,232,074,364	114.93%
2020	218,974,205,084	165,416,245,243	53,557,959,841	75.54%	48,530,876,156	110.36%
2021	227,273,463,630	201,807,002,496	25,466,461,134	88.79%	49,860,307,091	51.08%
2022	243,553,045,455	184,185,617,196	59,367,428,259	75.62%	52,670,273,413	112.72%



SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Contributions

FY Ending August 31,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2014	\$3,177,927,012	\$2,515,176,220	662,750,792	36,654,290,800	6.86%
2015	3,171,970,234	2,969,455,641	202,514,593	38,448,124,045	7.72%
2016	3,226,831,846	3,159,020,596	67,811,250	40,742,826,333	7.75%
2017	3,343,622,950	3,286,271,953	57,350,997	42,111,120,273	7.80%
2018	3,426,242,805	3,387,041,853	39,200,952	43,646,405,156	7.76%
2019	4,288,000,650	3,499,674,404	788,326,246	45,232,074,364	7.74%
2020	4,527,930,745	4,124,481,029	403,449,716	48,530,876,156	8.50%
2021	4,522,329,853	4,264,580,994	257,748,859	49,860,307,091	8.55%
2022	4,671,853,252	4,657,653,121	14,200,131	52,670,273,413	8.84%



Notes to Schedule of Contributions

Valuation Date: August 31, 2021 (to determine contribution rate for fiscal year ending August 31, 2022).

Notes: Actuarially determined contribution rates are calculated as of August 31 preceding fiscal year. Members and employers contribute based on statutorily fixed rates.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Individual Entry Age Normal actuarial cost method
Amortization Method	Level Percentage of Payroll, Floating
Remaining Amortization Period	23 years based on increased employer and member rates enacted during 2019 legislative session .
Asset Valuation Method	5 Year smoothed market
Inflation	2.30%
Salary Increases	3.05% to 9.05% including inflation
Investment Rate of Return	7.25%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2018 valuation pursuant to an experience study conducted for the period ending on August 31, 2017.
Mortality	The post-retirement mortality rates for healthy lives were based on the 2018 TRS of Texas Healthy Pensioner Mortality Tables, with full generational projection using the ultimate improvement rates from the most recently published projection scale ("U-MP"). The active mortality rates were based on 90% of the RP-2014 Employee Mortality Tables for males and females, also with full generational mortality.

Other Information:

Notes The assumptions described above are based on the August 31, 2021 actuarial valuation on which the ADEC is based. The NPL is based on new assumptions effective with the August 31, 2022 actuarial valuation. There were no benefit changes during the year.

Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The *single discount rate* (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the 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).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.00%; the municipal bond rate is 3.910% (based on the daily rate closest to but not later than the measurement date of the Fidelity “20-Year Municipal GO AA Index”); and the resulting single discount rate is 7.00%.

The tables in this section provide background for the development of the single discount rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

