



January 18, 2024

Mr. Robert B. Ash  
Pension Administrator  
City of El Paso Employees Retirement Trust  
1039 Chelsea Street  
El Paso, TX 79903

**Re: September 1, 2023 Interim Valuation Results - Updated<sup>1</sup>**

Dear Robert,

This report provides the results of the September 1, 2023 interim valuation of the City of El Paso Employees Retirement Trust (Plan). It is based on (i) a roll-forward of the September 1, 2022 valuation liabilities with adjustments for the new assumptions the Board adopted in May 2023, and (ii) the August 31, 2023 unaudited asset statement that was provided to us by the City on October 20, 2023. Attached are exhibits that provide the key valuation results (the September 1, 2022 valuation results are shown for comparison purposes).

The primary purposes of the interim valuation are to (i) determine the adequacy of the current contribution rate of the City, (ii) describe the current financial condition of the Plan, and (iii) analyze changes in the Plan's condition since the last valuation.

Use of this report for any other purpose or by anyone other than the City or the Board may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting it to perform an advance review of any statement, document, or filing based on information contained in this report. Buck will accept no liability for any such statement; document or filing made without prior review by Buck.

This interim valuation is based on the member data, plan provisions, and actuarial assumptions and methods used in the September 1, 2022 valuation, except as noted in Schedule A.

Where presented, references to "funded ratio" and "unfunded accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the Plan if the Plan were to settle (i.e., purchase annuities) for all or a portion of its liabilities.

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<sup>1</sup> This is an updated to our report dated December 15, 2023. Additional information has been added in Section 2.

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Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this valuation.

Actuarial Standard of Practice No. 51 ("ASOP 51") applies to funding calculations such as those presented in this report and requires certain disclosures of potential risks. Schedule B presents an assessment of the key risks applicable to this plan, as well as historical information and plan maturity measures. Schedule B includes the Low-Default-Risk Obligation Measure (LDRM), which is now required for pension plan funding valuations based on a recent update to Actuarial Standard of Practice No. 4 ("ASOP 4").

Actuarial Standard of Practice No. 56 ("ASOP 56") provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding rules specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable funding rules to the liabilities derived and other inputs, such as plan assets and contributions, to generate the exhibits found in this report. Buck has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. The review is performed by experts within the company who are familiar with applicable funding rules as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked and reviewed by multiple experts within the company who are familiar with the details of the required changes.

ASOPs 27 and 35 require the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. In the case of the plan sponsor's selection of expected return on assets ("EROA"), the signing actuaries have used economic information and tools provided by Buck's Financial Risk Management ("FRM") practice. A spreadsheet tool created by the FRM team converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions ("CMA") that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation and the percentiles generated by the spreadsheet described above, and review of actuarial gain/loss analysis, the actuary believes the assumptions do not conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement.

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This report was prepared under our supervision and in accordance with all applicable Actuarial Standards of Practice. We are Fellows of the Society of Actuaries, Enrolled Actuaries, Members of the American Academy of Actuaries and Fellows of the Conference of Consulting Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

We are available to discuss this report with you at your convenience. David can be reached at (602) 803-6174 and Beth can be reached at (208) 724-5297.

Sincerely,

Buck, A Gallagher Company



David J. Kershner, FSA, EA, MAAA, FCA  
Principal



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Senior Consultant

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# Section 1 – Summary of Valuation Results

	September 1, 2023	September 1, 2022
<b>Membership<sup>1</sup></b>		
Active		4,128
Terminated with deferred benefits <sup>2</sup>		173
Retired paid from Plan <sup>3</sup>		3,657
<b>Compensation</b>		
Total (excluding 4% overtime load)	\$185,045,262	\$ 180,531,963
Average		\$ 43,734
<b>Assets</b>		
Market value	\$ 907,700,487	\$ 907,610,032
Actuarial value	\$ 967,969,765	\$ 947,404,127
<b>Valuation Results</b>		
Actuarial Accrued Liability (AAL)	\$ 1,219,873,340	\$ 1,171,459,737
Actuarial Value of Assets (AVA)	\$ 967,969,765	\$ 947,404,127
Funded Ratio (AVA/AAL)	79.4%	80.9%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 251,903,575	\$ 224,055,610
UAAL funding period	17 years	14 years
<b>Actuarially Determined Contribution (ADC)</b>		
Employer Normal Cost Rate	2.84%	2.47%
UAAL Amortization Rate	<u>9.54%</u>	<u>8.55%</u>
Total Rate	12.38%	11.02%
Excess of City's Fixed Contribution Rate Over ADC	1.67%	3.03%

<sup>1</sup> Census data as of July 1 preceding valuation date. Census data was not collected for the September 1, 2023 interim valuation.

