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January 31, 2025

CONFIDENTIAL

Mr. Doug Anderson
Executive Director
Public Employees Retirement Association of Minnesota
60 Empire Drive, Suite 200
St. Paul, MN 55103

Re: Projection of Contributions and Funding Status – Police and Fire Plan

Dear Mr. Anderson:

Attached are 30-year projections of estimated funded status, required contributions, and statutory contributions under three asset return scenarios for the Public Employees Police and Fire Plan. These projections, including the underlying investment return assumptions, are required by the Minnesota Standards for Actuarial Work. Unless noted otherwise, the estimates are based on participant data, assets, and plan provisions as outlined in the Public Employees Police and Fire Plan actuarial funding valuation as of July 1, 2024.

Basis for Projections

For all enclosed projections, liabilities are determined using the statutory investment return assumption of 7.0%. As required by the Minnesota Standards for Actuarial Work, the projections reflect three asset return scenarios (7.0%, 5.5% and 8.5%). Note that we believe the 8.5% rate of return assumption is outside of the range of reasonable expected returns for this plan.

The estimates are based on the market value of assets with no smoothing of investment gains or losses. Payroll is assumed to increase approximately 3.00% per year over the long term, consistent with the valuation assumption for total payroll growth.

The projection is an open group projection; meaning, active members projected to retire or otherwise terminate in the future are replaced with new active members so that the total active membership of the fund remains at 11,994 members. The profile of these new members is the same as new members hired between July 1, 2018 and June 30, 2023. Average salary at hire increases at the assumed payroll growth rate.

- Average age at hire is 29.4
- Average salary at hire is $81,000
- Approximately 15% female, 85% male

If actuarial accrued liability exceeds assets, the unfunded actuarial accrued liability is amortized through June 30, 2048 per Minnesota Statute 356.215, Subdivision 11. Per Minnesota Statute 356.215, Subdivision 11 (l), a negative unfunded actuarial accrued liability (i.e., when assets exceed liability) is amortized over a rolling 30-year period.

The State of Minnesota provides a $9.0 million contribution to the fund each October 1 until both the MSRS State Patrol Fund and the PERA Police and Fire Plan become 90% funded (on an Actuarial Value of Assets basis) for a minimum of three consecutive years or July 1, 2048, if earlier. For purposes of the enclosed projections, this State contribution is projected to be eliminated in fiscal years ending 2030, 2031 and 2049 in the 8.5%, 7.0% and 5.5% investment return scenarios, respectively, based on the projected funded status of the PERA Police and Fire Plan. The funding status of the MSRS State Patrol Plan is not reflected for purposes of this assumption.

The State of Minnesota provides additional State contributions of $9.0 million until the plan reaches 100% funding (on an Actuarial Value of Assets basis) for a minimum of three consecutive years or July 1, 2048 if earlier. The additional State contributions are projected to be eliminated in fiscal years ending 2035, 2049 and 2049 in the 8.5%, 7.0% and 5.5% investment return scenarios, respectively.

Comments
The reader should keep the following in mind when reviewing these results:

- The enclosed projections are based on recommended assumption changes as outlined in the Public Employees Police and Fire Plan Four-Year Experience Study for the period July 1, 2019 through June 30, 2023.

- Statutory contributions are defined in statutes as a fixed percentage of payroll plus any statutory supplemental contributions and represent the amount that is actually contributed to the plan. Required contributions are defined in statutes and the LCPR Standards for Actuarial Work and represent the amount needed to fully fund the plan by June 30, 2048 (normal cost, expenses and a payment to amortize the unfunded liability).

- Investment experience that has occurred since the measurement date is not reflected in this report.

- In the 8.5% investment return scenario, surplus assets reduce the projected required contributions to amounts less than normal cost. We typically recommend the contribution be at least equal to the normal cost of the plan and suggest that plans with considerable surplus assets investigate the pros and cons of reducing the risk of the plan's investment allocation to preserve surplus assets.

- Note that as funding ratios decline, as they are expected to in one of the investment return scenarios shown in this letter, it will be increasingly difficult for the plan to attain the assumed scenario investment return. Each year, a larger proportion of assets is paid out in benefits, and less capital is available to invest.

Disclosures

The purpose of this report is to estimate the Fund's funding progress and required contribution rates over a 30-year period according to prescribed assumptions and the Minnesota Standards for Actuarial Work. To the best of our knowledge and belief, the calculations were completed in accordance with the requirements of Minnesota Statutes, Section 356.215, and the requirements of the Standards for Actuarial Work established by the Legislative Commission on Pensions and Retirement.

This report should not be relied upon for any purpose other than the purpose described herein. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results. GRS is not responsible for the consequences of any unauthorized use.