Single Discount Rate Development

Projection of Contributions Beginning September 1, 2022

Year	Payroll for Current Employees	Payroll for Future Employees	Total Employee Payroll	Contributions from		Employer Normal Cost Contributions Related to Payroll of Future Employees	Total Contributions
				Current Employees	Employer Contributions for All Employees		
1	46,696,248,995	\$ 7,501,462,346	54,197,711,341	3,735,699,920	4,812,756,767	(332,258,012)	8,216,198,675
2	45,003,831,567	10,765,613,403	55,769,444,970	3,600,306,525	5,130,788,937	(468,529,172)	8,262,566,290
3	43,434,476,311	13,952,282,563	57,386,758,875	3,583,344,296	5,457,480,769	(565,752,786)	8,475,072,279
4	41,937,255,655	17,113,719,227	59,050,974,882	3,459,823,592	5,651,178,296	(686,178,929)	8,424,822,959
5	40,504,450,402	20,259,002,751	60,763,453,153	3,341,617,158	5,815,062,467	(803,712,367)	8,352,967,258
6	39,111,783,304	23,413,809,991	62,525,593,295	3,226,722,123	5,983,699,278	(919,526,835)	8,290,894,566
7	37,735,526,985	26,603,308,516	64,338,835,500	3,113,180,976	6,157,226,557	(1,034,795,842)	8,235,611,691
8	36,369,051,976	29,835,609,754	66,204,661,730	3,000,446,788	6,335,786,128	(1,149,856,805)	8,186,376,111
9	35,020,145,294	33,104,451,626	68,124,596,920	2,889,161,987	6,519,523,925	(1,264,525,784)	8,144,160,128
10	33,671,384,546	36,428,825,685	70,100,210,231	2,777,889,225	6,708,590,119	(1,379,769,399)	8,106,709,945
11	32,297,430,968	39,835,685,360	72,133,116,328	2,664,538,055	6,903,139,233	(1,496,487,462)	8,071,189,826
12	30,896,825,938	43,328,150,763	74,224,976,701	2,548,988,140	7,103,330,270	(1,614,887,225)	8,037,431,185
13	29,478,969,338	46,898,531,688	76,377,501,025	2,432,014,970	7,309,326,848	(1,734,621,676)	8,006,720,142
14	28,053,675,258	50,538,773,297	78,592,448,555	2,314,428,209	7,521,297,327	(1,855,512,138)	7,980,213,398
15	26,645,212,239	54,226,417,324	80,871,629,563	2,198,230,010	7,739,414,949	(1,976,821,750)	7,960,823,209
16	25,280,857,226	57,936,049,595	83,216,906,820	2,085,670,721	7,963,857,983	(2,097,883,225)	7,951,645,479
17	23,960,851,059	61,669,346,059	85,630,197,118	1,976,770,212	8,194,809,864	(2,218,945,624)	7,952,634,452
18	22,694,951,937	65,418,520,898	88,113,472,835	1,872,333,535	8,432,459,350	(2,339,822,466)	7,964,970,419
19	21,468,860,030	69,199,903,517	90,668,763,547	1,771,180,952	8,677,000,671	(2,461,260,861)	7,986,920,762
20	20,264,050,874	73,034,106,816	93,298,157,690	1,671,784,197	8,928,633,691	(2,584,056,207)	8,016,361,681
21	19,067,922,378	76,935,881,884	96,003,804,263	1,573,103,596	9,187,564,068	(2,708,965,879)	8,051,701,785
22	17,875,424,401	80,912,490,186	98,787,914,586	1,474,722,513	9,454,003,426	(2,836,481,086)	8,092,244,853
23	16,670,701,832	84,982,062,277	101,652,764,109	1,375,332,901	9,728,169,525	(2,967,506,208)	8,135,996,218
