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Indiana Public Retirement System

Public Employees' Retirement Fund

Actuarial Valuation as of
June 30, 2021

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The experience and dedication you deserve

December 13, 2021

Board of Trustees
Indiana Public Retirement System
1 North Capitol, Suite 001
Indianapolis, IN 46204

Dear Members of the Board:

At your request, we performed an actuarial valuation of the Public Employees' Retirement Fund (PERF) as of June 30, 2021, for the purpose of estimating the actuarial required contribution for the plan year ending June 30, 2023. Actuarial valuations are performed annually. The major findings of the valuation are contained in this report, which reflects the benefit and funding provisions in place on June 30, 2021. While there were no changes to the ongoing benefit provisions of the plan, the Legislature approved a 1.00% COLA effective January 1, 2022 to be paid from the Supplemental Reserve Account. This report also reflects the updated economic assumptions approved by the Board in May 2021. Please refer to the May 7, 2021 meeting minutes for complete details. There were no changes in the demographic assumptions or actuarial methods from last year.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by Indiana Public Retirement System (INPRS) staff. This information includes, but is not limited to, statutory provisions, member data and financial information. We did review the data to ensure that it was reasonably consistent and comparable with data from prior years. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

We certify that all costs and liabilities for PERF have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the plan and reasonable expectations); and which, in combination, offer the best estimate of anticipated experience affecting the plan. Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions.

We believe the actuarial assumptions used herein are reasonable. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C. Specifically, we presented the proposed assumptions for the 2021 valuations to the Board on February 26, 2021, and the Board subsequently adopted their use at its May 7, 2021 meeting. These assumptions are applicable to both the funding and Governmental Accounting Standards Board (GASB) Statement Number 67 valuation calculations, unless otherwise noted.

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We note that as we are preparing this report, the world is in the midst of a pandemic. We have considered available information, but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions. We will continue to monitor the situation and advise the Board in the future of any adjustments that we believe would be appropriate.

In order to prepare the results in this report, we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

We prepared a Risk Report for the INPRS Board in August 2019 that contains information which is relevant to PERF and should be considered part of this valuation report. Although the report was prepared using the data, methods, and assumptions of the June 30, 2018 valuation report, it is our professional opinion that the results of the risk report are applicable to the June 30, 2021 valuation report as well.

Actuarial computations presented in this report are for purposes of determining the funding rates for the Plan. The calculations in the enclosed report have been made on a basis consistent with our understanding of the Plan's funding requirements and goals as adopted by the Board. Additionally, we have included actuarial computations for use in preparing certain reporting and disclosure requirements under Governmental Accounting Standards Board Statements Number 67 and Number 68. Determinations for purposes other than meeting these funding and disclosure requirements may be significantly different from the results contained in this report and require additional analysis.

The Annual Comprehensive Financial Report (ACFR) for INPRS contains several exhibits that disclose the actuarial position of the System. This annual report, prepared as of June 30, 2021, provides data and tables that we prepared for use in the following sections of the ACFR:

Financial Section:

- Note 1 - Tables of Plan Membership
- Note 8 - Net Pension Liability and Actuarial Information - Defined Benefit Plans
- Schedule of Changes in Net Pension Liability and Plan Fiduciary Net Position
- Schedule of Contributions
- Schedule of Notes to Required Supplementary Information

Actuarial Section:

- Summary of INPRS Funded Status (Included in the Board Summary)
- Historical Summary of Actuarial Valuation Results by Retirement Plan
- Summary of Actuarial Assumptions, Methods and Plan Provisions
- Analysis of Financial Experience (Included in the Unfunded Actuarial Accrued Liability Reconciliation)
- Solvency Test
- Schedule of Active Member Valuation Data
- Schedule of Retirants and Beneficiaries

Statistical Section:

- Membership Data Summary
- Ratio of Active Members to Annuitants
- Schedule of Benefit Recipients by Type of Benefit Option
- Schedule of Average Benefit Payments

The consultants who worked on this assignment are pension actuaries. Cavanaugh Macdonald's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate, and the assumptions and methods used meet the guidance provided in the applicable Actuarial Standards of Practice. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

The calculations were completed in compliance with applicable law and the calculations for GASB disclosure, in our opinion, meet the requirements of GASB 67 and GASB 68. We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate.

We respectfully submit the following report and look forward to discussing it with you.

Sincerely,

Brent A. Banister

Brent. A. Banister, PhD, FSA, EA, FCA, MAAA
Chief Actuary

Edward J. Koebel

Edward Koebel, FCA, EA, MAAA
Chief Executive Officer

Virginia Fritz

Virginia Fritz, FSA, EA, FCA, MAAA
Senior Actuary

This report presents the results of the June 30, 2021 actuarial valuation of the Public Employees' Retirement Fund (PERF). The primary purposes of performing this actuarial valuation are to:

- Determine the level of contributions for the plan year ending June 30, 2023 (December 31, 2023 for political subdivisions), along with the actuarial surcharge rate for the 2022 calendar year, that will be sufficient to meet the funding policy set out by the Board to comply with Indiana statutes.
- Disclose asset and liability measurements as well as the plan's funded status on the valuation date.
- Compare actual and expected experience of the Fund during the plan year ending June 30, 2021.
- Analyze and report on trends in plan contributions, assets and liabilities over the past several years.

VALUATION RESULTS

Based on the results of the Asset-Liability study, which were discussed at the May 2021 Board meeting, the Board approved portfolio revisions and a new set of economic assumptions to be first used in the June 30, 2021 actuarial valuations. This resulted in a reduction of the investment return from 6.75% to 6.25%, but also impacted other assumptions such as price and wage inflation. There were no changes adopted by the Board to the demographic assumptions, actuarial methods, or funding policy. While there were no changes to the ongoing benefits of the plan, legislation granted a 1.00% cost-of-living adjustment (COLA) effective January 1, 2022 to be paid from the Supplemental Reserve Account.

The actuarial valuation results provide a "snapshot" view of the plan's financial condition on June 30, 2021. The plan's UAAL increased from $2.721 billion last year to $2.986 billion this year and the funded ratio decreased from 83.3% to 83.0%. The primary factor behind the decrease in the funded ratio was an increase on liabilities due to assumption changes (an $897 million increase when including the base and supplemental plan benefits). Favorable asset experience reduced the UAAL by $434 million and the plan will continue to recognize this year's large asset return gains as they are spread over the next four years.

A summary of the key results from the June 30, 2021 actuarial valuation compared to the June 30, 2020 valuation is shown in the following table. Further detail on the valuation results can be found in the following sections of this Board Summary.

Valuation Results	June 30, 2020	June 30, 2021
Unfunded Actuarial Accrued Liability	$ 2,721,294,319	$ 2,985,805,160
Funded Ratio (Actuarial Assets)	83.29%	83.00%
Normal Cost	3.56%	4.01%
UAAL Amortization	3.33%	3.51%
Actuarially Determined Contribution Rate	6.89%	7.52%
Actuarially Determined Surcharge Rate	0.37%	0.62%

Numerous components, as examined in the following discussion, contributed to the change in the plan's assets, liabilities, and actuarial determined contribution rate between June 30, 2020 and June 30, 2021.