Actuarial assumptions, including discount rates, mortality tables and others identified in this report, are prescribed by Minnesota Statutes Section 356.215, the Legislative Commission on Pensions and Retirement (LCPR), and the Board of Trustees. These parties are responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in the Actuarial Basis section of the valuation report, except as noted. PERA is solely responsible for communicating to GRS any changes required thereto.

The combined effect of the assumptions is expected to have no significant bias (i.e., not significantly optimistic or pessimistic). All actuarial assumptions and methods used in this report follow the guidance in the applicable Actuarial Standards of Practice. Additional information about the actuarial assumptions can be found in the Public Employees Police and Fire Plan Four-Year Experience Study Four-Year Experience Study for the period July 1, 2019 through June 30, 2023.

The contribution rates shown in this report have been determined using the actuarial methods disclosed in the Actuarial Basis section of the July 1, 2024 valuation report and the recommended assumption changes as outlined in the Public Employees Police and Fire Plan Four-Year Experience Study for the period July 1, 2019 through June 30, 2023. This valuation report includes risk metrics on pages 6-9, but does not include a robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

We have assessed that the contribution rate calculated under the 7.0% investment return scenario is a reasonable Actuarially Determined Employer Contribution (ADEC) and it is consistent with the plan accumulating adequate assets to make benefit payments when due.

The projections assume the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The valuation was based upon information furnished by the Public Employees Retirement Association (PERA), concerning benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by PERA.

This report was prepared using our proprietary valuation model and related software which, in our professional judgement, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

Professional Qualifications

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge and belief, the information contained in this report is accurate and fairly presents the actuarial position of the Public Employees Police and Fire Plan as of the valuation date and was performed in accordance with the requirements of Minnesota Statutes Section 356.215, and the requirements of the Standards for Actuarial Work established by the LCPR. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Bonita J. Wurst and Sheryl L. Christensen are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

Respectfully submitted,

Gabriel, Roeder, Smith & Company

Bonita J. Wurst, ASA, EA, FCA, MAAA

Sheryl L. Christensen, FSA, EA, FCA, MAAA

BJW/SLC:dj

Other Observations

General Implications of the Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if there are no changes in benefits, Chapter 356 required contributions are made, and all actuarial assumptions are met (including the assumption of the plan earning 7.00% on the actuarial value of assets, as prescribed by statutes), it is expected that:

(1) The normal cost of the plan is expected to remain approximately level as a percent of pay;
(2) The funded status of the plan is expected to gradually improve and is expected to be 100% funded within the next 24 years; and
(3) The unfunded liability will grow initially as a dollar amount for 2 years (based on the current 24-year amortization period and if contributions are equal to the required contribution amount) before beginning to decline.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the market value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

(1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
(2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
(3) The measurement would produce a different result if the actuarial value of assets were used instead of the market value of assets.