24	15,469,816,764	89,130,877,504	104,600,694,269	1,276,259,883	10,010,286,442	(3,102,061,450)	8,184,484,875
25	14,279,181,388	93,354,933,014	107,634,114,402	1,178,032,465	10,300,584,748	(3,240,100,445)	8,238,516,768
26	13,112,168,456	97,643,335,264	110,755,503,720	1,081,753,898	10,599,301,706	(3,381,222,022)	8,299,833,582
27	11,963,658,024	102,003,755,304	113,967,413,328	987,001,787	10,906,681,455	(3,525,554,219)	8,368,129,023
28	10,820,151,631	106,452,316,684	117,272,468,314	892,662,510	11,222,975,218	(3,673,981,331)	8,441,656,397
29	9,693,539,264	110,979,830,631	120,673,369,896	799,716,989	11,548,441,499	(3,826,821,451)	8,521,337,037
30	8,595,293,717	115,577,603,906	124,172,897,623	709,111,732	11,883,346,302	(3,983,605,019)	8,608,853,015
31	7,528,605,377	120,245,306,277	127,773,911,654	621,109,944	12,227,963,345	(4,144,096,111)	8,704,977,178
32	6,508,713,276	124,970,641,815	131,479,355,092	536,968,845	12,582,574,282	(4,307,794,195)	8,811,748,932
33	5,551,000,691	129,741,255,699	135,292,256,389	457,957,557	12,947,468,936	(4,473,892,869)	8,931,533,624
34	4,654,561,720	134,561,170,105	139,215,731,824	384,001,342	13,322,945,536	(4,642,168,483)	9,064,778,395
35	3,828,842,153	139,424,145,894	143,252,988,047	315,879,478	13,709,310,956	(4,812,466,807)	9,212,723,627
36	3,084,675,756	144,322,648,945	147,407,324,701	254,485,750	14,106,880,974	(4,984,306,461)	9,377,060,263
37	2,424,176,182	149,257,960,935	151,682,137,117	199,994,535	14,515,980,522	(5,157,612,647)	9,558,362,410
38	1,867,386,428	154,213,532,665	156,080,919,093	154,059,380	14,936,943,957	(5,331,932,484)	9,759,070,853
39	1,422,013,933	159,185,251,814	160,607,265,747	117,316,149	15,370,115,332	(5,506,983,946)	9,980,447,535
40	1,074,181,096	164,190,695,358	165,264,876,454	88,619,940	15,815,848,677	(5,683,327,381)	10,221,141,236
41	799,538,239	169,258,019,632	170,057,557,871	65,961,905	16,274,508,288	(5,861,821,072)	10,478,649,121
42	585,291,380	174,403,935,670	174,989,227,049	48,286,539	16,746,469,029	(6,042,916,607)	10,751,838,961
43	420,657,414	179,643,257,220	180,063,914,634	34,704,237	17,232,116,630	(6,227,086,851)	11,039,734,016
44	295,934,938	184,989,833,220	185,285,768,158	24,414,632	17,731,848,013	(6,414,755,574)	11,341,507,071
45	202,795,321	190,456,260,113	190,659,055,435	16,730,614	18,246,071,605	(6,606,301,955)	11,656,500,264
46	133,351,499	196,054,816,544	196,188,168,042	11,001,499	18,775,207,682	(6,802,138,649)	11,984,070,532
47	82,985,479	201,794,639,437	201,877,624,915	6,846,302	19,319,688,704	(7,002,610,228)	12,323,924,778
48	47,489,478	207,684,586,560	207,732,076,038	3,917,882	19,879,959,677	(7,208,008,382)	12,675,869,177
49	23,685,497	213,732,620,747	213,756,306,243	1,954,053	20,456,478,507	(7,418,618,359)	13,039,814,201