<sup>2</sup> Excludes terminated members entitled to refunds of contributions paid after July 1.

<sup>3</sup> Excludes retirees for whom annuities were purchased from Prudential, but whose cost-of-living increases are paid by the Plan.

# Section 2 – Comments on the Valuation

## Overview

The overall funded status of the Plan has decreased since the September 1, 2022 valuation. As this is an interim valuation, demographic information is rolled forward from the previous year's valuation and therefore there are no changes to the funded status due to demographic changes. Assets did not perform as expected in FY23. In addition, several assumption changes were approved by the Board in May 2023 based on the experience study for the period September 1, 2018 through August 31, 2022. These assumption changes increased liabilities by approx. \$24.4 million (2%).

Section 4 provides more detail regarding changes in the Unfunded Actuarial Accrued Liability (UAAL) since the last valuation.

## Funded Status

There are two significant measures of the funded status of the Plan (in addition to the funded ratio).

- The first is the Actuarially Determined Contribution (ADC). This is the City's contribution rate (the ADC as a percentage of payroll) that is required to pay the Normal Cost and to amortize the UAAL over 25-year periods based on the funding method that was adopted by the Board in 2019. This rate is currently 12.38% of pay (the City's fixed contribution rate is 14.05% of pay). The corresponding rate from the September 1, 2022 valuation was 11.02%. The increase in this rate is due to the asset performance and assumption changes described above.
- The second is the UAAL funding period. This is the length of time in years that will be required to amortize the current UAAL based on the City's fixed contribution rate. This period is currently 17 years, compared to 14 years in 2022. The increase in this period is due to the asset performance and assumption changes described above.

## Benefit Provisions

Benefit provisions are unchanged from the September 1, 2022 valuation report. Schedule B of the September 1, 2022 valuation report summarizes the benefit provisions of the Plan.

## Actuarial Assumptions

Schedule A describes the actuarial assumptions used in the valuation. These assumptions were adopted by the Board based on the experience study for the period September 1, 2018 to August 31, 2022 and the funding policy that was formalized in 2019.

## Financial Data

The financial data used in this report was provided by the City on October 20, 2023.

Section 3 shows a reconciliation of the Plan's assets between August 31, 2022 through August 31, 2023 and the development of the Actuarial Value of Assets (AVA). To minimize volatility in contribution rates, we use an adjusted market value (AVA) which phases in market gains and losses over five years. The market return was 3.4% for FY23, which resulted in a market loss of \$34.8 million for the year. The FY23 actuarial return was 5.4%.

# Section 3 – Summary of Asset Information

## Reconciliation of Plan Assets

	Period Ending	
	August 31, 2023	August 31, 2022
1. Market value of assets at beginning of period	\$ 907,610,032	\$ 1,028,462,335
2. Contributions		
a. City	\$ 32,780,061	\$ 26,090,035
b. Member	<u>18,393,602</u>	<u>15,998,718</u>
c. Total	\$ 51,173,663	\$ 42,088,753
3. Benefit payments and refunds	(81,008,869)	(84,876,133)
4. Investment earnings (net of investment expenses)	31,794,467	(76,419,409)
5. Administrative expenses	<u>(1,868,806)</u>	<u>(1,645,514)</u>
6. Market value of assets at end of period	\$ 907,700,487	\$ 907,610,032