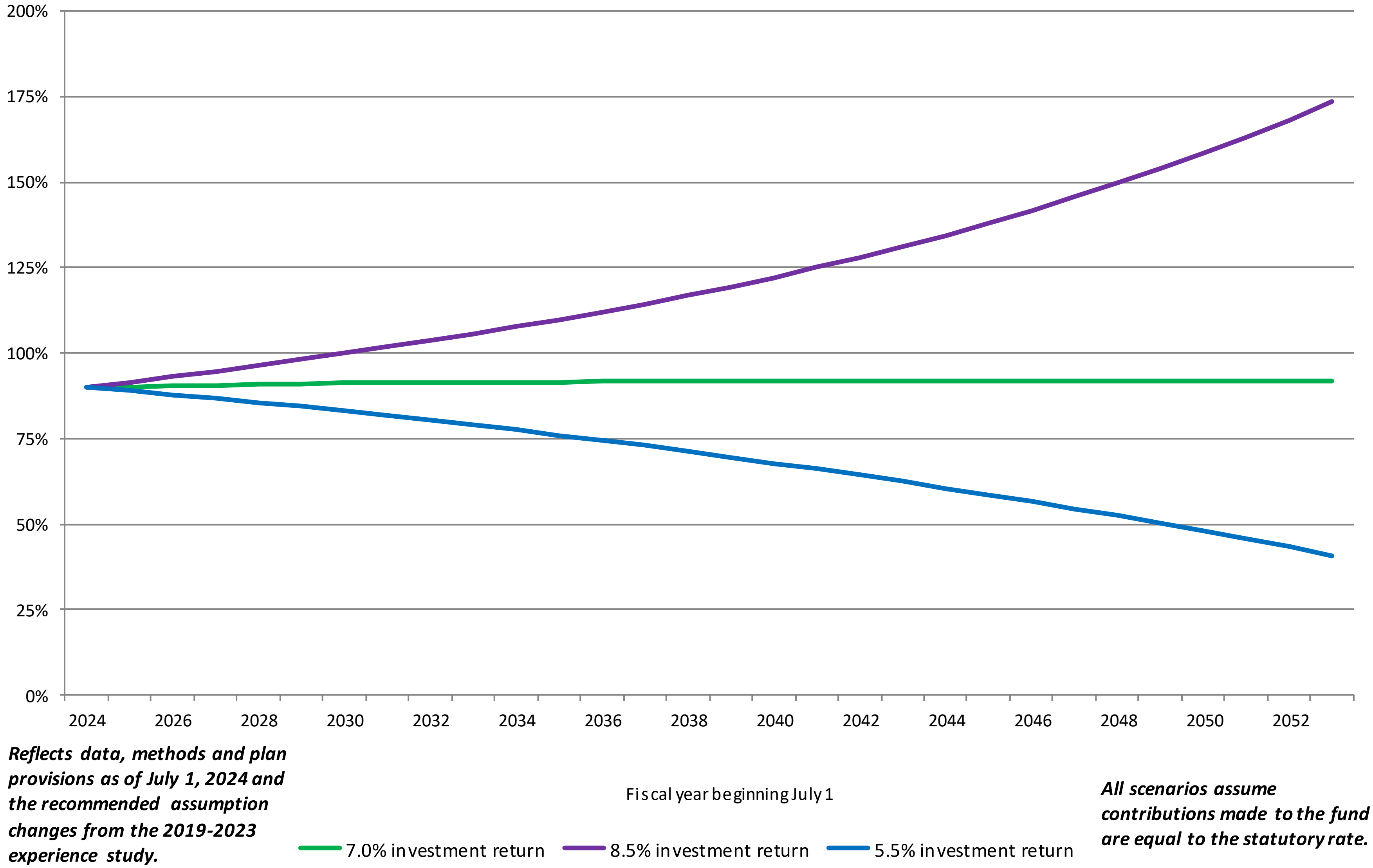
Limitations of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

PERA Public Employees Police and Fire Plan
Estimated Accrued Liability Funded Ratio
(Market Value of Assets Basis)

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

In all scenarios, the interest rate used to discount liabilities was 7.00%.



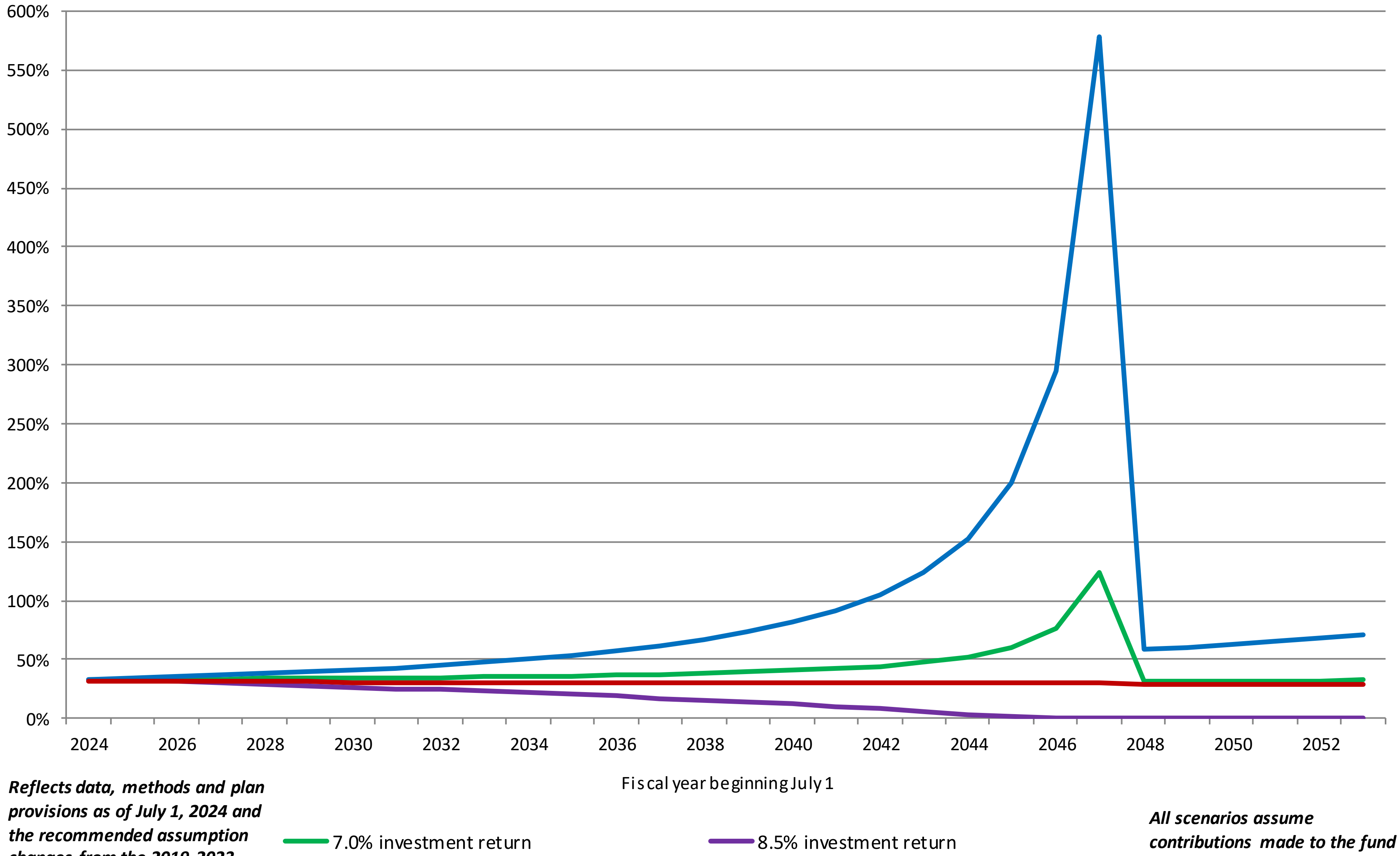
Reflects data, methods and plan provisions as of July 1, 2024 and the recommended assumption changes from the 2019-2023 experience study.

