

North Dakota Public Employees Retirement System

Actuarial Valuation as of July 1, 2022



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October 21, 2022

Board Members
North Dakota Public Employees Retirement System
Bismarck, North Dakota

Members of the Board:

We are pleased to provide our formal annual Actuarial Valuation Report as of July 1, 2022, for the North Dakota Public Employees Retirement System (“NDPERS”). The actuarial valuation was performed at the request of the Board and is intended for use by the Board and NDPERS and those designated by the Board and NDPERS. This report may be provided to parties other than the Board and NDPERS only in its entirety and only with the permission of the Board and NDPERS. GRS is not responsible for unauthorized use of this report.

The purposes of the actuarial valuation are to measure the funding progress of NDPERS and to determine the actuarial employer contribution rate for the NDPERS for the Plan Year commencing July 1, 2022, and ending on June 30, 2023. This actuarial valuation also provides information required by GASB Statement No. 67. Information required by GASB Statement No. 68 and the employer allocation of the Net Pension Liability are provided in a separate report. This report should not be relied on for any purpose other than the purpose described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The actuarial employer contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section E of this report. This report includes risk metrics on page A-6 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This actuarial valuation assumed 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 actuarial valuation was based upon information furnished by the NDPERS Staff, concerning benefits provided by the North Dakota Public Employees Retirement System, financial transactions, plan provisions and census data for active members, terminated members, retirees and beneficiaries as of July 1, 2022. 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 the NDPERS Staff.

This report was prepared using actuarial assumptions adopted by the Board as authorized under North Dakota Administrative Code Section 71-02. The investment return assumption was decreased from 7.00 percent to 6.50 percent beginning with the July 1, 2022 actuarial valuation. All other actuarial assumptions used in the actuarial valuation as of July 1, 2022 were based on an experience review for the period from July 1, 2014 to July 1, 2019, and were adopted for first use commencing with the actuarial valuation as of July 1, 2020. All actuarial assumptions used in this report are reasonable for the purposes of this actuarial valuation. Additional information about the actuarial assumptions is included in the Section E of this report.

Plan provisions are unchanged since the last actuarial valuation as of July 1, 2021.

In 2021, House Bill 1380 was passed, which adds the Main System as a recipient of potential future Legacy Fund earnings if the Plan's actuarial funded ratio is less than 90 percent. This potential source of revenue has no immediate actuarial impact.

Contributions to PERS are based on fixed statutory contribution rates. Based on the current actuarial valuation and the current actuarial assumptions, methods, and benefit provisions for current employees, the total statutory contribution rate of 14.12 percent for the Main System (15.26 percent for employees hired on or after January 1, 2020) is not expected to ever amortize the unfunded liability. When new hires are reflected, the Main System funded ratio is projected to ultimately decrease from the current funded ratio of about 67 percent, to approximately 50 percent in 35 years, and to less than 40 percent in 50 years. We recommend an increase to the Main System total statutory contribution rate such that the funded ratio is projected to reach 100 percent within 30 years.

Similarly, based on the current actuarial valuation and the current actuarial assumptions, methods, and benefit provisions for current employees, the total statutory contribution rate of 13.43 percent for the Public Safety without Prior Main System service is not expected to ever amortize the unfunded liability. We recommend an increase to the Public Safety without Prior Main System service total statutory contribution rate such that the funded ratio is projected to reach 100 percent within 30 years.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the North Dakota Public Employees Retirement System as of the actuarial valuation date. 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.

This report was prepared using our proprietary valuation model and related software which, in our professional judgment, 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.

This report reflects the impact of COVID-19 through June 30, 2022. However, this report does not reflect the longer-term and still developing future impact of COVID-19, which is likely to further influence demographic experience and economic expectations. We will continue to monitor these developments and their impact.

Bonita Wurst and Abra Hill are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

The signing actuaries are independent of the plan sponsor.



Gabriel, Roeder, Smith & Company will be pleased to review this actuarial valuation and report with the Board of Trustees and to answer any questions pertaining to the actuarial valuation.

Respectfully submitted,

Gabriel, Roeder, Smith & Company

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SECTION A

ACTUARIAL VALUATION RESULTS

Comments on the Actuarial Valuation

Purpose

At your request, we have performed an actuarial valuation of the North Dakota Public Employees Retirement System as of July 1, 2022:

- To determine the funding status of the System as of the actuarial valuation date;
- To determine the actuarial employer contribution rate for the fiscal year beginning July 1, 2022; and
- To provide other data required by NDPERS.

Pension plan financial reporting under GASB Statement No. 67 is provided in Section D of this report. Employer financial reporting under GASB Statement No. 68 is provided in a separate report.

Membership Data

We received the data from the North Dakota Public Employees Retirement System Staff. We performed certain checks for reasonableness and found the data to be complete and reliable for actuarial valuation purposes. However, we did not audit the data.

A total of 24,779 active members (including the Main System, Judges and Public Safety) were included in the actuarial valuation as of July 1, 2022. Between the 2021 and 2022 actuarial valuations, the number of active employees increased by 185 members, or 0.8 percent. The average annual actuarial valuation pay increased by 2.1 percent, from \$49,348 to \$50,378 between the 2021 and 2022 actuarial valuations. There were 6,209 active members who were eligible for retirement (normal, early or Rule of 85, 88 or 90) as of July 1, 2022.

The number of benefit recipients increased from 13,575 to 14,204, or 4.6 percent, since the last actuarial valuation. The average monthly benefit increased by 3.5 percent, from \$1,363 to \$1,411. During the year ending June 30, 2022, there were 1,054 members awarded a benefit.

There were 7,610 inactive members as of July 1, 2022, who were vested and elected to receive a deferred benefit. The average monthly deferred benefit is \$538. There were 8,673 inactive members as of July 1, 2022, who were not vested or elected to receive a refund of contributions.

Section C summarizes the membership data.

Plan Provisions

There have been no changes in plan provisions since the previous actuarial valuation as of July 1, 2021.

In 2021, House Bill 1380 was passed which adds the Main System as a recipient of potential future Legacy Fund earnings if the Plan's actuarial funded ratio is less than 90 percent. This potential source of revenue has no immediate actuarial impact.

Comments on the Actuarial Valuation

Actuarial Assumptions and Methods

This report was prepared using actuarial assumptions adopted by the Board as authorized under North Dakota Administrative Code Section 71-02. Most of the actuarial assumptions used in the valuation were based on an experience review for the period from July 1, 2014 to July 1, 2019, and were adopted for first use commencing with the actuarial valuation as of July 1, 2020. All actuarial assumptions used in this report are reasonable for the purposes of this actuarial valuation.

Section E outlines the actuarial assumptions and methods used in the actuarial valuation. There was a decrease in the investment return assumption, from 7.00 percent to 6.50 percent, since the previous actuarial valuation.

In a letter dated July 1, 2022, GRS determined that an investment return assumption of 6.50% can be deemed reasonable for this valuation. However, we caution that 6.50% is really an upper bound. If capital market assumptions remain at the present levels, the 6.50% return assumption might not comply with actuarial standards for the July 1, 2023 valuation.

The assumption for administrative expenses is equal to the prior years' administrative expenses, adjusted for inflation. In total, this amount has decreased from \$2,626,993 to \$2,392,924.

The actuarial contribution rate is calculated using a 20-year open period, level percentage of payroll amortization method. The remaining amortization period will be reset to 20 years in each future actuarial valuation.

Plan Asset Return

On a market value basis, NDPERS assets had an investment return of approximately -6.53 percent (net of investment expenses). On an actuarial value of asset basis, NDPERS assets had an investment return of approximately 7.43 percent, which compares to the prior year assumed rate of return of 7.00 percent. The actuarial value of assets is currently 103.2 percent of the market value of assets. There are \$114,587,764 in net asset losses currently being deferred that will be phased into the actuarial value of assets over the next four years.

Gain/Loss Analysis

During the plan year ending June 30, 2022, the unfunded actuarial accrued liability ("UAAL") increased from \$1,444,722,519 as of July 1, 2021, to \$1,783,219,509 as of July 1, 2022, which is an increase of \$338,496,990. The key factors contributing to the increase in the UAAL were the change in the investment return assumption and the difference between the statutory contributions and the actuarially determined contribution rate as well as the increase resulting from new entrants to the system. These losses were partially offset by the recognition of asset gains and favorable salary experience. The unfunded actuarial accrued liability based on the market value of assets increased from \$1,041,820,297 to \$1,897,807,273.



Comments on the Actuarial Valuation

Funded Ratio

The funded ratio measures the portion of the actuarial accrued liability (calculated based on the actuarial assumptions disclosed in this report) that is currently funded. The total PERS funded ratio is 67.8 percent on an actuarial value of assets basis and 65.7 percent on a market value of assets basis as of July 1, 2022.

The funded ratio as of July 1, 2022 is 67.0 percent for the Main System, 111.6 percent for the Judges System, 74.9 percent for the Public Safety plan with prior Main System service, and 95.4 percent for the Public Safety plan without prior Main System service. The funded ratios based on the market value of assets are approximately 2 to 4 percentage points lower than the funded ratios based on the actuarial value of assets.

The funded ratio and unfunded actuarial accrued liability are appropriate for assessing the need for and the amount of future unfunded liability contributions (excludes normal cost contributions). They are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the System's benefit obligations.

Employer Contributions

The actuarially determined contribution rate is calculated as the normal cost contribution (to fund benefits accruing during the year) plus a contribution to amortize the unfunded liability. The unfunded liability contribution rate is calculated using a 20-year open period, level percentage of payroll amortization method. The remaining amortization period will be reset to 20 years in each future actuarial valuation. If employers contributed the actuarial contribution rate, the contribution rate would be expected to gradually decrease using a 20-year open amortization period as the funded ratio gradually increased. An open amortization period is expected to gradually improve the funded ratio. However, the funded ratio is not expected to reach 100 percent under this method (assuming no actuarial gains or losses) because the remaining unfunded liability at each future actuarial valuation date is re-amortized over a new 20-year period.

The contributions made by employers are based on fixed contribution rates set by statute (and not based on the actuarially determined rate). The statutory contribution rate is significantly lower than the actuarial contribution rate for the Main System, lower than the actuarial rate for the Public Safety Systems, and significantly higher than the actuarial contribution rate for Judges. Because the Main System comprises the majority of the liability and contribution requirement for the Combined System, the statutory contribution rate for the total PERS is also significantly lower than the actuarial contribution rate.

Based on the current actuarial valuation and the current actuarial assumptions, methods, and benefit provisions for current employees, the total statutory contribution rate of 14.12 percent for the Main System (15.26 percent for employees hired on or after January 1, 2020) is not expected to ever amortize the unfunded liability. When new hires are reflected, the Main System funded ratio is projected to ultimately decrease from the current funded ratio of about 67 percent, to approximately 50 percent in 35 years, and to less than 40 percent in 50 years. We recommend an increase to the Main System total statutory contribution rate such that the funded ratio is projected to reach 100 percent within 30 years.



Comments on the Actuarial Valuation

Similarly, based on the current actuarial valuation and the current actuarial assumptions, methods, and benefit provisions for current employees, the total statutory contribution rate of 13.43 percent for the Public Safety without Prior Main System service is not expected to ever amortize the unfunded liability. We recommend an increase to the Public Safety without Prior Main System service total statutory contribution rate such that the funded ratio is projected to reach 100 percent within 30 years.

Historical Trends

The funded ratio (based on the actuarial value of assets) for the total PERS increased over the past 9 years from a historical low of 62.0 percent in 2013, to the current funded ratio of 67.8 percent.

Risk Measures

Risks Associated with Measuring the Accrued Liability and Contributions

The determination of the accrued liability and the statutory and actuarially determined contribution requires the use of actuarial assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the actuarial assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the statutory and actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 actuarial assumptions; changes in economic or demographic actuarial assumptions due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

Risk Measures

The statutory contribution may be considered as a minimum contribution that complies with State statute. The timely receipt of contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made in accordance with the funding policy do not necessarily guarantee benefit security.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2021	2022
Ratio of the Market Value of Assets to Total Payroll	3.25	2.91
Ratio of Actuarial Accrued Liability to Payroll	4.11	4.43
Ratio of Actives to Retirees and Beneficiaries	1.81	1.74
Ratio of Net Cash Flow to Market Value of Assets	-1.25%	-1.59%

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Risk Measures

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means benefits and expenses exceed contributions, and existing funds may be used to make benefit payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Summary of Actuarial Valuation Results (Total PERS)

	July 1, 2021 Results	July 1, 2022 Results
Membership Data		
Active Members	24,594	24,779
Inactive Vested and Non-Vested Members	14,971	16,283
Retirees and Beneficiaries	13,575	14,204
TOTAL	53,140	55,266
Plan Liabilities		
Actuarial Accrued Liability:		
Active Members	\$ 2,390,543,659	\$ 2,612,046,933
Inactive Vested and Non-Vested Members	333,949,099	372,960,832
Retirees and Beneficiaries	2,267,050,239	2,548,571,410
TOTAL	\$ 4,991,542,997	\$ 5,533,579,175
Actuarial Value of Assets at Valuation Date	\$ 3,546,820,478	\$ 3,750,359,666
Unfunded (Overfunded) Actuarial Accrued Liability	\$ 1,444,722,519	\$ 1,783,219,509
Funded Position of Plan's Actuarial Accrued Liability¹	71.1 %	67.8 %
Actuarial Contribution Requirement		
	Fiscal Year 2022	Fiscal Year 2023
Annual Normal Cost as of Valuation Date	\$ 143,197,284	\$ 161,356,346
Normal Cost Expense Load	2,626,993	2,392,924
Amortization Payment	100,601,651	119,066,661
Total Actuarial Contribution Requirement	246,425,928	282,815,931
Expected Employee Contributions	89,036,261	91,542,039
Actuarial Employer Contribution Requirement	\$ 157,389,667	\$ 191,273,892
Projected Annual Compensation	\$ 1,287,162,453	\$ 1,324,271,761
Actuarial Employer Contribution % of Projected Annual Compensation		
Main System	12.46%	14.70%
Judges	8.62%	11.90%
Public Safety with prior Main System service	9.33%	11.40%
Public Safety without prior Main System service	7.31%	9.16%
Total PERS (Combined)	12.23%	14.44%
Statutory Employer Contribution % of Projected Annual Compensation		
Main System ²	7.26%	7.35%
Judges	17.52%	17.52%
Public Safety with prior Main System service	9.81%	9.81%
Public Safety without prior Main System service	7.93%	7.93%
Total PERS (Combined)	7.47%	7.56%

¹ Equals the ratio of the actuarial value of assets to the total actuarial accrued liability.

² Weighted average of 7.12 percent for members hired before 1/1/2020 and 8.26% for members hired on or after 1/1/2020.



Summary of Actuarial Valuation Results

Main System

Main System Results		
	July 1, 2021	July 1, 2022
Membership Data		
Active Members	23,370	23,487
Inactive Vested and Non-Vested Members	14,477	15,711
Retirees and Beneficiaries	13,361	13,977
TOTAL	51,208	53,175
Plan Liabilities		
Actuarial Accrued Liability:		
Active Members	\$ 2,270,654,282	2,467,418,652
Inactive Vested and Non-Vested Members	323,226,817	359,787,361
Retirees and Beneficiaries	2,201,173,059	2,476,981,791
TOTAL	4,795,054,158	5,304,187,804
Actuarial Value of Assets at Valuation Date	\$ 3,369,943,759	3,553,539,588
Unfunded (Overfunded) Actuarial Accrued Liability	\$ 1,425,110,399	1,750,648,216
Funded Position of Plan's Actuarial Accrued Liability ¹		
	70.28%	66.99%
Market Value of Assets at Valuation Date	\$ 3,752,753,612	3,444,965,426
Unfunded (Overfunded) Actuarial Accrued Liability based on Market Value of Assets	\$ 1,042,300,546	1,859,222,378
Funded Position of Plan's Actuarial Accrued Liability based on Market Value of Assets		
	78.26%	64.95%
Actuarial Contribution Requirement based on Actuarial Value of Assets		
	Fiscal Year 2022	Fiscal Year 2023
Annual Normal Cost as of Valuation Date	\$ 131,755,463	\$ 147,785,020
Normal Cost Expense Load	2,531,385	2,300,675
Amortization Payment	99,258,221	116,910,319
Total Actuarial Contribution Requirement	233,545,069	266,996,014
Expected Employee Contributions	83,991,302	86,128,242
Actuarial Employer Contribution Requirement	\$ 149,553,767	\$ 180,867,772
Projected Annual Compensation	\$ 1,199,875,749	\$ 1,230,403,464
Actuarial Contribution Rate	12.46%	14.70%
Statutory Contribution Rate	7.26%	7.35%
Statutory Contribution Deficit/(Surplus)	5.20%	7.35%
Actuarial Contribution Requirement based on Market Value of Assets		
Actuarial Contribution Rate	10.24%	15.29%
Statutory Contribution Deficit/(Surplus)	2.98%	7.94%

¹ Equals the ratio of the actuarial value of assets to the total actuarial accrued liability.



Summary of Actuarial Valuation Results

Judges

Judges Results		
	July 1, 2021	July 1, 2022
Membership Data		
Active Members	57	57
Inactive Vested and Non-Vested Members	1	2
Retirees and Beneficiaries	63	64
TOTAL	121	123
Plan Liabilities		
Actuarial Accrued Liability:		
Active Members	\$ 22,394,664	26,103,968
Inactive Vested and Non-Vested Members	179,618	363,429
Retirees and Beneficiaries	30,850,022	31,382,600
TOTAL	53,424,304	57,849,997
Actuarial Value of Assets at Valuation Date	\$ 61,293,801	64,571,296
Unfunded (Overfunded) Actuarial Accrued Liability	\$ (7,869,497)	(6,721,299)
Funded Position of Plan's Actuarial Accrued Liability ¹		
	114.73%	111.62%
Market Value of Assets at Valuation Date	\$ 68,256,490	62,598,397
Unfunded (Overfunded) Actuarial Accrued Liability based on Market Value of Assets	\$ (14,832,186)	(4,748,400)
Funded Position of Plan's Actuarial Accrued Liability based on Market Value of Assets		
	127.76%	108.21%
Actuarial Contribution Requirement based on Actuarial Value of Assets		
	Fiscal Year 2022	Fiscal Year 2023
Annual Normal Cost as of Valuation Date	\$ 2,045,083	\$ 2,250,559
Normal Cost Expense Load	7,369	6,389
Amortization Payment	(570,651)	(467,663)
Total Actuarial Contribution Requirement	1,481,801	1,789,285
Expected Employee Contributions	713,144	719,300
Actuarial Employer Contribution Requirement	\$ 768,657	\$ 1,069,985
Projected Annual Compensation	\$ 8,914,304	\$ 8,991,253
Actuarial Contribution Rate	8.62%	11.90%
Statutory Contribution Rate	17.52%	17.52%
Statutory Contribution Deficit/(Surplus)	-8.90%	-5.62%
Actuarial Contribution Requirement based on Market Value of Assets		
Actuarial Contribution Rate	2.95%	13.43%
Statutory Contribution Deficit/(Surplus)	-14.57%	-4.09%

¹ Equals the ratio of the actuarial value of assets to the total actuarial accrued liability.



Summary of Actuarial Valuation Results

Public Safety with Prior Main System Service

Public Safety with Prior Main System Service System Results		
	July 1, 2021	July 1, 2022
Membership Data		
Active Members	967	990
Inactive Vested and Non-Vested Members	355	424
Retirees and Beneficiaries	137	148
TOTAL	1,459	1,562
Plan Liabilities		
Actuarial Accrued Liability:		
Active Members	\$ 86,194,586	103,665,261
Inactive Vested and Non-Vested Members	8,899,970	10,818,604
Retirees and Beneficiaries	33,374,123	38,438,954
TOTAL	128,468,679	152,922,819
Actuarial Value of Assets at Valuation Date	\$ 100,482,794	114,490,260
Unfunded (Overfunded) Actuarial Accrued Liability	\$ 27,985,885	38,432,559
Funded Position of Plan's Actuarial Accrued Liability ¹		
	78.22%	74.87%
Market Value of Assets at Valuation Date	\$ 111,897,170	110,992,147
Unfunded (Overfunded) Actuarial Accrued Liability based on Market Value of Assets	\$ 16,571,509	41,930,672
Funded Position of Plan's Actuarial Accrued Liability based on Market Value of Assets		
	87.10%	72.58%
Actuarial Contribution Requirement based on Actuarial Value of Assets		
	Fiscal Year 2022	Fiscal Year 2023
Annual Normal Cost as of Valuation Date	\$ 7,832,942	\$ 9,173,980
Normal Cost Expense Load	72,292	66,791
Amortization Payment	1,949,203	2,566,571
Total Actuarial Contribution Requirement	9,854,437	11,807,342
Expected Employee Contributions	3,668,522	3,860,469
Actuarial Employer Contribution Requirement	\$ 6,185,915	\$ 7,946,873
Projected Annual Compensation	\$ 66,312,530	\$ 69,712,894
Actuarial Contribution Rate	9.33%	11.40%
Statutory Contribution Rate	9.81%	9.81%
Statutory Contribution Deficit/(Surplus)	-0.48%	1.59%
Actuarial Contribution Requirement based on Market Value of Assets		
Actuarial Contribution Rate	8.13%	11.74%
Statutory Contribution Deficit/(Surplus)	-1.68%	1.93%

¹ Equals the ratio of the actuarial value of assets to the total actuarial accrued liability.



Summary of Actuarial Valuation Results

Public Safety without Prior Main System Service

Public Safety without Prior Main System Service System Results		
	July 1, 2021	July 1, 2022
Membership Data		
Active Members	200	245
Inactive Vested and Non-Vested Members	138	146
Retirees and Beneficiaries	14	15
TOTAL	352	406
Plan Liabilities		
Actuarial Accrued Liability:		
Active Members	\$ 11,300,127	14,859,052
Inactive Vested and Non-Vested Members	1,642,694	1,991,438
Retirees and Beneficiaries	1,653,035	1,768,065
TOTAL	14,595,856	18,618,555
Actuarial Value of Assets at Valuation Date	\$ 15,100,124	17,758,522
Unfunded (Overfunded) Actuarial Accrued Liability	\$ (504,268)	860,033
Funded Position of Plan's Actuarial Accrued Liability ¹		
	103.45%	95.38%
Market Value of Assets at Valuation Date	\$ 16,815,428	17,215,932
Unfunded (Overfunded) Actuarial Accrued Liability based on Market Value of Assets	\$ (2,219,572)	1,402,623
Funded Position of Plan's Actuarial Accrued Liability based on Market Value of Assets		
	115.21%	92.47%
Actuarial Contribution Requirement based on Actuarial Value of Assets		
	Fiscal Year 2022	Fiscal Year 2023
Annual Normal Cost as of Valuation Date	\$ 1,563,796	\$ 2,146,787
Normal Cost Expense Load	15,947	19,069
Amortization Payment	(35,122)	57,434
Total Actuarial Contribution Requirement	1,544,621	2,223,290
Expected Employee Contributions	663,293	834,028
Actuarial Employer Contribution Requirement	\$ 881,328	\$ 1,389,262
Projected Annual Compensation	\$ 12,059,870	\$ 15,164,150
Actuarial Contribution Rate	7.31%	9.16%
Statutory Contribution Rate	7.93%	7.93%
Statutory Contribution Deficit/(Surplus)	-0.62%	1.23%
Actuarial Contribution Requirement based on Market Value of Assets		
Actuarial Contribution Rate	6.32%	9.40%
Statutory Contribution Deficit/(Surplus)	-1.61%	1.47%

¹ Equals the ratio of the actuarial value of assets to the total actuarial accrued liability.