ASSETS

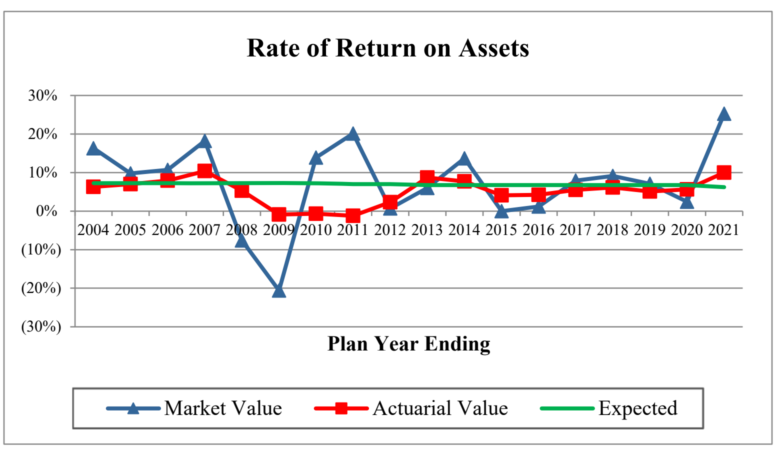
As of June 30, 2021, the plan had net assets of $16.247 billion when measured on a market value basis. This was an increase of $2.986 billion from the prior year.

The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability and the actuarial required contribution rate. An asset valuation method, which smoothes the effect of market fluctuations, is applied to determine the value of assets used in the valuation. The resulting amount is called the actuarial value of assets. In this year's valuation, the actuarial value of assets is $14.577 billion, an increase of $1.017 billion from the prior year.

The components of change in the asset values are shown in the following table:

		Market Value		Actuarial Value
Net Assets, June 30, 2020	$	13,261,359,961	$	13,560,459,916
- Receipts	+	627,567,368	+	627,567,368
- Expenditures, Net of Administrative Expenses	-	949,164,169	-	949,164,169
- Net Investment Income	+	3,307,546,599	+	1,338,489,187
Net Assets, June 30, 2021	$	16,247,309,759	$	14,577,352,302
Estimated Rate of Return, Net of Expenses		25.2%		10.0%

The estimated rate of return on the actuarial value of assets was 10.0%, which was higher than the 6.75% investment return assumption applicable for the year ended June 30, 2021. As a result, there was an experience gain on assets of approximately $434 million. The FY 2021 return on the market value of assets of 25.2% resulted in a change in the deferred investment experience from a net deferred investment loss of $299 million in last year's valuation to a net deferred investment gain of $1.670 billion in the current valuation. See Tables 1 through 4 of this report for detailed information on the market and actuarial value of assets.



The rate of return of the actuarial value of assets has been less volatile than the market value return, illustrating the benefits of using an asset smoothing method.

LIABILITIES

The actuarial accrued liability is that portion of the present value of future benefits that is allocated to past service. The remaining portion will be paid by future normal costs. The difference between this liability and the actuarial value of assets as of the valuation date is called the unfunded actuarial accrued liability (UAAL). The dollar amount of unfunded actuarial accrued liability is reduced if the contributions to the plan exceed the normal cost for the year plus interest on the prior year's UAAL.

The unfunded actuarial accrued liability, including expected future COLAs, on both a market value and actuarial value of assets basis is shown as of June 30, 2021 in the following table:

	Market Value	Actuarial Value
Actuarial Accrued Liability	$ 17,563,157,462	$ 17,563,157,462
Value of Assets	16,247,309,759	14,577,352,302
Unfunded Actuarial Accrued Liability	$ 1,315,847,703	$ 2,985,805,160
Funded Ratio	92.51%	83.00%

See Table 5 of this report for the development of the unfunded actuarial accrued liability.

The total plan UAAL (on an actuarial basis) as of June 30, 2021 was $2.986 billion, a $265 million change from the $2.721 billion total UAAL last year, primarily driven by a $897 million increase in liabilities due to economic assumption changes. Due to higher-than-expected market returns, there was an actuarial gain on assets of $434 million, along with gains from contributing more than actuarially required. The components of the change in the base UAAL are quantified in Table 7 of this report. See Table 8 and Table 9 of this report for a breakdown of the components of experience gains/losses for greater detail on the base plan benefits.

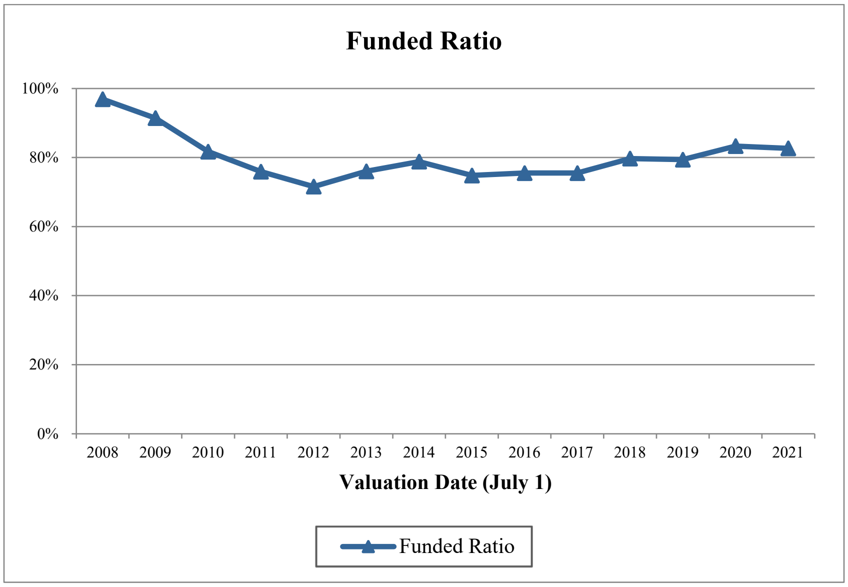
An evaluation of the UAAL on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both large numbers) is reflected. Another way to evaluate the UAAL and the progress made in its funding is to track the funded ratio, the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status information, which is based on the actuarial value of assets, is shown below (in millions).

	6/30/2017	6/30/2018	6/30/2019	6/30/2020	6/30/2021
Funded Ratio	75.5%	79.7%	79.4%	83.3%	83.0%
UAAL (in millions)	$4,007.3	$3,267.4	$3,418.3	$2,721.3	$2,985.8

Note: Results before 2018 exclude the DC assets in the funded ratio calculation.

Note that the funded ratio does not indicate whether or not the plan assets are sufficient to settle benefits earned to date. The funded ratio, by itself, also may not be indicative of future funding requirements. In addition, if the funded ratios were shown using the market value of assets, the results would differ.

The funded ratio over a long period of time is shown in the following graph. The Plan's funded status has been steady for a number of years.



Note: Funded ratios exclude DC account balances.

ACTUARIALLY DETERMINED CONTRIBUTION RATE

The Plan's actuarially determined contribution rate consists of two components:

- A "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to service of members during the year following the valuation date.

- An "unfunded actuarial accrued liability contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

The UAAL contribution rate is determined by calculating the amortization payment on the UAAL as a level dollar amount over 20 years for each new amortization base. Because the COLA portion of the benefits are funded through the surcharge, this portion of the benefit only considers the base benefit without any COLA. If the Fund's funded ratio exceeds 100% on a combined basis (base benefits plus future assumed COLAs), all prior amortization bases are eliminated and the negative UAAL (or "surplus") is amortized over an open 30-year period, as an offset to other Fund costs.

In addition to the components above that are designed to fund the guaranteed base benefit, the Board is responsible for determining the surcharge to fund future COLAs and/or 13th checks. Because there are five plans that must, by law, provide the same COLA or 13th check each year, the funding strategy needs to consider the funding needs of the entire System as well as the specific fund. The Legislature, via HEA No. 1001, authorized a 1.00% COLA effective January 1, 2022 to be paid from the Supplemental Reserve Account. No supplemental benefits were granted for fiscal year 2023. Prior funding of the Supplemental Reserve Account was determined based on an assumed COLA of 0.4% for Fiscal Years 2022 and 2023.