All scenarios assume contributions made to the fund are equal to the statutory rate.

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

PERA Public Employees Police and Fire Plan
Estimated Required Contribution Rates
(% of Pay, Market Value of Assets Basis)

In all scenarios, the interest rate used to discount liabilities was 7.00%.



Reflects data, methods and plan provisions as of July 1, 2024 and the recommended assumption changes from the 2019-2023 experience study.

All scenarios assume contributions made to the fund are equal to the statutory rate.

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

Public Employees Police and Fire Plan

Scenario: 7.0% Investment Return for All Years

Fiscal Year Beginning July 1

$ in Thousands	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Contributions (% of Payroll)										
Statutory - Chapter 353	31.45%	31.41%	31.36%	31.32%	31.27%	31.23%	30.59%	30.08%	30.06%	30.05%
Required - Chapter 356 (MVA)	33.03%	33.14%	33.27%	33.42%	33.58%	33.77%	33.98%	34.26%	34.61%	35.01%
Sufficiency / (Deficiency)	(1.58)%	(1.73)%	(1.91)%	(2.10)%	(2.31)%	(2.54)%	(3.39)%	(4.18)%	(4.55)%	(4.96)%
Contributions										
Statutory - Chapter 353	$ 414,335	$ 423,249	$ 432,619	$ 442,431	$ 452,913	$ 463,848	$ 466,310	$ 470,503	$ 482,897	$ 495,745
Required - Chapter 356 (MVA)	435,369	446,691	458,954	472,114	486,353	501,564	517,887	535,941	556,011	577,648
Sufficiency / (Deficiency)	(21,034)	(23,442)	(26,335)	(29,683)	(33,441)	(37,716)	(51,577)	(65,438)	(73,114)	(81,903)
Funding Ratios										
Current Assets (MVA)	$12,065,232	$12,569,026	$13,078,961	$13,595,060	$14,118,113	$14,650,461	$15,192,398	$15,736,160	$16,283,638	$16,843,311
Actuarial Accrued Liability (AAL)	13,406,981	13,930,628	14,460,464	14,996,606	15,539,929	16,092,730	16,655,437	17,229,594	17,816,349	18,416,736
Unfunded AAL	1,341,749	1,361,602	1,381,502	1,401,547	1,421,817	1,442,270	1,463,039	1,493,434	1,532,711	1,573,426
Funding Ratio	90.0%	90.2%	90.5%	90.7%	90.9%	91.0%	91.2%	91.3%	91.4%	91.5%
Benefit Payments	$ 741,739	$ 778,750	$ 816,610	$ 854,561	$ 891,387	$ 929,010	$ 966,308	$ 1,003,630	$ 1,041,210	$ 1,079,049
Ratio of Assets to Benefit Payments	16.27	16.14	16.02	15.91	15.84	15.77	15.72	15.68	15.64	15.61