Actuarial Valuation Results

All PERS Plans

	Main System	%	Judges	%	Public Safety w/ Prior	%	Public Safety w/o Prior	%	Total	% of Payroll
Actuarial Valuation as of July 1, 2022										
Based on Actuarial Value of Assets										
Total Actuarial Accrued Liability	\$ 5,304,187,804		\$ 57,849,997		\$ 152,922,819		\$ 18,618,555		\$ 5,533,579,175	
Actuarial Value of Assets (AVA)	3,553,539,588		64,571,296		114,490,260		17,758,522		3,750,359,666	
Unfunded Actuarial Accrued Liability (UAAL)	1,750,648,216		(6,721,299)		38,432,559		860,033		1,783,219,509	
Funded Ratio (Actuarial Value of Assets)	67.0%		111.6%		74.9%		95.4%		67.8%	
Total Annual Gross Normal Cost	150,085,695	12.20%	2,256,948	25.10%	9,240,771	13.26%	2,165,856	14.28%	163,749,270	12.37%
Employee Contribution	86,128,242	7.00%	719,300	8.00%	3,860,469	5.54%	834,028	5.50%	91,542,039	6.91%
Annual Employer Normal Cost	63,957,453	5.20%	1,537,648	17.10%	5,380,302	7.72%	1,331,828	8.78%	72,207,231	5.46%
Amortization of Unfunded Liability ¹	116,910,319	9.50%	(467,663)	(5.20%)	2,566,571	3.68%	57,434	0.38%	119,066,661	8.99%
Actuarial Contribution	\$ 180,867,772	14.70%	\$ 1,069,985	11.90%	\$ 7,946,873	11.40%	\$ 1,389,262	9.16%	\$ 191,273,892	14.44%
Statutory Employer Contribution	90,434,655	7.35%	1,575,268	17.52%	6,838,835	9.81%	1,202,517	7.93%	100,051,274	7.56%
Statutory Contribution Deficit/(Surplus)	90,433,117	7.35%	(505,283)	(5.62%)	1,108,038	1.59%	186,745	1.23%	91,222,618	6.88%
Employer UAAL Contribution from Statutory Rate	26,477,202	2.15%	37,620	0.42%	1,458,533	2.09%	(129,311)	(0.85%)	27,844,043	2.10%
Amortization Period from Statutory Rate (Years)	100+		None		50.8		100+		100+	
Based on Market Value of Assets										
Market Value of Assets (MVA)	\$ 3,444,965,426		\$ 62,598,397		\$ 110,992,147		\$ 17,215,932		\$ 3,635,771,902	
Unfunded Actuarial Accrued Liability (UAAL)	1,859,222,378		(4,748,400)		41,930,672		1,402,623		1,897,807,273	
Funded Ratio (Market Value of Assets)	64.9%		108.2%		72.6%		92.5%		65.7%	
Actuarial Contribution		15.29%		13.43%		11.74%		9.40%		15.02%
Amortization Period from Statutory Rate (Years)	100+		None		63.2		100+		100+	
Actuarial Valuation as of July 1, 2021										
Based on Actuarial Value of Assets										
Total Actuarial Accrued Liability	\$ 4,795,054,158		\$ 53,424,304		\$ 128,468,679		\$ 14,595,856		\$ 4,991,542,997	
Actuarial Value of Assets (AVA)	3,369,943,759		61,293,801		100,482,794		15,100,124		3,546,820,478	
Unfunded Actuarial Accrued Liability (UAAL)	1,425,110,399		(7,869,497)		27,985,885		(504,268)		1,444,722,519	
Funded Ratio (Actuarial Value of Assets)	70.3%		114.7%		78.2%		103.5%		71.1%	
Total Annual Gross Normal Cost	134,286,848	11.19%	2,052,452	23.02%	7,905,234	11.92%	1,579,743	13.10%	145,824,277	11.33%
Employee Contribution	83,991,302	7.00%	713,144	8.00%	3,668,522	5.53%	663,293	5.50%	89,036,261	6.92%
Annual Employer Normal Cost	50,295,546	4.19%	1,339,308	15.02%	4,236,712	6.39%	916,450	7.60%	56,788,016	4.41%
Amortization of Unfunded Liability ¹	99,258,221	8.27%	(570,651)	(6.40%)	1,949,203	2.94%	(35,122)	(0.29%)	100,601,651	7.82%
Actuarial Contribution	\$ 149,553,767	12.46%	\$ 768,657	8.62%	\$ 6,185,915	9.33%	\$ 881,328	7.31%	\$ 157,389,667	12.23%
Statutory Employer Contribution	87,110,979	7.26%	1,561,786	17.52%	6,505,259	9.81%	956,348	7.93%	96,134,372	7.47%
Statutory Contribution Deficit/(Surplus)	62,442,788	5.20%	(793,129)	(8.90%)	(319,344)	(0.48%)	(75,020)	(0.62%)	61,255,295	4.76%
Employer UAAL Contribution from Statutory Rate	36,815,433	3.07%	222,478	2.50%	2,268,547	3.42%	39,898	0.33%	39,346,356	3.06%
Amortization Period from Statutory Rate (Years)	100+		None		16.2		None		100+	
Based on Market Value of Assets										
Market Value of Assets (MVA)	\$ 3,752,753,612		\$ 68,256,490		\$ 111,897,170		\$ 16,815,428		\$ 3,949,722,700	
Unfunded Actuarial Accrued Liability (UAAL)	1,042,300,546		(14,832,186)		16,571,509		(2,219,572)		1,041,820,297	
Funded Ratio (Market Value of Assets)	78.3%		127.8%		87.1%		115.2%		79.1%	
Actuarial Contribution		10.24%		2.95%		8.13%		6.32%		10.04%
Amortization Period from Statutory Rate (Years)	100+		None		8.5		None		100+	
Changes from Actuarial Valuation as of July 1, 2021 to July 1, 2022										
AVA Unfunded Actuarial Accrued Liability (UAAL)	\$ 325,537,817		\$ 1,148,198		\$ 10,446,674		\$ 1,364,301		\$ 338,496,990	
MVA Unfunded Actuarial Accrued Liability (UAAL)	816,921,832		10,083,786		25,359,163		3,622,195		855,986,976	
AVA Funded Ratio	-3.3%		-3.1%		-3.3%		-8.1%		-3.3%	
MVA Funded Ratio	-13.3%		-19.6%		-14.5%		-22.7%		-13.4%	
Actuarial Contribution Rate (AVA)		2.24%		3.28%		2.07%		1.85%		2.21%
Actuarial Contribution Rate (MVA)		5.05%		10.48%		3.61%		3.08%		4.98%

¹ Amortization as a level percentage of payroll over a 20-year open period. Total payroll assumed to increase 3.00% annually for the Judges and 3.50% for the Main System and Public Safety groups.



Actuarial Valuation Results

All PERS Plans

Valuation as of July 1, 2022

July 1, 2021

	Valuation as of July 1, 2022				July 1, 2021							
	Main System	%	Judges	%	Public Safety w/ Prior	%	Public Safety w/o Prior	%	Total	% of Payroll	Total	% of Payroll
Active Members												
Number	23,487		57		990		245		24,779		24,594	
Average Age	46.1		56.9		36.7		38.2		45.7		45.7	
Average Years of Benefit Service	9.3		10.0		6.8		4.6		9.1		9.3	
Average Years of Vesting Service	9.3		16.0		7.9		6.3		9.3		9.4	
Total Payroll	\$ 1,160,836,487		\$ 8,729,372		\$ 64,746,118		\$ 13,995,584		\$ 1,248,307,560		\$ 1,213,675,937	
Projected Annual Compensation	\$ 1,230,403,464		\$ 8,991,253		\$ 69,712,894		\$ 15,164,150		\$ 1,324,271,761		\$ 1,287,162,453	
Inactive Vested and Non-Vested Members												
Number	15,711		2		424		146		16,283		14,971	
Total Annualized Benefits (Vested)	\$ 47,230,786		\$ 55,333		\$ 1,587,054		\$ 296,847		\$ 49,170,020		\$ 44,953,360	
Retired Members and Beneficiaries												
Number	13,977		64		148		15		14,204		13,575	
Total Annualized Benefits	\$ 233,423,378		\$ 3,685,840		\$ 3,271,877		\$ 145,675		\$ 240,526,769		222,049,800	
Total Membership	53,175		123		1,562		406		55,266		53,140	
Actuarial Accrued Liability												
Active Members	\$ 2,467,418,652		\$ 26,103,968		\$ 103,665,261		\$ 14,859,052		\$ 2,612,046,933		\$ 2,390,543,659	
Inactive Vested and Non-Vested Members	359,787,361		363,429		10,818,604		1,991,438		372,960,832		333,949,099	
Retired Members and Beneficiaries	2,476,981,791		31,382,600		38,438,954		1,768,065		2,548,571,410		2,267,050,239	
Total	5,304,187,804		57,849,997		152,922,819		18,618,555		5,533,579,175		4,991,542,997	
Actuarial Value of Assets	\$ 3,553,539,588		\$ 64,571,296		\$ 114,490,260		\$ 17,758,522		\$ 3,750,359,666		\$ 3,546,820,478	
Unfunded Actuarial Accrued Liability	\$ 1,750,648,216		\$ (6,721,299)		\$ 38,432,559		\$ 860,033		\$ 1,783,219,509		\$ 1,444,722,519	
Funded Ratio (Actuarial Value of Assets)	66.99%		111.62%		74.87%		95.38%		67.8%		71.1%	
Annual Gross Normal Cost												
Benefits	\$ 147,785,020	12.01%	\$ 2,250,559	25.03%	\$ 9,173,980	13.16%	\$ 2,146,787	14.16%	\$ 161,356,346	12.18%	\$ 143,197,284	11.13%
Expenses of Administration	2,300,675	0.19%	6,389	0.07%	66,791	0.10%	19,069	0.12%	2,392,924	0.19%	2,626,993	0.20%
Total	150,085,695	12.20%	2,256,948	25.10%	9,240,771	13.26% ²	2,165,856	14.28%	163,749,270	12.37%	145,824,277	11.33%
Amortization of Unfunded Liability ¹	\$ 116,910,319	9.50%	\$ (467,663)	(5.20%)	\$ 2,566,571	3.68%	\$ 57,434	0.38%	\$ 119,066,661	8.99%	\$ 100,601,651	7.82%
Actuarial Contribution Requirement												
Employer Portion	\$ 180,867,772	14.70%	\$ 1,069,985	11.90%	\$ 7,946,873	11.40%	\$ 1,389,262	9.16%	\$ 191,273,892	14.44%	\$ 157,389,667	12.23%
Employee Portion	86,128,242	7.00%	719,300	8.00%	3,860,469	5.54%	834,028	5.50%	91,542,039	6.91%	89,036,261	6.92%
Total	266,996,014	21.70%	1,789,285	19.90%	11,807,342	16.94%	2,223,290	14.66%	282,815,931	21.36%	246,425,928	19.15%
Actuarial Contribution	\$ 180,867,772	14.70%	\$ 1,069,985	11.90%	\$ 7,946,873	11.40%	\$ 1,389,262	9.16%	\$ 191,273,892	14.44%	\$ 157,389,667	12.23%
Statutory Employer Contribution	90,434,655	7.35%	1,575,268	17.52%	6,838,835	9.81%	1,202,517	7.93%	100,051,274	7.56%	96,134,372	7.47%
Statutory Contribution Deficit/(Surplus)	90,433,117	7.35%	(505,283)	(5.62%)	1,108,038	1.59%	186,745	1.23%	91,222,618	6.88%	61,255,295	4.76%

¹ Amortization as a level percentage of payroll over a 20-year open period. Total payroll assumed to increase 3.00% annually for the Judges and 3.50% for the Main System and Public Safety groups.

²Total Gross Normal Cost for the Bureau of Criminal Investigation (BCI) members is 14.59% of pay. When employee contributions of 6.00% of pay are reflected, the Employer Normal Cost for BCI members is 8.59% of pay.



Actuarial Valuation Results

Gain/Loss Analysis

RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY

	Main System	Judges	Public Safety with Prior Main System		Total
			Service	Service	
Unfunded liability at previous valuation	\$ 1,425,110,399	\$ (7,869,497)	\$ 27,985,885	\$ (504,268)	\$ 1,444,722,519
Expected unfunded liability at current valuation					
Normal cost for plan year	134,286,848	2,052,452	7,905,234	1,579,743	145,824,277
Interest on unfunded liability and normal cost	104,378,276	(480,244)	2,231,016	19,057	106,148,105
Contributions using actuarial rate with interest to current valuation date	<u>241,584,898</u>	<u>1,532,787</u>	<u>10,193,509</u>	<u>1,597,768</u>	<u>254,904,962</u>
Total expected change in unfunded liability at current valuation	(2,915,774)	39,421	(57,259)	1,032	(2,932,580)
Total expected unfunded liability at current valuation	1,422,194,625	(7,830,076)	27,928,626	(503,236)	1,441,789,939
Change due to:					
Amount of contributions (based on statutory rate) ¹	63,747,538	(969,967)	(335,532)	(210,804)	62,231,235
Amount of administrative expenses	(291,016)	(1,159)	(7,211)	2,795	(296,591)
Recognition of asset (gains)/losses	(14,814,497)	(231,431)	(87,836)	2,091	(15,131,673)
Salary experience	(31,844,566)	(289,591)	(727,008)	13,429	(32,847,736)
Retirement experience	6,296,368	(387,265)	(38,360)	(41,244)	5,829,499
Withdrawal experience	1,990,638	(159,355)	(265,885)	38,839	1,604,237
Disability experience	(397,876)	(17,267)	(13,893)	(5,829)	(434,865)
Death in Service experience	180,458	(12,754)	16,138	1,472	185,314
Death After Retirement experience	(7,344,092)	692,980	(191,979)	(86,678)	(6,929,769)
New entrants ²	18,775,839	(2)	1,334,770	376,838	20,487,445
Data changes and other experience	5,412,582	46,174	(233,918)	(20,949)	5,203,889
Change in actuarial assumptions	286,742,215	2,438,414	11,054,647	1,293,309	301,528,585
Changes in plan provisions ³	-	-	-	-	-
Total change	<u>328,453,591</u>	<u>1,108,777</u>	<u>10,503,933</u>	<u>1,363,269</u>	<u>341,429,570</u>
Unfunded liability at current valuation	\$ 1,750,648,216	\$ (6,721,299)	\$ 38,432,559	\$ 860,033	\$ 1,783,219,509

RECONCILIATION OF ACTUARIAL EMPLOYER CONTRIBUTION RATE

	Main System	Judges	Public Safety with Prior Main System	
			Service	Service
FY 2022 Actuarial Employer Contribution Rate	12.46%	8.62%	9.33%	7.31%
Expected FY 2023 Actuarial Employer Contribution Rate ¹	12.17%	8.84%	9.22%	7.32%
Expected FY 2023 Actuarial Employer Contribution Rate with New Pay Base	12.16%	8.67%	9.11%	7.16%
Impact due to Pay Base	-0.01%	-0.17%	-0.11%	-0.16%
Change due to:				
Amount of contributions (based on statutory rate) ¹	0.36%	-0.78%	-0.04%	-0.10%
Amount of administrative expenses	-0.03%	-0.02%	-0.01%	0.02%
Recognition of asset (gains)/losses	-0.08%	-0.18%	-0.01%	0.00%
Salary experience	-0.18%	-0.24%	-0.08%	0.01%
Retirement experience	0.03%	-0.31%	0.00%	-0.02%
Withdrawal experience	0.01%	-0.13%	-0.03%	0.02%
Disability experience	0.00%	-0.01%	0.00%	-0.01%
Death in Service experience	0.00%	-0.01%	0.00%	0.01%
Death After Retirement experience	-0.04%	0.56%	-0.02%	-0.04%
New entrants ²	0.11%	0.00%	0.14%	0.17%
Data changes and other experience	0.03%	0.03%	-0.02%	-0.01%
Change in actuarial assumptions	2.33%	4.32%	2.36%	1.95%
Changes in plan provisions ³	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
Total change	<u>2.54%</u>	<u>3.23%</u>	<u>2.29%</u>	<u>2.00%</u>
FY 2023 Actuarial Employer Contribution Rate	14.70%	11.90%	11.40%	9.16%
FY 2023 Statutory Employer Contribution Rate	7.35%	17.52%	9.81%	7.93%

¹ Expected actuarial contribution rate is based on contributions using the actuarial rate. The change due to amount and timing of contributions is based on the statutory contributions that were made compared to the actuarial contributions.

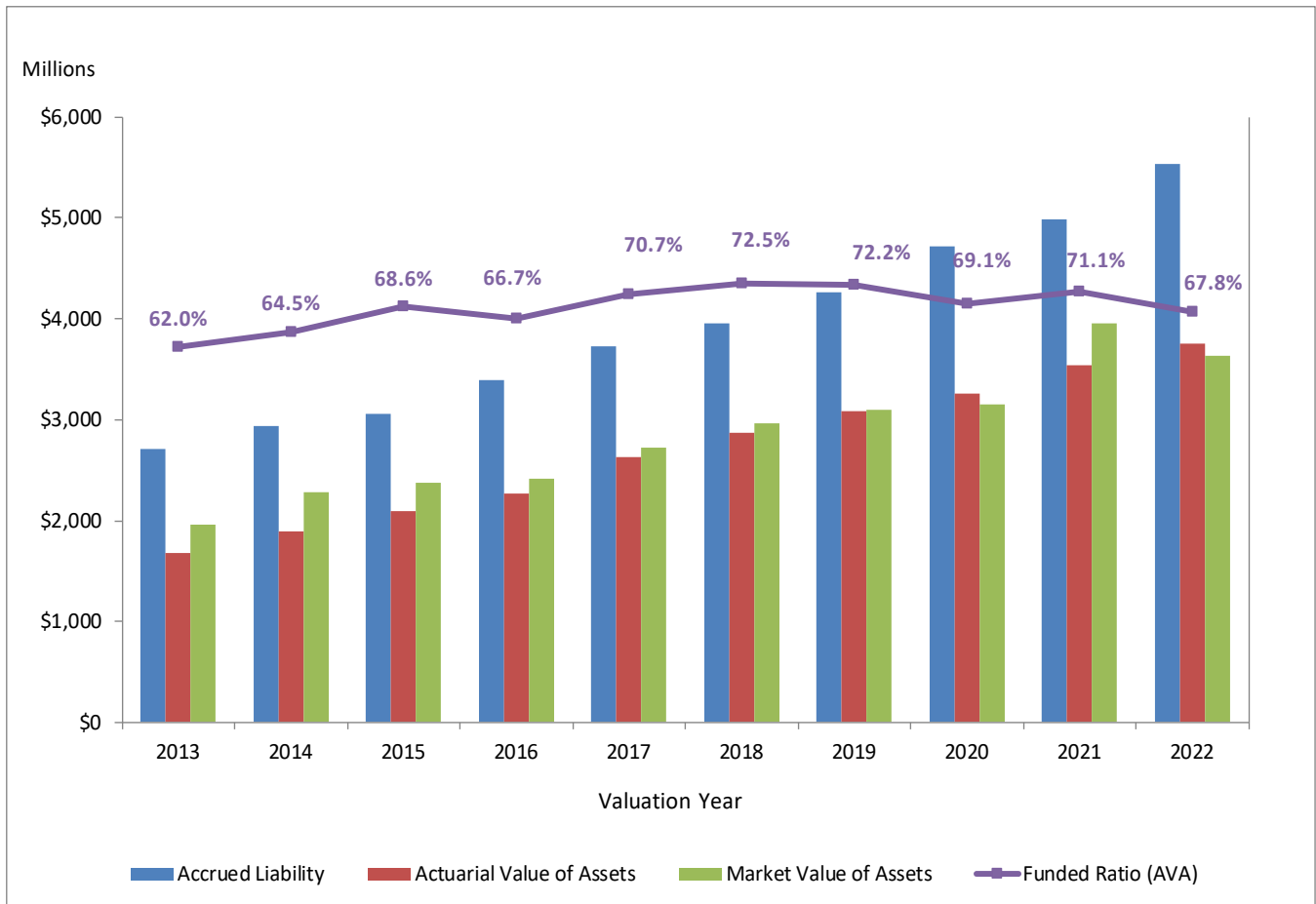
² New entrants change includes the net impact of liability and asset transfers.

³ The change due to the change in the interest rate earned on member contributions is included with assumption changes.

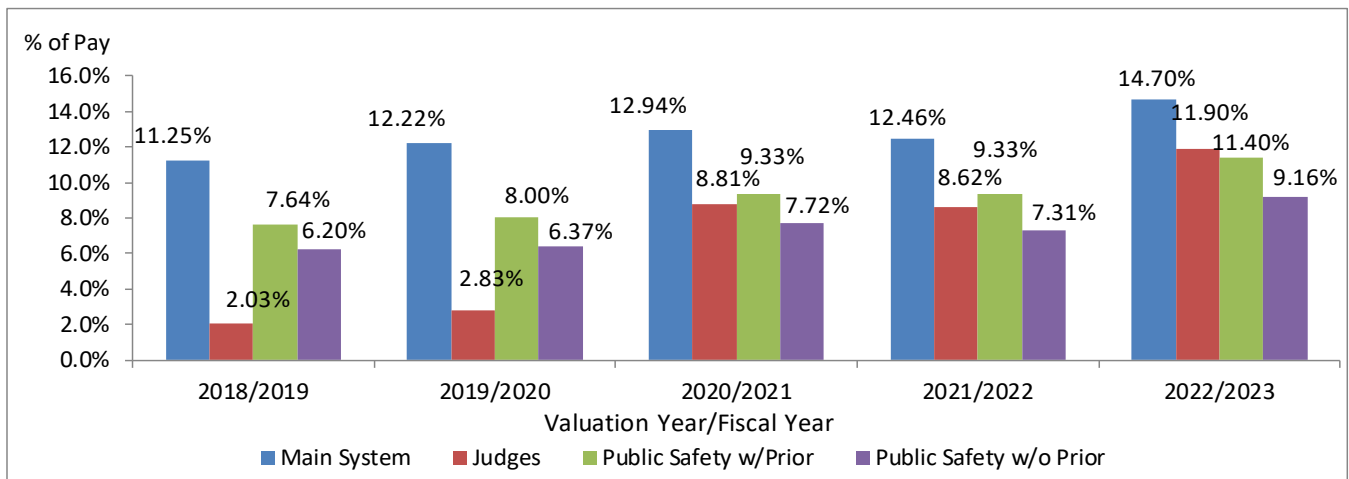


Historical Trends of Funded Ratio and Employer Contributions

Funded Ratio History



Actuarial Employer Contribution Rate History



Actuarial Valuation Results All PERS Plans (\$ in Millions)

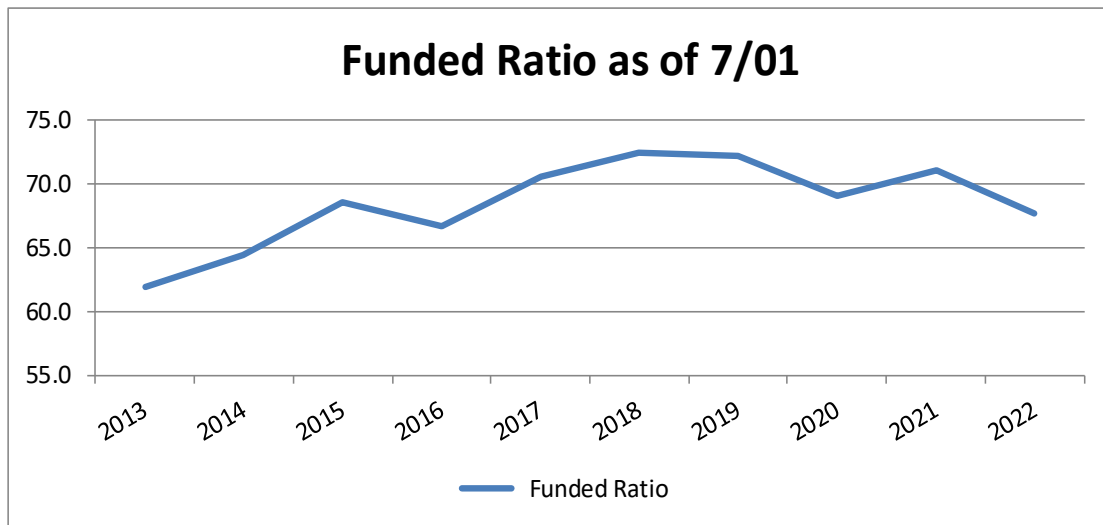
Valuation Date 7/1	Total Actuarial Accrued Liability	(1)	(2)	(3)	Actuarial Value of Assets	Portion (%) of Actuarial Accrued Liability By Assets		
		Active Member Contributions*	Retirees, Beneficiaries and Inactive Members	Active Members (Employer Financed Portion)		(1)	(2)	(3)
2013	\$2,716.5	\$687.9	\$1,126.0	\$902.6	\$1,683.0	100%	88%	0%
2014	2,938.8	746.5	1,255.4	936.9	1,895.8	100%	92%	0%
2015	3,052.4	788.3	1,437.0	827.1	2,094.3	100%	91%	0%
2016	3,396.6	879.3	1,559.5	957.8	2,265.3	100%	89%	0%
2017	3,726.8	943.0	1,751.0	1,032.8	2,633.2	100%	97%	0%
2018	3,959.1	1,027.6	1,917.4	1,014.0	2,868.8	100%	96%	0%
2019	4,269.3	1,068.4	2,163.0	1,037.9	3,081.9	100%	93%	0%
2020	4,717.4	1,138.6	2,404.6	1,174.2	3,260.6	100%	88%	0%
2021	4,991.5	1,213.5	2,601.0	1,177.0	3,546.8	100%	90%	0%
2022	5,533.6	1,256.4	2,921.5	1,355.7	3,750.4	100%	85%	0%

*Includes vested employer contributions for members who have the Portability Enhancement Provision (PEP).



Funded Ratio History

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)
7/1/2013	\$ 1,682,958,500	\$ 2,716,494,800	\$ 1,033,536,300	62.0 %
7/1/2014	1,895,837,700	2,938,752,200	1,042,914,500	64.5
7/1/2015	2,094,251,400	3,052,446,500	958,195,100	68.6
7/1/2016	2,265,277,641	3,396,565,467	1,131,287,826	66.7
7/1/2017	2,633,198,632	3,726,815,087	1,093,616,455	70.7
7/1/2018	2,868,788,729	3,959,094,976	1,090,306,247	72.5
7/1/2019	3,081,881,908	4,269,339,965	1,187,458,057	72.2
7/1/2020	3,260,582,816	4,717,407,497	1,456,824,681	69.1
7/1/2021	3,546,820,478	4,991,542,997	1,444,722,519	71.1
7/1/2022	3,750,359,666	5,533,579,175	1,783,219,509	67.8



Schedule of Funding Progress

Valuation Year	Actuarial Accrued Liabilities	Valuation Assets	Unfunded Actuarial Accrued Liabilities	Ratio of Assets to AAL	Active Member Payroll	UAAL as Percent of Active Member Payroll
2013 ¹	\$ 2,716,494,800	\$ 1,682,958,500	\$ 1,033,536,300	62.0%	\$ 800,878,000	129.1%
2014	2,938,752,200	1,895,837,700	1,042,914,500	64.5%	888,452,060	117.4%
2015	3,052,446,500	2,094,251,400	958,195,100	68.6%	973,536,402	98.4%
2016	3,396,565,467	2,265,277,641	1,131,287,826	66.7%	1,048,548,467	107.9%
2017	3,726,815,087	2,633,198,632	1,093,616,455	70.7%	1,063,371,798	102.8%
2018	3,959,094,976	2,868,788,729	1,090,306,247	72.5%	1,075,957,954	101.3%
2019	4,269,339,965	3,081,881,908	1,187,458,057	72.2%	1,098,416,146	108.1%
2020	4,717,407,497	3,260,582,816	1,456,824,681	69.1%	1,167,767,935	124.8%
2021	4,991,542,997	3,546,820,478	1,444,722,519	71.1%	1,213,675,937	119.0%
2022	5,533,579,175	3,750,359,666	1,783,219,509	67.8%	1,248,307,560	142.9%

¹The active member payroll is approximated based on figures from the NDPERs Comprehensive Annual Financial Report.