Therefore, additional contributions were made to the Supplemental Reserve Accounts to pay for the higher-than-expected COLA and to ensure the present value of the COLA was fully funded as required by legislation. At this time, we believe the current COLA assumptions for future years remain reasonable, though ultimately the benefits are determined through legislation.

The long-term assumption is that a COLA of 0.4% will be granted starting in 2024, 0.5% starting in 2034, and then 0.6% in 2039 and beyond. Considering the biennial budgeting cycle in Indiana, the near-term goal is to accumulate funds by June 30, 2023 to fund the two COLAs in the following biennium (January 2024 and January 2025). The surcharge rate for calendar year 2021 is 0.37%, and the actuarially determined surcharge rate effective January 1, 2022 is 0.62%. See Table 12 for further details. Note that this surcharge rate, while it will apply to calendar year 2022, is designed to bring the Supplemental Reserve Account to a target level as of June 30, 2023 and may not be reflective of what is needed for long-term funding of the target COLA. In particular, the target level may not be sufficient to fund a historically typical 13th check. To provide flexibility to the legislature for a 13th check, the Board adopted a surcharge rate of 0.72% applicable for calendar year 2022.

The total employer rate is the sum of the contributions to fund the base benefits plus the surcharge. The total employer contribution rate is lowered part way toward the normal cost rate when the funded ratio is over 105% funded, and then ultimately reduced to the normal cost rate should the Fund reach 120% funded. The Board could decide, however, to set the rate higher in order to provide a sufficient surcharge for the COLA funding while preserving the base funding.

See Table 13 of this report for the detailed development of the contribution rates which are summarized in the following table:

	June 30, 2020	June 30, 2021
Normal Cost	3.56%	4.01%
UAAL Amortization	3.33%	3.51%
Actuarially Determined Contribution Rate	6.89%	7.52%
Actuarially Determined Surcharge Rate	0.37%	0.62%
Approved Employer Funding Rate	11.20%	11.20%

The actuarial required contribution, determined this year based on the snapshot of the plan taken on the valuation date of June 30, 2021, will change each year as the deferred investment experience is recognized and other experience (both investment and demographic) impacts the plan. While the actuarially determined rates increased year over year, it still remains well below the Board-approved employer funding rate. To maintain stability in the employer funding rate, the rate will remain at the current level until the actuarially determined contribution and surcharge rates exceed it or until the plan reaches 105% funded.

The June 30, 2021 actuarially determined contribution rate increased to 7.52% for the base benefits and 0.62% for the supplemental benefits. As noted above, the Board will allocate 0.72% for the surcharge rate for supplemental benefits. Because this is lower than the current employer funding rate of 11.20%, no change in the current employer funding rate is needed.

SUMMARY OF PRINCIPAL RESULTS

	June 30, 2019	June 30, 2020	June 30, 2021
MEMBERSHIP			
Active Members	129,099	125,780	125,386
Inactive Vested Members	33,062	33,575	33,931
Retired Members and Beneficiaries	86,961	89,823	92,174
Disabled Members	2,971	2,613	2,677
Total Members	252,093	251,791	254,168
Projected Annual Salaries of Active Members	$ 5,335,373,772	$ 5,528,816,114	$ 5,627,521,771
Annual Retirement Payments for Retired Members, Disabled Members and Beneficiaries	$ 829,034,603	$ 859,427,002	$ 891,167,922
ASSETS AND LIABILITIES			
Net Assets			
Market Value of Assets (MVA)	$ 13,270,996,471	$ 13,261,359,961	$ 16,247,309,759
Actuarial Value of Assets (AVA)	13,157,802,020	13,560,459,916	14,577,352,302
Actuarial Accrued Liability (AAL)	16,576,060,167	16,281,754,235	17,563,157,462
Unfunded Actuarial Accrued Liability (UAAL):			
AAL - AVA	$ 3,418,258,147	$ 2,721,294,319	$ 2,985,805,160
Funded Ratios			
AVA / AAL	79.38%	83.29%	83.00%
MVA / AAL	80.06%	81.45%	92.51%
CONTRIBUTIONS			
Normal Cost	3.60%	3.56%	4.01%
Amortization of UAAL	4.47%	3.33%	3.51%
Actuarially Determined Contribution Rate	8.07%	6.89%	7.52%
Surcharge Rate (applicable next calendar year)	0.44%	0.37%	0.62%

Note: Liability and funded ratio results include both the base benefit and the supplemental benefit.

This report presents the actuarial valuation results of the Public Employees' Retirement Fund as of June 30, 2021. This valuation was prepared at the request of the Indiana Public Retirement System.

Please pay particular attention to our actuarial certification letter, where the guidelines employed in the preparation of this report are outlined. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings which result from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the plan. Sections 4 and 5 describe how the obligations of the plan are to be met under the actuarial cost method in use. Section 6 provides information required by the Governmental Accounting Standards Board (GASB) for reporting and disclosure under GASB 67 and GASB 68.

This report includes several appendices:

- Appendix A Schedules of valuation data classified by various categories of members.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2021.
- Appendix C A summary of the actuarial methods and assumptions used to estimate liabilities and determine contribution rates.
- Appendix D A glossary of actuarial terms.

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2021. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the plan, which are generally in excess of assets. The actuarial process then leads to a method of determining the contributions needed by members and the employer in the future to balance the plan assets and liabilities.

Market Value of Assets

The current market value represents the "snapshot" or "cash-out" value of plan assets as of the valuation date. In addition, the market value of assets provides a basis for measuring investment performance from time to time.

Table 1 summarizes the changes in the market value of assets for the last two years for the base benefits, whereas Table 2 shows the changes for the supplemental reserve account. Table 15 (in the GASB section) provides detail regarding the allocation of investments in the trust.

Actuarial Value of Assets

The market value of assets, representing a "cash-out" value of plan assets, may not be the best measure of the plan's ongoing ability to meet its obligations. To arrive at a suitable value of assets for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens swings in the market value while still indirectly recognizing market values. Under the asset smoothing methodology, the difference between the actual and assumed investment return on the market value of assets is recognized evenly over a five-year period.

Table 3 shows the development of the actuarial value of assets (AVA) as of the valuation date for the base benefits and Table 4 shows the information for the supplemental benefits.

TABLE 1

DEVELOPMENT OF MARKET VALUE OF ASSETS
(Base Benefits)

	June 30, 2020	June 30, 2021
1. Market Value of Assets, Beginning of Year	$ 13,259,490,887	$ 13,226,754,162
2. Receipts		
a. Member (Includes Purchased Service) [1]	$ 126,815	$ 129,035
b. Employer (Includes Purchased Service) [2]	576,501,775	581,101,763
c. Miscellaneous	236,722	122,292
d. Total	$ 576,865,312	$ 581,353,090
3. Expenditures		
a. Benefit Payments	$ 922,190,241	$ 946,107,172
b. Refund of Contributions	0	0
c. Member Reassignment Transfers	3,163,150	3,056,997
d. Administrative Expense	18,886,120	18,003,369
e. Miscellaneous Expenditures	0	0
f. Total	$ 944,239,511	$ 967,167,538
4. Investment Return		
a. Investment Income	$ 333,918,526	$ 3,312,134,382
b. Securities Lending Income	718,948	693,275
c. Total Investment Return	$ 334,637,474	$ 3,312,827,657
5. Market Value of Assets, End of Year: (1) + (2d) - (3f) + (4c)	$ 13,226,754,162	$ 16,153,767,371
6. Rate of Return on Market Value of Assets, Net of Expenses [3]	2.41%	25.26%

[1] Includes $126,815 of member service purchases during fiscal year 2020 and $129,035 of member service purchases during fiscal year 2021.