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

Public Employees Police and Fire Plan

Scenario: 7.0% Investment Return for All Years

Fiscal Year Beginning July 1

$ in Thousands	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Contributions (% of Payroll)										
Statutory - Chapter 353	30.03%	30.02%	30.00%	29.99%	29.98%	29.96%	29.95%	29.94%	29.92%	29.91%
Required - Chapter 356 (MVA)	35.46%	35.98%	36.59%	37.31%	38.17%	39.21%	40.52%	42.19%	44.43%	47.57%
Sufficiency / (Deficiency)	(5.43)%	(5.96)%	(6.59)%	(7.32)%	(8.19)%	(9.25)%	(10.57)%	(12.25)%	(14.51)%	(17.66)%
Contributions										
Statutory - Chapter 353	$ 509,010	$ 522,763	$ 536,907	$ 551,596	$ 566,923	$ 582,926	$ 599,682	$ 617,043	$ 634,983	$ 653,458
Required - Chapter 356 (MVA)	601,061	626,682	654,830	686,222	721,828	762,889	811,244	869,625	942,777	1,039,227
Sufficiency / (Deficiency)	(92,051)	(103,918)	(117,923)	(134,627)	(154,904)	(179,963)	(211,563)	(252,581)	(307,794)	(385,769)
Funding Ratios										
Current Assets (MVA)	$17,416,232	$18,002,927	$18,603,455	$19,217,927	$19,847,408	$20,492,589	$21,154,651	$21,835,471	$22,536,881	$23,260,475
Actuarial Accrued Liability (AAL)	19,031,846	19,662,230	20,307,966	20,969,196	21,646,925	22,341,831	23,055,063	23,788,373	24,543,585	25,322,287
Unfunded AAL	1,615,614	1,659,303	1,704,510	1,751,268	1,799,517	1,849,242	1,900,412	1,952,902	2,006,703	2,061,812
Funding Ratio	91.5%	91.6%	91.6%	91.7%	91.7%	91.7%	91.8%	91.8%	91.8%	91.9%
Benefit Payments	$ 1,117,691	$ 1,157,693	$ 1,198,914	$ 1,240,590	$ 1,283,249	$ 1,326,500	$ 1,369,831	$ 1,413,262	$ 1,457,121	$ 1,501,619
Ratio of Assets to Benefit Payments	15.58	15.55	15.52	15.49	15.47	15.45	15.44	15.45	15.47	15.49

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

Public Employees Police and Fire Plan

Scenario: 7.0% Investment Return for All Years

Fiscal Year Beginning July 1

$ in Thousands	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Contributions (% of Payroll)										
Statutory - Chapter 353	29.90%	29.89%	29.88%	29.87%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%
Required - Chapter 356 (MVA)	52.29%	60.19%	76.01%	123.49%	31.74%	31.84%	31.95%	32.07%	32.20%	32.34%
Sufficiency / (Deficiency)	(22.39)%	(30.30)%	(46.13)%	(93.62)%	(2.24)%	(2.34)%	(2.45)%	(2.57)%	(2.70)%	(2.84)%
Contributions										
Statutory - Chapter 353	$ 672,501	$ 692,060	$ 712,127	$ 732,942	$ 745,482	$ 767,825	$ 790,763	$ 814,424	$ 838,910	$ 864,231
Required - Chapter 356 (MVA)	1,176,191	1,393,650	1,811,630	3,030,540	802,057	828,681	856,355	885,275	915,596	947,390
Sufficiency / (Deficiency)	(503,690)	(701,590)	(1,099,503)	(2,297,598)	(56,576)	(60,855)	(65,592)	(70,851)	(76,687)	(83,159)
Funding Ratios										
Current Assets (MVA)	$24,007,696	$24,779,006	$25,574,739	$26,394,734	$27,239,167	$28,099,499	$28,985,937	$29,899,069	$30,838,954	$31,805,951
Actuarial Accrued Liability (AAL)	26,125,959	26,955,086	27,810,080	28,690,901	29,597,712	30,531,314	31,493,252	32,484,299	33,504,645	34,554,728
Unfunded AAL	2,118,263	2,176,079	2,235,341	2,296,166	2,358,544	2,431,816	2,507,315	2,585,231	2,665,690	2,748,777
Funding Ratio	91.9%	91.9%	92.0%	92.0%	92.0%	92.0%	92.0%	92.0%	92.0%	92.1%
Benefit Payments	$ 1,547,834	$ 1,595,869	$ 1,646,216	$ 1,698,780	$ 1,752,968	$ 1,808,168	$ 1,865,159	$ 1,924,616	$ 1,986,359	$ 2,049,816
Ratio of Assets to Benefit Payments	15.51	15.53	15.54	15.54	15.54	15.54	15.54	15.54	15.53	15.52

