

# County Employees Retirement System

GASB No. 67 Accounting Valuation Report  
As of June 30, 2023





December 6, 2023

Board of Trustees  
County Employees Retirement System  
Perimeter Park West  
1260 Louisville Road  
Frankfort, KY 40601

**Re: GASB 67 Reporting – Actuarial Information – County Employees Retirement System**

Dear Members of the Board:

This report provided herein contains certain information for the **County Employees Retirement System (CERS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans” for the fiscal year ending June 30, 2023. A separate report will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 68, “Accounting and Financial Reporting for Pensions”.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 67 and are not applicable for other purposes, such as determining the plan’s funding requirements. The plan’s liability for other purposes may produce significantly different results. This report may be provided to parties other than the Board of Trustees of the County Employees Retirement System only in its entirety and only with the permission of the Board.

The total pension liability, net pension liability, and sensitivity information shown in this report are based on an actuarial valuation date of June 30, 2022. The total pension liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2023 using generally accepted actuarial principles. GASB 67 requires the disclosure of a 10-year history of certain information in the Required Supplementary Information within the annual financial report. Information disclosed for years prior to June 30, 2017 were prepared by the prior actuary.

**Actuarial Assumptions**

The Board of Trustees adopted new actuarial assumptions on May 9, 2023. These assumptions are documented in the report titled “2022 Actuarial Experience Study for the Period Ending June 30, 2022”, and include a change in the investment return assumption from 6.25% to 6.50%. The Total Pension Liability as of June 30, 2023 is determined using these updated assumptions.

**Plan Provisions**

House Bill 506 passed during the 2023 legislative session and reinstated the Partial Lump-Sum Optional Form of payment for members who retire on and after January 1, 2024, with the lump-sum payment options expanded to include to 48 or 60 times the member’s monthly retirement allowance.

Since this optional form of payment results in a reduced, actuarial equivalent, monthly retirement allowance for members who elect a partial lump-sum option, this provision does not have a fiscal impact to the total pension liability.

House Bill 506 also adjusted the minimum required separation period before a retiree may become reemployed and continue to receive their retirement allowance to one month for all circumstances for each plan. This is a minimal change for members in the hazardous plan, as the minimum separation period is currently one month for members who become reemployed on a full-time basis in a hazardous position. The requirement was previously three months only for members who become reemployed on a part-time basis or in any non-hazardous position. We believe this provision in House Bill 506 will have an insignificant impact on the retirement pattern of hazardous members and therefore have reflected no fiscal impact to the total pension liability of the hazardous plan.

Similarly, this is a relatively small change for future retirees in the non-hazardous plan. But as the minimum separation period was previously three months in almost every circumstance, we have assumed that there would be a 1.0% increase in the rate of retirement for each of the first two years a non-hazardous member becomes retirement eligible under the age of 65, in order to reflect a shift in the retirement pattern. The total pension liability as of June 30, 2023 for the non-hazardous plan is determined using these updated benefit provisions.

There have been no other plan provision changes that would materially impact the total pension liability since June 30, 2022. It is our opinion that these procedures for determining the information contained in these reports are reasonable, appropriate, and comply with applicable requirements under GASB No. 67.

### **Single Discount Rate**

A single discount rate of 6.50% for the non-hazardous and hazardous plans was used to measure the total pension liability for the fiscal year ending June 30, 2023. This single discount rate was based on the expected rate of return on pension plan investments for each plan. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the pension plan's fiduciary net position and future contributions were projected to be sufficient to finance all the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of the projected benefit payments to determine the total pension liability for each plan.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Except where noted below, future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy. The assumed future employer contributions reflect the provisions of House Bill 362 (passed during the 2018 legislative session) which limit the increases to the employer contribution rates to 12% over the prior fiscal year through June 30, 2028.

### **401(h) Subaccount**

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net positions as of June 30, 2017 and later are net of the 401(h) asset balance.