[2] Includes $197,135 of employer service purchases during fiscal year 2020 and $329,582 of employer service purchases during fiscal year 2021.

[3] Based on individual fund experience. Assumes cash flows occur at mid-year.

TABLE 2

DEVELOPMENT OF MARKET VALUE OF ASSETS
(Supplemental Benefits)

		June 30, 2020		June 30, 2021
1. Market Value of Assets, Beginning of Year	$	11,505,584	$	34,605,799
2. Receipts				
a. Employer Surcharge	$	22,598,704	$	46,214,278
b. Lottery Allocation		0		0
c. Non-Employer Entity Contributions		0		0
d. Miscellaneous		0		0
e. Total	$	22,598,704	$	46,214,278
3. Expenditures				
a. Benefit Payments	$	0	$	0
b. Administrative Expense		0		0
c. Miscellaneous Expenditures		0		0
d. Total	$	0	$	0
4. Investment Return				
a. Investment Income	$	500,247	$	12,719,806
b. Securities Lending Income		1,264		2,505
c. Total Investment Return	$	501,511	$	12,722,311
5. Market Value of Assets, End of Year: (1) + (2e) - (3d) + (4c)	$	34,605,799	$	93,542,388
6. Rate of Return on Market Value of Assets, Net of Expenses [1]		2.20%		22.04%

[1] Based on individual fund experience. Assumes cash flows occur at mid-year.

TABLE 3

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
(Base Benefits)

		For Plan Year Ending June 30, 2021
1. Market Value, as of June 30, 2020	$	13,226,754,162
2. Receipts [1]	$	581,353,090
3. Expenditures, Net of Administrative Expenses [2]	$	(949,164,169)
4. Expected Return on Assets [3]	$	880,392,282
5. Expected Market Value as of June 30, 2021: (1) + (2) + (3) + (4)	$	13,739,335,365
6. Actual Market Value as of June 30, 2021	$	16,153,767,371
7. Year end 2021 asset gain/(loss): (6) - (5)	$	2,414,432,006

8. Deferred Investment Gains and Losses

	Year Ended June 30:		Gain/(Loss)	Factor		Deferred Amount
a.	2018	$	279,267,274	20%	$	55,853,455
b.	2019		41,441,699	40%		16,576,680
c.	2020		(567,502,808)	60%		(340,501,685)
d.	2021		2,414,432,006	80%		1,931,545,605
e.	Total				$	1,663,474,055

9. Initial Actuarial Value as of June 30, 2021: (6) - (8e)	$	14,490,293,316
10. Constraining Values		
a. 80% of Market Value: (6) x 0.8	$	12,923,013,897
b. 120% of Market Value: (6) x 1.2	$	19,384,520,845
11. Actuarial Value as of June 30, 2021	$	14,490,293,316
12. Actuarial Rate of Return, Net of Expenses [4]		9.99%
13. Actuarial Value of Assets as a Percent of Market Value: (11) / (6)		89.7%
14. Actuarial Value of Assets		
a. Base Benefits	$	14,490,293,316
b. Supplemental Benefits	$	87,058,986
c. Total	$	14,577,352,302

[1] Includes Employer Contributions, Employee Service Purchases, and Miscellaneous Receipts.
[2] Includes DB Benefit Payments, Member Reassignment Transfers, and Miscellaneous Expenses.
[3] Assumes cash flows occur at mid-year and a return assumption of 6.75%.
[4] Assumes cash flows occur at mid-year.

TABLE 4

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
(Supplemental Benefits)

		For Plan Year Ending June 30, 2021
1. Market Value, as of June 30, 2020	$	34,605,799
2. Receipts	$	46,214,278
3. Expenditures, Net of Administrative Expenses	$	0
4. Expected Return on Assets [1]	$	3,895,623
5. Expected Market Value as of June 30, 2021: (1) + (2) + (3) + (4)	$	84,715,700
6. Actual Market Value as of June 30, 2021	$	93,542,388
7. Year end 2021 asset gain/(loss): (6) - (5)	$	8,826,688

8. Deferred Investment Gains and Losses

	Year Ended June 30:		Gain/(Loss)	Factor		Deferred Amount
a.	2018	$	0	20%	$	0
b.	2019		111,863	40%		44,745
c.	2020		(1,037,822)	60%		(622,693)
d.	2021		8,826,688	80%		7,061,350
e.	Total				$	6,483,402

9. Initial Actuarial Value as of June 30, 2021: (6) - (8e)	$	87,058,986
10. Constraining Values		
a. 80% of Market Value: (6) x 0.8	$	74,833,910
b. 120% of Market Value: (6) x 1.2	$	112,250,866
11. Actuarial Value as of June 30, 2021	$	87,058,986
12. Actuarial Rate of Return, Net of Expenses [2]		9.36%
13. Actuarial Value of Assets as a Percent of Market Value: (11) / (6)		93.1%

[1] Assumes cash flows occur at mid-year and a return assumption of 6.75%.
[2] Assumes cash flows occur at mid-year.

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the Public Employees' Retirement Fund as of the valuation date, June 30, 2021. In this section, the discussion will focus on the commitments (future benefit payments) of the plan, which are referred to as its liabilities.

The liability calculations for the June 30, 2021 Public Employees' Retirement Fund valuation are based on census data collected as of June 30, 2020. Standard actuarial techniques are used to adjust these results from June 30, 2020 to June 30, 2021. While these roll-forward techniques are based on all actuarial assumptions being met during the intervening year, there will, of course, be many of the assumptions that will not be met exactly. In general, this does not materially affect the resulting calculations or conclusions in this report. Should there be a year in which events, such as plan changes, occur that would affect the results, adjustments in the roll-forward methods would be made to appropriately reflect the events.

All liabilities reflect the benefit provisions and actuarial assumptions in place as of June 30, 2021.

Actuarial Accrued Liability

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to do this allocation, it is necessary for the funding method to "breakdown" the present value of future benefits into two components:

(1) that which is attributable to the past and

(2) that which is attributable to the future.

Actuarial terminology calls the part attributable to the past the "past service liability" or the "actuarial accrued liability." The portion allocated to the future is known as the present value of future normal costs, with the specific piece of it allocated to the current year being called the "normal cost."

Table 5 contains the calculation of actuarial accrued liability for the Plan under the Entry Age Normal actuarial cost. This amount is split between the base benefit and the supplemental benefit. Granted supplemental benefits are the present value of legislated benefits, whereas future supplemental benefits represent those assumed to occur based on the Plan's COLA assumption.