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

Public Employees Police and Fire Plan
Scenario: 5.5% Investment Return for All Years
Fiscal Year Beginning July 1

$ in Thousands	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Contributions (% of Payroll)										
Statutory - Chapter 353	31.45%	31.41%	31.36%	31.32%	31.27%	31.23%	31.18%	30.65%	30.62%	30.59%
Required - Chapter 356 (MVA)	33.03%	34.02%	35.12%	36.35%	37.71%	39.22%	40.90%	42.78%	44.94%	47.38%
Sufficiency / (Deficiency)	(1.58)%	(2.61)%	(3.76)%	(5.03)%	(6.44)%	(7.99)%	(9.72)%	(12.13)%	(14.32)%	(16.79)%
Contributions										
Statutory - Chapter 353	$ 414,335	$ 423,249	$ 432,619	$ 442,431	$ 452,913	$ 463,848	$ 475,310	$ 479,503	$ 491,897	$ 504,745
Required - Chapter 356 (MVA)	435,369	458,551	484,523	513,523	546,072	582,477	623,386	669,287	721,882	781,688
Sufficiency / (Deficiency)	(21,034)	(35,302)	(51,904)	(71,091)	(93,160)	(118,630)	(148,076)	(189,784)	(229,985)	(276,943)
Funding Ratios										
Current Assets (MVA)	$12,065,232	$12,390,517	$12,704,779	$13,007,008	$13,296,898	$13,575,611	$13,842,179	$14,096,806	$14,331,340	$14,552,833
Actuarial Accrued Liability (AAL)	13,406,981	13,930,628	14,460,464	14,996,606	15,539,929	16,092,730	16,655,437	17,229,594	17,816,349	18,416,736
Unfunded AAL	1,341,749	1,540,111	1,755,684	1,989,599	2,243,032	2,517,119	2,813,259	3,132,788	3,485,009	3,863,903
Funding Ratio	90.0%	88.9%	87.9%	86.7%	85.6%	84.4%	83.1%	81.8%	80.4%	79.0%
Benefit Payments	$ 741,739	$ 778,750	$ 816,610	$ 854,561	$ 891,387	$ 929,010	$ 966,308	$ 1,003,630	$ 1,041,210	$ 1,079,049
Ratio of Assets to Benefit Payments	16.27	15.91	15.56	15.22	14.92	14.61	14.32	14.05	13.76	13.49

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.

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Public Employees Police and Fire Plan
Scenario: 5.5% Investment Return for All Years
Fiscal Year Beginning July 1

$ in Thousands	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Contributions (% of Payroll)										
Statutory - Chapter 353	30.56%	30.53%	30.51%	30.48%	30.45%	30.43%	30.40%	30.37%	30.35%	30.32%
Required - Chapter 356 (MVA)	50.16%	53.36%	57.10%	61.50%	66.76%	73.16%	81.12%	91.33%	104.91%	123.89%
Sufficiency / (Deficiency)	(19.60)%	(22.83)%	(26.59)%	(31.02)%	(36.31)%	(42.73)%	(50.72)%	(60.96)%	(74.56)%	(93.57)%
Contributions										
Statutory - Chapter 353	$ 518,010	$ 531,763	$ 545,907	$ 560,596	$ 575,923	$ 591,926	$ 608,682	$ 626,043	$ 643,983	$ 662,458
Required - Chapter 356 (MVA)	850,163	929,374	1,021,823	1,131,199	1,262,638	1,423,405	1,624,372	1,882,470	2,226,120	2,706,470
Sufficiency / (Deficiency)	(332,153)	(397,611)	(475,915)	(570,603)	(686,715)	(831,479)	(1,015,690)	(1,256,426)	(1,582,137)	(2,044,012)
Funding Ratios										
Current Assets (MVA)	$14,760,768	$14,954,000	$15,130,821	$15,289,477	$15,429,059	$15,548,159	$15,645,734	$15,721,288	$15,774,127	$15,803,152
Actuarial Accrued Liability (AAL)	19,031,846	19,662,230	20,307,966	20,969,196	21,646,925	22,341,831	23,055,063	23,788,373	24,543,585	25,322,287
Unfunded AAL	4,271,078	4,708,231	5,177,145	5,679,718	6,217,867	6,793,672	7,409,329	8,067,085	8,769,458	9,519,135
Funding Ratio	77.6%	76.1%	74.5%	72.9%	71.3%	69.6%	67.9%	66.1%	64.3%	62.4%
Benefit Payments	$ 1,117,691	$ 1,157,693	$ 1,198,914	$ 1,240,590	$ 1,283,249	$ 1,326,500	$ 1,369,831	$ 1,413,262	$ 1,457,121	$ 1,501,619
Ratio of Assets to Benefit Payments	13.21	12.92	12.62	12.32	12.02	11.72	11.42	11.12	10.83	10.52