Single Discount Rate Development

Projection of Contributions Beginning September 1, 2022(continued)

Year	Payroll for Current Employees	Payroll for Future Employees	Total Employee Payroll	Contributions from		Employer Normal Cost Contributions	Total Contributions
				Current Employees	Employer Contributions for All Employees	Related to Payroll of Future Employees	
50	9,861,832	219,945,377,292	219,955,239,124	813,601	21,049,716,384	(7,634,688,500)	13,415,841,485
51	3,698,644	226,330,242,414	226,333,941,059	305,138	21,660,158,159	(7,856,469,957)	13,803,993,340
52	1,535,972	232,896,089,377	232,897,625,350	126,718	22,288,302,746	(8,084,276,249)	14,204,153,215
53	555,778	239,651,100,707	239,651,656,485	45,852	22,934,663,526	(8,318,380,082)	14,616,329,296
54	127,017	246,601,427,506	246,601,554,523	10,479	23,599,768,768	(8,558,995,681)	15,040,783,566
55	10,946	253,752,988,658	253,752,999,604	903	24,284,162,062	(8,806,339,025)	15,477,823,940
56	936	261,111,835,657	261,111,836,592	77	24,988,402,762	(9,060,640,140)	15,927,762,699
57	-	268,684,079,854	268,684,079,854	-	25,713,066,442	(9,322,142,366)	16,390,924,076
58	-	276,475,918,169	276,475,918,169	-	26,458,745,369	(9,591,099,805)	16,867,645,564
59	-	284,493,719,796	284,493,719,796	-	27,226,048,984	(9,867,777,605)	17,358,271,379
60	-	292,744,037,670	292,744,037,670	-	28,015,604,405	(10,152,449,948)	17,863,154,457
61	-	301,233,614,763	301,233,614,763	-	28,828,056,933	(10,445,397,232)	18,382,659,701
62	-	309,969,389,591	309,969,389,591	-	29,664,070,584	(10,746,903,469)	18,917,167,115
63	-	318,958,501,889	318,958,501,889	-	30,524,328,631	(11,057,253,625)	19,467,075,006
64	-	328,208,298,444	328,208,298,444	-	31,409,534,161	(11,376,733,658)	20,032,800,503
65	-	337,726,339,099	337,726,339,099	-	32,320,410,652	(11,705,633,275)	20,614,777,377
66	-	347,520,402,932	347,520,402,932	-	33,257,702,561	(12,044,246,519)	21,213,456,042
67	-	357,598,494,618	357,598,494,618	-	34,222,175,935	(12,392,870,511)	21,829,305,424
68	-	367,968,850,961	367,968,850,961	-	35,214,619,037	(12,751,802,834)	22,462,816,203
69	-	378,639,947,639	378,639,947,639	-	36,235,842,989	(13,121,341,072)	23,114,501,917
70	-	389,620,506,121	389,620,506,121	-	37,286,682,436	(13,501,784,735)	23,784,897,701
71	-	400,919,500,798	400,919,500,798	-	38,367,996,226	(13,893,435,419)	24,474,560,807
72	-	412,546,166,322	412,546,166,322	-	39,480,668,117	(14,296,598,641)	25,184,069,476
73	-	424,510,005,145	424,510,005,145	-	40,625,607,492	(14,711,586,710)	25,914,020,782
74	-	436,820,795,294	436,820,795,294	-	41,803,750,110	(15,138,719,625)	26,665,030,485
75	-	449,488,598,358	449,488,598,358	-	43,016,058,863	(15,578,325,869)	27,437,732,994
76	-	462,523,767,710	462,523,767,710	-	44,263,524,570	(16,030,743,916)	28,232,780,654
77	-	475,936,956,974	475,936,956,974	-	45,547,166,782	(16,496,322,163)	29,050,844,619
78	-	489,739,128,726	489,739,128,726	-	46,868,034,619	(16,975,419,060)	29,892,615,559
79	-	503,941,563,459	503,941,563,459	-	48,227,207,623	(17,468,404,554)	30,758,803,069
80	-	518,555,868,799	518,555,868,799	-	49,625,796,644	(17,975,660,751)	31,650,135,893
81	-	533,593,988,994	533,593,988,994	-	51,064,944,747	(18,497,583,339)	32,567,361,408
82	-	549,068,214,675	549,068,214,675	-	52,545,828,144	(19,034,582,655)	33,511,245,489
83	-	564,991,192,901	564,991,192,901	-	54,069,657,161	(19,587,084,423)	34,482,572,738
84	-	581,375,937,495	581,375,937,495	-	55,637,677,218	(20,155,530,476)	35,482,146,742
85	-	598,235,839,682	598,235,839,682	-	57,251,169,858	(20,740,378,957)	36,510,790,901
86	-	615,584,679,033	615,584,679,033	-	58,911,453,783	(21,342,104,115)	37,569,349,668
87	-	633,436,634,725	633,436,634,725	-	60,619,885,943	(21,961,196,325)	38,658,689,618
88	-	651,806,297,132	651,806,297,132	-	62,377,862,636	(22,598,162,208)	39,779,700,428
89	-	670,708,679,749	670,708,679,749	-	64,186,820,652	(23,253,524,521)	40,933,296,131
90	-	690,159,231,461	690,159,231,461	-	66,048,238,451	(23,927,822,385)	42,120,416,066
91	-	710,173,849,174	710,173,849,174	-	67,963,637,366	(24,621,611,697)	43,342,025,669
92	-	730,768,890,800	730,768,890,800	-	69,934,582,850	(25,335,465,552)	44,599,117,368
93	-	751,961,188,633	751,961,188,633	-	71,962,685,752	(26,069,974,256)	45,892,711,496
94	-	773,768,063,103	773,768,063,103	-	74,049,603,639	(26,825,746,304)	47,223,857,335
95	-	796,207,336,933	796,207,336,933	-	76,197,042,145	(27,603,407,966)	48,593,634,179
96	-	819,297,349,705	819,297,349,705	-	78,406,756,367	(28,403,603,908)	50,003,152,459
97	-	843,056,972,846	843,056,972,846	-	80,680,552,301	(29,226,997,336)	51,453,554,965
98	-	867,505,625,058	867,505,625,058	-	83,020,288,318	(30,074,270,243)	52,946,018,075
99	-	892,663,288,185	892,663,288,185	-	85,427,876,679	(30,946,123,724)	54,481,752,955