SECTION B

ASSET EXHIBITS

Statement of Fiduciary Net Position (Total PERS)

	Fiscal Year Ending	
	June 30, 2021	June 30, 2022
Assets		
Cash	\$ 16,168,202	\$ 19,350,154
Receivables		
Contribution receivable	12,731,180	11,011,361
Interest receivable	8,205,048	8,369,490
Due from other fiduciary funds	-	-
Due from Uniform Group Insurance Plan	-	-
Due from other state agencies	-	-
Total receivables	<u>20,936,228</u>	<u>19,380,851</u>
Investments		
External Investment Pool	3,917,244,099	3,599,792,150
Equities	-	-
Fixed income		
Real estate		
Mutual funds	-	-
Annuities		
Alternative investments	-	-
Invested cash	-	-
Total Investments	<u>3,917,244,099</u>	<u>3,599,792,150</u>
Prepaid expenses	-	-
Invested Securities Lending Collateral	15,875,367	23,022,445
Capital assets (net of depreciation/ amortization)	<u>123,726</u>	<u>174,532</u>
Total assets	<u>3,970,347,622</u>	<u>3,661,720,132</u>
Liabilities		
Salaries payable	131,657	119,901
Accounts payable	4,471,974	2,697,848
Due to other fiduciary funds	-	-
Due to Uniform Group Insurance Plan	-	-
Securities Lending Collateral	15,875,367	23,022,445
Due to other state agencies	18,050	14,068
Accrued compensated absences	<u>127,874</u>	<u>93,968</u>
Total liabilities	<u>20,624,922</u>	<u>25,948,230</u>
Net position restricted for pensions	<u>\$ 3,949,722,700</u>	<u>\$ 3,635,771,902</u>



Statement of Changes in Fiduciary Net Position (Total PERS)

	Fiscal Year Ending	
	June 30, 2021	June 30, 2022
Additions		
Contributions:		
From employer	\$ 91,265,640	\$ 96,630,783
From employee	85,914,756	89,633,939
Transfer from general fund	-	-
Transfers from other plans	-	-
Total contributions	<u>177,180,396</u>	<u>186,264,722</u>
Investment income:		
Net change in fair value of investments	793,302,359	(315,774,045)
Interest and dividends	62,626,623	68,878,159
Less investment expense	<u>(11,212,468)</u>	<u>(9,307,158)</u>
Net investment income	844,716,514	(256,203,044)
Securities Lending Income	216,695	130,680
Repurchase service credit	7,129,269	10,249,235
Miscellaneous income	<u>(1,723)</u>	<u>14,125</u>
Total additions	<u>1,029,241,151</u>	<u>(59,544,282)</u>
Deductions		
Benefits paid to participants	218,414,339	236,144,369
Refunds	12,792,647	15,758,175
Transfers to other plans	<u>93,418</u>	<u>163,705</u>
Administrative expenses	231,300,404	252,066,249
Administrative expenses	<u>2,569,186</u>	<u>2,340,267</u>
Total deductions	<u>233,869,590</u>	<u>254,406,516</u>
Change in net position	795,371,561	(313,950,798)
Net position restricted for pensions		
Beginning of year	<u>3,154,351,139</u>	<u>3,949,722,700</u>
End of year	<u>\$ 3,949,722,700</u>	<u>\$ 3,635,771,902</u>



Market Value of Assets by Plan (Total PERS)

	Fiscal Year Ending									
	June 30, 2021					June 30, 2022				
	Main System	Judges	Public Safety with Prior Main System Service	Public Safety without Prior Main System Service	Total PERS	Main System	Judges	Public Safety with Prior Main System Service	Public Safety without Prior Main System Service	Total PERS
Additions										
Contributions:										
From employer	\$ 83,508,849	\$ 1,389,483	\$ 5,470,675	\$ 896,633	\$ 91,265,640	\$ 87,430,734	\$ 1,661,040	\$ 6,507,951	\$ 1,031,058	\$ 96,630,783
From employee	81,568,186	634,464	3,093,634	618,472	85,914,756	84,487,263	758,464	3,670,857	717,355	89,633,939
Transfer from general fund	-	-	-	-	-	-	-	-	-	-
Transfers from other plans	(12,595,524)	-	12,595,524	-	-	(226,926)	-	226,926	-	-
Total contributions	152,481,511	2,023,947	21,159,833	1,515,105	177,180,396	171,691,071	2,419,504	10,405,734	1,748,413	186,264,722
Investment income	808,404,721	13,443,484	19,768,050	3,100,259	844,716,514	(243,036,606)	(4,454,988)	(7,561,811)	(1,149,639)	(256,203,044)
Securities Lending Income	216,695	-	-	-	216,695	130,680	-	-	-	130,680
Repurchase service credit	6,894,649	-	100,219	134,401	7,129,269	10,069,185	-	106,004	74,046	10,249,235
Miscellaneous income	(1,723)	-	-	-	(1,723)	14,125	-	-	-	14,125
Total additions	967,995,853	15,467,431	41,028,102	4,749,765	1,029,241,151	(61,131,545)	(2,035,484)	2,949,927	672,820	(59,544,282)
Deductions										
Total Benefits, Refunds and Transfers	224,265,853	3,476,894	3,340,691	216,966	231,300,404	244,406,592	3,616,361	3,789,629	253,667	252,066,249
Administrative expenses	2,475,682	7,207	70,701	15,596	2,569,186	2,250,049	6,248	65,321	18,649	2,340,267
Total deductions	226,741,535	3,484,101	3,411,392	232,562	233,869,590	246,656,641	3,622,609	3,854,950	272,316	254,406,516
Change in net position	741,254,318	11,983,330	37,616,710	4,517,203	795,371,561	(307,788,186)	(5,658,093)	(905,023)	400,504	(313,950,798)
Net position restricted for pensions										
Beginning of year	3,011,499,294	56,273,160	74,280,460	12,298,225	3,154,351,139	3,752,753,612	68,256,490	111,897,170	16,815,428	3,949,722,700
End of year	\$ 3,752,753,612	\$ 68,256,490	\$ 111,897,170	\$ 16,815,428	\$ 3,949,722,700	\$ 3,444,965,426	\$ 62,598,397	\$ 110,992,147	\$ 17,215,932	\$ 3,635,771,902

Numbers may not add due to rounding.



Development of Actuarial Value of Assets (Total PERS)

Fiscal Year Ending	2021	2022	2023	2024	2025	2026
Beginning of Year:						
(1) Market Value of Assets	\$ 3,154,351,139	\$ 3,949,722,700				
(2) Actuarial Value of Assets ¹	3,260,582,816	3,546,820,478				
End of Year:						
(3) Market Value of Assets	3,949,722,700	3,635,771,902				
(4a) Contributions (Incl. repurchase svc credit)	184,307,942	196,528,082				
(4b) Net Disbursements	233,869,590	254,406,516				
(5) Total Investment Income	844,933,209	(256,072,364)				
=(3)-(1)-(4a)+(4b)						
(6) Projected Rate of Return	7.00%	7.00%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ^{.5-1})x(4a-4b)	219,099,260	274,489,105				
(8) Asset Adjustment	-	-				
(9) Investment Income in Excess of Projected Income	625,833,949	(530,561,469)				
(10) Excess Investment Income Recognized This Year (5-year recognition)						
(10a) From This Year	\$ 125,166,790	\$ (106,112,294)				
(10b) From One Year Ago	(25,909,518)	125,166,790	\$ (106,112,294)			
(10c) From Two Years Ago	(13,819,919)	(25,909,518)	125,166,790	\$ (106,112,294)		
(10d) From Three Years Ago	7,603,457	(13,819,919)	(25,909,518)	125,166,790	\$ (106,112,294)	
(10e) From Four Years Ago	23,659,240	7,603,458	(13,819,921)	(25,909,519)	125,166,789	\$ (106,112,293)
(10f) Total Recognized Investment Gain/(Loss)	116,700,050	(13,071,483)	(20,674,943)	(6,855,023)	19,054,495	(106,112,293)
(11) Change in Actuarial Value of Assets						
=(4a)-(4b)+(7)+(8)+(10f)	286,237,662	203,539,188				
End of Year:						
(3) Market Value of Assets	\$ 3,949,722,700	\$ 3,635,771,902				
(12) Final Actuarial Value of Assets as of 6/30 = (2)+(11)	\$ 3,546,820,478	\$ 3,750,359,666				
(13) Difference between Market & Actuarial Values	402,902,222	(114,587,764)				
(14) Estimated Market Value Rate of Return on Total Plan Assets	27.00%	(6.53)%				
(15) Actuarial Value Rate of Return	10.38%	7.43%				
(16) Ratio of Actuarial Value to Market Value	89.8%	103.2%				

¹Asset gains and losses in FY 2016 and prior were fully recognized as of July 1, 2017, and subsequent asset gains/losses are smoothed in over a five-year period.



Actuarial Value of Assets by Plan (Total PERS)

Valuation as of July 1, 2022					
	Main System	Judges	Public Safety with Prior	Public Safety without Prior	Total
Market Value of Assets	\$ 3,444,965,426	\$ 62,598,397	\$ 110,992,147	\$ 17,215,932	\$ 3,635,771,902
% of Total	94.75%	1.72%	3.05%	0.47%	100.00%
Actuarial Value of Assets	\$ 3,553,539,588	\$ 64,571,296	\$ 114,490,260	\$ 17,758,522	\$ 3,750,359,666
% of Total	94.75%	1.72%	3.05%	0.47%	100.00%
Ratio of Actuarial Value to Market Value	103.15%	103.15%	103.15%	103.15%	103.15%
Difference between Market Value and Actuarial Value	\$ (108,574,162)	\$ (1,972,899)	\$ (3,498,113)	\$ (542,590)	\$ (114,587,764)

Valuation as of July 1, 2021					
	Main System	Judges	Public Safety with Prior	Public Safety without Prior	Total
Market Value of Assets	\$ 3,752,753,612	\$ 68,256,490	\$ 111,897,170	\$ 16,815,428	\$ 3,949,722,700
% of Total	95.01%	1.73%	2.83%	0.43%	100.00%
Actuarial Value of Assets	\$ 3,369,943,759	\$ 61,293,801	\$ 100,482,794	\$ 15,100,124	\$ 3,546,820,478
% of Total	95.01%	1.73%	2.83%	0.43%	100.00%
Ratio of Actuarial Value to Market Value	89.80%	89.80%	89.80%	89.80%	89.80%
Difference between Market Value and Actuarial Value	\$ 382,809,853	\$ 6,962,689	\$ 11,414,376	\$ 1,715,304	\$ 402,902,222

Market value of assets by plan provided by NDPERS Staff.

Actuarial value of assets by plan allocated based on the proportion of the market value of assets as of the actuarial valuation date.

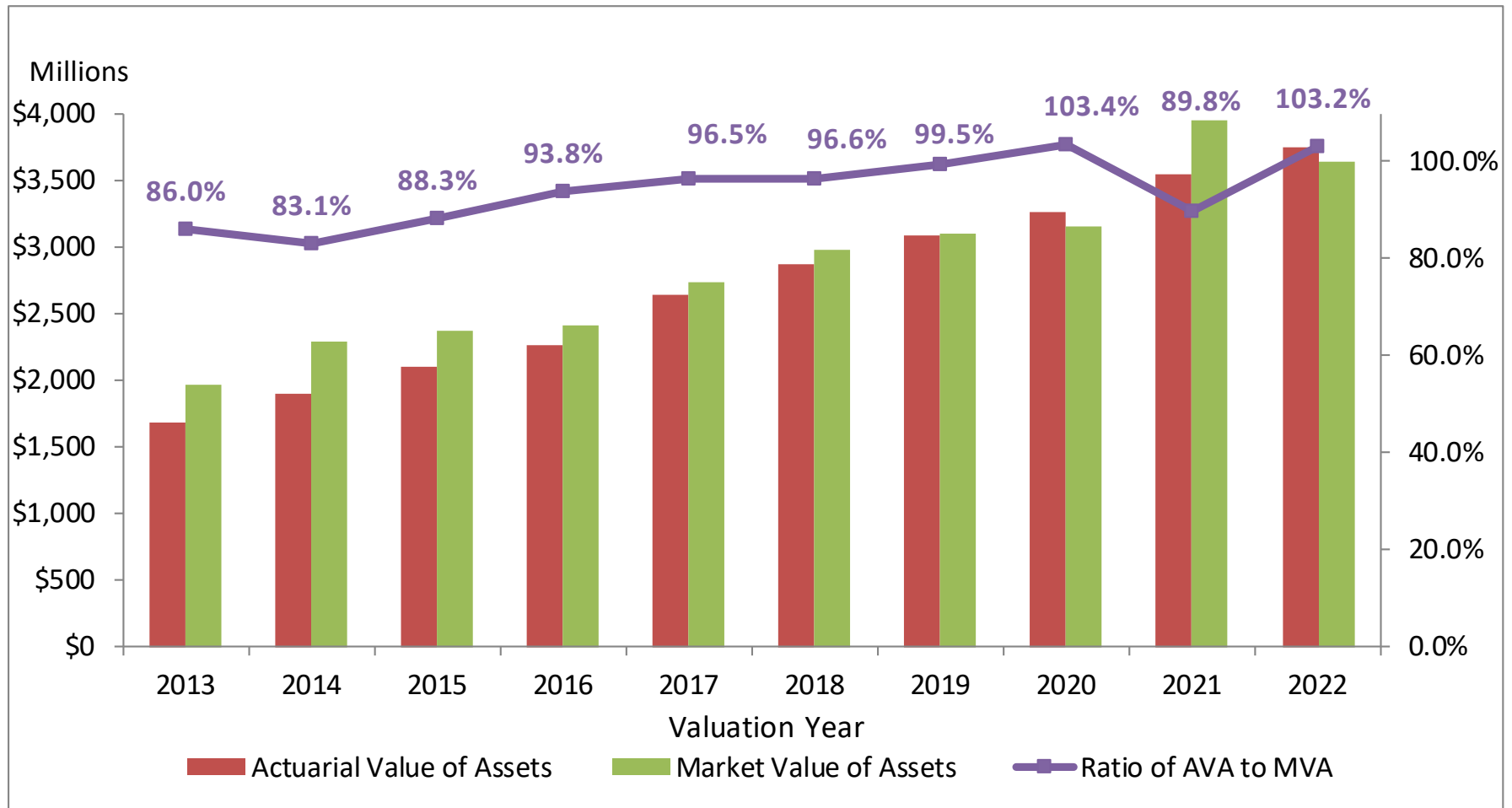
Changes in Actuarial Value of Assets (Total PERS)

Date	Employer Contributions	Member Contributions ¹	Transfers from/(to) Other Funds	Administrative Expenses	Benefit Payments and Refunds	Actuarial Value Investment Income	Actuarial Value of Assets at End of Year	Market Value of Assets at End of Year
7/1/2013	\$48,846,796	\$54,285,278	(\$212,500)	\$(2,059,315)	\$(109,079,601)	\$63,782,233	\$1,682,958,527	\$1,957,670,026
7/1/2014	61,661,050	67,719,340	(347,783)	(2,158,712)	(119,538,541)	205,543,853	1,895,837,734	2,281,582,863
7/1/2015	70,842,535	75,043,940	(584,727)	(2,365,357)	(134,397,090)	189,874,321	2,094,251,356	2,371,710,809
7/1/2016	77,080,576	83,397,439	23,176,288	(2,537,799)	(149,265,492)	139,175,273	2,265,277,641	2,414,895,657
7/1/2017	78,933,571	87,812,526	(239,609)	(2,607,243)	(162,752,359)	366,774,105	2,633,198,632	2,727,835,589
7/1/2018	80,727,209	97,446,721	(190,727)	(2,472,761)	(182,330,936)	242,410,591	2,868,788,729	2,970,180,276
7/1/2019	81,588,318	85,427,636	(330,963)	(2,531,304)	(197,426,974)	246,366,466	3,081,881,908	3,096,731,081
7/1/2020	85,504,033	92,293,674	(118,721)	(2,729,759)	(218,435,167)	222,186,848	3,260,582,816	3,154,351,139
7/1/2021	91,265,640	93,042,302	(93,418)	(2,569,186)	(231,206,986)	335,799,310	3,546,820,478	3,949,722,700
7/1/2022	96,630,783	99,897,299	(163,705)	(2,340,267)	(251,902,544)	261,417,622	3,750,359,666	3,635,771,902
10-Year Total	773,080,511	836,366,155	20,894,135	(24,371,703)	(1,756,335,690)	2,273,330,622		

¹ Includes repurchases of service credit and miscellaneous income.



Historical Comparison of Actuarial Value of Assets to Market Value of Assets (Total PERS)

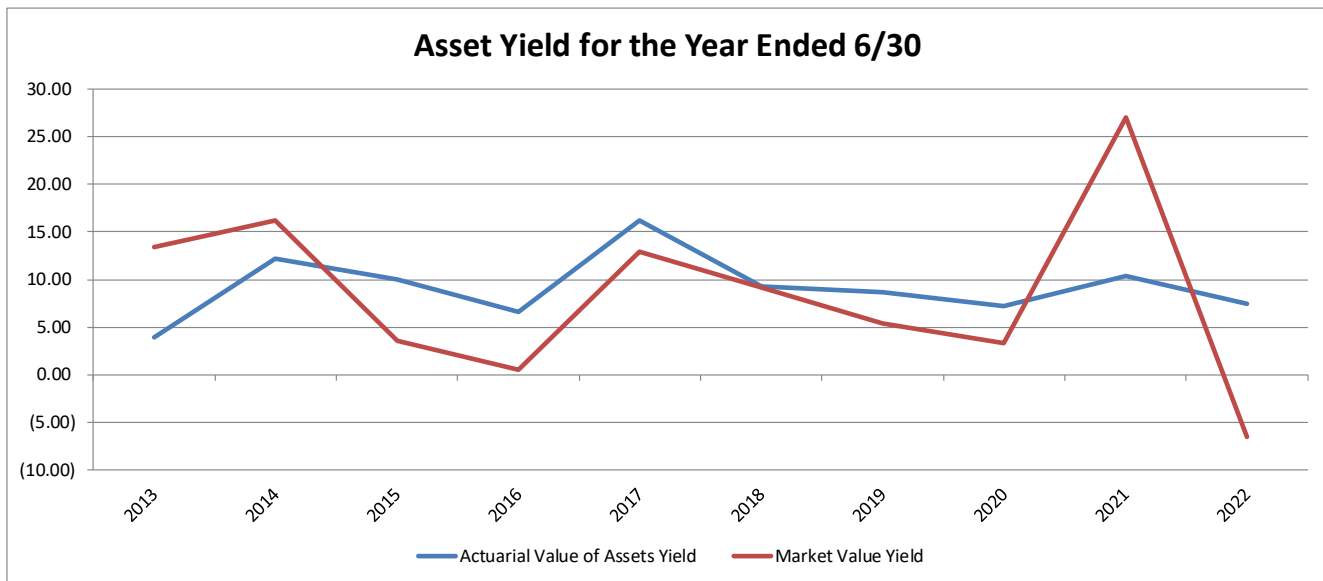


Values prior to July 1, 2016, were calculated by the prior actuary.



Historical Comparison of Total Investment Income (Total PERS)

Actuarial Valuation Date	Non-Investment Income Amount	Total Investment Income (Actuarial Assets Basis)			Total Investment Income (Market Assets Basis)		
		Amount	Yield	Actuarial Value of Assets	Amount	Yield	Market Value of Assets
7/1/2013	\$ (8,219,342)	\$ 63,782,233	3.93 %	\$ 1,682,958,527	\$ 231,849,472	13.40 %	\$ 1,957,670,026
7/1/2014	7,335,354	205,543,853	12.19	1,895,837,734	316,577,483	16.14	2,281,582,863
7/1/2015	8,539,301	189,874,321	9.99	2,094,251,356	81,588,645	3.57	2,371,710,809
7/1/2016	31,851,012	139,175,273	6.60	2,265,277,641	11,333,836	0.47	2,414,895,657
7/1/2017	1,146,886	366,774,105	16.19	2,633,198,632	311,793,046	12.91	2,727,835,589
7/1/2018	(6,820,494)	242,410,591	9.22	2,868,788,729	249,165,181	9.15	2,970,180,276
7/1/2019	(33,273,287)	246,366,466	8.64	3,081,881,908	159,824,092	5.41	3,096,731,081
7/1/2020	(43,485,940)	222,186,848	7.26	3,260,582,816	101,105,998	3.29	3,154,351,139
7/1/2021	(49,561,648)	335,799,310	10.38	3,546,820,478	844,933,209	27.00	3,949,722,700
7/1/2022	(57,878,434)	261,417,622	7.43	3,750,359,666	(256,072,364)	(6.53)	3,635,771,902
10-Year Total	(150,366,592)	2,273,330,622	9.18		2,052,098,598	8.48	



Values prior to July 1, 2016, were calculated by the prior actuary.



SECTION C

ACTUARIAL VALUATION DATA

Summary of Participant Data (July 1, 2021, and July 1, 2022)

	Valuation as of July 1, 2022				
	Main System	Judges	Public Safety w/ Prior Main		Total
			System Service	Public Safety w/o Prior Main System Service	
Active Members					
Number	23,487	57	990	245	24,779
Average Age	46.1	56.9	36.7	38.2	45.7
Average Vesting Service	9.3	16.0	7.9	6.3	9.3
Total Payroll	\$ 1,160,836,487	\$ 8,729,372	\$ 64,746,118	\$ 13,995,584	\$ 1,248,307,560
Inactive Members¹					
Number	7,284	2	238	86	7,610
Total Benefits	\$ 47,230,786	\$ 55,333	\$ 1,587,054	\$ 296,847	\$ 49,170,020
Inactive Members Elected Refunds¹					
Number	8,427	-	186	60	8,673
Total Account Balance	\$ 34,772,453	\$ -	\$ 1,174,144	\$ 183,948	\$ 36,130,545
Retired, Disabled and Beneficiary Members					
Number	13,977	64	148	15	14,204
Total Benefits	\$ 233,423,378	\$ 3,685,840	\$ 3,271,877	\$ 145,675	\$ 240,526,769
Total Membership	53,175	123	1,562	406	55,266

	Valuation as of July 1, 2021				
	Main System	Judges	Public Safety w/ Prior Main		Total
			System Service	Public Safety w/o Prior Main System Service	
Active Members					
Number	23,370	57	967	200	24,594
Average Age	46.2	56.4	36.5	37.8	45.7
Average Vesting Service	9.5	15.4	7.6	5.8	9.4
Total Payroll	\$ 1,132,390,738	\$ 8,654,665	\$ 61,533,502	\$ 11,097,033	\$ 1,213,675,937
Inactive Members¹					
Number	6,838	1	181	74	7,094
Total Benefits	\$ 43,437,177	\$ 24,051	\$ 1,238,971	\$ 253,160	\$ 44,953,360
Inactive Members Elected Refunds¹					
Number	7,639	-	174	64	7,877
Total Account Balance	\$ 31,518,682	\$ -	\$ 1,031,133	\$ 199,716	\$ 32,749,531
Retired, Disabled and Beneficiary Members					
Number	13,361	63	137	14	13,575
Total Benefits	\$ 215,323,434	\$ 3,637,743	\$ 2,948,915	\$ 139,708	\$ 222,049,800
Total Membership	51,208	121	1,459	352	53,140

¹Includes transferred members.