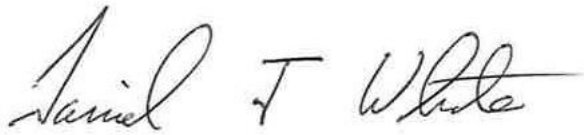
### Additional Disclosures

This report is based upon information, furnished to us by the Kentucky Public Pensions Authority (KPPA), which includes 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 by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2022" and the "2022 Actuarial Experience Study for the Period Ending June 30, 2022" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for the fiscal year ending June 30, 2023.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. All three of the undersigned are members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, all three are independent of KPPA and are experienced in performing valuations for large public retirement systems. This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,

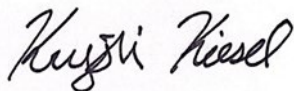
#### Gabriel Roeder Smith & Co.



Daniel J. White, FSA, EA, MAAA  
Senior Consultant and Actuary



Jamie Shaw, ASA, EA, MAAA  
Consultant and Actuary



Krysti Kiesel, ASA, MAAA  
Consultant and Actuary



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**SECTION 1**

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## EXHIBIT 1a

### Schedule of the Employers' Net Pension Liability – CERS Non-Hazardous Plan (\$ in thousands)

Fiscal Year Ending June 30, (1)	Total Pension Liability (2)	Plan Fiduciary Net Position (3)	Employers' Net Pension Liability (Asset) (4) = (2) - (3)	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (5) = (3) / (2)	Covered Employee Payroll <sup>1</sup> (6)	Net Pension Liability as a Percentage of Covered Employee Payroll (7) = (4) / (6)
2023	\$ 15,089,106	\$ 8,672,597	\$ 6,416,509	57.48%	\$ 2,966,567	216.29%
2022	15,192,599	7,963,586	7,229,013	52.42%	2,835,173	254.98%
2021	14,941,437	8,565,652	6,375,785	57.33%	2,446,612	260.60%
2020	14,697,244	7,027,327	7,669,917	47.81%	2,462,752	311.44%
2019	14,192,966	7,159,921	7,033,045	50.45%	2,424,796	290.05%
2018	13,109,268	7,018,963	6,090,305	53.54%	2,454,927	248.08%
2017	12,540,545	6,687,237	5,853,308	53.32%	2,376,290	246.32%
2016	11,065,013	6,141,395	4,923,618	55.50%	2,417,187	203.69%
2015	10,740,325	6,440,800	4,299,525	59.97%	2,296,716	187.20%
2014	9,772,522	6,528,146	3,244,376	66.80%	2,272,270	142.78%

Note:

<sup>1</sup> Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.



## EXHIBIT 1b

### Schedule of the Employers' Net Pension Liability – CERS Hazardous Plan (\$ in thousands)

Fiscal Year Ending June 30, (1)	Total Pension Liability (2)	Plan Fiduciary Net Position (3)	Employers' Net Pension Liability (Asset) (4) = (2) - (3)	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (5) = (3) / (2)	Covered Employee Payroll <sup>1</sup> (6)	Net Pension Liability as a Percentage of Covered Employee Payroll (7) = (4) / (6)
2023	\$ 5,731,148	\$ 3,035,192	\$ 2,695,956	52.96%	\$ 714,837	377.14%
2022	5,769,691	2,718,234	3,051,457	47.11%	666,346	457.94%
2021	5,576,567	2,914,408	2,662,159	52.26%	572,484	465.02%
2020	5,394,732	2,379,704	3,015,028	44.11%	559,551	538.83%
2019	5,176,003	2,413,708	2,762,295	46.63%	553,541	499.02%
2018	4,766,794	2,348,337	2,418,457	49.26%	562,853	429.68%
2017	4,455,275	2,217,996	2,237,279	49.78%	526,559	424.89%
2016	3,726,115	2,010,174	1,715,941	53.95%	526,334	326.02%
2015	3,613,308	2,078,202	1,535,106	57.52%	483,641	317.41%
2014	3,288,826	2,087,002	1,201,824	63.46%	479,164	250.82%

Note:

<sup>1</sup> Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.