Single Discount Rate Development

PROJECTION OF PLAN FIDUCIARY NET POSITION BEGINNING SEPTEMBER 1, 2022

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected		Projected Ending Plan Net Position
				Administrative Expenses	Projected Investment Earnings at 7.00%	
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	184,185,617,196	8,216,198,675	12,579,278,223	51,365,874	12,741,100,775	192,512,272,549
2	192,512,272,549	8,262,566,290	13,183,124,974	49,504,215	13,304,848,939	200,847,058,589
3	200,847,058,589	8,475,072,279	13,798,150,837	47,777,924	13,874,493,439	209,350,695,546
4	209,350,695,546	8,424,822,959	14,440,351,939	46,130,981	14,445,978,830	217,735,014,414
5	217,735,014,414	8,352,967,258	15,111,328,306	44,554,895	15,007,375,983	225,939,474,453
6	225,939,474,453	8,290,894,566	15,804,736,922	43,022,962	15,555,746,263	233,938,355,398
7	233,938,355,398	8,235,611,691	16,517,085,128	41,509,080	16,089,307,335	241,704,680,217
8	241,704,680,217	8,186,376,111	17,247,961,193	40,005,957	16,606,159,677	249,209,248,855
9	249,209,248,855	8,144,160,128	17,977,006,946	38,522,160	17,104,992,929	256,442,872,806
10	256,442,872,806	8,106,709,945	18,716,060,639	37,038,523	17,584,679,675	263,381,163,264
11	263,381,163,264	8,071,189,826	19,465,712,619	35,527,174	18,043,395,775	269,994,509,071
12	269,994,509,071	8,037,431,185	20,214,692,068	33,986,509	18,479,450,506	276,262,712,186
13	276,262,712,186	8,006,720,142	20,953,740,916	32,426,866	18,891,792,457	282,175,057,003
14	282,175,057,003	7,980,213,398	21,677,461,225	30,859,043	19,279,896,695	287,726,846,827
15	287,726,846,827	7,960,823,209	22,364,199,294	29,309,733	19,644,278,800	292,938,439,808
16	292,938,439,808	7,951,645,479	23,000,185,634	27,808,943	19,986,943,114	297,849,033,824
17	297,849,033,824	7,952,634,452	23,589,404,582	26,356,936	20,310,494,814	302,496,401,572
18	302,496,401,572	7,964,970,419	24,131,915,616	24,964,447	20,617,616,182	306,922,108,111
19	306,922,108,111	7,986,920,762	24,634,617,335	23,615,746	20,910,920,332	311,161,716,124
20	311,161,716,124	8,016,361,681	25,112,315,052	22,290,456	21,192,314,854	315,235,787,152
21	315,235,787,152	8,051,701,785	25,574,791,386	20,974,715	21,462,848,176	319,154,571,013
22	319,154,571,013	8,092,244,853	26,026,544,831	19,662,967	21,723,059,237	322,923,667,305
23	322,923,667,305	8,135,996,218	26,490,502,301	18,337,772	21,972,483,105	326,523,306,555
24	326,523,306,555	8,184,484,875	26,946,353,205	17,016,798	22,210,486,767	329,954,908,193
25	329,954,908,193	8,238,516,768	27,382,488,592	15,707,100	22,437,596,512	333,232,825,781
26	333,232,825,781	8,299,833,582	27,783,195,264	14,423,385	22,655,417,172	336,390,457,886
27	336,390,457,886	8,368,129,023	28,166,456,130	13,160,024	22,865,657,545	339,444,628,300
28	339,444,628,300	8,441,656,397	28,558,327,899	11,902,167	23,068,539,147	342,384,593,778
29	342,384,593,778	8,521,337,037	28,936,592,391	10,662,893	23,264,105,685	345,222,781,216
30	345,222,781,216	8,608,853,015	29,064,097,218	9,454,823	23,461,444,435	348,219,526,624
31	348,219,526,624	8,704,977,178	29,368,255,584	8,281,466	23,664,098,937	351,212,065,690
32	351,212,065,690	8,811,748,932	29,608,655,862	7,159,585	23,869,017,377	354,277,016,552
33	354,277,016,552	8,931,533,624	29,763,527,920	6,106,101	24,082,392,898	357,521,309,054
34	357,521,309,054	9,064,778,395	29,836,862,256	5,120,018	24,311,588,703	361,055,693,878
35	361,055,693,878	9,212,723,627	29,812,268,199	4,211,726	24,564,963,633	365,016,901,212
36	365,016,901,212	9,377,060,263	29,676,152,592	3,393,143	24,852,614,286	369,567,030,026
37	369,567,030,026	9,558,362,410	29,422,430,929	2,666,594	25,186,116,620	374,886,411,533
38	374,886,411,533	9,759,070,853	29,023,213,561	2,054,125	25,579,136,673	381,199,351,374
39	381,199,351,374	9,980,447,535	28,469,426,968	1,564,215	26,047,731,170	388,756,538,897
40	388,756,538,897	10,221,141,236	27,786,539,862	1,181,599	26,608,526,070	397,798,484,742
41	397,798,484,742	10,478,649,121	27,012,498,298	879,492	27,276,966,272	408,540,722,344
42	408,540,722,344	10,751,838,961	26,162,559,860	643,821	28,067,575,660	421,196,933,284
43	421,196,933,284	11,039,734,016	25,248,547,459	462,723	28,994,871,941	435,982,529,059
44	435,982,529,059	11,341,507,071	24,281,970,405	325,528	30,073,509,811	453,115,250,007
45	453,115,250,007	11,656,500,264	23,273,012,510	223,075	31,318,358,369	472,816,873,055
46	472,816,873,055	11,984,070,532	22,231,246,537	146,687	32,744,590,791	495,314,141,154
47	495,314,141,154	12,323,924,778	21,163,299,925	91,284	34,367,841,137	520,842,515,860
48	520,842,515,860	12,675,869,177	20,075,780,423	52,238	36,204,357,846	549,646,910,223
49	549,646,910,223	13,039,814,201	18,974,696,816	26,054	38,271,075,121	581,983,076,675
50	581,983,076,675	13,415,841,485	17,864,887,361	10,848	40,585,732,031	618,119,751,983