Age/Service/Salary by Group as of July 1, 2022

Main System

Current Age	Vesting Service as of Valuation Date								Totals	Valuation Payroll	Contribution Account Balance *
	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35 and Over			
Under 20	76	-	-	-	-	-	-	-	76	\$ 1,891,114	\$ 75,985
20-24	977	6	-	-	-	-	-	-	983	32,579,278	3,364,964
25-29	1,535	266	4	-	-	-	-	-	1,805	76,403,606	16,972,278
30-34	1,498	715	137	3	-	-	-	-	2,353	110,467,164	44,707,242
35-39	1,461	824	493	143	5	1	-	-	2,927	146,885,701	88,113,049
40-44	1,169	776	501	352	112	5	-	-	2,915	153,009,555	124,420,414
45-49	928	680	462	297	299	90	4	-	2,760	145,611,428	152,696,910
50-54	806	564	480	331	283	235	104	6	2,809	148,645,501	196,870,554
55-59	769	546	484	359	326	232	197	113	3,026	158,376,725	246,265,721
60-64	534	507	430	356	355	190	153	218	2,743	139,014,577	245,146,478
65-69	191	157	135	109	75	42	34	64	807	37,381,171	63,878,840
70-74	61	39	35	26	17	11	9	14	212	8,412,108	13,001,229
75 and Over	24	13	11	9	1	1	5	7	71	2,158,560	3,013,621
Total	10,029	5,093	3,172	1,985	1,473	807	506	422	23,487	\$ 1,160,836,487	\$ 1,198,527,286

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	Previous Valuation	Current Valuation	Change
Average Age:	46.2	46.1	(0.1)
Average Vesting Service:	9.5	9.3	(0.2)
Average Annual Pay:	\$48,455	\$49,425	\$970
Average Account Balance:	\$49,675	\$51,029	\$1,354
Vested Participants	16,281	16,276	(5)
Nonvested Participants	7,089	7,211	122
Total Participants	23,370	23,487	117

Current Age	Annualized Salary as of Valuation Date										Totals
	Less Than \$20,000	\$20,000-\$29,999	\$30,000-\$39,999	\$40,000-\$49,999	\$50,000-\$59,999	\$60,000-\$69,999	\$70,000-\$79,999	\$80,000-\$89,999	\$90,000-\$99,999	\$100,000 & Over	
Under 20	33	18	17	7	1	-	-	-	-	-	76
20-24	218	257	151	215	113	19	8	2	-	-	983
25-29	160	294	308	455	362	159	48	8	6	5	1,805
30-34	193	292	332	536	485	266	139	68	22	20	2,353
35-39	242	393	349	533	560	379	200	117	71	83	2,927
40-44	214	353	352	507	549	368	247	122	86	117	2,915
45-49	173	391	340	505	439	347	220	132	80	133	2,760
50-54	164	371	379	490	476	360	216	129	85	139	2,809
55-59	170	423	414	568	553	353	188	126	73	158	3,026
60-64	161	368	454	538	461	297	197	100	68	99	2,743
65-69	97	145	127	133	117	67	56	25	10	30	807
70-74	56	44	28	29	24	14	6	4	1	6	212
75 and Over	26	21	7	9	1	3	2	-	-	2	71
Total	1,907	3,370	3,258	4,525	4,141	2,632	1,527	833	502	792	23,487

*Contribution account balance includes Portability Enhancement Provision (PEP) balance.



Age/Service/Salary by Group as of July 1, 2022

Judges

Current Age	Vesting Service as of Valuation Date								Totals	Valuation Payroll	Contribution Account Balance
	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35 and Over			
Under 20	-	-	-	-	-	-	-	-	0	\$ -	\$ -
20-24	-	-	-	-	-	-	-	-	0	-	-
25-29	-	-	-	-	-	-	-	-	0	-	-
30-34	-	-	-	-	-	-	-	-	0	-	-
35-39	1	2	-	-	-	-	-	-	3	459,728	115,475
40-44	1	1	2	1	-	-	-	-	5	760,860	367,312
45-49	1	3	2	3	1	-	-	-	10	1,539,720	821,111
50-54	2	1	-	1	2	1	1	-	8	1,166,376	1,321,948
55-59	-	1	1	2	3	-	1	-	8	1,235,736	1,180,473
60-64	1	-	1	2	1	1	-	-	6	931,032	1,247,706
65-69	-	4	2	5	1	-	1	1	14	2,165,736	3,082,916
70-74	-	1	-	-	-	1	-	-	2	304,344	261,401
75 and Over	-	-	-	-	-	-	-	1	1	165,840	1,242,552
Total	6	13	8	14	8	3	3	2	57	\$ 8,729,372	\$ 9,640,895

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	Previous Valuation	Current Valuation	Change
Average Age:	56.4	56.9	0.5
Average Vesting Service:	15.4	16.0	0.6
Average Annual Pay:	\$151,836	\$153,147	\$1,311
Average Account Balance:	\$150,198	\$169,139	\$18,941
Vested Participants	55	55	0
Nonvested Participants	2	2	0
Total Participants	57	57	0

Current Age	Annualized Salary as of Valuation Date										Totals
	Less Than \$20,000	\$20,000-\$29,999	\$30,000-\$39,999	\$40,000-\$49,999	\$50,000-\$59,999	\$60,000-\$69,999	\$70,000-\$79,999	\$80,000-\$89,999	\$90,000-\$99,999	\$100,000 & Over	
Under 20	-	-	-	-	-	-	-	-	-	-	0
20-24	-	-	-	-	-	-	-	-	-	-	0
25-29	-	-	-	-	-	-	-	-	-	-	0
30-34	-	-	-	-	-	-	-	-	-	-	0
35-39	-	-	-	-	-	-	-	-	-	3	3
40-44	-	-	-	-	-	-	-	-	-	5	5
45-49	-	-	-	-	-	-	-	-	-	10	10
50-54	-	-	-	-	-	-	-	-	1	7	8
55-59	-	-	-	-	-	-	-	-	-	8	8
60-64	-	-	-	-	-	-	-	-	-	6	6
65-69	-	-	-	-	-	-	-	-	-	14	14
70-74	-	-	-	-	-	-	-	-	-	2	2
75 and Over	-	-	-	-	-	-	-	-	-	1	1
Total	0	0	0	0	0	0	0	0	1	56	57



Age/Service/Salary by Group as of July 1, 2022

Public Safety with Prior Main System Service

Current Age	Vesting Service as of Valuation Date								Totals	Valuation Payroll	Contribution Account Balance *
	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35 and Over			
Under 20	1	-	-	-	-	-	-	-	1	\$ 46,680	\$ 826
20-24	89	2	-	-	-	-	-	-	91	4,876,790	470,654
25-29	110	70	-	-	-	-	-	-	180	10,395,292	2,610,882
30-34	79	97	27	-	-	-	-	-	203	12,692,443	4,981,663
35-39	50	74	67	12	2	-	-	-	205	13,803,674	8,014,163
40-44	30	34	31	19	6	-	-	-	120	8,498,885	6,468,224
45-49	15	13	12	18	20	4	-	-	82	6,387,156	6,791,999
50-54	16	8	9	9	11	2	4	-	59	4,404,008	5,934,332
55-59	9	3	3	9	3	4	4	-	35	2,536,109	3,473,521
60-64	2	1	3	-	1	1	3	-	11	892,493	1,546,065
65-69	-	1	1	1	-	-	-	-	3	212,588	135,425
70-74	-	-	-	-	-	-	-	-	0	-	-
75 and Over	-	-	-	-	-	-	-	-	0	-	-
Total	401	303	153	68	43	11	11	0	990	\$ 64,746,118	\$ 40,427,754

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	Previous Valuation	Current Valuation	Change
Average Age:	36.5	36.7	0.2
Average Vesting Service:	7.6	7.9	0.3
Average Annual Pay:	\$63,633	\$65,400	\$1,767
Average Account Balance:	\$38,574	\$40,836	\$2,262
Vested Participants	715	752	37
Nonvested Participants	252	238	(14)
Total Participants	967	990	23

Current Age	Annualized Salary as of Valuation Date										Totals
	Less Than \$20,000	\$20,000-\$29,999	\$30,000-\$39,999	\$40,000-\$49,999	\$50,000-\$59,999	\$60,000-\$69,999	\$70,000-\$79,999	\$80,000-\$89,999	\$90,000-\$99,999	\$100,000 & Over	
Under 20	-	-	-	1	-	-	-	-	-	-	1
20-24	1	-	3	32	36	12	7	-	-	-	91
25-29	6	2	2	33	62	37	35	2	1	-	180
30-34	3	1	4	26	55	55	43	11	1	4	203
35-39	1	3	5	19	36	52	53	24	4	8	205
40-44	2	1	-	10	16	29	35	16	6	5	120
45-49	-	-	-	10	6	10	22	16	9	9	82
50-54	-	1	-	3	9	11	15	7	7	6	59
55-59	-	-	-	7	4	5	10	4	1	4	35
60-64	-	-	-	-	2	2	2	1	-	4	11
65-69	-	-	-	-	1	-	2	-	-	-	3
70-74	-	-	-	-	-	-	-	-	-	-	0
75 and Over	-	-	-	-	-	-	-	-	-	-	0
Total	13	8	14	141	227	213	224	81	29	40	990

*Contribution account balance includes Portability Enhancement Provision (PEP) balance.



Age/Service/Salary by Group as of July 1, 2022

Public Safety without Prior Main System Service

Current Age	Vesting Service as of Valuation Date								Totals	Valuation Payroll	Contribution Account Balance *
	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35 and Over			
Under 20	2	-	-	-	-	-	-	-	2	\$ 62,718	\$ 1,933
20-24	26	-	-	-	-	-	-	-	26	1,177,785	92,980
25-29	31	7	-	-	-	-	-	-	38	1,824,285	280,707
30-34	31	7	2	-	-	-	-	-	40	2,018,153	375,740
35-39	21	14	5	2	-	-	-	-	42	2,431,600	1,039,438
40-44	11	14	5	5	-	-	-	-	35	2,234,917	1,171,166
45-49	7	4	6	1	1	-	-	-	19	1,255,961	449,043
50-54	4	1	7	2	1	1	1	-	17	1,027,594	1,184,886
55-59	7	3	4	2	1	-	1	1	19	1,374,437	1,368,801
60-64	1	1	-	3	1	-	-	-	6	518,717	1,508,906
65-69	-	-	-	-	-	1	-	-	1	69,417	372,380
70-74	-	-	-	-	-	-	-	-	0	-	-
75 and Over	-	-	-	-	-	-	-	-	0	-	-
Total	141	51	29	15	4	2	2	1	245	\$ 13,995,584	\$ 7,845,979

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Previous Valuation		Current Valuation		Change
Average Age:	37.8	Average Age:	38.2	0.4
Average Vesting Service:	5.8	Average Vesting Service:	6.3	0.5
Average Annual Pay:	\$55,485	Average Annual Pay:	\$57,125	\$1,640
Average Account Balance:	\$34,051	Average Account Balance:	\$32,024	(\$2,027)
Vested Participants	109	Vested Participants	164	55
Nonvested Participants	91	Nonvested Participants	81	(10)
Total Participants	200	Total Participants	245	45

Current Age	Annualized Salary as of Valuation Date										Totals
	Less Than \$20,000	\$20,000-\$29,999	\$30,000-\$39,999	\$40,000-\$49,999	\$50,000-\$59,999	\$60,000-\$69,999	\$70,000-\$79,999	\$80,000-\$89,999	\$90,000-\$99,999	\$100,000 & Over	
Under 20	-	-	2	-	-	-	-	-	-	-	2
20-24	2	1	3	9	11	-	-	-	-	-	26
25-29	2	1	3	11	19	2	-	-	-	-	38
30-34	1	2	2	8	23	4	-	-	-	-	40
35-39	1	1	4	3	16	10	5	-	1	1	42
40-44	-	-	-	3	11	13	5	1	2	-	35
45-49	1	-	-	-	6	3	5	3	1	-	19
50-54	1	-	-	4	3	3	4	1	1	-	17
55-59	-	-	-	-	2	9	3	2	2	1	19
60-64	-	-	-	-	1	1	-	1	2	1	6
65-69	-	-	-	-	-	1	-	-	-	-	1
70-74	-	-	-	-	-	-	-	-	-	-	0
75 and Over	-	-	-	-	-	-	-	-	-	-	0
Total	8	5	14	38	92	46	22	8	9	3	245

*Contribution account balance includes Portability Enhancement Provision (PEP) balance.



Age/Service/Salary by Group as of July 1, 2022

Combined Main System, Judges and Public Safety

Current Age	Vesting Service as of Valuation Date									Totals	Valuation Payroll	Contribution Account Balance *
	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35 and Over				
Under 20	79	-	-	-	-	-	-	-	-	79	\$ 2,000,512	\$ 78,743
20-24	1,092	8	-	-	-	-	-	-	-	1,100	38,633,853	3,928,598
25-29	1,676	343	4	-	-	-	-	-	-	2,023	88,623,183	19,863,867
30-34	1,608	819	166	3	-	-	-	-	-	2,596	125,177,759	50,064,645
35-39	1,533	914	565	157	7	1	-	-	-	3,177	163,580,703	97,282,126
40-44	1,211	825	539	377	118	5	-	-	-	3,075	164,504,217	132,427,116
45-49	951	700	482	319	321	94	4	-	-	2,871	154,794,264	160,759,063
50-54	828	574	496	343	297	239	110	6	2,893	155,243,478	205,311,720	
55-59	785	553	492	372	333	236	203	114	3,088	163,523,007	252,288,516	
60-64	538	509	434	361	358	192	156	218	2,766	141,356,820	249,449,156	
65-69	191	162	138	115	76	43	35	65	825	39,828,912	67,469,559	
70-74	61	40	35	26	17	12	9	14	214	8,716,452	13,262,630	
75 and Over	24	13	11	9	1	1	5	8	72	2,324,400	4,256,173	
Total	10,577	5,460	3,362	2,082	1,528	823	522	425	24,779	\$ 1,248,307,560	\$ 1,256,441,914	

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Previous Valuation	Current Valuation	Change
Average Age: 45.7	Average Age: 45.7	0.0
Average Vesting Service: 9.4	Average Vesting Service: 9.3	(0.1)
Average Annual Pay: \$49,348	Average Annual Pay: \$50,378	\$1,030
Average Account Balance: \$49,345	Average Account Balance: \$50,706	\$1,361
Vested Participants 17,160	Vested Participants 17,247	87
Nonvested Participants 7,434	Nonvested Participants 7,532	98
Total Participants 24,594	Total Participants 24,779	185

Current Age	Annualized Salary as of Valuation Date										Totals
	Less Than \$20,000	\$20,000- \$29,999	\$30,000- \$39,999	\$40,000- \$49,999	\$50,000- \$59,999	\$60,000- \$69,999	\$70,000- \$79,999	\$80,000- \$89,999	\$90,000- \$99,999	\$100,000 & Over	
Under 20	33	18	19	8	1	-	-	-	-	-	79
20-24	221	258	157	256	160	31	15	2	-	-	1,100
25-29	168	297	313	499	443	198	83	10	7	5	2,023
30-34	197	295	338	570	563	325	182	79	23	24	2,596
35-39	244	397	358	555	612	441	258	141	76	95	3,177
40-44	216	354	352	520	576	410	287	139	94	127	3,075
45-49	174	391	340	515	451	360	247	151	90	152	2,871
50-54	165	372	379	497	488	374	235	137	94	152	2,893
55-59	170	423	414	575	559	367	201	132	76	171	3,088
60-64	161	368	454	538	464	300	199	102	70	110	2,766
65-69	97	145	127	133	118	68	58	25	10	44	825
70-74	56	44	28	29	24	14	6	4	1	8	214
75 and Over	26	21	7	9	1	3	2	-	-	3	72
Total	1,928	3,383	3,286	4,704	4,460	2,891	1,773	922	541	891	24,779

*Contribution account balance includes Portability Enhancement Provision (PEP) balance.



Historical Schedule of Active Member Data through July 1, 2022

Main System				
Valuation Date 7/1	Number	Annual Payroll (\$ in Millions)	Average Annual Pay ¹	% Increase in Avg Pay
2013	21,201	\$865.9	\$40,841	8.4%
2014	21,814	946.2	43,376	9.3%
2015	22,381	993.6	43,395	0.0%
2016	22,762	1,007.8	44,274	2.0%
2017	22,574	1,020.8	45,222	2.1%
2018	22,711	1,027.3	45,234	0.0%
2019	22,826	1,040.2	45,570	0.7%
2020	23,487	1,103.1	46,967	3.1%
2021	23,370	1,132.4	48,455	3.2%
2022	23,487	1,160.8	49,425	2.0%

Judges				
Valuation Date 7/1	Number	Annual Payroll (\$ in Millions)	Average Annual Pay ¹	% Increase in Avg Pay
2013	49	\$6.6	\$134,673	8.0%
2014	50	7.0	139,290	3.4%
2015	51	7.3	142,636	2.4%
2016	56	7.9	141,733	(0.6)%
2017	54	7.9	145,668	2.8%
2018	55	8.0	145,615	(0.0)%
2019	56	8.2	145,791	0.1%
2020	57	8.4	148,047	1.5%
2021	57	8.7	151,836	2.6%
2022	57	8.7	153,147	0.9%

¹ Prior to the actuarial valuation as of July 1, 2016, annual payroll is based on projected annual compensation for the upcoming year. Beginning with the actuarial valuation as of July 1, 2016, annual payroll and average annual pay are based on annualized payroll as of the actuarial valuation date.

Values prior to July 1, 2016, were calculated by the prior actuary.

Historical Schedule of Active Member Data through July 1, 2022

Public Safety with Prior Main System Service				
Valuation Date 7/1	Number	Annual Payroll (\$ in Millions)	Average Annual Pay ¹	% Increase in Avg Pay
2013	268	\$13.4	\$49,981	10.9%
2014	315	16.7	53,121	6.3%
2015	318	18.7	58,781	10.7%
2016	498	28.2	56,678	(3.6)%
2017	498	28.8	57,762	1.9%
2018	598	34.5	57,728	(0.1)%
2019	732	43.0	58,731	1.7%
2020	745	45.4	60,918	3.7%
2021	967	61.5	63,633	4.5%
2022	990	64.7	65,400	2.8%

Public Safety without Prior Main System Service				
Valuation Date 7/1	Number	Annual Payroll (\$ in Millions)	Average Annual Pay ¹	% Increase in Avg Pay
2013	70	\$2.6	\$36,998	1.1%
2014	83	3.6	43,872	18.6%
2015	95	4.6	48,204	9.9%
2016	100	4.6	46,217	(4.1)%
2017	117	5.9	50,400	9.0%
2018	119	6.1	51,352	1.9%
2019	140	7.1	50,646	(1.4)%
2020	200	10.8	54,124	6.9%
2021	200	11.1	55,485	2.5%
2022	245	14.0	57,125	3.0%

¹Prior to the actuarial valuation as of July 1, 2016, annual payroll is based on projected annual compensation for the upcoming year. Beginning with the actuarial valuation as of July 1, 2016, annual payroll and average annual pay are based on annualized payroll as of the actuarial valuation date.

Values prior to July 1, 2016, were calculated by the prior actuary.



Summary of Active Member Data as of July 1, 2022

Active Members Eligible For:	Main System	Judges	Public Safety with Prior Main Service	Public Safety without Prior Main Service	Total
Retirement					
Normal	1,090	17	44	21	1,172
Rule of 85*	1,175	2	2	1	1,180
Early Retirement	<u>3,780</u>	<u>12</u>	<u>52</u>	<u>13</u>	<u>3,857</u>
Total Retirement	6,045	31	98	35	6,209
Deferred Retirement	<u>10,231</u>	<u>24</u>	<u>654</u>	<u>129</u>	<u>11,038</u>
Total Vested	16,276	55	752	164	17,247
Non-Vested	7,211	2	238	81	7,532
Grand Total	23,487	57	990	245	24,779

**Includes Rule of 85, Rule of 88 and Rule of 90.*

Five-Year Normal Retirement Eligibility Projection

Main System				
		Age 65	Rule of 85	Total
Currently Eligible as of:	June 30, 2022	1,090	1,175	2,265
Newly Eligible as of:	June 30, 2023	284	305	589
	June 30, 2024	323	288	611
	June 30, 2025	378	276	654
	June 30, 2026	380	287	667
	June 30, 2027	341	305	646
Grand Total		2,796	2,636	5,432

Judges				
		Age 65	Rule of 85	Total
Currently Eligible as of:	June 30, 2022	17	2	19
Newly Eligible as of:	June 30, 2023	1	1	2
	June 30, 2024	0	1	1
	June 30, 2025	1	5	6
	June 30, 2026	1	1	2
	June 30, 2027	0	2	2
Grand Total		20	12	32

No pre-retirement decrements are assumed.

Five-Year Normal Retirement Eligibility Projection

Public Safety with Prior Main System Service				
		Age 55	Rule of 85	Total
Currently Eligible as of:	June 30, 2022	44	2	46
Newly Eligible as of:	June 30, 2023	11	1	12
	June 30, 2024	14	1	15
	June 30, 2025	10	0	10
	June 30, 2026	9	0	9
	June 30, 2027	16	2	18
Grand Total		104	6	110

Public Safety without Prior Main System Service				
		Age 55	Rule of 85	Total
Currently Eligible as of:	June 30, 2022	21	1	22
Newly Eligible as of:	June 30, 2023	2	0	2
	June 30, 2024	3	0	3
	June 30, 2025	6	1	7
	June 30, 2026	3	0	3
	June 30, 2027	6	0	6
Grand Total		41	2	43

No pre-retirement decrements are assumed.

Schedule of Members in Pay Status as of July 1, 2022

Main System

Monthly Amount	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under \$200	722	500	1	44	214	1,481	1,267
\$200 - \$400	786	777	16	60	272	1,911	1,639
\$400 - \$600	661	627	34	62	209	1,593	1,384
\$600 - \$800	494	362	36	110	142	1,144	1,002
\$800 - \$1,000	435	199	21	239	86	980	894
\$1,000 - \$1,200	344	165	11	332	73	925	852
\$1,200 - \$1,400	261	82	1	361	58	763	705
\$1,400 - \$1,600	216	44	4	332	36	632	596
\$1,600 - \$1,800	179	24	3	367	27	600	573
\$1,800 - \$2,000	165	19	0	348	29	561	532
\$2,000 - \$2,200	113	8	0	301	16	438	422
\$2,200 - \$2,400	100	7	0	283	22	412	390
\$2,400 - \$2,600	85	5	1	268	7	366	359
\$2,600 - \$2,800	71	5	0	228	11	315	304
\$2,800 - \$3,000	50	4	0	183	9	246	237
\$3,000 and Over	382	4	0	1,173	51	1,610	1,559
Total	5,064	2,832	128	4,691	1,262	13,977	12,715
Payment Option	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Life	3,127	2,001	103	2,182	235	7,648	7,413
Life 1% Graduated Benefits	5	0	0	5	0	10	10
Life 2% Graduated Benefits	11	0	0	10	0	21	21
Level Social Security Payment	1	17	0	87	0	105	105
Joint & 100% Survivor	1,273	532	16	1,484	673	3,978	3,305
Joint & 100% Survivor 1% Graduated Benefits	1	0	0	3	0	4	4
Joint & 100% Survivor 2% Graduated Benefits	7	0	0	7	1	15	14
Joint & 50% Survivor	517	196	8	827	281	1,829	1,548
Joint & 50% Survivor 1% Graduated Benefits	4	0	0	3	1	8	7
Joint & 50% Survivor 2% Graduated Benefits	0	0	0	1	0	1	1
20 Year C & L	60	23	1	28	36	148	112
10 Year C & L	55	56	0	44	29	184	155
10 Year C & L 1% Graduated Benefits	0	0	0	1	0	1	1
5 Year C & L	3	7	0	9	6	25	19
Total	5,064	2,832	128	4,691	1,262	13,977	12,715
Age	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under 50	0	0	14	0	35	49	14
50 - 54	0	0	20	23	27	70	43
55 - 59	0	24	32	221	50	327	277
60 - 64	0	281	61	887	89	1,318	1,229
65 - 69	1,502	694	1	1,362	165	3,724	3,559
70 - 74	1,553	713	0	1,038	203	3,507	3,304
75 and Over	2,009	1,120	0	1,160	693	4,982	4,289
Total	5,064	2,832	128	4,691	1,262	13,977	12,715

	Previous Valuation	Current Valuation	Change
Average Age	72.9	73.1	0.2
Average Monthly Benefit	\$1,343	\$1,392	\$49
Total Members in Pay Status	13,361	13,977	616

* Includes Rule of 85, Rule of 88 and Rule of 90.

** Includes alternate payees.

*** Total excluding beneficiaries.



Schedule of Members in Pay Status as of July 1, 2022

Judges

Monthly Amount	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under \$400	0	0	0	0	0	0	0
\$400 - \$800	0	0	0	0	1	1	0
\$800 - \$1,200	2	0	0	0	0	2	2
\$1,200 - \$1,600	0	0	0	2	1	3	2
\$1,600 - \$2,000	1	2	0	0	3	6	3
\$2,000 - \$2,400	0	0	0	0	0	0	0
\$2,400 - \$2,800	1	0	0	0	1	2	1
\$2,800 - \$3,200	2	0	0	0	3	5	2
\$3,200 - \$3,600	2	1	0	0	1	4	3
\$3,600 - \$4,000	2	1	0	0	0	3	3
\$4,000 - \$4,400	0	0	0	0	1	1	0
\$4,400 - \$4,800	4	0	0	2	1	7	6
\$4,800 - \$5,200	0	0	0	0	2	2	0
\$5,200 - \$5,600	2	0	0	2	0	4	4
\$5,600 - \$6,000	1	0	0	1	0	2	2
\$6,000 and Over	11	0	1	8	2	22	20
Total	28	4	1	15	16	64	48
Payment Option	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Life	2	1	0	1	4	8	4
Level Social Security Payment	0	0	0	0	0	0	0
Joint & 100% Survivor	19	1	0	8	10	38	28
Joint & 50% Survivor	6	2	1	6	2	17	15
10 Year C & L	0	0	0	0	0	0	0
5 Year C & L	0	0	0	0	0	0	0
Total	28	4	1	15	16	64	48
Age	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under 50	0	0	0	0	0	0	0
50 - 54	0	0	0	0	0	0	0
55 - 59	0	0	0	0	0	0	0
60 - 64	0	0	1	3	1	5	4
65 - 69	2	1	0	1	0	4	4
70 - 74	13	1	0	6	6	26	20
75 and Over	13	2	0	5	9	29	20
Total	28	4	1	15	16	64	48

	Previous Valuation	Current Valuation	Change
Average Age	75.5	76.4	0.9
Average Monthly Benefit	\$4,812	\$4,799	(\$13)
Total Members in Pay Status	63	64	1

* Includes Rule of 85, Rule of 88 and Rule of 90.