TABLE 5

ACTUARIAL ACCRUED LIABILITY
(Base and Supplemental Benefits)

		Supplemental Benefits		
As of June 30, 2021	**Base Benefits**	***Granted***	***Future***	**Total**
1. Actuarial Accrued Liability				
a. Active & Inactive Members	$ 8,502,476,439	$ 15,096,440	$ 389,816,796	$ 8,907,389,675
b. In-pay Members	8,382,625,833	68,960,040	204,181,914	8,655,767,787
c. Total	$ 16,885,102,272	$ 84,056,480	$ 593,998,710	$ 17,563,157,462
2. Actuarial Value of Assets	$ 14,490,293,316	$ 84,056,480	$ 3,002,506	$ 14,577,352,302
3. Unfunded Actuarial Accrued Liability: (1c) - (2)	$ 2,394,808,956	$ 0	$ 590,996,204	$ 2,985,805,160
4. Funded Ratio: (2) / (1c)	85.8%	100.0%	0.5%	83.0%

TABLE 6

SOLVENCY TEST
(Base and Supplemental Benefits)

	Actuarial Accrued Liabilities (AAL)					Portion of AAL Covered by Assets			
Actuarial Valuation as of June 30	Active Member Contributions	Retirees and Beneficiaries	Active Member (Employer Financed Portion)	Total Actuarial Accrued Liabilities	Actuarial Value of Assets	Active Member Contributions	Retirees and Beneficiaries	Active Member (Employer Financed Portion)	Total Actuarial Accrued Liabilities
2021	$0	$8,655,768	$8,907,389	$17,563,157	$14,577,352	N/A	100.0%	66.5%	83.0%
2020	0	8,050,791	8,230,963	16,281,754	13,560,460	N/A	100.0	66.9	83.3
2019	0	8,068,490	8,507,570	16,576,060	13,157,802	N/A	100.0	59.8	79.4
2018	0	7,768,231	8,323,142	16,091,373	12,823,930	N/A	100.0	60.7	79.7
2017	2,770,962	7,834,962	8,500,291	19,106,215	15,098,920	100.0	100.0	52.9	79.0
2016	2,656,892	7,595,088	8,156,966	18,408,946	14,553,059	100.0	100.0	52.7	79.1
2015	2,717,173	6,981,308	8,282,087	17,980,568	14,131,884	100.0	100.0	53.5	78.6
2014	2,851,501	6,250,902	7,629,820	16,732,223	13,791,261	100.0	100.0	61.5	82.4
2013	2,796,103	6,367,819	6,981,759	16,145,681	12,947,283	100.0	100.0	54.2	80.2
2012	2,749,449	5,895,779	7,139,012	15,784,240	12,088,225	100.0	100.0	48.2	76.6

Note: Dollar amounts are in thousands of dollars. Amounts before 2018 reflect the inclusion of DC balances in both the active member contributions and the assets.

TABLE 7

RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY
(Base and Supplemental Benefits)

For Year Ending June 30, 2021

	Base	Base and Supplemental
1. Unfunded Actuarial Accrued Liability as of June 30, 2020	$ 2,206,836,693	$ 2,721,294,319
2. Normal Cost	196,825,854	206,224,841
3. Actuarially Determined Contribution	(381,020,509)	(401,477,129)
4. Interest	136,528,337	170,507,837
5. Expected Unfunded Actuarial Accrued Liability as of June 30, 2021	$ 2,159,170,375	$ 2,696,549,868
6. Actuarial Value of Asset Changes		
a. Investment Experience (Gain)/Loss	$ (432,483,401)	$ (434,012,035)
b. Contributions (Above)/Below the Actuarially Determined Contribution and Other (Gain)/Loss	$ (193,660,609)	$ (219,597,177)
7. Actuarial Accrued Liability Changes		
a. Actuarial Accrued Liability Experience (Gain)/Loss	$ 21,921,971	$ 30,328,879
b. Additional Liability Due to Benefit Changes	0	15,946,383
c. Additional Liability Due to Assumption Changes	839,860,620	896,589,242
8. Total Experience (Gain)/Loss	$ 235,638,581	$ 289,255,292
9. Unfunded Actuarial Accrued Liability as of June 30, 2021: (5) + (8)	$ 2,394,808,956	$ 2,985,805,160

TABLE 8

ACTUARIAL GAIN/(LOSS)
(Base and Supplemental Benefits)

Liabilities		Base		Base and Supplemental
1. Actuarial Accrued Liability as of June 30, 2020	$	15,731,927,670	$	16,281,754,235
2. Normal Cost for Plan Year Ending June 30, 2021		196,825,854		206,224,841
3. Benefit Payments During Plan Year[1]		(946,010,767)		(946,010,767)
4. Service Purchases (employee and employer)		458,617		458,617
5. Member Reassignment Transfers		(3,056,997)		(3,056,997)
6. Interest at 6.75%		1,043,175,304		1,080,923,029
7. Change Due to Benefit Changes		0		15,946,383
8. Change Due to Assumption Changes		839,860,620		896,589,242
9. Expected Actuarial Accrued Liability as of June 30, 2021	$	16,863,180,301	$	17,532,828,583
10. Actuarial Accrued Liability as of June 30, 2021	$	16,885,102,272	$	17,563,157,462
Assets				
11. Actuarial Value of Assets as of June 30, 2020	$	13,525,090,977	$	13,560,459,916
12. Receipts During Plan Year		581,353,090		627,567,368
13. Expenditures, Excluding Expenses, During Plan Year		(949,164,169)		(949,164,169)
14. Interest at 6.75%		900,530,017		904,477,152
15. Expected Actuarial Value of Assets as of June 30, 2021	$	14,057,809,915	$	14,143,340,267
16. Actuarial Value of Assets as of June 30, 2021	$	14,490,293,316	$	14,577,352,302
Experience Gain / (Loss)				
17. Liability Actuarial Experience Gain/(Loss): (9) - (10)	$	(21,921,971)	$	(30,328,879)
18. Asset Actuarial Experience Gain/(Loss): (16) - (15)		432,483,401		434,012,035
19. Total Actuarial Experience Gain/(Loss): (17) + (18)	$	410,561,430	$	403,683,156

[1] Does not include miscellaneous expenses or benefit overpayments.

TABLE 9

EXPERIENCE GAIN/(LOSS) ANALYSIS BY SOURCE
(Base Benefits)

Liability Sources (in thousands)		**Gain/(Loss)**
Retirement	$	(2,937)
Termination		(18,474)
Disability		(1,869)
Mortality		31,263
Salary		(7,734)
New Entrants/Rehires		(41,591)
Miscellaneous/COLA		19,420
Total Liability Experience Gain/(Loss)	$	(21,922)
as a % of AAL		(0.1%)
Asset Experience Gain/(Loss)	$	432,483
Net Actuarial Experience Gain/(Loss)	$	410,561

TABLE 10

PROJECTED BENEFIT PAYMENTS
(Base and Supplemental Benefits)

Plan Year Ending June 30	Benefit Amount
2022	$ 1,012,614,764
2023	1,057,579,203
2024	1,098,175,774
2025	1,139,491,858
2026	1,173,468,923
2027	1,207,442,107
2028	1,238,521,394
2029	1,266,672,537
2030	1,292,478,857
2031	1,314,936,065
2032	1,334,271,574
2033	1,349,597,935
2034	1,362,035,647
2035	1,372,416,528
2036	1,379,053,632
2037	1,382,634,804
2038	1,382,289,099
2039	1,379,501,285
2040	1,374,742,562
2041	1,367,212,398
2042	1,356,703,423
2043	1,343,886,065
2044	1,328,716,628
2045	1,311,952,949
2046	1,293,145,114
2047	1,272,348,849
2048	1,249,785,980
2049	1,225,549,754
2050	1,200,090,003
2051	1,172,732,879

Note: Payouts reflect nominal payouts for current members, assuming that all future assumptions are met.

The previous two sections were devoted to a discussion of the assets and liabilities of the plan. We now turn to considering how the benefits will be funded. The method used to determine the incidence of the contributions in various years is called the actuarial cost method. Under an actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements: (1) the normal cost rate and (2) the unfunded actuarial accrued liability contribution rate.