Single Discount Rate Development

Projection of Plan Fiduciary Net Position Beginning September 1, 2022 (continued)

Year	Projected Beginning	Projected Total	Projected Benefit	Projected	Projected Investment	Projected Ending Plan
	Plan Net Position	Contributions	Payments	Administrative Expenses	Earnings at 7.00%	Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	618,119,751,983	13,803,993,340	16,752,115,956	4,069	43,166,943,368	658,338,568,667
52	658,338,568,667	14,204,153,215	15,643,838,899	1,690	46,034,162,981	702,933,044,275
53	702,933,044,275	14,616,329,296	14,546,790,300	611	49,207,705,779	752,210,288,438
54	752,210,288,438	15,040,783,566	13,465,436,150	140	52,708,924,808	806,494,560,522
55	806,494,560,522	15,477,823,940	12,403,966,446	12	56,560,384,658	866,128,802,662
56	866,128,802,662	15,927,762,699	11,366,634,878	1	60,785,955,670	931,475,886,152
57	931,475,886,152	16,390,924,076	10,357,637,384	-	65,410,905,620	1,002,920,078,464
58	1,002,920,078,464	16,867,645,564	9,381,135,875	-	70,462,001,642	1,080,868,589,795
59	1,080,868,589,795	17,358,271,379	8,441,257,776	-	75,967,618,276	1,165,753,221,674
60	1,165,753,221,674	17,863,154,457	7,542,104,273	-	81,957,852,659	1,258,032,124,516
61	1,258,032,124,516	18,382,659,701	6,687,623,700	-	88,464,652,021	1,358,191,812,538
62	1,358,191,812,538	18,917,167,115	5,881,477,095	-	95,521,959,464	1,466,749,462,022
63	1,466,749,462,022	19,467,075,006	5,126,959,863	-	103,165,877,644	1,584,255,454,809
64	1,584,255,454,809	20,032,800,503	4,426,865,447	-	111,434,851,525	1,711,296,241,390
65	1,711,296,241,390	20,614,777,377	3,783,342,728	-	120,369,873,629	1,848,497,549,669
66	1,848,497,549,669	21,213,456,042	3,197,806,280	-	130,014,711,734	1,996,527,911,164
67	1,996,527,911,164	21,829,305,424	2,670,837,481	-	140,416,159,176	2,156,102,538,283
68	2,156,102,538,283	22,462,816,203	2,202,118,532	-	151,624,308,642	2,327,987,544,596
69	2,327,987,544,596	23,114,501,917	1,790,456,329	-	163,692,846,805	2,513,004,436,990
70	2,513,004,436,990	23,784,897,701	1,433,806,528	-	176,679,367,902	2,712,034,896,065
71	2,712,034,896,065	24,474,560,807	1,129,340,831	-	190,645,706,064	2,926,025,822,105
72	2,926,025,822,105	25,184,069,476	873,567,698	-	205,658,284,345	3,155,994,608,228
73	3,155,994,608,228	25,914,020,782	662,458,937	-	221,788,479,409	3,403,034,649,482
74	3,403,034,649,482	26,665,030,485	491,593,657	-	239,113,002,211	3,668,321,088,521
75	3,668,321,088,521	27,437,732,994	356,308,837	-	257,714,295,011	3,953,116,807,688
76	3,953,116,807,688	28,232,780,654	251,815,562	-	277,680,946,796	4,258,778,719,577
77	4,258,778,719,577	29,050,844,619	173,288,115	-	299,108,130,584	4,586,764,406,666
78	4,586,764,406,666	29,892,615,559	115,998,218	-	322,098,063,605	4,938,639,087,611
79	4,938,639,087,611	30,758,803,069	75,490,865	-	346,760,488,867	5,316,082,888,681
80	5,316,082,888,681	31,650,135,893	47,764,868	-	373,213,177,958	5,720,898,437,664
81	5,720,898,437,664	32,567,361,408	29,405,065	-	401,582,458,046	6,155,018,852,053
82	6,155,018,852,053	33,511,245,489	17,640,969	-	432,003,769,038	6,620,516,225,610
83	6,620,516,225,610	34,482,572,738	10,338,345	-	464,622,257,926	7,119,610,717,928
84	7,119,610,717,928	35,482,146,742	5,935,715	-	499,593,417,259	7,654,680,346,215
85	7,654,680,346,215	36,510,790,901	3,347,770	-	537,083,773,918	8,228,271,563,264
86	8,228,271,563,264	37,569,349,668	1,857,956	-	577,271,633,309	8,843,110,688,286
87	8,843,110,688,286	38,658,689,618	1,015,440	-	620,347,883,106	9,502,116,245,570
88	9,502,116,245,570	39,779,700,428	546,914	-	666,516,860,026	10,208,412,259,109
89	10,208,412,259,109	40,933,296,131	290,468	-	715,997,282,768	10,965,342,547,540
90	10,965,342,547,540	42,120,416,066	152,178	-	769,023,254,191	11,776,486,065,619
91	11,776,486,065,619	43,342,025,669	78,706	-	825,845,336,180	12,645,673,348,762
92	12,645,673,348,762	44,599,117,368	40,278	-	886,731,701,388	13,577,004,127,240
93	13,577,004,127,240	45,892,711,496	20,457	-	951,969,366,606	14,574,866,184,885
94	14,574,866,184,885	47,223,857,335	10,291	-	1,021,865,513,115	15,643,955,545,044
95	15,643,955,545,044	48,593,634,179	5,103	-	1,096,748,899,845	16,789,298,073,966
96	16,789,298,073,966	50,003,152,459	2,519	-	1,176,971,375,725	18,016,272,599,631
97	18,016,272,599,631	51,453,554,965	1,298	-	1,262,909,498,076	19,330,635,651,374
98	19,330,635,651,374	52,946,018,075	725	-	1,354,966,264,453	20,738,547,933,176
99	20,738,547,933,176	54,481,752,955	449	-	1,453,572,965,820	22,246,602,651,502