## Section 3 – Summary of Asset Information (continued)

### Determination of Investment Earnings to be Deferred

	Period Ending	
	August 31, 2023	August 31, 2022
1. Market value at beginning of period	\$ 907,610,032	\$ 1,028,462,335
2. Cash flows		
a. City contributions	\$ 32,780,061	\$ 26,090,035
b. Member contributions	18,393,602	15,998,718
c. Benefit payments	(77,160,747)	(79,297,591)
d. Refunds	<u>(3,848,122)</u>	<u>(5,578,542)</u>
e. Total	\$ (29,835,206)	\$ (42,787,380)
3. Weighted cash flows (2e x 50%)	\$ (14,917,603)	\$ (21,393,690)
4. Assets available (1 + 3)	\$ 892,692,429	\$ 1,007,068,645
5. Assumed investment return rate	7.25%	7.25%
6. Expected net return (4 x 5)	\$ 64,720,201	\$ 73,012,477
7. Actual net return		
a. Total investment return	\$ 31,794,467	\$ (76,419,409)
b. Administrative expenses	<u>(1,868,806)</u>	<u>(1,645,514)</u>
c. Net return	\$ 29,925,661	\$ (78,064,923)
8. Gain/(loss) subject to deferral (7c - 6)	\$ (34,794,540)	\$ (151,077,400)



# Section 3 – Summary of Asset Information (continued)

## Calculation of Actuarial Value of Assets

- 1. Market value of assets as of August 31, 2023 \$ 907,700,487
- 2. Deferral amounts

Year	Total Gain/(Loss)	Percent Deferred	Deferral Amount
2022-2023	\$ (34,794,540)	80%	\$ (27,835,632)
2021-2022	(151,077,400)	60%	(90,646,440)
2020-2021	122,992,282	40%	49,196,913
2019-2020	45,079,403	20%	9,015,881
Total			\$ (60,269,278)

- 3. Actuarial value of assets as of September 1, 2023 (1 – 2) \$ 967,969,765

## Section 4 – Schedule of UAAL Layered Amortizations

### Analysis of Change in UAAL

1. UAAL as of September 1, 2022	\$ 224,055,610
2. Changes due to:	
a. Expected increase/(decrease)	1,751,828
b. Actual contributions greater than expected	(13,679,341)
c. Liability experience	0
d. Asset experience	15,400,763
e. Assumption Changes	24,374,715
f. Other Changes	<u>0</u>
Total Changes	\$ 27,847,965
3. UAAL as of September 1, 2023	\$ 251,903,575

### Schedule of UAAL Layered Amortizations

Layer	Amortization Period		Balances		End-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial <sup>1</sup>	9/1/2019	21	\$ 217,986,352	\$ 221,650,375	\$ 16,390,272
Change in Assumptions	9/1/2020	22	20,343	20,587	1,481
FY20 Experience <sup>2</sup>	9/1/2020	22	(2,683,153)	(2,715,317)	(195,344)
FY21 Experience <sup>3</sup>	9/1/2021	23	(33,526,549)	(33,848,016)	(2,373,564)
FY22 Experience <sup>4</sup>	9/1/2022	24	38,929,517	39,145,083	2,680,311
Change in Assumptions	9/1/2023	25	24,374,715	24,374,715	1,632,196
FY23 Experience <sup>5</sup>	9/1/2023	25	3,276,148	<u>3,276,148</u>	<u>219,380</u>
Total				\$ 251,903,575	\$ 18,354,732

<sup>1</sup> Based on the September 1, 2019 interim valuation (includes the FY19 asset loss).

<sup>2</sup> Combination of liability experience, FY20 asset experience, and contributions greater than expected.

<sup>3</sup> Combination of FY21 asset experience and contributions greater than expected.

<sup>4</sup> Combination of liability experience, FY22 asset experience, and contributions greater than expected.

<sup>5</sup> Combination of FY23 asset experience and contributions greater than expected.

# Schedule A – Summary of Actuarial Assumptions

The economic and demographic assumptions used in the valuation were adopted by the Board in May 2023 in consultation with Buck. The Board’s established practice is to review the experience of the Plan periodically to determine if any changes to the valuation assumptions are warranted. The new assumptions used in the September 1, 2023 interim valuation are based on the experience study for the period September 1, 2018 through August 31, 2022. All other assumptions were unchanged from those that were used in the September 1, 2022 valuation.

**Unchanged Assumptions**

**Investment Return** – 7.25% per year, net of expenses.

**Occupational Death** – 5% of deaths among active participants are assumed to be job-related deaths. The remaining 95% of deaths are assumed not to be job-related.