The term "fully funded" is often applied to a plan in which contributions at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. More often than not, plans are not fully funded, either because of past benefit improvements that have not been completely funded, contribution levels, or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated by the actuarial assumptions. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists. Likewise, when the actuarial value of assets is greater than the actuarial accrued liability, a surplus exists.

Description of Contribution Rate Components

The Entry Age Normal (EAN) actuarial cost method is used for the valuation. Under that method, the normal cost for each year from entry age to assumed exit age is a constant percentage of the member's year by year projected compensation. The portion of the present value of future benefits not provided by the present value of future normal costs is the actuarial accrued liability. The unfunded actuarial accrued liability/(surplus) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. For PERF purposes, this calculation excludes consideration of future COLAs. The unfunded actuarial accrued liability is calculated each year and reflects experience gains and losses. New amortization bases are funded over 20 years.

Funding for future COLAs is provided by using a surcharge. This rate is intended to fund the COLAs anticipated to be granted in the next biennium by the start of that biennium.

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The contribution rate based on the June 30, 2021 actuarial valuation will be used to calculate the actuarially determined employer contribution rate to the Public Employees' Retirement Fund for the plan year beginning July 1, 2022 for state employers and for the calendar year beginning January 1, 2023 for the political subdivisions. The supplemental benefit surcharge rate will be used to calculate the actuarially determined employer contribution rate for the 2022 calendar year.

Contribution Rate Summary

In Table 11 the amortization payment related to the unfunded actuarial accrued liability/(surplus), as of June 30, 2021, is developed. The surcharge needed to fund the assumed COLAs is developed in Table 12. Table 13 develops the actuarial required contribution rate for the Plan. The contribution rates shown in this report are based on the actuarial assumptions and cost methods described in Appendix C. Additionally, in Table 14 the contribution amounts under alternative discount rates are provided to illustrate the sensitivity of the contribution requirements relative to the selection of the investment return assumption.

TABLE 11

SCHEDULE OF AMORTIZATION BASES
(Base Benefits)

Amortization Bases [1]	Original Amount [2]	June 30, 2021 Remaining Payments	Date of Last Payment	Outstanding Balance as of June 30, 2021	Annual Contribution
2006 Fresh Start - Political Only	233,415,887	15	7/1/2036	169,708,970	16,715,532
2007 UAAL Base - Political Only	4,630,369	16	7/1/2037	3,474,146	329,130
2008 State Fresh Start and PSD Experience	91,514,739	17	7/1/2038	71,434,579	6,532,873
2009 UAAL Base	618,751,215	18	7/1/2039	497,987,320	44,103,158
2010 UAAL Base	1,223,323,148	19	7/1/2040	1,012,348,409	87,067,110
2011 UAAL Base	788,425,716	20	7/1/2041	669,228,903	56,033,997
2012 UAAL Base	817,830,775	21	7/1/2042	710,489,099	58,043,078
2013 UAAL Base	(450,263,746)	22	7/1/2043	(399,572,894)	(31,913,039)
2014 UAAL Base	(211,870,908)	23	7/1/2044	(191,724,182)	(14,997,002)
2015 UAAL Base	954,017,677	24	7/1/2045	878,931,806	67,443,306
2016 UAAL Base	67,185,548	15	7/1/2036	57,548,811	5,668,286
2017 UAAL Base	217,123,363	16	7/1/2037	193,047,996	18,288,768
2018 UAAL Base	(1,186,925,679)	17	7/1/2038	(1,091,508,364)	(99,821,201)
2019 UAAL Base	196,792,517	18	7/1/2039	186,593,668	16,525,260
2020 UAAL Base	(624,471,324)	19	7/1/2040	(608,817,892)	(52,361,434)
2021 UAAL Base	235,638,581	20	7/1/2041	235,638,581	19,729,828
Total				$ 2,394,808,956	$ 197,387,650

1. Total UAAL Amortization Payments	$ 197,387,650
2. Projected Payroll for FY 2022	$ 5,627,521,771
3. UAAL Amortization Payment Rate	3.51%
4. Remaining Amortization Period in Years (Weighted) [3]	20.8

[1] Amortization bases prior to 2018 are the State and Political Subdivision bases combined.

[2] The original amounts from 2017 to 2013 were provided by the prior actuary. Amounts prior to that were estimated by INPRS.

[3] The weighted average remaining UAAL amortization period is calculated by weighting the remaining amortization period of each base by the amortization amount of each base.

TABLE 12

DEVELOPMENT OF SURCHARGE RATE
(Supplemental Benefits)

Projected COLAs in Next Biennium Beginning July 1, 2023

First Anticipated COLA		
1. Date of COLA commencement		January 1, 2024
2. Rate of COLA		0.4%
3. Value as of July 1, 2023 of COLA	$	34,260,696
Second Anticipated COLA		
4. Date of COLA commencement		January 1, 2025
5. Rate of COLA		0.4%
6. Value as of July 1, 2023 of COLA		33,314,957
7. Total COLA Funding Requirement as of July 1, 2023: (3) + (6)	$	67,575,653

Funding Sources for Projected COLAs

8. Assets as of June 30, 2021 Available for Future COLAs	$	3,002,506
9. Projected Contributions from 7/1/2021 to 12/31/2021		10,041,080
10. Expected Earnings through July 1, 2023		1,514,702
11. Projected Available Assets at July 1, 2023	$	14,558,288
12. Required Additional Funding for Anticipated COLAs: (7) - (11)		53,017,365

Surcharge Rate

13. Projected Payroll from 1/1/2022 to 6/30/2022		2,713,805,434
14. Projected Payroll from 7/1/2022 to 6/30/2023		5,571,442,555
15. Value of (13) and (14) as of July 1, 2023	$	8,674,021,819
16. Surcharge Rate: (12) /(15)		0.62%

TABLE 13

ACTUARIAL REQUIRED CONTRIBUTION RATE
(Base and Supplemental Benefits)

	Base Benefits	Supplemental Benefits	Total
1. Projected Payroll for FY 2022	$ 5,627,521,771		
2. Normal Cost Rate as of June 30, 2020 Census	4.01%	0.21%	4.22%
a. State Normal Cost Rate	3.54%	0.18%	3.72%
b. Political Subdivision Normal Cost Rate	4.24%	0.21%	4.45%
3. Amortization of UAAL as of June 30, 2021			
a. Dollar Amount	$ 197,387,650		
b. Percent of Projected Pay	3.51%		
4. Preliminary Actuarially Determined Contribution Rate: (2) + (3b)	7.52%		
5. Supplemental Benefit Surcharge Rate (May not exceed 1%)		0.62%	
6. Actuarially Determined Contribution Rate	7.52%	0.62%	
7. Board Policy Surcharge Rate (for 2022 calendar year)		0.72%	
8. Board Policy Contribution Rate			11.20%

TABLE 14

INVESTMENT RETURN SENSITIVITY
(Base and Supplemental Benefits)

	1.00% Decrease: (5.25%)	0.75% Decrease: (5.50%)	0.50% Decrease: (5.75%)	0.25% Decrease: (6.00%)	Current Assumption: (6.25%)
Funded Status					
Actuarial Accrued Liability	$19,688,828,401	$19,119,773,564	$18,576,769,420	$18,058,353,909	$17,563,157,462
Actuarial Value of Assets	14,577,352,302	14,577,352,302	14,577,352,302	14,577,352,302	14,577,352,302
Unfunded Actuarial Accrued Liability	$5,111,476,099	$4,542,421,262	$3,999,417,118	$3,481,001,607	$2,985,805,160
Funded Ratio	74.0%	76.2%	78.5%	80.7%	83.0%
Actuarially Determined Contribution Amount					
Normal Cost	$311,814,871	$291,039,197	$271,805,420	$253,990,427	$237,481,419
UAAL Amortization	394,698,194	357,029,497	319,850,106	283,137,756	246,871,286
Actuarially Determined Contribution Amount	$706,513,065	$648,068,694	$591,655,526	$537,128,183	$484,352,705
Actuarially Determined Contribution Rate	12.55%	11.52%	10.51%	9.54%	8.61%