Single Discount Rate Development

Present Values of Projected Benefits Beginning September 1, 2022

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{(a)-5}	(g)=(e)*vf ^{(a)-5}	(h)=(c)/(1+sdr) ^{(a)-5}
1	\$ 184,185,617,196	\$ 12,579,278,223	\$ 12,579,278,223	\$ -	\$ 11,365,277,817	\$ -	\$ 11,365,277,817
2	192,512,272,549	13,183,124,974	13,183,124,974	-	11,131,634,162	-	11,131,634,162
3	200,847,058,589	13,798,150,837	13,798,150,837	-	10,888,740,963	-	10,888,740,963
4	209,350,695,546	14,440,351,939	14,440,351,939	-	10,650,028,706	-	10,650,028,706
5	217,735,014,414	15,111,328,306	15,111,328,306	-	10,415,781,573	-	10,415,781,573
6	225,939,474,453	15,804,736,922	15,804,736,922	-	10,181,053,421	-	10,181,053,421
7	233,938,355,398	16,517,085,128	16,517,085,128	-	9,943,861,677	-	9,943,861,677
8	241,704,680,217	17,247,961,193	17,247,961,193	-	9,704,555,678	-	9,704,555,678
9	249,209,248,855	17,977,006,946	17,977,006,946	-	9,453,040,057	-	9,453,040,057
10	256,442,872,806	18,716,060,639	18,716,060,639	-	9,197,817,282	-	9,197,817,282
11	263,381,163,264	19,465,712,619	19,465,712,619	-	8,940,398,232	-	8,940,398,232
12	269,994,509,071	20,214,692,068	20,214,692,068	-	8,677,006,225	-	8,677,006,225
13	276,262,712,186	20,953,740,916	20,953,740,916	-	8,405,829,389	-	8,405,829,389
14	282,175,057,003	21,677,461,225	21,677,461,225	-	8,127,250,421	-	8,127,250,421
15	287,726,846,827	22,364,199,294	22,364,199,294	-	7,836,187,150	-	7,836,187,150
16	292,938,439,808	23,000,185,634	23,000,185,634	-	7,531,803,992	-	7,531,803,992
17	297,849,033,824	23,589,404,582	23,589,404,582	-	7,219,396,084	-	7,219,396,084
18	302,496,401,572	24,131,915,616	24,131,915,616	-	6,902,269,476	-	6,902,269,476
19	306,922,108,111	24,634,617,335	24,634,617,335	-	6,585,096,682	-	6,585,096,682
20	311,161,716,124	25,112,315,052	25,112,315,052	-	6,273,635,879	-	6,273,635,879
21	315,235,787,152	25,574,791,386	25,574,791,386	-	5,971,189,852	-	5,971,189,852
22	319,154,571,013	26,026,544,831	26,026,544,831	-	5,679,126,193	-	5,679,126,193
23	322,923,667,305	26,490,502,301	26,490,502,301	-	5,402,209,442	-	5,402,209,442
24	326,523,306,555	26,946,353,205	26,946,353,205	-	5,135,673,962	-	5,135,673,962
25	329,954,908,193	27,382,488,592	27,382,488,592	-	4,877,379,903	-	4,877,379,903
26	333,232,825,781	27,783,195,264	27,783,195,264	-	4,625,003,679	-	4,625,003,679
27	336,390,457,886	28,166,456,130	28,166,456,130	-	4,382,060,020	-	4,382,060,020
28	339,444,628,300	28,558,327,899	28,558,327,899	-	4,152,361,080	-	4,152,361,080
29	342,384,593,778	28,936,592,391	28,936,592,391	-	3,932,112,593	-	3,932,112,593
30	345,222,781,216	29,064,097,218	29,064,097,218	-	3,691,064,362	-	3,691,064,362
31	348,219,526,624	29,368,255,584	29,368,255,584	-	3,485,693,158	-	3,485,693,158
32	351,212,065,690	29,608,655,862	29,608,655,862	-	3,284,323,422	-	3,284,323,422
33	354,277,016,552	29,763,527,920	29,763,527,920	-	3,085,516,372	-	3,085,516,372
34	357,521,309,054	29,836,862,256	29,836,862,256	-	2,890,765,209	-	2,890,765,209
35	361,055,693,878	29,812,268,199	29,812,268,199	-	2,699,422,800	-	2,699,422,800
36	365,016,901,212	29,676,152,592	29,676,152,592	-	2,511,306,438	-	2,511,306,438
37	369,567,030,026	29,422,430,929	29,422,430,929	-	2,326,949,128	-	2,326,949,128
38	374,886,411,533	29,023,213,561	29,023,213,561	-	2,145,211,204	-	2,145,211,204
39	381,199,351,374	28,469,426,968	28,469,426,968	-	1,966,615,724	-	1,966,615,724
40	388,756,538,897	27,786,539,862	27,786,539,862	-	1,793,872,091	-	1,793,872,091
41	397,798,484,742	27,012,498,298	27,012,498,298	-	1,629,813,754	-	1,629,813,754
42	408,540,722,344	26,162,559,860	26,162,559,860	-	1,475,263,792	-	1,475,263,792
43	421,196,933,284	25,248,547,459	25,248,547,459	-	1,330,583,302	-	1,330,583,302
44	435,982,529,059	24,281,970,405	24,281,970,405	-	1,195,930,160	-	1,195,930,160
45	453,115,250,007	23,273,012,510	23,273,012,510	-	1,071,249,712	-	1,071,249,712
46	472,816,873,055	22,231,246,537	22,231,246,537	-	956,352,841	-	956,352,841
47	495,314,141,154	21,163,299,925	21,163,299,925	-	850,851,849	-	850,851,849
48	520,842,515,860	20,075,780,423	20,075,780,423	-	754,326,247	-	754,326,247
49	549,646,910,223	18,974,696,816	18,974,696,816	-	666,312,330	-	666,312,330