**Payroll Growth** – Total payroll is assumed to increase 2.50% per year. This increase rate is solely due to the effect of inflation on salaries, with no allowance for future membership growth.

**Overtime** – 4% of base and longevity pay.

**Form of Payment** – 85% of participants eligible for early retirement are assumed to be paid through a joint and 2/3 survivor annuity. The remaining 15% of participants eligible for early retirement are assumed to elect a refund of contributions.

**Future Expenses** – None assumed.

**New Assumptions**

**Separations Before Normal Retirement**

Assumed annual rates of withdrawal are as follows:

Age	Withdrawal					
	Years of Credited Service					
	<2	2	3	4	5	6+
<25	13.0%	16.0%	15.0%	15.0%	12.0%	10.0%
25-29	13.0	16.0	15.0	15.0	12.0	10.0
30-34	13.0	16.0	15.0	15.0	12.0	10.0
35-39	6.0	16.0	15.0	15.0	11.0	8.5
40-44	6.0	10.0	15.0	11.0	8.0	8.5
45-49	6.0	10.0	10.0	5.0	8.0	8.5
50-54	6.0	10.0	8.0	5.0	8.0	7.0
55-59	6.0	8.5	8.0	5.0	4.5	7.0
60+	6.0	8.5	8.0	5.0	4.5	7.0

## Schedule A – Summary of Actuarial Assumptions (continued)

### Mortality

Mortality rates for active and deferred vested participants are based on the Pub-2010 General Employee benefit-weighted table projected with Scale MP-2021 on a fully generational basis.

Mortality rates for healthy retirees are based on 112% of the Pub-2010 General Retiree benefit-weighted table projected with Scale MP-2021 on a fully generational basis.

Mortality rates for survivors are based on 112% of the Pub-2010 Contingent Annuitant benefit-weighted table projected with Scale MP-2021 on a fully generational basis.

Mortality rates for disabled retirees are based on the Pub-2010 Non-Safety Disabled benefit-weighted table projected with Scale MP-2021 on a fully generational basis.

### Disability

Representative values of the assumed annual rates of disability are as follows:

Age	Disability	
	Gender	
	Male	Female
<25	0.0000%	0.0000%
30	0.0275	0.0135
35	0.0650	0.0442
40	0.0749	0.0896
45	0.1027	0.1455
50	0.1484	0.2072
55	0.2477	0.3488
60+	0.3740	0.5583

### Salary Increases

The assumed annual rates of future salary increase attributable to longevity and promotion are as follows:

Years of Service	Annual Rate of Salary Increase
Less than 3	5.00%
3-6	4.50
7-11`	4.00
12-15	3.50
16+	3.25

## Schedule A – Summary of Actuarial Assumptions (continued)

### Retirement Rates

The percentage of those eligible for retirement assumed to retire at each age is shown below for Tier 1:

Tier 1 Retirement Rates					
Age	Early		Age	Normal	
	Male	Female		Male	Female
40-49	3.5%	3.0%	40-49	n/a	n/a
50-54	5.0	4.0	50-54	10.0%	12.0%
55-59	5.0	8.0	55-59	13.5	13.5
60+	—	—	60-64	15.0	15.0
			65-74	30.0	30.0
			75+	100.0	100.0

The percentage of those eligible for retirement assumed to retire at each age is shown below for Tier 2:

Tier 2 Retirement Rates					
Age	Early		Age	Normal	
	Male	Female		Male	Female
45-59	3.5%	3.0%	45-49	2.5%	2.5%
60+	—	—	50-52	1.5	1.5
			53-54	5.0	5.0
			55-61	8.0	7.0
			62	10.0	7.0
			63-65	10.0	12.0
			66	30.0	12.0
			67	45.0	12.0
			68-69	25.0	20.0
			70-72	40.0	20.0
			73-74	60.0	100.0
			75+	100.0	100.0

### Spouses

100% of active members are assumed to be married with the male two years older than the female. No children's benefits were valued.

# Schedule B – Risk Information

Actuarial Standard of Practice No. 51 (ASOP 51) requires certain disclosures of potential risks to the Plan and provides useful information for intended users of actuarial reports that determine Plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

The more significant risk factors affecting the future funded status and contribution rates of the Plan are described below.