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

Public Employees Police and Fire Plan

Scenario: 5.5% Investment Return for All Years

Fiscal Year Beginning July 1

$ in Thousands	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Contributions (% of Payroll)										
Statutory - Chapter 353	30.30%	30.28%	30.26%	30.23%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%
Required - Chapter 356 (MVA)	152.32%	199.68%	294.36%	578.13%	58.16%	60.29%	62.58%	65.03%	67.66%	70.49%
Sufficiency / (Deficiency)	(122.02)%	(169.40)%	(264.10)%	(547.90)%	(28.66)%	(30.79)%	(33.08)%	(35.53)%	(38.16)%	(40.99)%
Contributions										
Statutory - Chapter 353	$ 681,501	$ 701,060	$ 721,127	$ 741,942	$ 745,482	$ 767,825	$ 790,763	$ 814,424	$ 838,910	$ 864,231
Required - Chapter 356 (MVA)	3,425,984	4,623,565	7,016,009	14,187,584	1,469,674	1,569,311	1,677,502	1,795,356	1,924,086	2,064,987
Sufficiency / (Deficiency)	(2,744,483)	(3,922,505)	(6,294,882)	(13,445,642)	(724,192)	(801,486)	(886,739)	(980,932)	(1,085,176)	(1,200,756)
Funding Ratios										
Current Assets (MVA)	$15,806,945	$15,782,934	$15,728,248	$15,639,344	$15,512,826	$15,327,204	$15,097,504	$14,820,068	$14,490,478	$14,104,360
Actuarial Accrued Liability (AAL)	26,125,959	26,955,086	27,810,080	28,690,901	29,597,712	30,531,314	31,493,252	32,484,299	33,504,645	34,554,728
Unfunded AAL	10,319,014	11,172,152	12,081,832	13,051,557	14,084,885	15,204,111	16,395,749	17,664,231	19,014,167	20,450,368
Funding Ratio	60.5%	58.6%	56.6%	54.5%	52.4%	50.2%	47.9%	45.6%	43.3%	40.8%
Benefit Payments	$ 1,547,834	$ 1,595,869	$ 1,646,216	$ 1,698,780	$ 1,752,968	$ 1,808,168	$ 1,865,159	$ 1,924,616	$ 1,986,359	$ 2,049,816
Ratio of Assets to Benefit Payments	10.21	9.89	9.55	9.21	8.85	8.48	8.09	7.70	7.29	6.88

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2025 letter to PERA.

Public Employees Police and Fire Plan

Scenario: 8.5% Investment Return for All Years

Fiscal Year Beginning July 1

$ in Thousands	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Contributions (% of Payroll)										
Statutory - Chapter 353	31.45%	31.41%	31.36%	31.32%	31.27%	30.62%	30.59%	30.08%	30.06%	30.05%
Required - Chapter 356 (MVA)	33.03%	32.26%	31.39%	30.40%	29.28%	28.00%	26.58%	24.96%	24.24%	22.98%
Sufficiency / (Deficiency)	(1.58)%	(0.85)%	(0.03)%	0.92%	1.99%	2.62%	4.01%	5.12%	5.82%	7.07%
Contributions										
Statutory - Chapter 353	$ 414,335	$ 423,249	$ 432,619	$ 442,431	$ 452,913	$ 454,848	$ 466,310	$ 470,503	$ 482,897	$ 495,745
Required - Chapter 356 (MVA)	435,369	434,831	433,020	429,506	424,008	415,845	405,190	390,418	389,326	379,156
Sufficiency / (Deficiency)	(21,034)	(11,582)	(401)	12,925	28,905	39,002	61,120	80,086	93,571	116,588
Funding Ratios										
Current Assets (MVA)	$12,065,232	$12,747,535	$13,458,499	$14,200,148	$14,975,453	$15,789,143	$16,634,738	$17,525,219	$18,456,795	$19,441,236
Actuarial Accrued Liability (AAL)	13,406,981	13,930,628	14,460,464	14,996,606	15,539,929	16,092,730	16,655,437	17,229,594	17,816,349	18,416,736
Unfunded AAL	1,341,749	1,183,093	1,001,965	796,459	564,476	303,587	20,699	(295,625)	(640,446)	(1,024,500)
Funding Ratio	90.0%	91.5%	93.1%	94.7%	96.4%	98.1%	99.9%	101.7%	103.6%	105.6%
Benefit Payments	$ 741,739	$ 778,750	$ 816,610	$ 854,561	$ 891,387	$ 929,010	$ 966,308	$ 1,003,630	$ 1,041,210	$ 1,079,049
Ratio of Assets to Benefit Payments	16.27	16.37	16.48	16.62	16.80	17.00	17.21	17.46	17.73	18.02