Single Discount Rate Development

PVs of Projected Benefits Beginning September 1, 2022 (continued)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of	Present Value of	Present Value of
					Funded Benefit	Unfunded Benefit	Benefit
					Payments using	Payments using	Payments using
					Expected Return	Municipal Bond	Single Discount
					Rate (v)	Rate (vf)	Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=(c)/(1+sdr)^(a)-.5
50	\$ 581,983,076,675	\$ 17,864,887,361	\$ 17,864,887,361	\$ -	\$ 586,299,480	\$ -	\$ 586,299,480
51	618,119,751,983	16,752,115,956	16,752,115,956	-	513,813,037	-	513,813,037
52	658,338,568,667	15,643,838,899	15,643,838,899	-	448,430,359	-	448,430,359
53	702,933,044,275	14,546,790,300	14,546,790,300	-	389,704,187	-	389,704,187
54	752,210,288,438	13,465,436,150	13,465,436,150	-	337,135,543	-	337,135,543
55	806,494,560,522	12,403,966,446	12,403,966,446	-	290,242,443	-	290,242,443
56	866,128,802,662	11,366,634,878	11,366,634,878	-	248,569,862	-	248,569,862
57	931,475,886,152	10,357,637,384	10,357,637,384	-	211,686,658	-	211,686,658
58	1,002,920,078,464	9,381,135,875	9,381,135,875	-	179,186,147	-	179,186,147
59	1,080,868,589,795	8,441,257,776	8,441,257,776	-	150,685,822	-	150,685,822
60	1,165,753,221,674	7,542,104,273	7,542,104,273	-	125,827,041	-	125,827,041
61	1,258,032,124,516	6,687,623,700	6,687,623,700	-	104,272,431	-	104,272,431
62	1,358,191,812,538	5,881,477,095	5,881,477,095	-	85,703,845	-	85,703,845
63	1,466,749,462,022	5,126,959,863	5,126,959,863	-	69,821,638	-	69,821,638
64	1,584,255,454,809	4,426,865,447	4,426,865,447	-	56,343,349	-	56,343,349
65	1,711,296,241,390	3,783,342,728	3,783,342,728	-	45,002,666	-	45,002,666
66	1,848,497,549,669	3,197,806,280	3,197,806,280	-	35,549,290	-	35,549,290
67	1,996,527,911,164	2,670,837,481	2,670,837,481	-	27,748,689	-	27,748,689
68	2,156,102,538,283	2,202,118,532	2,202,118,532	-	21,382,177	-	21,382,177
69	2,327,987,544,596	1,790,456,329	1,790,456,329	-	16,247,674	-	16,247,674
70	2,513,004,436,990	1,433,806,528	1,433,806,528	-	12,160,018	-	12,160,018
71	2,712,034,896,065	1,129,340,831	1,129,340,831	-	8,951,276	-	8,951,276
72	2,926,025,822,105	873,567,698	873,567,698	-	6,471,019	-	6,471,019
73	3,155,994,608,228	662,458,937	662,458,937	-	4,586,182	-	4,586,182
74	3,403,034,649,482	491,593,657	491,593,657	-	3,180,642	-	3,180,642
75	3,668,321,088,521	356,308,837	356,308,837	-	2,154,524	-	2,154,524
76	3,953,116,807,688	251,815,562	251,815,562	-	1,423,061	-	1,423,061
77	4,258,778,719,577	173,288,115	173,288,115	-	915,221	-	915,221
78	4,586,764,406,666	115,998,218	115,998,218	-	572,565	-	572,565
79	4,938,639,087,611	75,490,865	75,490,865	-	348,244	-	348,244
80	5,316,082,888,681	47,764,868	47,764,868	-	205,928	-	205,928
81	5,720,898,437,664	29,405,065	29,405,065	-	118,480	-	118,480
82	6,155,018,852,053	17,640,969	17,640,969	-	66,429	-	66,429
83	6,620,516,225,610	10,338,345	10,338,345	-	36,384	-	36,384
84	7,119,610,717,928	5,935,715	5,935,715	-	19,523	-	19,523
85	7,654,680,346,215	3,347,770	3,347,770	-	10,291	-	10,291
86	8,228,271,563,264	1,857,956	1,857,956	-	5,338	-	5,338
87	8,843,110,688,286	1,015,440	1,015,440	-	2,726	-	2,726
88	9,502,116,245,570	546,914	546,914	-	1,372	-	1,372
89	10,208,412,259,109	290,468	290,468	-	681	-	681
90	10,965,342,547,540	152,178	152,178	-	334	-	334
91	11,776,486,065,619	78,706	78,706	-	161	-	161
92	12,645,673,348,762	40,278	40,278	-	77	-	77
93	13,577,004,127,240	20,457	20,457	-	37	-	37
94	14,574,866,184,885	10,291	10,291	-	17	-	17
95	15,643,955,545,044	5,103	5,103	-	8	-	8
96	16,789,298,073,966	2,519	2,519	-	4	-	4
97	18,016,272,599,631	1,298	1,298	-	2	-	2
98	19,330,635,651,374	725	725	-	1	-	1
99	20,738,547,933,176	449	449	-	1	-	1
Totals					\$ 267,384,088,367	\$ -	\$ 267,384,088,367