### Investment Risk

The potential that future investment returns will be different than the current assumption of 7.25%. Plan costs are very sensitive to the market return. If market returns are lower than the assumed rate of return on assets, future costs will increase.

The Plan invests in a diversified portfolio with the objective of maximizing investment returns at a reasonable level of risk. Actuarial Standard of Practice No. 4 (“ASOP 4”) requires the actuary to disclose a Low-Default-Risk Obligation Measure (“LDRM”) of Plan liabilities and provide commentary to help intended users of this report understand the significance of the measure with respect to funded status, contributions, and participant benefit security.

The LDRM is to be based on “discount rates derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future.” The LDRM shown here represents what the Plan’s liability would be if the Plan invested its assets solely in a portfolio of high-quality bonds whose cash flows approximately match future benefit payments. Consequently, the difference between the LDRM and the Actuarial Accrued Liability can be thought of as representing the expected taxpayer savings / (cost) from investing in the Plan’s diversified portfolio compared to investing only in high-quality bonds. It may also be thought of as the cost of reducing investment risk.

	September 1, 2023
1. LDRM	\$1,460,296,123
2. Interest rate used for LDRM	5.59%

The interest rate used for the LDRM was determined by calculating a single equivalent discount rate using projected benefit payments and the Buck Above Median Yield Curve as of August 31, 2023. Note the interest rate used for the LDRM is based on bond yields applicable at the time of the measurement and will therefore vary for different measurement dates. All other assumptions are the same as those used for funding as shown in this report.

Actuaries play a role in helping plan sponsors determine funding methods and policies that can achieve affordable and appropriate contributions and risk management. The funded status based on Actuarial Accrued Liability and the Actuarially Determined Contributions are determined using the expected return on assets which reflects the actual investment portfolio. Since the assets are not invested in an all-bond portfolio, the LDRM does not indicate the Plan’s funded status or progress, nor does it provide information on necessary Plan contributions.

With respect to security of participant benefits, if the Plan were to be funded on an LDRM basis, participant benefits currently accrued as of the measurement date may be considered more secure as investment risk may be significantly reduced. However, the assets being invested in a diversified portfolio does not mean the participant benefits are not secure. Security of participant benefits relies on a combination of the assets in the Plan, the investment returns generated on those assets, and the promise of future contributions from the Plan sponsor. Reducing investment risk by investing solely in bonds may significantly increase Actuarially Determined Contributions and therefore increase contribution risk by decreasing the ability of the Plan sponsor to make necessary contributions to fund the benefits. Unnecessarily high contribution requirements in the near term may not be affordable and could imperil Plan sustainability and benefit security. Participant benefits will remain secure if reasonable and appropriate contributions with managed risk are calculated and paid.

## Schedule B – Risk Information (continued)

### Contribution Risk

Under the El Paso City Municipal Code, the City contributes 14.05% of pay each year and active members contribute 8.95% of pay each year. The Actuarially Determined Contribution (ADC) for the plan year beginning September 1, 2023 is 12.38% of pay (excluding active member contributions). The ADC is currently less than the fixed City contribution rate of 14.05%. This should be monitored closely to ensure the contributions to the Plan do not fall below the ADC. If this were to happen, the liabilities of the Plan would grow faster than the assets, which would cause the unfunded liability and ADC to increase over time.

### Longevity Risk

The potential that mortality rates of Plan participants will be different than assumed. The mortality assumption includes an assumption for future mortality improvement. If participants live longer than the life expectancies predicted by the baseline mortality table and mortality improvement scale, benefits will be paid over a longer period of time than expected, which will lead to increases in liabilities and costs.

### Other Demographic Risk

The potential that demographic experience patterns (especially retirement and turnover) will be different than assumed. If participants retire earlier than expected based on the retirement assumption, or lower turnover leads to more participants receiving benefits than expected, future liabilities and costs will increase.

### Other Risks

Members' salaries grow faster than expected, thereby increasing liabilities and costs.

Payroll does not grow as expected, thereby increasing future Actuarially Determined Contribution rates.