** Includes alternate payees.

*** Total excluding beneficiaries.



Schedule of Members in Pay Status as of July 1, 2022

Public Safety with prior Main System Service

Monthly Amount	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under \$200	4	1	0	0	3	8	5
\$200 - \$400	6	2	0	0	3	11	8
\$400 - \$600	10	4	0	0	1	15	14
\$600 - \$800	7	1	0	0	3	11	8
\$800 - \$1,000	8	0	0	0	1	9	8
\$1,000 - \$1,200	10	0	0	0	2	12	10
\$1,200 - \$1,400	6	0	0	0	0	6	6
\$1,400 - \$1,600	8	0	1	1	1	11	10
\$1,600 - \$1,800	6	0	0	0	0	6	6
\$1,800 - \$2,000	4	1	0	0	0	5	5
\$2,000 - \$2,200	6	0	0	1	2	9	7
\$2,200 - \$2,400	3	0	0	1	0	4	4
\$2,400 - \$2,600	1	1	0	0	0	2	2
\$2,600 - \$2,800	3	0	0	0	0	3	3
\$2,800 - \$3,000	2	0	0	1	0	3	3
\$3,000 and Over	27	1	0	5	0	33	33
Total	111	11	1	9	16	148	132
Payment Option	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Life	53	6	1	1	1	62	61
Level Social Security Payment	2	1	0	1	0	4	4
Joint & 100% Survivor	36	4	0	6	7	53	46
Joint & 100% Survivor 1% Graduated Benefits	0	0	0	0	0	0	0
Joint & 50% Survivor	19	0	0	1	2	22	20
20 Year C & L	0	0	0	0	6	6	0
10 Year C & L	0	0	0	0	0	0	0
5 Year C & L	0	0	0	0	0	0	0
20 Year Certain	0	0	0	0	0	0	0
Total	111	11	1	9	16	148	132
Age	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under 50	0	0	1	0	5	6	1
50 - 54	0	1	0	0	1	2	1
55 - 59	17	3	0	2	0	22	22
60 - 64	25	1	0	3	1	30	29
65 - 69	35	4	0	3	3	45	42
70 - 74	26	0	0	1	6	33	27
75 and Over	8	2	0	0	0	10	10
Total	111	11	1	9	16	148	132

	Previous Valuation	Current Valuation	Change
Average Age	65.1	65.7	0.6
Average Monthly Benefit	\$1,794	\$1,842	\$48
Total Members in Pay Status	137	148	11

* Includes Rule of 85, Rule of 88 and Rule of 90.

** Includes alternate payees.

*** Total excluding beneficiaries.



Schedule of Members in Pay Status as of July 1, 2022

Public Safety without Prior Main System Service

Monthly Amount	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under \$200	1	0	0	0	0	1	1
\$200 - \$400	1	0	0	0	0	1	1
\$400 - \$600	5	1	0	0	1	7	6
\$600 - \$800	1	0	0	0	0	1	1
\$800 - \$1,000	0	0	1	0	0	1	1
\$1,000 - \$1,200	0	0	0	0	1	1	0
\$1,200 - \$1,400	1	0	0	0	0	1	1
\$1,400 - \$1,600	0	0	0	0	1	1	0
\$1,600 - \$1,800	0	0	0	0	0	0	0
\$1,800 - \$2,000	0	0	0	0	0	0	0
\$2,000 - \$2,200	0	0	0	0	0	0	0
\$2,200 - \$2,400	0	0	0	0	0	0	0
\$2,400 - \$2,600	0	0	0	0	0	0	0
\$2,600 - \$2,800	0	0	0	0	0	0	0
\$2,800 - \$3,000	0	0	0	0	0	0	0
\$3,000 and Over	1	0	0	0	0	1	1
Total	10	1	1	0	3	15	12
Payment Option	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Life	3	0	1	0	1	5	4
Level Social Security Payment	0	0	0	0	0	0	0
Joint & 100% Survivor	5	1	0	0	2	8	6
Joint & 50% Survivor	2	0	0	0	0	2	2
10 Year C & L	0	0	0	0	0	0	0
5 Year C & L	0	0	0	0	0	0	0
Total	10	1	1	0	3	15	12
Age	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under 50	0	0	1	0	0	1	1
50 - 54	0	0	0	0	1	1	0
55 - 59	3	1	0	0	1	5	4
60 - 64	1	0	0	0	1	2	1
65 - 69	5	0	0	0	0	5	5
70 - 74	1	0	0	0	0	1	1
75 and Over	0	0	0	0	0	0	0
Total	10	1	1	0	3	15	12

	Previous Valuation	Current Valuation	Change
Average Age	61.0	61.6	0.6
Average Monthly Benefit	\$832	\$809	(\$23)
Total Members in Pay Status	14	15	1

* Includes Rule of 85, Rule of 88 and Rule of 90.

** Includes alternate payees.

*** Total excluding beneficiaries.



Schedule of New Pensions Awarded during the Year as of July 1, 2022

Main System, Judges, Public Safety

Monthly Amount	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under \$200	56	10	0	4	14	84	70
\$200 - \$400	64	13	0	2	22	101	79
\$400 - \$600	62	19	3	0	21	105	84
\$600 - \$800	46	13	4	1	12	76	64
\$800 - \$1,000	42	10	3	8	14	77	63
\$1,000 - \$1,200	31	8	4	6	5	54	49
\$1,200 - \$1,400	33	7	0	11	9	60	51
\$1,400 - \$1,600	21	2	1	10	8	42	34
\$1,600 - \$1,800	23	4	0	11	5	43	38
\$1,800 - \$2,000	23	2	0	25	4	54	50
\$2,000 - \$2,200	11	0	0	14	0	25	25
\$2,200 - \$2,400	7	0	0	19	3	29	26
\$2,400 - \$2,600	14	2	0	17	0	33	33
\$2,600 - \$2,800	7	0	0	15	5	27	22
\$2,800 - \$3,000	8	1	0	13	0	22	22
\$3,000 and Over	69	0	0	140	13	222	209
Total	517	91	15	296	135	1,054	919
Payment Option	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Life	283	54	10	91	12	450	438
Life 1% Graduated Benefits	0	0	0	1	0	1	1
Life 2% Graduated Benefits	0	0	0	0	0	0	0
Level Social Security Payment	0	0	0	0	0	0	0
Joint & 100% Survivor	169	23	3	119	90	404	314
Joint & 100% Survivor 1% Graduated Benefits	0	0	0	0	0	0	0
Joint & 100% Survivor 2% Graduated Benefits	0	0	0	0	0	0	0
Joint & 50% Survivor	50	12	1	79	27	169	142
Joint & 50% Survivor 1% Graduated Benefits	1	0	0	1	1	3	2
Joint & 50% Survivor 2% Graduated Benefits	0	0	0	0	0	0	0
20 Year C & L	7	0	1	2	3	13	10
10 Year C & L	6	1	0	3	2	12	10
10-Year C & L 1% Graduated Benefits	0	0	0	0	0	0	0
Total	517	90	15	296	135	1,053	917
Age	Normal	Early	Disability	Service*	Beneficiary**	Total	Total***
Under 50	0	0	1	0	6	7	1
50 - 54	0	0	3	13	4	20	16
55 - 59	1	11	6	59	6	83	77
60 - 64	7	66	5	180	15	273	258
65 - 69	433	14	0	44	28	519	491
70 - 74	63	0	0	0	26	89	63
75 and Over	13	0	0	0	50	63	13
Total	517	91	15	296	135	1,054	919

	Previous Valuation	Current Valuation	Change
New Pensions Awarded	1,045	1,054	9
Average Age	65.9	65.9	0.0
Average Monthly Benefit	\$1,534	\$1,819	\$285

* Includes Rule of 85, Rule of 88 and Rule of 90.

** Includes alternate payees.

*** Total excluding beneficiaries.



Schedule of Average Benefit Payments as of July 1, 2022

Main System		Years of Vesting Service						Total
		<10	10-14	15-19	20-24	25-29	>=30	
2018	Number of Retirees	2,052	1,577	1,388	1,451	1,629	2,436	10,533
	Average Monthly Benefit	\$267	\$506	\$747	\$1,223	\$1,709	\$2,637	\$1,269
	Average Years of Service	6.27	12.33	17.29	22.57	27.31	35.45	20.88
2019	Number of Retirees	2,175	1,627	1,440	1,540	1,712	2,588	11,082
	Average Monthly Benefit	\$273	\$523	\$780	\$1,274	\$1,773	\$2,735	\$1,321
	Average Years of Service	6.26	12.31	17.30	22.56	27.33	35.53	20.94
2020	Number of Retirees	2,322	1,689	1,481	1,618	1,778	2,752	11,640
	Average Monthly Benefit	\$282	\$550	\$814	\$1,316	\$1,812	\$2,823	\$1,367
	Average Years of Service	6.26	12.30	17.31	22.57	27.34	35.60	20.96
2021	Number of Retirees	2,467	1,746	1,545	1,708	1,824	2,882	12,172
	Average Monthly Benefit	\$288	\$570	\$844	\$1,353	\$1,845	\$2,885	\$1,397
	Average Years of Service	6.25	12.32	17.34	22.56	27.35	35.64	20.94
2022	Number of Retirees	2,568	1,814	1,615	1,772	1,892	3,054	12,715
	Average Monthly Benefit	\$293	\$600	\$884	\$1,393	\$1,898	\$2,969	\$1,447
	Average Years of Service	6.26	12.32	17.33	22.55	27.35	35.69	21.01
Judges		<10	10-14	15-19	20-24	25-29	>=30	Total
2018	Number of Retirees	4	2	6	11	7	10	40
	Average Monthly Benefit	\$2,274	\$2,739	\$4,123	\$5,452	\$4,845	\$6,141	\$4,865
	Average Years of Service	6.29	10.54	17.81	23.17	26.80	35.81	23.84
2019	Number of Retirees	4	3	6	11	7	11	42
	Average Monthly Benefit	\$2,274	\$3,588	\$4,123	\$5,452	\$4,891	\$6,276	\$4,949
	Average Years of Service	6.29	11.92	17.81	23.17	26.80	35.44	23.81
2020	Number of Retirees	4	3	6	11	7	13	44
	Average Monthly Benefit	\$2,274	\$3,588	\$4,123	\$5,452	\$4,891	\$6,589	\$5,102
	Average Years of Service	6.29	11.92	17.81	23.17	26.80	35.58	24.38
2021	Number of Retirees	4	3	6	11	8	15	47
	Average Monthly Benefit	\$2,274	\$3,643	\$4,123	\$5,452	\$5,261	\$6,808	\$5,297
	Average Years of Service	6.29	11.92	17.81	23.17	26.70	35.27	24.79
2022	Number of Retirees	5	3	6	11	8	15	48
	Average Monthly Benefit	\$2,482	\$3,643	\$4,123	\$5,452	\$5,261	\$6,855	\$5,270
	Average Years of Service	6.67	11.92	17.81	23.17	26.70	35.27	24.45

Includes retired and disabled members.



Schedule of Average Benefit Payments as of July 1, 2022

		Years of Vesting Service						Total
		<10	10-14	15-19	20-24	25-29	>=30	
Public Safety with Main Service								
2018	Number of Retirees	15	11	10	18	17	23	94
	Average Monthly Benefit	\$481	\$915	\$1,452	\$1,839	\$2,180	\$3,317	\$1,896
	Average Years of Service	6.18	12.47	17.25	22.19	27.38	33.29	21.63
2019	Number of Retirees	20	13	11	20	15	25	104
	Average Monthly Benefit	\$630	\$947	\$1,466	\$1,733	\$2,018	\$3,464	\$1,852
	Average Years of Service	6.27	12.27	17.05	22.12	27.49	33.24	20.75
2020	Number of Retirees	24	14	12	19	16	28	113
	Average Monthly Benefit	\$596	\$815	\$1,491	\$1,703	\$2,138	\$3,452	\$1,830
	Average Years of Service	5.99	12.26	17.27	22.15	27.44	33.19	20.46
2021	Number of Retirees	29	15	12	17	19	31	123
	Average Monthly Benefit	\$627	\$851	\$1,491	\$1,865	\$2,266	\$3,554	\$1,900
	Average Years of Service	5.99	12.37	17.27	22.23	27.28	33.40	20.31
2022	Number of Retirees	30	15	14	18	21	34	132
	Average Monthly Benefit	\$619	\$908	\$1,570	\$1,834	\$2,222	\$3,694	\$1,965
	Average Years of Service	5.96	12.33	17.25	22.13	27.32	33.80	20.65
Public Safety without Main Service								
2018	Number of Retirees	5	1	0	0	1	0	7
	Average Monthly Benefit	\$401	\$1,204	\$0	\$0	\$3,126	\$0	\$905
	Average Years of Service	4.01	12.58	0.00	0.00	26.17	0.00	8.40
2019	Number of Retirees	7	1	0	0	1	0	9
	Average Monthly Benefit	\$410	\$1,204	\$0	\$0	\$3,126	\$0	\$800
	Average Years of Service	4.44	12.58	0.00	0.00	26.17	0.00	7.76
2020	Number of Retirees	8	1	0	0	2	0	11
	Average Monthly Benefit	\$421	\$1,204	\$0	\$0	\$2,345	\$0	\$842
	Average Years of Service	4.79	12.58	0.00	0.00	27.05	0.00	9.54
2021	Number of Retirees	10	1	0	0	2	0	13
	Average Monthly Benefit	\$456	\$1,204	\$0	\$0	\$2,345	\$0	\$805
	Average Years of Service	5.06	12.58	0.00	0.00	27.05	0.00	9.02
2022	Number of Retirees	9	1	1	0	1	0	12
	Average Monthly Benefit	\$457	\$1,204	\$497	\$0	\$3,126	\$0	\$745
	Average Years of Service	5.22	12.58	16.58	0.00	26.17	0.00	8.53

Includes retired and disabled members.



Schedule of Retirees and Beneficiaries Added to and Removed from the Rolls

Main System

Plan Year	Beg. of Year		Added to Rolls		Removed from Rolls		End of Year Balance		Average Annual Benefit	% Increase in Annual Benefits
	No.	Ann. Benefits*	No.	Ann. Benefits*	No.	Ann. Benefits*	No.**	Ann. Benefits*		
Retirement										
2013	8,242	\$ 95.3	708	\$ 10.9	(284)	\$ (4.0)	8,666	\$ 102.2	\$ 11,798	7.2%
2014	8,666	102.2	855	13.2	(291)	(2.4)	9,230	113.0	12,243	10.6%
2015	9,230	113.0	992	19.3	(243)	(2.4)	9,979	129.9	13,017	15.0%
2016	9,979	129.9	703	12.3	(288)	(2.6)	10,394	139.6	13,435	7.5%
2017	10,394	139.6	870	16.1	(307)	(3.0)	10,957	152.8	13,943	9.4%
2018	10,957	152.8	953	19.7	(372)	(3.6)	11,538	169.0	14,645	10.6%
2019	11,538	169.0	913	18.8	(334)	(3.0)	12,117	184.9	15,257	9.4%
2020	12,117	184.9	1,032	20.5	(401)	(4.3)	12,748	201.1	15,772	8.8%
2021	12,748	201.1	1,025	18.6	(412)	(4.3)	13,361	215.3	16,116	7.1%
2022	13,361	215.3	1,036	22.8	(420)	(4.7)	13,977	233.4	16,701	8.4%

* \$ in millions

** Excludes 24 pensioners as of June 30, 2014, 28 pensioners as of June 30, 2015, 35 pensioners as of June 30, 2016, 41 pensioners as of June 30, 2017, 37 pensioners as of June 30, 2018, 37 pensioners as of June 30, 2019, 42 pensioners as of June 30, 2020, 35 pensioners as of June 30, 2021, and 32 pensioners as of June 30, 2022 in suspended status.

Judges

Plan Year	Beg. of Year		Added to Rolls		Removed from Rolls		End of Year Balance		Average Annual Benefit	% Increase in Annual Benefits
	No.	Ann. Benefits	No.	Ann. Benefits	No.	Ann. Benefits	No.	Ann. Benefits		
Retirement										
2013	34	\$ 1,470,584	2	\$ 60,181	0	\$ 0	36	\$ 1,530,765	\$ 42,521	4.1%
2014	36	1,530,765	2	190,156	0	0	38	1,720,921	45,287	12.4%
2015	38	1,720,921	6	462,888	0	0	44	2,183,809	49,632	26.9%
2016	44	2,183,809	2	85,597	(3)	(147,638)	43	2,121,768	49,343	-2.8%
2017	43	2,121,768	10	674,619	(3)	(156,433)	50	2,639,954	52,799	24.4%
2018	50	2,639,954	7	331,377	(2)	(68,572)	55	2,902,760	52,777	10.0%
2019	55	2,902,760	3	241,678	0	0	58	3,144,438	54,214	8.3%
2020	58	3,144,438	3	293,611	(1)	(94,084)	60	3,343,965	55,733	6.3%
2021	60	3,343,965	3	293,778	0	0	63	3,637,743	57,742	8.8%
2022	63	3,637,743	1	48,097	0	0	64	3,685,840	57,591	1.3%

Values prior to July 1, 2016, were calculated by the prior actuary.

Totals may not add due to rounding.



Schedule of Retirees and Beneficiaries Added to and Removed from the Rolls

Public Safety with prior Main System Service

Plan Year	Beg of Year		Added to Rolls		Removed from Rolls		End of Year Balance		Average Annual Benefit	% Increase in Annual Benefits
	No.	Ann. Benefits	No.	Ann. Benefits	No.	Ann. Benefits	No.	Ann. Benefits		
Retirement										
2013	47	\$ 864,421	9	\$ 225,057	0	(\$13,776)	56	\$ 1,075,702	\$ 19,209	24.4%
2014	56	1,075,702	7	83,168	(1)	(57,253)	62	1,101,617	17,768	2.4%
2015	62	1,101,617	11	301,041	0	0	73	1,402,658	19,215	27.3%
2016	73	1,402,658	7	53,522	(1)	(10,529)	79	1,445,651	18,299	3.1%
2017	79	1,445,651	11	390,805	0	0	90	1,836,456	20,405	27.0%
2018	90	1,836,456	15	371,954	(2)	(22,510)	103	2,185,900	21,222	19.0%
2019	103	2,185,900	15	309,766	(3)	(87,471)	115	2,408,195	20,941	10.2%
2020	115	2,408,195	12	223,956	(2)	(38,955)	125	2,593,195	20,746	7.7%
2021	125	2,593,195	15	399,735	(3)	(44,015)	137	2,948,915	21,525	13.7%
2022	137	2,948,915	14	341,750	(3)	(18,787)	148	3,271,877	22,107	11.0%

Public Safety without prior Main System Service

Plan Year	Beg of Year		Added to Rolls		Removed from Rolls		End of Year Balance		Average Annual Benefit	% Increase in Annual Benefits
	No.	Ann. Benefits	No.	Ann. Benefits	No.	Ann. Benefits	No.	Ann. Benefits		
Retirement										
2013	0	\$ 0	1	\$ 9,792	0	\$ 0	1	\$ 9,792	\$ 9,792	100.0%
2014	1	9,792	0	0	0	0	1	9,792	9,792	0.0%
2015	1	9,792	0	0	0	0	1	9,792	9,792	0.0%
2016	1	9,792	1	3,264	0	0	2	13,056	6,528	33.3%
2017	2	13,056	4	57,609	0	0	6	70,665	11,778	441.2%
2018	6	70,665	2	19,573	0	0	8	90,238	11,280	27.7%
2019	8	90,238	2	10,405	0	0	10	100,643	10,064	11.5%
2020	10	100,643	2	24,715	0	0	12	125,358	10,447	24.6%
2021	12	125,358	2	14,349	0	0	14	139,708	9,979	11.4%
2022	14	139,708	3	30,110	(2)	(24,143)	15	145,675	9,712	4.3%

Values prior to July 1, 2016, were calculated by the prior actuary.

Totals may not add due to rounding.



SECTION D

GASB STATEMENT NO. 67 SCHEDULES

Discussion

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain non-actuarial information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan’s reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer’s financial statements to disclose the total pension expense, the pension plan’s liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- A description of benefits provided by the plan;
- The type of employees and number of members covered by the pension plan;
- A description of the plan’s funding policy, which includes member and employer contribution requirements;
- The pension plan’s investment policies;
- The pension plan’s fiduciary net position, net pension liability and the pension plan’s fiduciary net position as a percentage of the total pension liability;
- The net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- Significant assumptions and methods used to calculate the total pension liability;
- Inputs to the discount rates; and
- Certain information about mortality assumptions and the dates of experience studies.

GASB Statement No. 67

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- The composition of the pension plan’s board and the authority under which benefit terms may be amended;
- A description of how fair value is determined;
- Information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables and insurance contracts excluded from plan assets; and
- Annual money-weighted rate of return.

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- Sources of changes in the net pension liability;
- Information about the components of the net pension liability and related ratios, including the pension plan’s fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- A comparison of the actual employer contributions to the actuarially determined contributions based on the plan’s funding policy.

Timing of the Actuarial Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan’s fiscal year end (measurement date) on a date that is within the employer’s prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2022, and a measurement date of June 30, 2022.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan’s fiduciary net position is projected to be sufficient to pay benefits) and (2) a tax-exempt municipal bond rate based on an index of 20-year mixed maturity general obligation bonds with an average Standard & Poor’s Corp.’s AA credit rating (which is published by Fidelity) 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 actuarial valuation, the expected rate of return on pension plan investments is 6.50%; the municipal bond rate is 3.69% (based on the most recent date available on or before the measurement date of the “20-year Municipal GO Index” from Fidelity); and the resulting Single Discount Rate is 5.10%.



GASB Statement No. 67

Executive Summary as of June 30, 2022

	Main System	Judges	Public Safety with Prior Main Service	Public Safety without Prior Main Service	Total
Actuarial Valuation Date	7/1/2022	7/1/2022	7/1/2022	7/1/2022	7/1/2022
Measurement Date of the Net Pension Liability	7/1/2022	7/1/2022	7/1/2022	7/1/2022	7/1/2022
Plan's Fiscal Year Ending Date (Reporting Date) for GASB 67	6/30/2022	6/30/2022	6/30/2022	6/30/2022	6/30/2022
Membership					
Number of					
- Retirees and Beneficiaries	13,977	64	148	15	14,204
- Inactive, Nonretired Members	15,711	2	424	146	16,283
- Active Members	23,487	57	990	245	24,779
- Total	53,175	123	1,562	406	55,266
Covered Payroll	\$ 1,160,836,487	\$ 8,729,372	\$ 64,746,118	\$ 13,995,584	\$ 1,248,307,560
Net Pension Liability					
Total Pension Liability	\$ 6,325,032,015	\$ 65,819,245	\$ 193,089,067	\$ 23,528,893	\$ 6,607,469,220
Plan Fiduciary Net Position	3,444,965,426	62,598,397	110,992,147	17,215,932	3,635,771,902
Net Pension Liability	\$ 2,880,066,589	\$ 3,220,848	\$ 82,096,920	\$ 6,312,961	\$ 2,971,697,318
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	54.47 %	95.11 %	57.48 %	73.17 %	55.03 %
Net Pension Liability as a Percentage of Covered Payroll	248.10 %	36.90 %	126.80 %	45.11 %	238.06 %
Development of the Single Discount Rate					
Single Discount Rate	5.10 %	5.10 %	5.10 %	5.10 %	5.10 %
Long-Term Expected Rate of Investment Return	6.50 %	6.50 %	6.50 %	6.50 %	6.50 %
Long-Term Municipal Bond Rate*	3.69 %	3.69 %	3.69 %	3.69 %	3.69 %
Last year ending June 30 in the 2023 to 2122 projection period for which projected benefit payments are fully funded	2056	2056	2056	2056	2056

*Source: Fixed-income 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" as of June 30, 2022. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.