	0.25% Increase: (6.50%)	0.50% Increase: (6.75%)	0.75% Increase: (7.00%)	1.00% Increase: (7.25%)	1.25% Increase: (7.50%)
Funded Status					
Actuarial Accrued Liability	$17,089,896,681	$16,637,368,464	$16,204,444,571	$15,790,066,567	$15,393,241,138
Actuarial Value of Assets	14,577,352,302	14,577,352,302	14,577,352,302	14,577,352,302	14,577,352,302
Unfunded Actuarial Accrued Liability	$2,512,544,379	$2,060,016,162	$1,627,092,269	$1,212,714,265	$815,888,836
Funded Ratio	85.3%	87.6%	90.0%	92.3%	94.7%
Actuarially Determined Contribution Amount					
Normal Cost	$222,175,030	$207,976,504	$194,798,962	$182,562,721	$171,194,679
UAAL Amortization	211,030,610	175,596,641	140,551,279	105,877,339	71,558,541
Actuarially Determined Contribution Amount	$433,205,640	$383,573,145	$335,350,241	$288,440,060	$242,753,220
Actuarially Determined Contribution Rate	7.70%	6.82%	5.96%	5.13%	4.31%

Note: Comparisons are based on funding the COLA in the same method as the base benefit, rather than with a surcharge. Consequently, these results are for comparative purposes only and will not match the actual results under the funding policy.

GASB NO. 67 AND GASB NO. 68

The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), "Financial Reporting for Pension Plans" and Statement No. 68 (GASB 68), "Accounting and Financial Reporting for Pensions" in June 2012. The effective date for reporting under GASB 67 for the INPRS Plans was the fiscal year ending June 30, 2014. GASB 68's effective date for employers is the first fiscal year beginning after June 15, 2014.

The sections that follow provide the results of all the required calculations, presented in the order set out in GASB 68 for note disclosure and Required Supplementary Information (RSI). Some of this information was provided by the INPRS for use in this report.

The discount rate used for these disclosures is the assumed return on assets of 6.25%. We have verified that the current assets in conjunction with future contributions made on behalf of current members (including all contributions to fund any past service liability) will be sufficient to make the anticipated benefit payments to be provided to the current members.

To the best of our knowledge, the information contained in this report is complete and accurate. The calculations were performed by qualified actuaries according to generally accepted actuarial principles and practices, as well as in conformity with Actuarial Standards of Practice issued by the Actuarial Standards Board. The calculations are based on the current provisions of the plan, and on actuarial assumptions that are internally consistent and individually reasonable based on the actual experience of the plan. In addition, the calculations were completed in compliance with applicable law and, in our opinion, meet the requirements of GASB 67 and GASB 68.

TABLE 15

STATEMENT OF FIDUCIARY NET POSITION

			June 30, 2021
1. Assets			
a. Cash		$	1,593,714
b. Receivables			
i.	Contributions and Miscellaneous Receivables	$	3,934,453
ii.	Investments Receivable		125,722,300
iii.	Foreign Exchange Contracts Receivable		2,880,258,582
iv.	Interest and Dividends		33,624,433
v.	Receivables Due From Other Funds		1,933,231
vi.	Total Receivables	$	3,045,472,999
c. Investments			
i.	Short-Term Investments	$	0
ii.	Pooled Repurchase Agreements		143,390,809
iii.	Pooled Short-Term Investments		1,007,396,594
iv.	Pooled Fixed Income		4,943,621,732
v.	Pooled Equity		3,452,678,491
vi.	Pooled Alternative Investments		7,452,540,782
vii.	Pooled Derivatives		43,784,433
viii.	Pooled Investments		0
ix.	Securities Lending Collateral		83,910,169
x.	Total Investments	$	17,127,323,010
d. Net Capital Assets			4,472,803
e. Other Assets			321,206
f. Total Assets: a + b(vi) + c(x) + d + e		$	20,179,183,732
2. Liabilities			
a. Administrative Payable		$	8,454,981
b. Retirement Benefits Payable			874,071
c. Investments Payable			784,065,060
d. Foreign Exchange Contracts Payable			2,859,270,557
e. Securities Lending Obligations			83,910,169
f. Securities Sold Under Agreement to Repurchase			195,299,135
g. Due To Other Funds			0
h. Due to Other Governments			0
i. Total Liabilities: a + b + c + d + e + f + g + h		$	3,931,873,973
3. Fiduciary Net Position Restricted for Pensions: (1)(f) - (2)(i)		**$**	**16,247,309,759**

TABLE 16

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

			For Fiscal Year Ending June 30, 2021
1. Fiduciary Net Position as of June 30, 2020		**$**	**13,261,359,961**
2. Additions			
a. Contributions			
i.	Member Contributions	$	0
ii.	Employer Contributions		626,986,459
iii.	Service Purchases (Employer and Member) [1]		458,617
iv.	Non-Employer Contributing Entity Contributions		0
v.	Total Contributions	$	627,445,076
b. Investment Income/(Loss)			
i.	Net Appreciation/(Depreciation)	$	3,254,939,421
ii.	Net Interest and Dividend Income		180,899,007
iii.	Securities Lending Income		877,474
iv.	Other Net Investment Income		922,803
v.	Investment Management Expenses		(105,915,135)
vi.	Direct Investment Expenses		(5,991,908)
vii.	Securities Lending Expenses		(181,694)
viii.	Total Investment Income/(Loss)	$	3,325,549,968
c. Other Additions			
i.	Member Reassignments		5,125,753
ii.	Miscellaneous Receipts		122,292
iii.	Total Other Additions	$	5,248,045
d. Total Revenue (Additions): a(v) + b(viii) + c(iii)		$	3,958,243,089
3. Deductions			
a. Pension, Survivor and Disability Benefits		$	946,107,172
b. Death and Funeral Benefits			0
c. Distributions of Contributions and Interest			0
d. Administrative Expenses [2]			18,003,369
e. Member Reassignments			8,182,750
f. Miscellaneous Expenses			0
g. Total Expenses (Deductions)		$	972,293,291
4. Net Increase (Decrease) in Fiduciary Net Position: (2)(d) - (3)(g)		**$**	**2,985,949,798**
5. Fiduciary Net Position as of June 30, 2021: (1) + (4)		**$**	**16,247,309,759**

[1] Service purchases paid by employer of $329,582 and employee of $129,035.

[2] Includes $1,309,380 of hybrid plan contributions and $330,874 of My Choice plan contributions made by INPRS.