## EXHIBIT 2a

### Schedule of the Employers' Net Pension Liability – CERS Non-Hazardous Plan (\$ in thousands)

Change in the Net Pension Liability	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total pension liability</b>										
Service Cost	\$ 283,633	\$ 272,250	\$ 280,165	\$ 280,092	\$ 254,643	\$ 254,169	\$ 193,082	\$ 209,101	\$ 207,400	\$ 192,482
Interest	920,862	906,401	892,309	861,720	794,935	760,622	803,555	780,587	733,002	710,526
Benefit Changes	3,862	0	4,106	0	0	15,708	0	0	0	0
Difference between actual and expected experience	511,721	(49,439)	(91,776)	173,345	87,377	279,401	(208,015)	0	49,966	0
Assumption Changes	(905,957)	0	0	0	727,351	0	1,388,800	0	606,293	0
Benefit Payments	(917,614)	(878,050)	(840,611)	(810,879)	(780,608)	(741,177)	(701,891)	(665,000)	(628,858)	(597,136)
<b>Net Change in Total Pension Liability</b>	<u>\$ (103,493)</u>	<u>\$ 251,162</u>	<u>\$ 244,193</u>	<u>\$ 504,278</u>	<u>\$ 1,083,698</u>	<u>\$ 568,723</u>	<u>\$ 1,475,532</u>	<u>\$ 324,687</u>	<u>\$ 967,803</u>	<u>\$ 305,872</u>
<b>Total Pension Liability - Beginning</b>	<u>\$ 15,192,599</u>	<u>\$ 14,941,437</u>	<u>\$ 14,697,244</u>	<u>\$ 14,192,966</u>	<u>\$ 13,109,268</u>	<u>\$ 12,540,545</u>	<u>\$ 11,065,013</u>	<u>\$ 10,740,325</u>	<u>\$ 9,772,522</u>	<u>\$ 9,466,650</u>
<b>Total Pension Liability - Ending (a)</b>	<u>\$ 15,089,106</u>	<u>\$ 15,192,599</u>	<u>\$ 14,941,437</u>	<u>\$ 14,697,244</u>	<u>\$ 14,192,966</u>	<u>\$ 13,109,268</u>	<u>\$ 12,540,545</u>	<u>\$ 11,065,013</u>	<u>\$ 10,740,325</u>	<u>\$ 9,772,522</u>
<b>Plan Fiduciary Net Position<sup>1</sup></b>										
Contributions - Employer	\$ 697,681	\$ 606,807	\$ 472,228	\$ 475,416	\$ 393,453	\$ 358,017	\$ 333,554	\$ 284,105	\$ 298,565	\$ 324,231
Contributions - Member <sup>2</sup>	147,769	186,648	165,698	168,994	159,064	160,370	150,715	141,674	140,311	128,568
Refunds of contributions to members	(23,263)	(19,789)	(13,862)	(14,918)	(14,387)	(14,608)	(14,430)	(13,753)	(13,523)	(14,286)
Retirement benefits	(894,351)	(858,261)	(826,749)	(795,960)	(766,221)	(726,569)	(687,461)	(651,246)	(615,335)	(582,850)
Net Investment Income <sup>2</sup>	805,303	(494,801)	1,762,739	56,178	390,664	573,829	825,900	(40,800)	110,568	895,530
Administrative Expense	(24,128)	(22,670)	(21,729)	(22,304)	(21,659)	(19,592)	(19,609)	(19,385)	(18,212)	(18,615)
Other	0	0	0	0	44 <sup>5</sup>	361 <sup>5</sup>	(42,827) <sup>4</sup>	0	10,280	0
<b>Net Change in Plan Fiduciary Net Position</b>	<u>\$ 709,011</u>	<u>\$ (602,066)</u>	<u>\$ 1,538,325</u>	<u>\$ (132,594)</u>	<u>\$ 140,958</u>	<u>\$ 331,808</u>	<u>\$ 545,843</u>	<u>\$ (299,405)</u>	<u>\$ (87,346)</u>	<u>\$ 732,578</u>
<b>Plan Fiduciary Net Position - Beginning</b>	<u>\$ 7,963,586</u>	<u>\$ 8,565,652</u>	<u>\$ 7,027,327</u>	<u>\$ 7,159,921</u>	<u>\$ 7,018,963</u>	<u>\$ 6,687,237</u>	<u>\$ 6,141,395</u>	<u>\$ 6,440,800</u>	<u>\$ 6,528,146</u>	<u>\$ 5,795,568</u>
Prior Year Adjustment	0	0	0	0	0	(82)	0	0	0	0
<b>Plan Fiduciary Net Position - Ending (b)</b>	<u>\$ 8,672,597</u>	<u>\$ 7,963,586</u>	<u>\$ 8,565,652</u>	<u>\$ 7,027,327</u>	<u>\$ 7,159,921</u>	<u>\$ 7,018,963</u>	<u>\$ 6,687,237</u>	<u>\$ 6,141,395</u>	<u>\$ 6,440,800</u>	<u>\$ 6,528,146</u>
<b>Net Pension Liability - Ending (a) - (b)</b>	<u>\$ 6,416,509</u>	<u>\$ 7,229,013</u>	<u>\$ 6,375,785</u>	<u>\$ 7,669,917</u>	<u>\$ 7,033,045</u>	<u>\$ 6,090,305</u>	<u>\$ 5,853,308</u>	<u>\$ 4,923,618</u>	<u>\$ 4,299,525</u>	<u>\$ 3,244,376</u>
<b>Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	57.48%	52.42%	57.33%	47.81%	50.45%	53.54%	53.32%	55.50%	59.97%	66.80%
<b>Covered Employee Payroll<sup>3</sup></b>	\$ 2,966,567	\$ 2,835,173	\$ 2,446,612	\$ 2,462,752	\$ 2,424,796	\$ 2,454,927	\$ 2,376,290	\$ 2,417,187	\$ 2,296,716	\$ 2,272,270
<b>Net Pension Liability as a Percentage of Covered Employee Payroll</b>	216.29%	254.98%	260.60%	311.44%	290.05%	248.08%	246.32%	203.69%	187.20%	142.78%