GASB Statement No. 67

Schedules of Required Supplementary Information Schedule of Net Pension Liability and Related Ratios Multiyear

Last 10 Fiscal Years (which may be built prospectively)

FY Ending 30-Jun	System	Total Pension Liability ¹	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll ²	Net Pension Liability as a % of Covered Payroll
2014	Main	\$ 2,846,579,777	\$ 2,211,858,402	\$ 634,721,375	77.70 %	\$ 865,868,265	73.30 %
2014	Judges	38,989,792	42,713,635	(3,723,843)	109.55 %	6,598,981	(56.43)%
2014	Public Safety with prior Main System service	30,791,599	24,806,508	5,985,091	80.56 %	13,394,927	44.68 %
2014	Public Safety without prior Main System service	2,190,975	2,204,318	(13,343)	100.61 %	2,589,887	(0.52) %
2014	Total PERS	2,918,552,143	2,281,582,863	636,969,280	78.18 %	888,452,060	71.69 %
2015	Main	\$ 2,976,071,808	\$ 2,296,088,880	\$ 679,982,928	77.15 %	\$ 946,197,522	71.86 %
2015	Judges	39,381,443	44,137,412	(4,755,969)	112.08 %	6,964,502	(68.29)%
2015	Public Safety with prior Main System service	34,317,782	28,691,976	5,625,806	83.61 %	16,732,974	33.62 %
2015	Public Safety without prior Main System service	2,675,506	2,792,541	(117,035)	104.37 %	3,641,404	(3.21) %
2015	Total PERS	3,052,446,539	2,371,710,809	680,735,730	77.70 %	973,536,402	69.92 %
2016	Main	\$ 3,299,381,100	\$ 2,324,783,623	\$ 974,597,477	70.46 %	\$ 1,007,764,043	96.71 %
2016	Judges	39,819,443	44,269,616	(4,450,173)	111.18 %	7,937,062	(56.07)%
2016	Public Safety with prior Main System service	53,865,148	42,406,694	11,458,454	78.73 %	28,225,868	40.60 %
2016	Public Safety without prior Main System service	3,499,776	3,435,724	64,052	98.17 %	4,621,494	1.39 %
2016	Total PERS	3,396,565,467	2,414,895,657	981,669,810	71.10 %	1,048,548,467	93.62 %
2017	Main	\$ 4,227,873,933	\$ 2,620,545,753	\$ 1,607,328,180	61.98 %	\$ 1,020,843,253	157.45 %
2017	Judges	45,789,468	49,576,578	(3,787,110)	108.27 %	7,866,090	(48.14)%
2017	Public Safety with prior Main System service	73,040,417	51,024,228	22,016,189	69.86 %	28,765,678	76.54 %
2017	Public Safety without prior Main System service	7,667,872	6,689,031	978,841	87.23 %	5,896,777	16.60 %
2017	Total PERS	4,354,371,690	2,727,835,589	1,626,536,101	62.65 %	1,063,371,798	152.96 %
2018	Main	\$ 4,536,928,161	\$ 2,849,319,075	\$ 1,687,609,086	62.80 %	\$ 1,027,317,202	164.27 %
2018	Judges	47,011,600	53,493,730	(6,482,130)	113.79 %	8,008,841	(80.94)%
2018	Public Safety with prior Main System service	82,162,213	58,857,977	23,304,236	71.64 %	34,521,069	67.51 %
2018	Public Safety without prior Main System service	9,479,781	8,509,494	970,287	89.76 %	6,110,843	15.88 %
2018	Total PERS	4,675,581,755	2,970,180,276	1,705,401,479	63.53 %	1,075,957,954	158.50 %
2019	Main	\$ 4,136,252,987	\$ 2,964,180,628	\$ 1,172,072,359	71.66 %	\$ 1,040,170,174	112.68 %
2019	Judges	44,558,881	55,455,075	(10,896,194)	124.45 %	8,164,306	(133.46)%
2019	Public Safety with prior Main System service	79,501,182	67,134,798	12,366,384	84.45 %	42,991,270	28.76 %
2019	Public Safety without prior Main System service	9,026,915	9,960,580	(933,665)	110.34 %	7,090,395	(13.17)%
2019	Total PERS	4,269,339,965	3,096,731,081	1,172,608,884	72.53 %	1,098,416,146	106.75 %
2020	Main	\$ 6,157,520,698	\$ 3,011,499,294	\$ 3,146,021,404	48.91 %	\$ 1,103,120,694	285.19 %
2020	Judges	63,768,454	56,273,160	7,495,294	88.25 %	8,438,678	88.82 %
2020	Public Safety with prior Main System service	139,828,360	74,280,460	65,547,900	53.12 %	45,383,846	144.43 %
2020	Public Safety without prior Main System service	18,682,804	12,298,225	6,384,579	65.83 %	10,824,717	58.98 %
2020	Total PERS	6,379,800,316	3,154,351,139	3,225,449,177	49.44 %	1,167,767,935	276.21 %
2021	Main	\$ 4,795,054,158	\$ 3,752,753,612	\$ 1,042,300,546	78.26 %	\$ 1,132,390,738	92.04 %
2021	Judges	53,424,304	68,256,490	(14,832,186)	127.76 %	8,654,665	(171.38)%
2021	Public Safety with prior Main System service	128,468,679	111,897,170	16,571,509	87.10 %	61,533,502	26.93 %
2021	Public Safety without prior Main System service	14,595,856	16,815,428	(2,219,572)	115.21 %	11,097,033	(20.00)%
2021	Total PERS	4,991,542,997	3,949,722,700	1,041,820,297	79.13 %	1,213,675,937	85.84 %
2022	Main	\$ 6,325,032,015	\$ 3,444,965,426	\$ 2,880,066,589	54.47 %	\$ 1,160,836,487	248.10 %
2022	Judges	65,819,245	62,598,397	3,220,848	95.11 %	8,729,372	36.90 %
2022	Public Safety with prior Main System service	193,089,067	110,992,147	82,096,920	57.48 %	64,746,118	126.80 %
2022	Public Safety without prior Main System service	23,528,893	17,215,932	6,312,961	73.17 %	13,995,584	45.11 %
2022	Total PERS	6,607,469,220	3,635,771,902	2,971,697,318	55.03 %	1,248,307,560	238.06 %

¹ The total pension liability is based on a single discount rate of 8.00% for fiscal years prior to 2017, 6.44% for fiscal year 2017, 6.32% for fiscal year 2018, 7.50% for fiscal year 2019, 4.64% for fiscal year 2020, 7.00% for fiscal year 2021, and 5.10% for fiscal year 2022.

² Prior to the actuarial valuation as of July 1, 2016, annual payroll is based on projected annual compensation for the upcoming year. Beginning with the actuarial valuation as of July 1, 2016, annual payroll and average annual pay are based on annualized payroll as of the actuarial valuation date.

Values prior to July 1, 2016, were calculated by the prior actuary.



GASB Statement No. 67

Schedule of Changes in Net Pension Liability and Related Ratios Current Report Period Fiscal Year Ended June 30, 2022

	Main System	Judges	Public Safety		Total PERS
			with Prior Main System Service	without Prior Main System Service	
Total pension liability					
Service cost	\$ 131,755,463	\$ 2,045,083	\$ 7,832,942	\$ 1,563,796	\$ 143,197,284
Interest on the total pension liability	331,777,686	3,685,637	9,131,930	1,066,789	345,662,042
Changes of benefit terms	-	-	-	-	-
Difference between expected and actual experience ¹	3,264,874	(127,080)	224,249	352,472	3,714,515
Changes of assumptions ²	1,307,586,426	10,407,662	51,220,896	6,203,647	1,375,418,631
Benefit payments and refunds	(244,406,592)	(3,616,361)	(3,789,629)	(253,667)	(252,066,249)
Net change in total pension liability	1,529,977,857	12,394,941	64,620,388	8,933,037	1,615,926,223
Total pension liability - beginning³	4,795,054,158	53,424,304	128,468,679	14,595,856	4,991,542,997
Total pension liability - ending (a)³	\$ 6,325,032,015	\$ 65,819,245	\$ 193,089,067	\$ 23,528,893	\$ 6,607,469,220
Plan fiduciary net position					
Contributions - Employer	\$ 87,430,734	\$ 1,661,040	\$ 6,507,951	\$ 1,031,058	\$ 96,630,783
Contributions - Employee	84,487,263	758,464	3,670,857	717,355	89,633,939
Contributions - Service credit repurchases	10,069,185	-	106,004	74,046	10,249,235
Pension plan net investment income	(242,905,926)	(4,454,988)	(7,561,811)	(1,149,639)	(256,072,364)
Benefit payments and refunds	(244,406,592)	(3,616,361)	(3,789,629)	(253,667)	(252,066,249)
Pension plan administrative expense	(2,250,049)	(6,248)	(65,321)	(18,649)	(2,340,267)
Transfers and Other Income	(212,801)	-	226,926	-	14,125
Net change in plan fiduciary net position	(307,788,186)	(5,658,093)	(905,023)	400,504	(313,950,798)
Plan fiduciary net position - beginning	3,752,753,612	68,256,490	111,897,170	16,815,428	3,949,722,700
Plan fiduciary net position - ending (b)	\$ 3,444,965,426	\$ 62,598,397	\$ 110,992,147	\$ 17,215,932	\$ 3,635,771,902
Net pension liability - ending (a) - (b)	\$ 2,880,066,589	\$ 3,220,848	\$ 82,096,920	\$ 6,312,961	\$ 2,971,697,318
Plan fiduciary net position as a percentage of total pension liability	54.47 %	95.11 %	57.48 %	73.17 %	55.03 %
Covered-employee payroll	\$ 1,160,836,487	\$ 8,729,372	\$ 64,746,118	\$ 13,995,584	\$ 1,248,307,560
Net pension liability as a percentage of covered-employee payroll	248.10 %	36.90 %	126.80 %	45.11 %	238.06 %

¹ Includes liability attributable to transfer of members.

² Includes difference in liability due to changes in the single discount rate assumption.

³ The total pension liability is based on a single discount rate of 7.00% for the beginning of the fiscal year and 5.10% for the end of the fiscal year.



GASB Statement No. 67

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

The following presents the net pension liability/(asset) of the PERS, calculated using the current single discount rate of 5.10%, as well as what the PERS' net pension liability/(asset) would be if it were calculated using a discount rate that is 1-percentage point lower (4.10%) or is 1-percentage point higher (6.10%) than the current rate.

System	Current Single Discount		
	1% Decrease 4.10%	Rate Assumption 5.10%	1% Increase 6.10%
Main System	\$3,801,489,780	\$2,880,066,589	\$2,123,610,040
Judges	10,131,971	3,220,848	(2,647,654)
Public Safety			
With Main System Service	119,960,094	82,096,920	52,133,249
Without Main System Service	10,971,021	6,312,961	2,647,755
Total PERS	3,942,552,866	2,971,697,318	2,175,743,390

GASB Statement No. 67

System Asset Allocation

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>	<u>Allocation-Weighted Long-Term Expected Real Rate of Return</u>
Domestic Equities	30.00 %	5.75 %	1.73 %
International Equities	21.00 %	6.45 %	1.35 %
Private Equity	7.00 %	9.20 %	0.64 %
Domestic Fixed Income	23.00 %	0.34 %	0.08 %
Global Real Assets	19.00 %	4.35 %	0.83 %
Cash Equivalents	0.00 %	0.00 %	0.00 %
Total	100.00 %		4.63 %

Asset allocation and long-term expected arithmetic returns were provided by RIO and are net of inflation of 2.25%.

The discount rate used to measure the total pension liability of the total PERS plan was 5.10%. The projection of cash flows used to determine the discount rate assumed plan member and statutory/Board approved employer contributions will be made at the statutory rates described in this report. For this purpose, only employer contributions that are intended to fund benefits of current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs of future plan members and their beneficiaries are not included. Based on those assumptions, the Total PERS pension plan's fiduciary net position was projected to be depleted by 2056. Therefore, the long-term expected rate of return on pension plan investments could not be applied to all projected benefit payments.

GASB Statement No. 67

Schedule of Contributions Multiyear

FY Ending 30-Jun	System	Actuarially Determined Contribution ¹	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll ²	Actual Contribution as a % of Covered Payroll
2014	Main	\$ 105,092,504	\$ 58,872,974	\$ 46,219,530	\$ 865,868,265	6.80%
2014	Judges	1,099,249	1,159,604	(60,355)	6,598,981	17.57%
2014	Public Safety with prior Main System service	1,449,458	1,385,958	63,500	13,394,927	10.35%
2014	Public Safety without prior Main System service	210,115	242,514	(32,399)	2,589,887	9.36%
2014	Total PERS	107,851,326	61,661,050	46,190,276	888,452,060	6.94%
2015	Main	\$ 104,636,238	\$ 67,669,374	\$ 36,966,864	\$ 946,197,522	7.15%
2015	Judges	1,030,705	1,225,358	(194,653)	6,964,502	17.59%
2015	Public Safety with prior Main System service	1,577,004	1,638,384	(61,380)	16,732,974	9.79%
2015	Public Safety without prior Main System service	270,026	309,419	(39,393)	3,641,404	8.50%
2015	Total PERS	107,513,973	70,842,535	36,671,438	973,536,402	7.28%
2016	Main	\$ 121,358,455	\$ 72,960,487	\$ 48,397,968	\$ 1,007,764,043	7.24%
2016	Judges	781,713	1,364,327	(582,614)	7,937,062	17.19%
2016	Public Safety with prior Main System service	1,828,196	2,384,097	(555,901)	28,225,868	8.45%
2016	Public Safety without prior Main System service	367,803	371,664	(3,861)	4,621,494	8.04%
2016	Total PERS	124,336,167	77,080,576	47,255,591	1,048,548,467	7.35%
2017	Main	\$ 112,981,892	\$ 74,023,555	\$ 38,958,337	\$ 1,020,843,253	7.25%
2017	Judges	734,399	1,407,326	(672,927)	7,866,090	17.89%
2017	Public Safety with prior Main System service	2,514,672	3,005,338	(490,666)	28,765,678	10.45%
2017	Public Safety without prior Main System service	333,237	497,352	(164,115)	5,896,777	8.43%
2017	Total PERS	116,564,200	78,933,571	37,630,629	1,063,371,798	7.42%
2018	Main	\$ 122,272,212	\$ 75,666,300	\$ 46,605,912	\$ 1,027,317,202	7.37%
2018	Judges	393,904	1,413,703	(1,019,799)	8,008,841	17.65%
2018	Public Safety with prior Main System service	2,602,245	3,175,608	(573,363)	34,521,069	9.20%
2018	Public Safety without prior Main System service	445,737	471,598	(25,861)	6,110,843	7.72%
2018	Total PERS	125,714,098	80,727,209	44,986,889	1,075,957,954	7.50%
2019	Main	123,630,789	75,730,260	47,900,529	1,040,170,174	7.28%
2019	Judges	168,596	1,425,454	(1,256,858)	8,164,306	17.46%
2019	Public Safety with prior Main System service	2,911,194	3,762,300	(851,106)	42,991,270	8.75%
2019	Public Safety without prior Main System service	418,346	670,304	(251,958)	7,090,395	9.45%
2019	Total PERS	127,128,925	81,588,318	45,540,607	1,098,416,146	7.43%
2020	Main	135,980,074	78,110,561	57,869,513	1,103,120,694	7.08%
2020	Judges	240,210	1,570,506	(1,330,296)	8,438,678	18.61%
2020	Public Safety with prior Main System service	3,817,846	4,845,254	(1,027,408)	45,383,846	10.68%
2020	Public Safety without prior Main System service	499,195	977,712	(478,517)	10,824,717	9.03%
2020	Total PERS	140,537,325	85,504,033	55,033,292	1,167,767,935	7.32%
2021	Main	151,280,352	83,508,849	67,771,503	1,132,390,738	7.37%
2021	Judges	765,599	1,389,483	(623,884)	8,654,665	16.05%
2021	Public Safety with prior Main System service	4,581,035	5,470,675	(889,640)	61,533,502	8.89%
2021	Public Safety without prior Main System service	916,045	896,633	19,412	11,097,033	8.08%
2021	Total PERS	157,543,031	91,265,640	66,277,391	1,213,675,937	7.52%
2022	Main	\$ 149,553,767	\$ 87,430,734	\$ 62,123,033	\$ 1,160,836,487	7.53%
2022	Judges	768,657	1,661,040	(892,383)	8,729,372	19.03%
2022	Public Safety with prior Main System service	6,185,915	6,507,951	(322,036)	64,746,118	10.05%
2022	Public Safety without prior Main System service	881,328	1,031,058	(149,730)	13,995,584	7.37%
2022	Total PERS	157,389,667	96,630,783	60,758,884	1,248,307,560	7.74%

¹ The actuarially determined contribution was based on an investment return assumption of 8.00% and a payroll growth assumption of 4.50% (4.00% for Judges) for fiscal years ending 2014 through 2017, an investment return assumption of 7.75% and a payroll growth assumption of 3.75% (3.25% for Judges) for fiscal year ending 2018, an investment return assumption of 7.50% and a payroll growth assumption of 3.75% (3.25% for Judges) for fiscal year ending 2019, and an investment return assumption of 7.00% and a payroll growth assumption of 3.50% (3.00% for Judges) for fiscal years ending 2020, 2021, and 2022.

² Prior to the actuarial valuation as of July 1, 2016, annual payroll is based on projected annual compensation for the upcoming year. Beginning with the actuarial valuation as of July 1, 2016, annual payroll and average annual pay are based on annualized payroll as of the actuarial valuation date. Values prior to July 1, 2016, were calculated by the prior actuary.



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Notes The actuarially determined contribution amount is calculated as of June 30, 12 months prior to the end of the fiscal year in which the contributions are reported.

Methods and Assumptions Used to Determine Actuarially Determined Contribution Rates:

Valuation Date	July 1, 2021
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Open Period Assumed annual payroll growth of 3.50% (3.00% for Judges)
Remaining Amortization Period	20 years
Asset Valuation Method	5-Year smoothed market
Inflation	2.25%
Salary Increases	3.50% to 17.75% including inflation
Investment Rate of Return	7.00%
Retirement Age	Age-based table of rates that are specific to the type of eligibility condition.
Mortality	Sex-distinct Pub-2010 tables for General Employees, with scaling based on actual experience. Respective corresponding tables were used for healthy retirees, disabled retirees, and active members. Mortality rates are projected from 2010 using the MP-2019 scale.

Other Information:

Notes The interest rate on member contributions decreased from 7.00% to 6.50% effective January 1, 2021.

The benefit accrual rate for members first enrolled on or after January 1, 2020 in the Main and Public Safety Systems is 1.75% (compared to 2.00% for members enrolled before January 1, 2020).

The investment return assumption was updated from 7.50% to 7.00% beginning with the actuarial valuation as of July 1, 2020. Other updates to actuarial assumptions since the July 1, 2019 valuation include changes to mortality tables used for the valuation as well as changes to rates of annual salary increases, separation for active membership, disability, and retirement. The actuarial assumptions were based on an experience review for the period from July 1, 2014 to July 1, 2019.

The employer rates to the System are the statutory/Board approved contribution rates of 7.12% of payroll for the Main System (8.26% for members enrolled on or after January 1, 2020), 17.52% for the Judges System, 9.81% for Public Safety with prior Main System service System and 7.93% for Public Safety without prior Main System service System.

Methods and Assumptions Used to Determine GASB 67/68 Net Pension Liability:

Valuation Date	July 1, 2022
Actuarial Cost Method	Entry Age Normal
Asset Valuation Method	Plan Fiduciary Net Position (Market value of assets, no asset smoothing)
Inflation	2.25%
Salary Increases	3.50% to 17.75% including inflation
Single Discount Rate	5.10% (Based on an investment return assumption of 6.50% and a municipal bond rate of 3.69%)
Retirement Age	Age-based table of rates that are specific to the type of eligibility condition.
Mortality	Sex-distinct Pub-2010 tables for General Employees, with scaling based on actual experience. Respective corresponding tables were used for healthy retirees, disabled retirees, and active members. Mortality rates are projected from 2010 using the MP-2019 scale.

Other Information:

Notes The employer rates to the System are the statutory/Board approved contribution rates of 7.12% of payroll for the Main System (8.26% for members enrolled on or after January 1, 2020), 17.52% for the Judges System, 9.81% for Public Safety with prior Main System service System and 7.93% for Public Safety without prior Main System service System.

The benefit accrual rate for members first enrolled on or after January 1, 2020 in the Main and Public Safety Systems is 1.75% (compared to 2.00% for members enrolled before January 1, 2020).

The investment return assumption was updated from 7.00% to 6.50% beginning with the actuarial valuation as of July 1, 2022. All other actuarial assumptions used in the actuarial valuation as of July 1, 2022 were based on an experience review for the period from July 1, 2014 to July 1, 2019, and were adopted for first use commencing with the actuarial valuation as of July 1, 2020.



SECTION E

ACTUARIAL VALUATION PROCEDURES

Actuarial Assumptions in the Actuarial Valuation Process

Normal cost and the allocation of benefit values between service rendered before and after the actuarial valuation date were determined using the **Individual Entry Age Normal** actuarial cost method having the following characteristics:

- The normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and
- Each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Financing of Unfunded Actuarial Accrued Liabilities. The unfunded actuarial accrued liability is amortized using 20-year open level-percentage of pay amortization of the unfunded liability as of the actuarial valuation date for purposes of calculating the actuarial contribution rate.

Actuarial Value of Pension Plan Assets. The calculated value is determined by adjusting the market value of assets to reflect the investment gains and losses (the difference between the actual investment return and the expected investment return) during each of the last five years at the rate of 20 percent per year. This asset smoothing method was adopted by the Board for use beginning with the July, 1 2017 actuarial valuation. Net deferred asset gains attributable to fiscal years 2016 and prior were fully recognized as of July 1, 2017.

Actuarial Valuation Assumptions. The contribution and benefit values of the System are calculated by applying actuarial assumptions to the benefit provisions and census information furnished, using the actuarial cost method described above.

The principal areas of financial risk which require assumptions about future experiences are:

- Long-term rates of investment return to be generated by the assets of the Plan;
- Patterns of pay increases to members;
- Rates of mortality among members, retirees and beneficiaries;
- Rates of withdrawal of active members;
- Rates of disability among members; and
- The age patterns of actual retirement.

In an actuarial valuation, the monetary effect of each assumption is calculated for as long as a present covered person survives; a period of time which can be as long as a century.

Actual experience of the Plan will not coincide exactly with assumed experience. Each actuarial valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

Actuarial Assumptions in the Actuarial Valuation Process

From time-to-time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations). Thus, an experience review of the North Dakota Public Employees Retirement System for the period July 1, 2014 to July 1, 2019, was performed to compare the demographic and economic experience against the actuarial assumptions used in the actuarial valuations. Most of the actuarial assumptions described in this section were adopted by the Board for use beginning with the July 1, 2020 actuarial valuation.

All actuarial assumptions are expectations of future experience, not current market measures.

The actuarial assumptions were provided by, and are the responsibility of, the NDPERS Board.

Actuarial Valuation Assumptions

Current Actuarial Valuation Assumptions and Methods

The assumed rate of investment return used is 6.50 percent, net of investment expenses, annually. This assumption was adopted by the Board for use beginning with the July 1, 2022 actuarial valuation.

The assumed rate of price inflation is 2.25 percent. This assumption was adopted by the Board for use beginning with the July 1, 2020 actuarial valuation.

No Cost of Living Adjustments (COLA) are provided to benefit recipients. Therefore, there is no COLA assumption for this actuarial valuation.

The rates of annual salary increase used for individual members are in accordance with the following table. This assumption is used to project a member’s current salary to the salaries upon which benefit amounts will be based.

Service At Beginning of Year	Main System			
	State Employee	Non-State Employee	Public Safety	Judges
0	10.75%	13.25%	17.75%	
1	7.50%	8.00%	15.00%	
2	5.75%	7.25%	12.75%	
3			7.25%	
4			7.25%	
Age*				
Under 30	5.75%	7.25%	6.75%	3.00%
30-34	5.75%	6.75%	6.75%	3.00%
35-39	5.75%	6.75%	6.25%	3.00%
40-44	5.25%	6.25%	6.25%	3.00%
45-49	5.25%	6.25%	5.25%	3.00%
50-54	4.75%	5.75%	5.25%	3.00%
55-59	4.50%	5.50%	5.25%	3.00%
60-64	4.00%	4.75%	5.25%	3.00%
65-69	4.00%	4.75%	4.50%	3.00%
70+	3.50%	4.50%	4.25%	3.00%

**Age-based salary increase rates apply for employees with three or more years of service in the Main System, five or more years of service in the Public Safety Systems and for all employees in the Judges System.*

The assumed rate of total payroll growth used in amortizing the unfunded liability as a level percentage of pay is:

Main System and Public Safety: 3.50 percent

Judges: 3.00 percent

This assumption was adopted by the Board for use beginning with the July 1, 2020 actuarial valuation.



Actuarial Valuation Assumptions

The mortality assumptions are as follows:

Type	Assumption	Male Scaling Factor	Female Scaling Factor
Post-Retirement Non-Disabled	Pub-2010 Healthy Retiree Mortality Table (for General Employees), sex distinct	103%	101%
Post-Retirement Disabled	Pub-2010 Disabled Retiree Mortality Table (for General Employees), sex distinct	117%	112%
Pre-Retirement	Pub-2010 Employee Mortality Table (for General Employees), sex distinct	92%	92%

Mortality is projected from 2010 with generational mortality improvement using the MP-2019 two-dimensional mortality improvement scales.

Following is a table with the life expectancies by age as of the actuarial valuation date.

Age	Healthy Mortality		Disabled Mortality	
	Future Life		Future Life	
	Expectancy (years) in 2022		Expectancy (years) in 2022	
	Male	Female	Male	Female
20	67.20	70.66	49.76	54.36
25	61.82	65.26	45.04	49.22
30	56.45	59.86	40.27	44.13
35	51.13	54.49	35.87	39.44
40	45.85	49.15	31.77	35.14
45	40.59	43.82	27.84	31.12
50	35.47	38.62	24.18	27.42
55	30.58	33.64	20.91	24.12
60	25.87	28.76	18.01	21.08
65	21.37	24.01	15.32	18.01
70	17.11	19.46	12.71	14.79
75	13.17	15.18	10.13	11.63
80	9.70	11.34	7.73	8.82
85	6.86	8.10	5.69	6.55
90	4.78	5.62	4.07	4.88
95	3.36	3.92	2.93	3.54
100	2.40	2.75	2.10	2.48
105	1.81	2.01	1.56	1.79

Actuarial Valuation Assumptions

Rates of separation from active membership are represented by the following table (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members terminating employment.