This information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the Plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the Plan sponsor to make contributions to the Plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

## Historical Information

Monitoring certain information over time may help understand risks faced by the Plan. Historical information is included throughout this report. Some examples are:

- Historical Asset Rates of Return in Section 5 of the September 1, 2022 valuation report illustrates how the Plan's assets have performed over time.
- Funded Ratio History shown in Section 4 of the September 1, 2022 valuation report illustrates how the Plan's funded status (comparison of the Actuarial Value of Assets to the Actuarial Accrued Liability) has changed over time.

## Schedule B – Risk Information (continued)

### Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the Plan.

Ratio of Cash Flow to Assets	September 1, 2018	September 1, 2020	September 1, 2022
1. Retiree and Beneficiary Actuarial Accrued Liability	\$598,442,205	\$677,266,185	\$ 748,113,778
2. Total Actuarial Accrued Liability	1,024,379,167	1,085,022,171	1,171,459,737
3. Ratio, (1) ÷ (2)	58.4%	62.4%	63.9%

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

Ratio of Cash Flow to Assets	FYE August 31, 2020	FYE August 31, 2021	FYE August 31, 2022
1. Contributions	\$41,410,781	\$40,322,787	\$42,088,753
2. Benefit Payments and Refunds	<u>70,376,992</u>	<u>75,230,941</u>	<u>84,876,133</u>
3. Cash Flow, (1) - (2)	\$ (28,966,211)	\$ (34,908,154)	\$ (42,787,380)
4. Fair Value of Assets	\$ 877,989,396	\$ 1,028,462,335	\$ 907,610,032
5. Ratio, (3) ÷ (4)	(3.3%)	(3.4%)	(4.7%)

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and/or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. This maturity measure should be monitored in the future.

Contribution Volatility	FYE August 31, 2020	FYE August 31, 2021	FYE August 31, 2022
1. Fair Value of Assets	\$ 877,989,396	\$ 1,028,462,335	\$ 907,610,032
2. Payroll	172,242,295	167,790,367	171,985,126
3. Asset to Payroll Ratio, (1) ÷ (2)	509.7%	612.9%	527.7%
4. Accrued Liability	\$1,054,386,523	\$1,108,078,648	\$1,171,459,737
5. Liability to Payroll Ratio, (4) ÷ (2)	612.2%	660.4%	681.1%

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10% may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5%. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10% may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5%.



## **Schedule C – Glossary of Terms**

### **Actuarial Accrued Liability**

The portion, as determined by a particular cost method, of the total present value of benefits that is attributable to past service credit.

### **Actuarial Assumptions**

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement rate or rates of investment income and salary increases. Actuarial assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

### **Actuarial Gain (Loss) or Liability/Asset Experience**

A measure of the difference between actual and expected experience based upon a set of actuarial assumptions.

### **Actuarial Present Value of Future Benefits**

Also referred to as the present value of benefits. It is the value, as of a specified date, of an amount payable in the future, where the amount has been adjusted to reflect both the time value of money and the probability that the payment is actually made.

### **Actuarial Present Value of Future Normal Costs**

The value, as of a specified date, of future normal costs, equal to the employer normal cost rate times the actuarial present value of future pay.

### **Actuarial Present Value of Future Pay**

The value, as of a specified date, of future pay where the amount has been adjusted to reflect both the future value of money and the probability that the payment is actually made.

### **Amortization Rate or UAAL Payment**

That portion of the pension plan contribution which is designed to pay off (amortize) the unfunded actuarial accrued liability in a systematic fashion.

### **Cost-of-living adjustments**

Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.

### **Covered Payroll**

The rate of pay as of a specified date adjusted with a half-year salary increase based on the assumed salary increase assumptions.

### **Entry Age Actuarial Cost Method**

This method assumes that the annual costs are the level premiums needed from entry age until retirement age to fund the ultimate retirement benefit. These premiums are expressed as a percentage of salary. The portion of this actuarial present value allocated to a valuation year is called the normal cost.

## **Schedule C – Glossary of Terms (continued)**

### **Normal Cost**

The ongoing annual cost allocated to the system by a particular actuarial cost method for providing benefits (future cost). Normal cost payments are made during the working lifetime of the member.

### **Unfunded Actuarial Accrued Liability**

The excess of the actuarial accrued liability over the actuarial value of assets.

### **Vested Benefit**

The benefit an employee is entitled to, based on vesting service, even if the employee separates from active service prior to normal retirement age.