Notes:

<sup>1</sup> Does not include 401(h) assets for fiscal years 2017 and later. 401(h) assets totaled \$108,843,000 as of June 30, 2023

<sup>2</sup> Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later

For fiscal year 2023, 401(h) contributions equaled -\$30,000; and associated investment return equaled \$10,113,000

<sup>3</sup> Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later

<sup>4</sup> Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later

<sup>5</sup> Northern Trust Settlement



## EXHIBIT 2b

### Schedule of the Employers' Net Pension Liability – CERS Hazardous Plan (\$ in thousands)

Change in the Net Pension Liability	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total pension liability</b>										
Service Cost	\$ 115,389	\$ 109,683	\$ 109,350	\$ 109,887	\$ 77,426	\$ 81,103	\$ 58,343	\$ 66,249	\$ 71,934	\$ 66,761
Interest	350,413	338,799	327,963	314,762	289,741	270,694	270,860	262,886	247,008	238,665
Benefit Changes	0	0	333	0	0	2,172	0	0	0	0
Difference between actual and expected experience	97,750	56,197	38,850	73,696	27,364	205,882	92,588	0	41,935	0
Assumption Changes	(275,934)	0	0	0	276,541	0	536,667	0	166,849	0
Benefit Payments	(326,161)	(311,555)	(294,661)	(279,616)	(261,863)	(248,332)	(229,299)	(216,327)	(203,244)	(192,299)
<b>Net Change in Total Pension Liability</b>	<u>\$ (38,543)</u>	<u>\$ 193,124</u>	<u>\$ 181,835</u>	<u>\$ 218,729</u>	<u>\$ 409,209</u>	<u>\$ 311,519</u>	<u>\$ 729,159</u>	<u>\$ 112,807</u>	<u>\$ 324,482</u>	<u>\$ 113,127</u>
<b>Total Pension Liability - Beginning</b>	<u>\$ 5,769,691</u>	<u>\$ 5,576,567</u>	<u>\$ 5,394,732</u>	<u>\$ 5,176,003</u>	<u>\$ 4,766,794</u>	<u>\$ 4,455,275</u>	<u>\$ 3,726,115</u>	<u>\$ 3,613,308</u>	<u>\$ 3,288,826</u>	<u>\$ 3,175,699</u>
<b>Total Pension Liability - Ending (a)</b>	<u>\$ 5,731,148</u>	<u>\$ 5,769,691</u>	<u>\$ 5,576,567</u>	<u>\$ 5,394,732</u>	<u>\$ 5,176,003</u>	<u>\$ 4,766,794</u>	<u>\$ 4,455,275</u>	<u>\$ 3,726,115</u>	<u>\$ 3,613,308</u>	<u>\$ 3,288,826</u>
<b>Plan Fiduciary Net Position<sup>1</sup></b>										
Contributions - Employer	\$ 308,223	\$ 222,028	\$ 172,205	\$ 168,443	\$ 138,053	\$ 127,660	\$ 115,947	\$ 105,713	\$ 108,071	\$ 115,240