Service Beginning of Year	Service and Age-Based Rates for First Five Years of Service					
	Main System			Public Safety		
	Age					
	Under 30	30-39	40+	Under 30	30-39	40+
0	28.00%	20.00%	17.00%	27.00%	19.00%	16.00%
1	24.00%	17.00%	14.00%	25.00%	19.00%	16.00%
2	18.00%	14.00%	12.00%	20.00%	16.00%	14.00%
3	16.00%	13.00%	12.00%	17.00%	14.00%	14.00%
4	13.00%	11.00%	11.00%	17.00%	10.00%	10.00%

Age	Age-Based Rates Only after First Five Years of Service	
	Main System	Public Safety
20-24	11.00%	10.00%
25-29	10.00%	10.00%
30-34	6.50%	7.50%
35-39	5.50%	7.50%
40-44	4.50%	5.00%
45-49	4.20%	5.00%
50-54	3.90%	5.00%
55-59	3.60%	5.00%
60+	3.30%	5.00%

No pre-retirement termination is assumed for Judges.

Vested participants who terminate are assumed to elect the option with the greater present value:

- 1) *A refund of their accumulated contributions with interest or*
- 2) *A deferred benefit.*

Withdrawal rates end upon eligibility for early retirement.

Early retirement eligibility is as follows:

Main System: Earlier of (i) age 55 and 3 years of service, and (ii) eligibility for Rule of 85. For members hired on or after 1/1/2016, earlier of (i) age 60 and 3 years of service, and (ii) eligibility for Rule of 90.

Public Safety: Age 50 and 3 years of service.

Account Balance Due to Vested Employer Contribution (PEP): Participation Under Chapter 54-52.2: If not elected: None. If elected: 100% of active members of the Main System and Public Safety. Contribution: Maximum allowed, based on service at the beginning of the Plan year.



Actuarial Valuation Assumptions

Rates of disability:

Before age 65: Males: 15.00% of OASDI disability incidence rates.
Females: 8.50% of OASDI disability incidence rates.

Age 65 and later: 0.15% per year.

Rates of disability were as follows:

Age	All Plans	
	Male	Female
20	0.0090%	0.0051%
25	0.0128%	0.0073%
30	0.0165%	0.0094%
35	0.0221%	0.0125%
40	0.0330%	0.0187%
45	0.0539%	0.0306%
50	0.0909%	0.0515%
55	0.1513%	0.0858%
60	0.2440%	0.1383%
65	0.1500%	0.1500%

Social Security Disability (for Judges' disability benefit offset):

Eligibility: 50%
Consumer Price Index Increases: 2.25% per annum
Wage Base Increases: 3.00% per annum

Workers' Compensation (for Judges' disability benefit offset):

None assumed.

Actuarial Valuation Assumptions

Rates of retirement for members eligible to retire during the next year were as follows:

Age	Main System			Public Safety		Judges	
	Reduced	Unreduced - Rule of 85	Unreduced - Not Rule of 85	Rule of 85	Not Rule of 85	Rule of 85	Not Rule of 85
50		50%		25%	4%		
51		20%		25%	4%		
52		20%		25%	4%		
53		20%		25%	4%		
54		20%		25%	4%		
55	1%	8%		25%	10%	10%	2%
56	1%	8%		25%	10%	10%	2%
57	1%	8%		25%	10%	10%	2%
58	1%	9%		25%	10%	10%	2%
59	2%	9%		25%	10%	10%	2%
60	2%	9%		25%	10%	10%	2%
61	4%	15%		25%	10%	10%	2%
62	8%	20%		50%	25%	10%	2%
63	8%	20%		50%	25%	10%	2%
64	8%	20%		50%	25%	10%	2%
65		35%	20%	50%	50%	100%	10%
66		35%	20%	50%	50%	100%	10%
67		20%	15%	50%	50%	100%	10%
68		20%	15%	50%	50%	100%	10%
69		20%	15%	50%	50%	100%	10%
70		20%	15%	100%	50%	100%	20%
71		20%	15%	100%	50%	100%	20%
72		20%	15%	100%	50%	100%	20%
73		20%	15%	100%	50%	100%	20%
74		20%	15%	100%	50%	100%	20%
75		50%	50%	100%	100%	100%	100%
76		50%	50%				
77		50%	50%				
78		50%	50%				
79		50%	50%				
80+		100%	100%				

Rates of retirement for Terminated Vested members eligible to retire during the next year were as follows:

Age	Main System			Public Safety		Judges	
	Reduced	Unreduced - Rule of 85	Unreduced - Not Rule of 85	Rule of 85	Not Rule of 85	Rule of 85	Not Rule of 85
50		70%		25%	10%		
51		70%		25%	10%		
52		70%		25%	10%		
53		70%		25%	10%		
54		70%		25%	10%		
55	1%	70%		25%	10%	10%	2%
56	1%	70%		25%	10%	10%	2%
57	1%	70%		25%	10%	10%	2%
58	1%	70%		25%	10%	10%	2%
59	2%	70%		25%	10%	10%	2%
60	2%	70%		25%	25%	10%	2%
61	4%	70%		25%	25%	10%	2%
62	8%	70%		50%	25%	10%	2%
63	8%	70%		50%	25%	10%	2%
64	8%	70%		50%	25%	10%	2%
65		70%	25%	50%	50%	100%	10%
66		70%	25%	50%	50%	100%	10%
67		70%	25%	50%	50%	100%	10%
68		70%	25%	50%	50%	100%	10%
69		70%	25%	50%	50%	100%	10%
70		70%	25%	100%	50%	100%	20%
71		70%	25%	100%	50%	100%	20%
72		70%	25%	100%	50%	100%	20%
73		70%	25%	100%	50%	100%	20%
74		70%	25%	100%	50%	100%	20%
75		70%	50%	100%	100%	100%	100%
76		70%	50%				
77		70%	50%				
78		70%	50%				
79		70%	50%				
80+		100%	100%				



Actuarial Valuation Assumptions

Assumed Service

Credit:

All active members (full time and part time) are assumed to earn one full year of service for each assumed future year of service.

Marital Status:

It is assumed that 75 percent of participants in the Main System and Public Safety and 100 percent of Judges have an eligible spouse at the time of retirement or pre-retirement death. The male spouse is assumed to be three years older than the female spouse.

Spouses are assumed to be the opposite sex of the employees and retirees. The relatively low rate of same-sex spouses does not have a material actuarial impact on the actuarial valuation results.

Form of Payment Election Assumption:	Main System and Public Safety		
	Form of Payment	Main System and Public Safety	Judges
Life Annuity		50%	0%
50% Joint and Survivor		45%	100%
Refund of Member Contributions		5%	0%

Benefit Service:

Exact fractional years of service are used to determine the amount of benefit payable.

Decrement Timing:

All decrements are assumed to occur at the middle of the year.

Decrement Operation:

Turnover decrements do not operate after the member reaches retirement eligibility (early or normal).

Eligibility Testing:

Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.

Pay Increase Timing:

Beginning of (fiscal) year.

Actuarial Valuation Assumptions

Expenses: Assumed administrative expenses were added to the Normal Cost and are based on the prior year’s expenses, adjusted for inflation. The assumed amount added to the Normal Cost is:

Expenses	Main System	Judges	Public Safety		Total
			With Prior	Without Prior	
Assumed FY 2022	\$ 2,531,385	\$ 7,369	\$ 72,292	\$ 15,947	\$ 2,626,993
Actual FY 2022	2,250,049	6,248	65,321	18,649	2,340,267
Assumed FY 2023	2,300,675	6,389	66,791	19,069	2,392,924

Assumptions for Missing or Incomplete Data: Pay was annualized for active members who have an entry date after the last actuarial valuation date of July 1, 2021. Pay was annualized by dividing the provided pay by the maximum of one month and calculated service (based on entry date). A minimum pay amount of \$10,000 was assumed for all members. Active members in the Main System with \$0 pay provided were assumed to have pay of \$36,362, the average of non-zero annualized salary of newly hired members. Active members in the Public Safety with Prior Service System with \$0 pay provided were assumed to have pay of \$50,935, the average of non-zero annualized salary of newly hired members. Active members in the Public Safety Without Prior Service System with \$0 pay provided were assumed to have pay of \$50,152, the average of non-zero annualized salary of newly hired members.

Changes in Actuarial Valuation Assumptions and Methods since the Previous Actuarial Valuation

The investment return assumption was decreased from 7.00 percent to 6.50 percent. There have been no other changes in actuarial assumptions since the previous actuarial valuation as of June 30, 2021.

SECTION F

BENEFIT PROVISIONS

Brief Summary of Plan Provisions

This Section summarizes the major benefit provisions of the North Dakota Public Employees Retirement System as included in the actuarial valuation. It is not intended to be, nor should it be, interpreted as a complete statement of all plan provisions.

1. Normal Service Retirement:

➤ Eligibility:

Main System:

Attainment of age 65, or at any age with age plus service equal to at least 85 (Rule of 85).

For members enrolled after December 31, 2015, into the Main System, attainment of age 65, or at age 60 with age plus service equal to at least 90 (Rule of 90).

Judges:

Attainment of age 65, or at any age with age plus service equal to at least 85 (Rule of 85).

Public Safety:

Attainment of age 55 and three consecutive years of service, or if not former National Guard, at any age with age plus service equal to at least 85 (Rule of 85). Former National Guard is eligible for Rule of 85 on August 1, 2015.

➤ Benefit:

Main System and Public Safety:

2.00% of final average salary multiplied by service. (1.75% for members hired on or after January 1, 2020)

Judges:

3.50% of final average salary for each of the first ten years of service, 2.80% for each of the next 10 years of service and 1.25% for service in excess of 20 years.

2. Early Retirement:

➤ Eligibility:

Main System:

Attainment of age 55 with three years of service. (Age 60 for members enrolled after December 31, 2015.)

Judges:

Attainment of age 55 with five years of service.



Brief Summary of Plan Provisions

Public Safety:

Attainment of age 50 with three years of service.

➤ Benefit:

Main System:

The Normal Service Retirement Benefit as determined in the preceding section. A benefit that begins before age 65 (or Rule of 85, if earlier) is reduced by one-half of one percent for each month before the earlier of age 65 or the age at which the Rule of 85 is met.

For members enrolled after December 31, 2015, into the Main System, a benefit that begins before age 65 (or Rule of 90, if earlier) is reduced by 2/3% of one percent for each month before the earlier of age 65 or the age at which the Rule of 90 is met.

Judges:

The Normal Service Retirement Benefit as determined in the preceding section. A benefit that begins before age 65 (or Rule of 85, if earlier) is reduced by one-half of one percent for each month before age 65 or the age at which the Rule of 85 is met.

Public Safety:

The Normal Service Retirement Benefit as determined in the preceding section. A benefit that begins before age 55 (or Rule of 85, if earlier) is reduced by one-half of one percent for each month before age 55 or the age at which the Rule of 85 is met.

3. Disability Benefit:

➤ Eligibility:

Six months of service and inability to engage in any substantial gainful activity.

➤ Benefit:

Main System and Public Safety:

25% of the member's final average salary at disability minus workers' compensation benefits, with a minimum of \$100 per month.

Judges:

70% of the member's final average salary at disability minus Social Security and Workers' Compensation benefits paid.



Brief Summary of Plan Provisions

4. Deferred Vested Retirement:

➤ Eligibility:

Main System and Public Safety:

Three years of service.

Judges:

Five years of service.

➤ Benefit:

Main System and Judges:

The Normal Service Retirement Benefit payable at age 65 or the Rule of 85 (Rule of 90 for members enrolled after December 31, 2015), if earlier. Reduced early retirement benefits can be elected upon attainment of age 55 (age 60 for members enrolled after December 31, 2015).

Public Safety:

The Normal Service Retirement Benefit payable at age 55 or the Rule of 85, if earlier. Reduced early retirement benefit can be selected upon attainment of age 50.

5. Pre-Retirement Death Benefits:

(a) Vested participants with a surviving spouse

➤ Eligibility:

Main System and Public Safety:

Three years of service.

Judges:

Five years of service.

Brief Summary of Plan Provisions

➤ Benefit:

Main System and Public Safety:

One of the following options:

- Lump sum payment of member's accumulated contributions with interest.
- 50% of the member's accrued benefit (not reduced on account of age) payable for the surviving spouse's lifetime.
- Continuation portion of 100% joint and survivor annuity (only if participant was eligible for normal retirement).

Judges:

One of the following options:

- Lump sum payment of member's accumulated contributions with interest.
- 100% of the member's accrued benefit (not reduced on account of age) payable for the spouse's lifetime.

(b) Non-vested members or vested members without a surviving spouse

➤ Eligibility:

Main System, Judges and Public Safety:

Non-vested or no surviving spouse.

➤ Benefit:

Main System, Judges and Public Safety:

Lump sum payment of member's accumulated contributions with interest.

6. Refund of Member Contributions:

Paid to terminated non-vested members and terminated vested members who choose a refund of employee contributions in lieu of a monthly retirement benefit.

Brief Summary of Plan Provisions

7. Accumulated Member Contributions:

Member contributions accumulate with interest at the following rates:

<u>Time Period</u>	<u>Per Annum Interest Rate</u>
Through June 30, 1981	5.0%
July 1, 1981 to June 30, 1986	6.0%
After June 30, 1986	0.5% less than the actuarial interest rate assumption

8. Standard and Optional Forms of Payment:

Standard form of payment:

Main System and Public Safety:

Monthly benefit for life with a refund to beneficiary at death of the remaining balance (if any) of accumulated member contributions.

Judges:

Monthly benefit for life, with 50% payable to an eligible survivor.

Optional forms of payment:

- Life annuity (for Judges).
- 50% joint and survivor annuity with pop-up (for Main System and Public Safety).
- 100% joint and survivor annuity with pop-up.
- 20-year certain and life annuity.
- 10-year certain and life annuity.
- A partial lump sum payment in addition to one of the annuity options above.
- An actuarially equivalent graduated benefit option with either a one percent or two percent increase to be applied the first day of January of each year. Not available for disability or early retirements or in combination with a partial lump sum option, a deferred normal retirement option or a Social Security level income annuity.

Brief Summary of Plan Provisions

9. Final Average Salary:

For members who terminate after December 31, 2019, final average salary is the higher of the final average salary calculated on December 31, 2019 or the average salary earned in the three highest periods of twelve consecutive months employed during the last 180 months of employment.

10. Contributions:

Contribution rates specified in the Century Code (except employer rate for Public Safety); differ between permanent employees and temporary employees. Rates are as follows:

	<u>Rates Set by Statute</u>		<u>Rates</u>
	<u>Member</u>	<u>Employer</u>	<u>Determined</u> <u>by the Board</u> <u>of Retirement</u>
			<u>Employer</u>
Main System Permanent Employees*	7.00%	7.12%	
Main System Temporary Employees**	14.12%	0.00%	
Judges	8.00%	17.52%	
Public Safety with prior Main System service	5.50%		9.81%
➤ BCI Employees	6.00%		9.81%
➤ National Guard members	5.50%		9.81%
Public Safety without prior Main System service	5.50%		7.93%

* The statutory employer contribution for members hired on or after January 1, 2020 increases to 8.26% of pay.

** The statutory member contribution for temporary employees hired on or after January 1, 2020 increases to 15.26% of pay.

Effective January 1, 2000:

A member's account balance includes vested employer contributions equal to the member's contributions to the deferred compensation Plan under chapter 54-52.2. The vested employer contribution may not exceed:

1. For months one through 12 of service credit, \$25 or 1% of the member's monthly salary, whichever is greater.
2. For months 13 through 24 of service credit, \$25 or 2% of the member's monthly salary, whichever is greater.
3. For months 25 through 36 of service credit, \$25 or 3% of the member's monthly salary, whichever is greater.



Brief Summary of Plan Provisions

4. For service exceeding 36 months, \$25 or 4% of the member's monthly salary, whichever is greater.

Vested employer contributions are credited monthly to the member's account balance.

11. Rollovers:

The fund may accept rollovers from other qualified plans under rules adopted by the Board for the purchase of additional service credit.

Changes in Plan Provisions since the Previous Actuarial Valuation

There have been no changes in plan provisions since the previous actuarial valuation as of June 30, 2021.

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

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 System 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 current employer and employee fixed rate contributions are assumed to be made in each future year. 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 actuarial 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) a 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 actuarial valuation, the expected rate of return on pension plan investments is 6.50%; the municipal bond rate is 3.69%; and the resulting Single Discount Rate is 5.10%.

The tables in this section provide detailed information on the development of the Single Discount Rate for the total PERS plan.

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.

Projection of Benefit Payments and Administrative Expenses by Plan

Year	Main System		Judges		Public Safety with Prior Service		Public Safety without Prior Service		Total	
	Projected Benefit Payments	Projected Administrative Expenses	Projected Benefit Payments	Projected Administrative Expenses	Projected Benefit Payments	Projected Administrative Expenses	Projected Benefit Payments	Projected Administrative Expenses	Projected Benefit Payments	Projected Administrative Expenses
2023	\$ 253,715,821	\$ 2,111,629	\$ 4,052,884	\$ 5,381	\$ 3,840,268	\$ 61,586	\$ 311,677	\$ 17,210	\$ 261,920,650	\$ 2,195,805
2024	269,619,438	1,996,429	4,482,871	5,017	4,289,128	58,361	419,634	16,027	278,811,071	2,075,834
2025	281,909,624	1,899,326	4,650,806	4,613	4,630,755	55,602	471,766	15,065	291,662,951	1,974,606
2026	296,632,384	1,814,944	4,774,591	4,383	5,066,511	53,148	584,679	14,154	307,058,165	1,886,629
2027	311,953,598	1,740,485	4,854,495	4,127	5,510,982	50,997	686,945	13,405	323,006,020	1,809,015
2028	327,738,634	1,670,952	4,994,035	3,709	6,026,828	48,976	802,842	12,706	339,562,339	1,736,343
2029	343,600,054	1,603,137	5,140,856	3,373	6,648,690	46,971	931,125	12,049	356,320,726	1,665,531
2030	359,602,743	1,536,300	5,212,200	3,172	7,296,628	45,104	1,058,375	11,470	373,169,945	1,596,046
2031	375,976,675	1,470,488	5,183,227	3,133	8,074,624	43,230	1,186,847	10,929	390,421,372	1,527,780
2032	392,641,333	1,405,158	5,102,517	3,039	8,924,422	41,454	1,317,839	10,439	407,986,110	1,460,088
2033	409,514,094	1,340,639	5,100,282	2,807	9,843,931	39,734	1,468,150	9,984	425,926,457	1,393,165
2034	426,651,322	1,276,987	5,129,629	2,656	10,854,563	38,090	1,643,879	9,488	444,279,392	1,327,222
2035	444,156,112	1,213,336	5,107,888	2,557	11,956,971	36,459	1,842,243	9,009	463,063,213	1,261,361
2036	461,709,740	1,150,680	5,117,708	2,319	13,161,132	34,885	2,061,561	8,535	482,050,141	1,196,419
2037	479,234,576	1,088,580	5,111,500	2,237	14,474,182	33,262	2,287,695	8,064	501,107,953	1,132,143
2038	490,178,913	1,027,077	5,233,343	1,712	15,688,346	31,560	2,478,898	7,595	513,579,500	1,067,943
2039	507,446,488	965,622	5,396,462	1,547	17,169,093	29,848	2,726,029	7,110	532,738,071	1,004,127
2040	524,792,559	905,228	5,430,806	1,325	18,801,515	28,033	3,006,542	6,600	552,031,422	941,186
2041	541,958,332	845,765	5,469,043	1,147	20,615,261	26,131	3,326,746	6,068	571,369,382	879,111
2042	558,607,213	787,896	5,508,453	925	22,513,261	24,109	3,681,078	5,542	590,310,004	818,472
2043	574,774,614	731,095	5,575,195	694	24,614,031	21,907	4,022,805	5,044	608,986,644	758,740
2044	590,380,874	675,121	5,589,347	563	26,769,441	19,687	4,364,464	4,566	627,104,125	699,937
2045	605,335,769	620,274	5,503,916	516	28,873,963	17,559	4,702,612	4,083	644,416,260	642,432
2046	619,908,567	566,251	5,459,738	324	30,901,035	15,458	5,006,005	3,636	661,275,345	585,669
2047	634,044,528	512,935	5,402,994	297	32,823,825	13,338	5,314,516	3,205	677,585,862	529,774
2048	646,970,396	461,582	5,351,243	96	34,744,601	11,243	5,642,804	2,748	692,709,044	475,669
2049	658,224,081	412,731	5,287,130	88	36,528,097	9,313	5,983,361	2,299	706,022,669	424,431
2050	668,327,604	366,607	5,154,304	-	38,078,812	7,559	6,278,037	1,907	717,838,757	376,073
2051	677,185,919	323,274	5,017,852	-	39,356,495	6,015	6,501,591	1,550	728,061,857	330,839
2052	684,562,736	283,156	4,830,147	-	40,369,221	4,672	6,691,001	1,227	736,453,104	289,056
2053	690,651,051	246,589	4,645,109	-	41,141,754	3,518	6,861,301	931	743,299,216	251,038
2054	695,151,372	213,164	4,462,699	-	41,667,351	2,576	6,988,671	684	748,270,092	216,423
2055	698,207,454	182,336	4,282,838	-	41,972,963	1,832	7,066,872	492	751,530,127	184,660
2056	699,466,616	154,445	4,105,431	-	42,058,898	1,287	7,103,631	346	752,734,575	156,078
2057	698,752,161	129,439	3,930,344	-	41,960,468	884	7,102,174	243	751,745,147	130,566
2058	696,202,888	107,029	3,757,402	-	41,701,919	601	7,066,284	171	748,728,493	107,801
2059	691,290,358	87,324	3,586,394	-	41,313,762	402	7,006,858	117	743,197,372	87,843
2060	683,860,158	70,199	3,417,054	-	40,823,778	256	6,928,413	76	735,029,403	70,532
2061	673,630,413	55,681	3,249,074	-	40,245,838	156	6,834,575	45	723,959,900	55,882
2062	661,044,308	43,540	3,082,164	-	39,590,861	88	6,724,718	25	710,442,052	43,653
2063	646,511,881	33,617	2,916,079	-	38,865,778	48	6,599,032	14	694,892,770	33,679
2064	630,055,994	25,675	2,750,664	-	38,079,742	25	6,461,500	8	677,347,900	25,707
2065	611,978,256	19,437	2,585,847	-	37,239,825	12	6,314,314	4	658,118,241	19,453
2066	592,654,139	14,705	2,421,662	-	36,351,098	6	6,158,274	2	637,585,174	14,713
2067	572,348,031	11,072	2,258,295	-	35,417,136	3	5,994,241	1	616,017,703	11,075
2068	551,273,854	8,236	2,096,085	-	34,439,726	1	5,822,718	0	593,632,383	8,238
2069	529,540,145	6,096	1,935,503	-	33,419,572	1	5,644,013	0	570,539,234	6,097
2070	507,293,265	4,459	1,777,113	-	32,357,148	0	5,458,307	0	546,885,832	4,459
2071	484,632,483	3,210	1,621,592	-	31,253,036	0	5,265,893	0	522,773,005	3,210
2072	461,674,870	2,242	1,469,734	-	30,108,252	0	5,067,171	0	498,320,026	2,242
2073	438,502,578	1,505	1,322,431	-	28,924,321	-	4,862,584	-	473,611,913	1,505
2074	415,193,380	963	1,180,598	-	27,703,533	-	4,652,682	-	448,730,194	963
2075	391,828,676	584	1,045,107	-	26,448,833	-	4,438,122	-	423,760,738	584
2076	368,488,018	341	916,848	-	25,163,939	-	4,219,641	-	398,788,446	341
2077	345,276,004	184	796,654	-	23,853,273	-	3,998,075	-	373,924,007	184
2078	322,289,124	89	685,218	-	22,521,876	-	3,774,359	-	349,270,577	89
2079	299,618,764	40	583,031	-	21,175,504	-	3,549,471	-	324,926,771	40
2080	277,360,848	16	490,352	-	19,820,428	-	3,324,447	-	300,996,075	16