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Public Employees Police and Fire Plan

Scenario: 8.5% Investment Return for All Years

Fiscal Year Beginning July 1

$ in Thousands	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Contributions (% of Payroll)										
Statutory - Chapter 353	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%
Required - Chapter 356 (MVA)	21.65%	20.26%	18.79%	17.24%	15.60%	13.86%	12.04%	10.11%	8.07%	5.93%
Sufficiency / (Deficiency)	7.85%	9.24%	10.71%	12.26%	13.90%	15.64%	17.46%	19.39%	21.43%	23.57%
Contributions										
Statutory - Chapter 353	$ 500,010	$ 513,763	$ 527,907	$ 542,596	$ 557,923	$ 573,926	$ 590,682	$ 608,043	$ 625,983	$ 644,458
Required - Chapter 356 (MVA)	366,872	352,883	336,335	317,079	294,962	269,702	240,983	208,321	171,304	129,457
Sufficiency / (Deficiency)	133,138	160,880	191,572	225,516	262,962	304,224	349,699	399,722	454,679	515,001
Funding Ratios										
Current Assets (MVA)	$20,483,239	$21,577,908	$22,738,191	$23,968,800	$25,275,805	$26,665,336	$28,144,491	$29,721,587	$31,405,474	$33,205,381
Actuarial Accrued Liability (AAL)	19,031,846	19,662,230	20,307,966	20,969,196	21,646,925	22,341,831	23,055,063	23,788,373	24,543,585	25,322,287
Unfunded AAL	(1,451,393)	(1,915,678)	(2,430,225)	(2,999,605)	(3,628,880)	(4,323,505)	(5,089,428)	(5,933,214)	(6,861,889)	(7,883,093)
Funding Ratio	107.6%	109.7%	112.0%	114.3%	116.8%	119.4%	122.1%	124.9%	128.0%	131.1%
Benefit Payments	$ 1,117,691	$ 1,157,693	$ 1,198,914	$ 1,240,590	$ 1,283,249	$ 1,326,500	$ 1,369,831	$ 1,413,262	$ 1,457,121	$ 1,501,619
Ratio of Assets to Benefit Payments	18.33	18.64	18.97	19.32	19.70	20.10	20.55	21.03	21.55	22.11

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.

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Public Employees Police and Fire Plan

Scenario: 8.5% Investment Return for All Years

Fiscal Year Beginning July 1

$ in Thousands	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**
Contributions (% of Payroll)										
Statutory - Chapter 353	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%
Required - Chapter 356 (MVA)	3.66%	1.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Sufficiency / (Deficiency)	25.84%	28.22%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%	29.50%
Contributions										
Statutory - Chapter 353	$ 663,501	$ 683,060	$ 703,127	$ 723,942	$ 745,482	$ 767,825	$ 790,763	$ 814,424	$ 838,910	$ 864,231
Required - Chapter 356 (MVA)	82,380	29,540	-	-	-	-	-	-	-	-
Sufficiency / (Deficiency)	581,121	653,519	703,127	723,942	745,482	767,825	790,763	814,424	838,910	864,231
Funding Ratios										
Current Assets (MVA)	$35,131,059	$37,191,999	$39,398,336	$41,760,545	$44,290,341	$47,001,027	$49,907,758	$53,025,947	$56,371,748	$59,962,980
Actuarial Accrued Liability (AAL)	26,125,959	26,955,086	27,810,080	28,690,901	29,597,712	30,531,314	31,493,252	32,484,299	33,504,645	34,554,728
Unfunded AAL	(9,005,100)	(10,236,913)	(11,588,256)	(13,069,644)	(14,692,629)	(16,469,712)	(18,414,506)	(20,541,647)	(22,867,103)	(25,408,252)
Funding Ratio	134.5%	138.0%	141.7%	145.6%	149.6%	153.9%	158.5%	163.2%	168.3%	173.5%
Benefit Payments	$ 1,547,834	$ 1,595,869	$ 1,646,216	$ 1,698,780	$ 1,752,968	$ 1,808,168	$ 1,865,159	$ 1,924,616	$ 1,986,359	$ 2,049,816
Ratio of Assets to Benefit Payments	22.70	23.31	23.93	24.58	25.27	25.99	26.76	27.55	28.38	29.25

Numbers may not add due to rounding.

The interest rate used to discount liabilities was 7.0%.