Contributions - Member <sup>2</sup>	56,987	69,565	62,367	63,236	58,661	61,089	60,101	52,972	47,692	43,722
Refunds of contributions to members	(6,568)	(5,766)	(4,662)	(3,814)	(2,854)	(4,214)	(2,315)	(2,879)	(3,111)	(2,664)
Retirement benefits	(319,593)	(305,789)	(289,999)	(275,802)	(259,009)	(244,118)	(226,984)	(213,448)	(200,134)	(189,635)
Net Investment Income <sup>2</sup>	280,033	(174,217)	596,641	15,914	132,232	191,324	270,473	(9,020)	37,104	288,490
Administrative Expense	(2,124)	(1,995)	(1,848)	(1,981)	(1,726)	(1,504)	(1,421)	(1,366)	(1,288)	(1,721)
Other	0	0	0	0	14 <sup>5</sup>	111 <sup>5</sup>	(7,979) <sup>4</sup>	0	2,865	0
<b>Net Change in Plan Fiduciary Net Position</b>	<u>\$ 316,958</u>	<u>\$ (196,174)</u>	<u>\$ 534,704</u>	<u>\$ (34,004)</u>	<u>\$ 65,371</u>	<u>\$ 130,348</u>	<u>\$ 207,822</u>	<u>\$ (68,028)</u>	<u>\$ (8,801)</u>	<u>\$ 253,432</u>
<b>Plan Fiduciary Net Position - Beginning</b>	<u>\$ 2,718,234</u>	<u>\$ 2,914,408</u>	<u>\$ 2,379,704</u>	<u>\$ 2,413,708</u>	<u>\$ 2,348,337</u>	<u>\$ 2,217,996</u>	<u>\$ 2,010,174</u>	<u>\$ 2,078,202</u>	<u>\$ 2,087,002</u>	<u>\$ 1,833,570</u>
Prior Year Adjustment	0	0	0	0	0	(7)	0	0	0	0
<b>Plan Fiduciary Net Position - Ending (b)</b>	<u>\$ 3,035,192</u>	<u>\$ 2,718,234</u>	<u>\$ 2,914,408</u>	<u>\$ 2,379,704</u>	<u>\$ 2,413,708</u>	<u>\$ 2,348,337</u>	<u>\$ 2,217,996</u>	<u>\$ 2,010,174</u>	<u>\$ 2,078,202</u>	<u>\$ 2,087,002</u>
<b>Net Pension Liability - Ending (a) - (b)</b>	<u>\$ 2,695,956</u>	<u>\$ 3,051,457</u>	<u>\$ 2,662,159</u>	<u>\$ 3,015,028</u>	<u>\$ 2,762,295</u>	<u>\$ 2,418,457</u>	<u>\$ 2,237,279</u>	<u>\$ 1,715,941</u>	<u>\$ 1,535,106</u>	<u>\$ 1,201,824</u>
<b>Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	52.96%	47.11%	52.26%	44.11%	46.63%	49.26%	49.78%	53.95%	57.52%	63.46%
<b>Covered Employee Payroll<sup>3</sup></b>	\$ 714,837	\$ 666,346	\$ 572,484	\$ 559,551	\$ 553,541	\$ 562,853	\$ 526,559	\$ 526,334	\$ 483,641	\$ 479,164
<b>Net Pension Liability as a Percentage of Covered Employee Payroll</b>	377.14%	457.94%	465.02%	538.83%	499.02%	429.68%	424.89%	326.02%	317.41%	250.82%

Notes:

<sup>1</sup> Does not include 401(h) assets for fiscal years 2017 and later. 401(h) assets totaled \$20,605,000 as of June 30, 2023

<sup>2</sup> Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later  
For fiscal year 2023, 401(h) contributions equaled -\$20,000; and associated investment return equaled \$1,931,000

<sup>3</sup> Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later

<sup>4</sup> Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later

<sup>5</sup> Northern Trust Settlement



## EXHIBIT 3a

### Schedule of Employers' Contributions – CERS Non-Hazardous Plan (\$ in thousands)

Fiscal Year Ending	Actuarially Determined Contribution <sup>1</sup>	Total Employer Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll <sup>2</sup>	Actual Contributions as a Percentage of Covered Payroll
2023	\$ 697,634	\$ 697,681	\$ (47)	\$ 2,966,567	23.52%
2022	636,071	606,807	29,264	2,835,173	21.40%
2021	582,538	472,228	110,310	2,446,612	19.30%
2020	554,612	475,416	79,196	2,462,752	19.30%
2019	529,575	393,453	136,122	2,424,796	16.23%
2018	355,473	358,017	(2,544)	2,454,927	14.58%
2017	331,492	333,554	(2,062)	2,376,290	14.04%
2016	282,767	284,106	(1,339)	2,417,187	11.75%
2015	297,715	298,566	(851)	2,296,716	13.00%
2014	324,231	324,231	0	2,272,270	14.27%

**Notes:**

<sup>1</sup> Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021 actuarial valuation.

<sup>2</sup> Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.



## EXHIBIT 3b

### Schedule of Employers' Contributions – CERS Hazardous Plan (\$ in thousands)

Fiscal Year Ending	Actuarially Determined Contribution <sup>1</sup>	Total Employer Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll <sup>2</sup>	Actual Contributions as a Percentage of Covered Payroll
2023	\$ 308,037	\$ 308,223	\$ (186)	\$ 714,837	43.12%
2022	269,542	222,028	47,514	666,346	33.32%
2021	240,558	172,205	68,353	572,484	30.08%
2020	206,922	168,443	38,479	559,551	30.10%
2019	197,559	138,053	59,506	553,541	24.94%
2018	124,953	127,660	(2,707)	562,853	22.68%
2017	114,316	115,947	(1,631)	526,559	22.02%
2016	104,952	105,713	(761)	526,334	20.08%
2015	107,514	108,071	(557)	483,641	22.35%
2014	115,240	115,240	0	479,164	24.05%

**Notes:**

<sup>1</sup> Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021 actuarial valuation.

<sup>2</sup> Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.



## Notes to Schedule of Employers' Contributions for FYE 2023

The actuarially determined contributions effective for fiscal year ending 2023 that are documented in the schedules on the previous pages were calculated as of June 30, 2021. Based on the June 30, 2021 actuarial valuation report, the actuarial methods and assumptions used to calculate these contribution rates are below:

Item	CERS Non-Hazardous Plan	CERS Hazardous Plan
Determined by the Actuarial Valuation as of:	June 30, 2021	June 30, 2021
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay	Level Percent of Pay
Amortization Period:	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>
Payroll Growth Rate	2.00%	2.00%
Investment Return:	6.25%	6.25%
Inflation:	2.30%	2.30%
Salary Increases:	3.30% to 10.30%, varies by service	3.55% to 19.05%, varies by service
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019
Phase-In provision:	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018



## EXHIBIT 4

### Sensitivity of the Net Pension Liability to Changes in the Discount Rate (\$ in thousands)

**Table 1. Sensitivity of the Net Pension Liability to Changes in the Discount Rate for CERS (Non-Hazardous)**

1.00% Decrease (5.50%)	Current Discount Rate (6.50%)	1.00% Increase (7.50%)
\$ 8,101,230	\$ 6,416,509	\$ 5,016,442

**Table 2. Sensitivity of the Net Pension Liability to Changes in the Discount Rate for CERS (Hazardous)**

1.00% Decrease (5.50%)	Current Discount Rate (6.50%)	1.00% Increase (7.50%)
\$ 3,404,287	\$ 2,695,956	\$ 2,117,409