Projection of Contributions

Year	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2023	\$ 91,542,040	\$ (89,346,236)	\$ 189,045,463	\$ 191,241,268
2024	86,913,678	(84,837,844)	196,339,550	198,415,383
2025	83,419,007	(81,444,402)	189,954,322	191,928,928
2026	80,611,922	(78,725,293)	188,288,274	190,174,903
2027	78,275,011	(76,465,997)	185,944,304	187,753,318
2028	76,239,245	(74,502,902)	184,441,081	186,177,424
2029	74,280,645	(72,615,114)	183,481,916	185,147,447
2030	72,319,680	(70,723,634)	182,691,534	184,287,579
2031	70,341,006	(68,813,226)	181,995,669	183,523,448
2032	68,329,528	(66,869,439)	181,284,825	182,744,914
2033	66,249,261	(64,856,096)	180,619,166	182,012,331
2034	64,107,786	(62,780,565)	179,902,373	181,229,595
2035	61,930,567	(60,669,207)	179,108,697	180,370,058
2036	59,670,017	(58,473,597)	178,303,050	179,499,470
2037	57,361,266	(56,229,122)	177,436,585	178,568,729
2038	55,006,503	(53,938,560)	176,502,237	177,570,180
2039	52,533,540	(51,529,413)	175,565,970	176,570,097
2040	50,018,130	(49,076,944)	174,332,602	175,273,788
2041	47,455,819	(46,576,708)	173,156,260	174,035,371
2042	44,854,057	(44,035,585)	171,714,777	172,533,249
2043	42,245,034	(41,486,293)	170,378,555	171,137,295
2044	39,599,936	(38,899,998)	169,181,545	169,881,482
2045	36,937,563	(36,295,131)	167,879,633	168,522,065
2046	34,282,075	(33,696,406)	166,598,487	167,184,156
2047	31,585,114	(31,055,340)	165,177,849	165,707,623
2048	28,878,135	(28,402,467)	163,725,865	164,201,534
2049	26,188,175	(25,763,744)	162,389,784	162,814,215
2050	23,613,403	(23,237,330)	160,964,859	161,340,933
2051	21,136,090	(20,805,250)	159,563,098	159,893,937
2052	18,787,887	(18,498,831)	158,129,671	158,418,727
2053	16,585,976	(16,334,938)	157,017,126	157,268,164
2054	14,553,836	(14,337,413)	156,222,737	156,439,160
2055	12,677,055	(12,492,395)	155,702,302	155,886,962
2056	10,928,850	(10,772,772)	155,420,022	155,576,100
2057	9,334,898	(9,204,332)	155,401,389	155,531,955
2058	7,892,767	(7,784,965)	155,847,988	155,955,789
2059	6,587,397	(6,499,554)	156,733,347	156,821,190
2060	5,426,926	(5,356,395)	157,927,639	157,998,170
2061	4,405,721	(4,349,839)	159,494,886	159,550,768
2062	3,529,759	(3,486,106)	161,641,948	161,685,602
2063	2,788,479	(2,754,799)	164,636,470	164,670,149
2064	2,176,175	(2,150,468)	168,344,647	168,370,354
2065	1,680,381	(1,660,928)	172,624,503	172,643,956
2066	1,286,511	(1,271,797)	177,433,144	177,447,857
2067	984,579	(973,504)	182,933,097	182,944,172
2068	749,962	(741,724)	189,099,690	189,107,928
2069	564,475	(558,378)	195,801,627	195,807,724
2070	422,777	(418,318)	202,867,694	202,872,154
2071	312,974	(309,763)	210,302,398	210,305,608
2072	228,054	(225,812)	218,195,258	218,197,500
2073	161,196	(159,691)	226,566,149	226,567,655
2074	109,581	(108,618)	235,357,163	235,358,126
2075	70,939	(70,356)	244,535,245	244,535,829
2076	43,536	(43,196)	254,083,746	254,084,087
2077	25,728	(25,544)	264,108,725	264,108,909
2078	14,105	(14,016)	274,630,340	274,630,429
2079	6,896	(6,856)	285,544,824	285,544,863
2080	3,103	(3,087)	296,869,423	296,869,440
2081	1,305	(1,298)	308,636,685	308,636,692



Projection of Plan Fiduciary Net Position

Year	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings at 6.500% (e)	Projected Ending Plan Fiduciary Net Position (f)=(a)+(b)-(c)-(d)+(e)
2023	\$ 3,635,771,902	\$ 191,241,268	\$ 261,920,650	\$ 2,195,805	\$ 233,994,015	\$ 3,796,890,731
2024	3,796,890,731	198,415,383	278,811,071	2,075,834	244,159,768	3,958,578,977
2025	3,958,578,977	191,928,928	291,662,951	1,974,606	254,054,140	4,110,924,488
2026	4,110,924,488	190,174,903	307,058,165	1,886,629	263,410,836	4,255,565,434
2027	4,255,565,434	187,753,318	323,006,020	1,809,015	272,227,372	4,390,731,090
2028	4,390,731,090	186,177,424	339,562,339	1,736,343	280,435,444	4,516,045,276
2029	4,516,045,276	185,147,447	356,320,726	1,665,531	288,014,111	4,631,220,577
2030	4,631,220,577	184,287,579	373,169,945	1,596,046	294,936,243	4,735,678,408
2031	4,735,678,408	183,523,448	390,421,372	1,527,780	301,151,898	4,828,404,602
2032	4,828,404,602	182,744,914	407,986,110	1,460,088	306,594,494	4,908,297,812
2033	4,908,297,812	182,012,331	425,926,457	1,393,165	311,192,377	4,974,182,898
2034	4,974,182,898	181,229,595	444,279,392	1,327,222	314,864,898	5,024,670,776
2035	5,024,670,776	180,370,058	463,063,213	1,261,361	317,520,358	5,058,236,618
2036	5,058,236,618	179,499,470	482,050,141	1,196,419	319,069,005	5,073,558,532
2037	5,073,558,532	178,568,729	501,107,953	1,132,143	319,427,584	5,069,314,749
2038	5,069,314,749	177,570,180	513,579,500	1,067,943	318,722,906	5,050,960,391
2039	5,050,960,391	176,570,097	532,738,071	1,004,127	316,887,071	5,010,675,361
2040	5,010,675,361	175,273,788	552,031,422	941,186	313,611,928	4,946,588,469
2041	4,946,588,469	174,035,371	571,369,382	879,111	308,790,061	4,857,165,408
2042	4,857,165,408	172,533,249	590,310,004	818,472	302,325,572	4,740,895,752
2043	4,740,895,752	171,137,295	608,986,644	758,740	294,127,865	4,596,415,528
2044	4,596,415,528	169,881,482	627,104,125	699,937	284,118,811	4,422,611,759
2045	4,422,611,759	168,522,065	644,416,260	642,432	272,226,133	4,218,301,265
2046	4,218,301,265	167,184,156	661,275,345	585,669	258,365,675	3,981,990,082
2047	3,981,990,082	165,707,623	677,585,862	529,774	242,438,257	3,712,020,326
2048	3,712,020,326	164,201,534	692,709,044	475,669	224,360,010	3,407,397,157
2049	3,407,397,157	162,814,215	706,022,669	424,431	204,090,884	3,067,855,156
2050	3,067,855,156	161,340,933	717,838,757	376,073	181,597,096	2,692,578,354
2051	2,692,578,354	159,893,937	728,061,857	330,839	156,832,243	2,280,911,837
2052	2,280,911,837	158,418,727	736,453,104	289,056	129,759,644	1,832,348,048
2053	1,832,348,048	157,268,164	743,299,216	251,038	100,348,414	1,346,414,372
2054	1,346,414,372	156,439,160	748,270,092	216,423	68,578,303	822,945,319
2055	822,945,319	155,886,962	751,530,127	184,660	34,431,884	261,549,377
2056	261,549,377	155,576,100	752,734,575	156,078	0	0
2057	0	155,531,955	751,745,147	130,566	0	0
2058	0	155,955,789	748,728,493	107,801	0	0
2059	0	156,821,190	743,197,372	87,843	0	0
2060	0	157,998,170	735,029,403	70,532	0	0
2061	0	159,550,768	723,959,900	55,882	0	0
2062	0	161,685,602	710,442,052	43,653	0	0
2063	0	164,670,149	694,892,770	33,679	0	0
2064	0	168,370,354	677,347,900	25,707	0	0
2065	0	172,643,956	658,118,241	19,453	0	0
2066	0	177,447,857	637,585,174	14,713	0	0
2067	0	182,944,172	616,017,703	11,075	0	0
2068	0	189,107,928	593,632,383	8,238	0	0
2069	0	195,807,724	570,539,234	6,097	0	0
2070	0	202,872,154	546,885,832	4,459	0	0
2071	0	210,305,608	522,773,005	3,210	0	0
2072	0	218,197,500	498,320,026	2,242	0	0



Projection of Plan Fiduciary Net Position

Year	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings at 6.500% (e)	Projected Ending Plan Fiduciary Net Position (f)=(a)+(b)-(c)-(d)+(e)
2073	0	226,567,655	473,611,913	1,505	0	0
2074	0	235,358,126	448,730,194	963	0	0
2075	0	244,535,829	423,760,738	584	0	0
2076	0	254,084,087	398,788,446	341	0	0
2077	0	264,108,909	373,924,007	184	0	0
2078	0	274,630,429	349,270,577	89	0	0
2079	0	285,544,863	324,926,771	40	0	0
2080	0	296,869,440	300,996,075	16	0	0
2081	0	308,636,692	277,581,309	6	993,411	0
2082	0	320,941,163	254,780,757	2	2,116,364	0
2083	0	333,746,059	232,686,959	0	3,232,716	0
2084	0	346,984,458	211,388,421	0	4,337,496	0
2085	0	360,640,201	190,970,044	0	5,427,472	0
2086	0	374,819,322	171,509,825	0	6,503,540	0
2087	0	389,621,956	153,075,939	0	7,566,722	0
2088	0	404,962,554	135,726,202	0	8,612,433	0
2089	0	420,774,655	119,506,798	0	9,637,068	0
2090	0	437,065,254	104,451,673	0	10,639,767	0
2091	0	453,942,082	90,581,899	0	11,623,301	0
2092	0	471,452,828	77,904,655	0	12,588,965	0
2093	0	489,555,567	66,413,679	0	13,535,620	0
2094	0	508,203,588	56,089,194	0	14,462,403	0
2095	0	527,400,626	46,898,246	0	15,370,489	0
2096	0	547,238,562	38,796,095	0	16,264,247	0
2097	0	567,739,318	31,728,356	0	17,146,118	0
2098	0	588,856,825	25,632,691	0	18,016,623	0
2099	0	610,602,807	20,439,305	0	18,878,370	0
2100	0	633,008,560	16,072,246	0	19,734,788	0
2101	0	656,156,263	12,451,476	0	20,591,068	0
2102	0	680,049,657	9,494,804	0	21,449,958	0
2103	0	704,658,074	7,119,573	0	22,313,121	0
2104	0	729,994,195	5,244,317	0	23,183,569	0
2105	0	756,144,182	3,790,774	0	24,066,561	0
2106	0	783,205,647	2,685,997	0	24,967,553	0
2107	0	811,157,142	1,863,682	0	25,887,980	0
2108	0	839,988,028	1,264,946	0	26,829,386	0
2109	0	869,728,323	838,957	0	27,794,356	0
2110	0	900,493,477	543,176	0	28,787,945	0
2111	0	932,365,101	343,033	0	29,813,869	0
2112	0	965,341,280	211,175	0	30,872,941	0
2113	0	999,417,637	126,626	0	31,965,693	0
2114	0	1,034,632,966	73,927	0	33,093,859	0
2115	0	1,071,100,720	42,023	0	34,261,424	0
2116	0	1,108,876,315	23,255	0	35,470,404	0
2117	0	1,147,967,595	12,524	0	36,721,214	0
2118	0	1,188,402,206	6,547	0	38,014,842	0
2119	0	1,230,235,215	3,319	0	39,353,116	0
2120	0	1,273,563,480	1,627	0	40,739,170	0
2121	0	1,318,429,340	768	0	42,174,384	0



Discount Rate Development

Present Values of Projected Benefits Ending June 30 for 2023 to 2072

Year	Projected Beginning Plan Fiduciary Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments Using Expected Return Rate of 6.50%	Present Value of Unfunded Benefit Payments Using Municipal Bond Rate of 3.69%	Present Value of All Benefit Payments Using Single Discount Rate (SDR) of 5.10%
					(v)	(vf)	(h)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf^((a)-.5)	(h)=(c)/(1+SDR)^(a-.5)
2023	\$ 3,635,771,902	\$ 261,920,650	\$ 261,920,650	\$ 0	\$ 253,801,939	\$ 0	\$ 255,492,394
2024	3,796,890,731	278,811,071	278,811,071	0	253,679,634	0	258,782,391
2025	3,958,578,977	291,662,951	291,662,951	0	249,176,595	0	257,586,113
2026	4,110,924,488	307,058,165	307,058,165	0	246,318,495	0	258,034,811
2027	4,255,565,434	323,006,020	323,006,020	0	243,297,351	0	258,276,408
2028	4,390,731,090	339,562,339	339,562,339	0	240,157,787	0	258,350,978
2029	4,516,045,276	356,320,726	356,320,726	0	236,629,363	0	257,957,494
2030	4,631,220,577	373,169,945	373,169,945	0	232,693,687	0	257,057,450
2031	4,735,678,408	390,421,372	390,421,372	0	228,592,469	0	255,901,947
2032	4,828,404,602	407,986,110	407,986,110	0	224,297,330	0	254,449,649
2033	4,908,297,812	425,926,457	425,926,457	0	219,868,866	0	252,759,547
2034	4,974,182,898	444,279,392	444,279,392	0	215,345,440	0	250,868,186
2035	5,024,670,776	463,063,213	463,063,213	0	210,751,262	0	248,797,593
2036	5,058,236,618	482,050,141	482,050,141	0	206,002,509	0	246,441,917
2037	5,073,558,532	501,107,953	501,107,953	0	201,076,808	0	243,764,316
2038	5,069,314,749	513,579,500	513,579,500	0	193,503,471	0	237,718,503
2039	5,050,960,391	532,738,071	532,738,071	0	188,471,291	0	234,631,065
2040	5,010,675,361	552,031,422	552,031,422	0	183,377,337	0	231,340,702
2041	4,946,588,469	571,369,382	571,369,382	0	178,217,038	0	227,835,653
2042	4,857,165,408	590,310,004	590,310,004	0	172,887,181	0	223,975,924
2043	4,740,895,752	608,986,644	608,986,644	0	167,471,461	0	219,859,599
2044	4,596,415,528	627,104,125	627,104,125	0	161,928,425	0	215,423,855
2045	4,422,611,759	644,416,260	644,416,260	0	156,242,909	0	210,638,182
2046	4,218,301,265	661,275,345	661,275,345	0	150,545,074	0	205,669,271
2047	3,981,990,082	677,585,862	677,585,862	0	144,843,478	0	200,524,705
2048	3,712,020,326	692,709,044	692,709,044	0	139,038,752	0	195,061,194
2049	3,407,397,157	706,022,669	706,022,669	0	133,061,998	0	189,171,252
2050	3,067,855,156	717,838,757	717,838,757	0	127,031,869	0	183,012,126
2051	2,692,578,354	728,061,857	728,061,857	0	120,977,459	0	176,619,119
2052	2,280,911,837	736,453,104	736,453,104	0	114,903,079	0	169,992,987
2053	1,832,348,048	743,299,216	743,299,216	0	108,893,169	0	163,254,835
2054	1,346,414,372	748,270,092	748,270,092	0	102,930,893	0	156,378,570
2055	822,945,319	751,530,127	751,530,127	0	97,069,802	0	149,445,112
2056	261,549,377	752,734,575	417,125,478	335,609,098	50,588,856	40,702,573	142,427,436
2057	0	751,745,147	0	751,745,147	0	215,351,779	135,343,966
2058	0	748,728,493	0	748,728,493	0	206,854,663	128,265,275
2059	0	743,197,372	0	743,197,372	0	198,019,631	121,144,966
2060	0	735,029,403	0	735,029,403	0	188,873,888	114,004,604
2061	0	723,959,900	0	723,959,900	0	179,409,255	106,843,636
2062	0	710,442,052	0	710,442,052	0	169,793,913	99,765,247
2063	0	694,892,770	0	694,892,770	0	160,167,493	92,850,637
2064	0	677,347,900	0	677,347,900	0	150,567,590	86,118,281
2065	0	658,118,241	0	658,118,241	0	141,086,923	79,616,662
2066	0	637,585,174	0	637,585,174	0	131,820,869	73,393,013
2067	0	616,017,703	0	616,017,703	0	122,829,385	67,472,402
2068	0	593,632,383	0	593,632,383	0	114,153,648	61,868,136
2069	0	570,539,234	0	570,539,234	0	105,808,572	56,578,501
2070	0	546,885,832	0	546,885,832	0	97,812,675	51,603,489
2071	0	522,773,005	0	522,773,005	0	90,172,631	46,936,642
2072	0	498,320,026	0	498,320,026	0	82,895,901	42,571,963



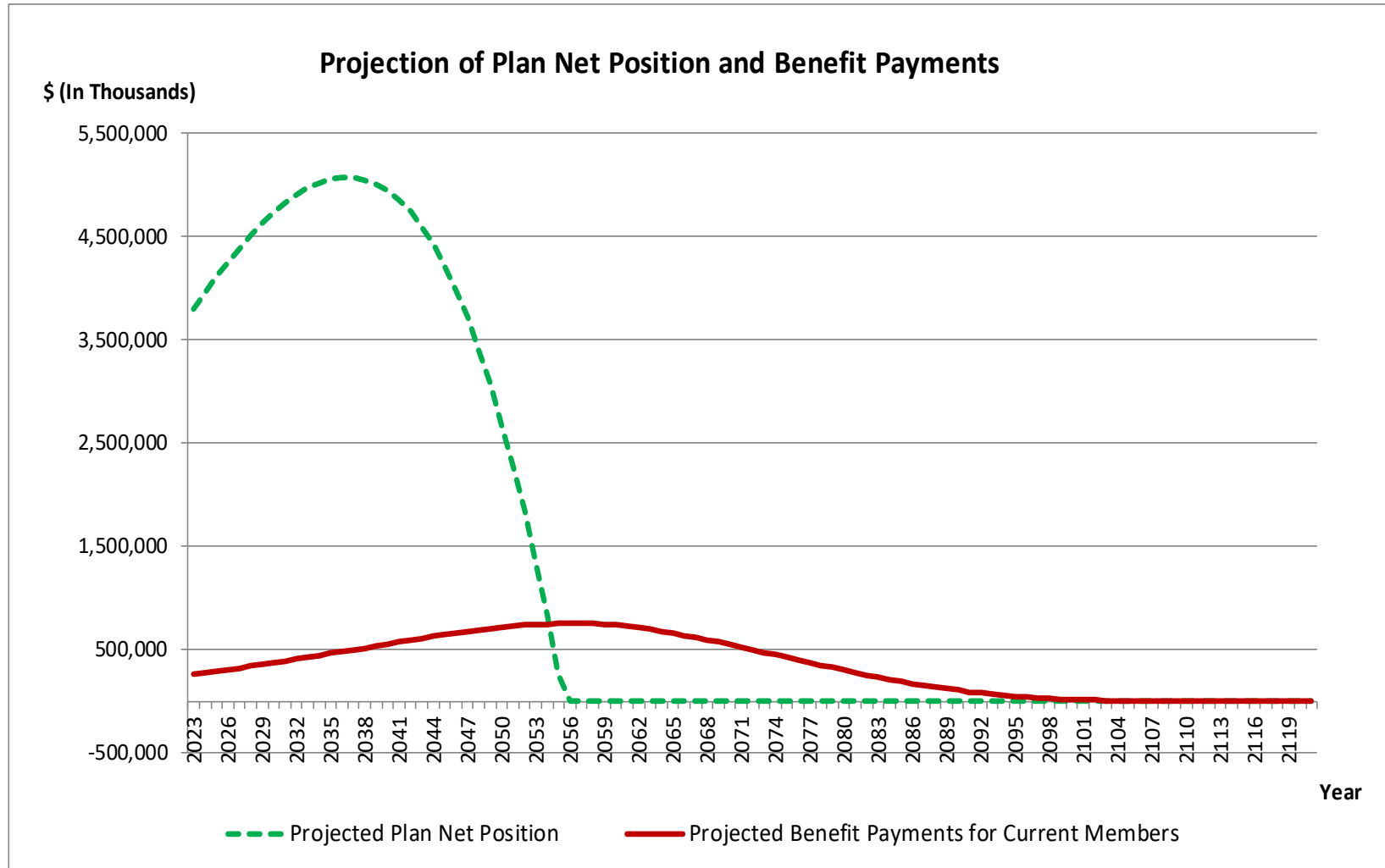
Discount Rate Development

Present Values of Projected Benefits Ending June 30 for 2073 to 2121

Year	Projected Beginning Plan Fiduciary Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments		Unfunded Portion of Projected Benefit Payments		Present Value of Funded Benefit Payments using Expected Return Rate of 7.00%	Present Value of Unfunded Benefit Payments Using Municipal Bond Rate of 3.69%	Present Value of All Benefit Payments Using Single Discount Rate (SDR) of 5.10%	
			(d)	(e)	(f)=(d)*v ^{(a)-.5}	(g)=(e)*v ^f ^(a)-.5	(h)=((c)/(1+SDR) ^{(a)-.5})			
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{(a)-.5}	(g)=(e)*v ^f ^(a)-.5	(h)=((c)/(1+SDR) ^{(a)-.5})			
2073	\$	0	\$ 498,320,026	\$ 0	\$ 473,611,913	\$ 0	\$ 75,981,954	\$ 38,499,441		
2074		0	473,611,913	0	448,730,194	0	69,428,256	34,708,318		
2075		0	448,730,194	0	423,760,738	0	63,231,692	31,187,852		
2076		0	423,760,738	0	398,788,446	0	57,387,827	27,926,968		
2077		0	398,788,446	0	373,924,007	0	51,894,782	24,916,156		
2078		0	373,924,007	0	349,270,577	0	46,748,262	22,145,025		
2079		0	349,270,577	0	324,926,771	0	41,942,285	19,602,711		
2080		0	324,926,771	0	300,996,075	0	37,470,592	17,278,576		
2081		0	300,996,075	0	277,581,309	0	33,325,990	15,161,906		
2082		0	277,581,309	0	254,780,757	0	29,500,039	13,241,789		
2083		0	254,780,757	0	232,686,959	0	25,983,110	11,507,171		
2084		0	232,686,959	0	211,388,421	0	22,764,778	9,947,047		
2085		0	211,388,421	0	190,970,044	0	19,834,013	8,550,563		
2086		0	190,970,044	0	171,509,825	0	17,178,984	7,306,930		
2087		0	171,509,825	0	153,075,939	0	14,786,947	6,205,394		
2088		0	153,075,939	0	135,726,202	0	12,644,406	5,235,312		
2089		0	135,726,202	0	119,506,798	0	10,737,186	4,386,195		
2090		0	119,506,798	0	104,451,673	0	9,050,579	3,647,768		
2091		0	104,451,673	0	90,581,899	0	7,569,471	3,010,022		
2092		0	90,581,899	0	77,904,655	0	6,278,424	2,463,248		
2093		0	77,904,655	0	66,413,679	0	5,161,880	1,998,107		
2094		0	66,413,679	0	56,089,194	0	4,204,290	1,605,672		
2095		0	56,089,194	0	46,898,246	0	3,390,262	1,277,470		
2096		0	46,898,246	0	38,796,095	0	2,704,754	1,005,538		
2097		0	38,796,095	0	31,728,356	0	2,133,293	782,483		
2098		0	31,728,356	0	25,632,691	0	1,662,112	601,503		
2099		0	25,632,691	0	20,439,305	0	1,278,189	456,380		
2100		0	20,439,305	0	16,072,246	0	969,324	341,470		
2101		0	16,072,246	0	12,451,476	0	724,229	251,718		
2102		0	12,451,476	0	9,494,804	0	532,604	182,640		
2103		0	9,494,804	0	7,119,573	0	385,155	130,311		
2104		0	7,119,573	0	5,244,317	0	273,611	91,334		
2105		0	5,244,317	0	3,790,774	0	190,737	62,818		
2106		0	3,790,774	0	2,685,997	0	130,340	42,353		
2107		0	2,685,997	0	1,863,682	0	87,218	27,962		
2108		0	1,863,682	0	1,264,946	0	57,091	18,058		
2109		0	1,264,946	0	838,957	0	36,517	11,396		
2110		0	838,957	0	543,176	0	22,802	7,021		
2111		0	543,176	0	343,033	0	13,887	4,219		
2112		0	343,033	0	211,175	0	8,245	2,471		
2113		0	211,175	0	126,626	0	4,768	1,410		
2114		0	126,626	0	73,927	0	2,685	783		
2115		0	73,927	0	42,023	0	1,472	424		
2116		0	42,023	0	23,255	0	785	223		
2117		0	23,255	0	12,524	0	408	114		
2118		0	12,524	0	6,547	0	206	57		
2119		0	6,547	0	3,319	0	101	27		
2120		0	3,319	0	1,627	0	48	13		
2121		0	1,627	0	768	0	22	6		
					\$	6,153,673,076	\$	3,074,037,998	\$	9,227,711,074



Projection of Plan Net Position and Benefit Payments



SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL). The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as “accrued liability” or “past service liability.”

Actuarial Assumptions. Estimates of future plan experience such as investment return, expected lifetimes and the likelihood of receiving a pension from the Pension Plan. Demographic, or “people” assumptions, include rates of mortality, retirement and separation. Economic, or “money” assumptions, include expected investment return, inflation and salary increases.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future plan benefits” between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

Actuarial Present Value of Future Plan Benefits. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Value of Assets (AVA). Smoothed value of assets that recognizes the difference between the expected investment return using the actuarial valuation assumption of 7.00 percent and the actual investment return over a five-year period. Dampens volatility of asset value over time.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Annual Required Contribution. The sum of the normal cost and amortization of the unfunded actuarial accrued liability.

Asset Return. The net investment return for the asset divided by the mean asset value. Example: if \$1.00 is invested and yields \$1.070 after a year, the asset return is 7.00 percent.

Funded Ratio. The actuarial value of assets divided by the actuarial accrued liability. Measures the portion of the actuarial accrued liability that is currently funded.

Market Value of Assets (MVA). The value of assets currently held in the trust available to pay for benefits of the Pension Plan. Each of the investments in the trust is valued at market price which is the price at which buyers and sellers trade similar items in the open market.

Normal Cost (NC). The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as “current service cost.” Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Unfunded Actuarial Accrued Liability (UAAL). The difference between the actuarial accrued liability and actuarial valuation assets. Sometimes referred to as “unfunded accrued liability.”