TABLE 17

SCHEDULE OF CHANGES IN NET PENSION LIABILITY

	For Fiscal Year Ending June 30, 2021		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
1. Balance at June 30, 2020	$ 16,281,754,235	$ 13,261,359,961	$ 3,020,394,274
2. Changes for the Year:			
Service Cost (SC) [1]	206,224,841		206,224,841
Interest Cost	1,080,919,775		1,080,919,775
Experience (Gains)/Losses	30,428,538		30,428,538
Assumption Changes	896,589,242		896,589,242
Plan Amendments	15,946,383		15,946,383
Benefit Payments	(946,107,172)	(946,107,172)	0
Service Purchases			
Employer Contributions	329,582	329,582	0
Employee Contributions	129,035	129,035	0
Member Reassignments [2]	(3,056,997)	(3,056,997)	0
Employer Contributions [3]		626,986,459	(626,986,459)
Non-employer Contributions		0	0
Employee Contributions		0	0
Net Investment Income		3,325,549,968	(3,325,549,968)
Administrative Expenses [4]		(18,003,369)	18,003,369
Other		122,292	(122,292)
Net Changes	$ 1,281,403,227	$ 2,985,949,798	$ (1,704,546,571)
3. Balance at June 30, 2021	$ 17,563,157,462	$ 16,247,309,759	$ 1,315,847,703

[1] Service cost provided as of beginning of year. Interest to end of year is included in the interest cost.

[2] Includes net interfund transfers of employer contributed amounts.

[3] Includes $23,000,000 of state appropriations to the fund.

[4] Includes contributions made by INPRS for its employees of $1,309,380 in the hybrid plan and $330,874 in the My Choice plan.

TABLE 18

DEFERRED OUTFLOWS OF RESOURCES

	June 30, 2020	Remaining Period	Recognition	June 30, 2021
1. Liability Experience				
June 30, 2021 Loss	$ 30,428,538	3.82	$ 7,965,586	$ 22,462,952
June 30, 2020 Loss	0	2.84	0	0
June 30, 2019 Loss	48,755,428	1.86	26,212,596	22,542,832
June 30, 2018 Loss	4,757,286	0.93	4,757,286	0
June 30, 2017 Loss	0	0.00	0	0
June 30, 2016 Loss	0	0.00	0	0
June 30, 2015 Loss	0	0.00	0	0
June 30, 2014 Loss	0	0.00	0	0
2. Assumption Changes				
June 30, 2021 Loss	$ 896,589,242	3.82	$ 234,709,226	$ 661,880,016
June 30, 2020 Loss	0	2.84	0	0
June 30, 2019 Loss	0	1.86	0	0
June 30, 2018 Loss	0	0.93	0	0
June 30, 2017 Loss	0	0.00	0	0
June 30, 2016 Loss	0	0.00	0	0
June 30, 2015 Loss	0	0.00	0	0
3. Investment Experience				
June 30, 2021 Loss	$ 0	5.00	$ 0	$ 0
June 30, 2020 Loss	439,213,683	4.00	109,803,421	329,410,262
June 30, 2019 Loss	0	3.00	0	0
June 30, 2018 Loss	0	2.00	0	0
June 30, 2017 Loss	0	1.00	0	0
Total Outflows: (1)+(2)+(3)	**$ 1,419,744,177**		**$ 383,448,115**	**$ 1,036,296,062**

Information was provided prospectively from June 30, 2013 for GASB No. 68 purposes. Results prior to 2018 were produced by the prior actuary.

In accordance with GASB, the original amortization period for liability experience and assumption changes are amortized over the expected future working lifetime of all members, whereas the investment experience is amortized over five years.

TABLE 19

DEFERRED INFLOWS OF RESOURCES

	June 30, 2020	Remaining Period	Recognition	June 30, 2021
1. Liability Experience				
June 30, 2021 Gain	$ 0	3.82	$ 0	$ 0
June 30, 2020 Gain	40,552,683	2.84	14,279,114	26,273,569
June 30, 2019 Gain	0	1.86	0	0
June 30, 2018 Gain	0	0.93	0	0
June 30, 2017 Gain	0	0.00	0	0
June 30, 2016 Gain	0	0.00	0	0
June 30, 2015 Gain	0	0.00	0	0
June 30, 2014 Gain	0	0.00	0	0
2. Assumption Changes				
June 30, 2021 Gain	$ 0	3.82	$ 0	$ 0
June 30, 2020 Gain	456,197,035	2.84	160,632,760	295,564,275
June 30, 2019 Gain	0	1.86	0	0
June 30, 2018 Gain	173,126,885	0.93	173,126,885	0
June 30, 2017 Gain	0	0.00	0	0
June 30, 2016 Gain	0	0.00	0	0
June 30, 2015 Gain	0	0.00	0	0
3. Investment Experience				
June 30, 2021 Gain	$ 2,441,869,676	5.00	$ 488,373,936	$ 1,953,495,740
June 30, 2020 Gain	0	4.00	0	0
June 30, 2019 Gain	36,389,342	3.00	12,129,782	24,259,560
June 30, 2018 Gain	120,325,903	2.00	60,162,953	60,162,950
June 30, 2017 Gain	24,001,487	1.00	24,001,487	0
Total Inflows: (1)+(2)+(3)	**$ 3,292,463,011**		**$ 932,706,917**	**$ 2,359,756,094**

Information was provided prospectively from June 30, 2013 for GASB No. 68 purposes. Results prior to 2018 were produced by the prior actuary.

In accordance with GASB, the original amortization period for liability experience and assumption changes are amortized over the expected future working lifetime of all members, whereas the investment experience is amortized over five years.

TABLE 20

DEFERRED INFLOWS / OUTFLOWS TO BE RECOGNIZED IN PENSION EXPENSE

Fiscal Year Ending June 30	Deferred Outflows	Deferred Inflows	Net Deferred Outflows/(Inflows)
Current Year:			
2021	$ 383,448,115	$ 932,706,917	$ (549,258,802)
Future Years:			
2022	$ 375,021,065	$ 735,578,542	$ (360,557,477)
2023	352,478,233	647,429,684	(294,951,451)
2024	308,796,764	488,373,936	(179,577,172)
2025	0	488,373,932	(488,373,932)
2026	0	0	0
Thereafter	0	0	0

TABLE 21

PENSION EXPENSE UNDER GASB NO. 68

		For Fiscal Year Ending June 30, 2021
1. Service Cost, beginning of year		$ 206,224,841
2. Interest Cost, including interest on service cost		1,080,919,775
3. Member Contributions [1]		0
4. Administrative Expenses [2]		16,363,115
5. Expected Return on Assets [3]		(883,680,292)
6. Plan Amendments		15,946,383
7. Recognition of Deferred Inflows / Outflows of Resources Related to:		
a. Liability Experience (Gains) / Losses	24,656,354	
b. Assumption Change (Gains) / Losses	(99,050,419)	
c. Investment Experience (Gains) / Losses	(474,864,737)	
d. Total: (7a)+(7b)+(7c)		(549,258,802)
8. Miscellaneous (Income) / Expense		(122,292)
9. Total Collective Pension Expense: (1)+(2)+(3)+(4)+(5)+(6)+(7d)+(8)		(113,607,272)
10. Employer Service Purchases [4]		329,582
Pension Expense / (Income): (9) + (10)		**$ (113,277,690)**

[1] Excludes member paid service purchases of $129,035.

[2] Excludes contributions made by INPRS for its employees of $1,309,380 in the hybrid plan and $330,874 in the My Choice plan.

[3] Cash flows assumed to occur mid-year.

[4] To be expensed by the employers who purchased the service.

GASB NO. 67 and GASB NO. 68
NOTES TO THE FINANCIAL STATEMENTS

The material presented herein is a subset of the information requested as Notes to the Financial Statements. Required information not provided herein is to be supplied by the plan.

Actuarial Assumptions and Inputs

Significant actuarial assumptions and other inputs used to measure the total pension liability:

Type of Plan	The Public Employees' Retirement Fund is a cost-sharing multiple-employer plan for GASB accounting purposes.
Measurement Date	June 30, 2021
Valuation Date	
Assets:	June 30, 2021
Liabilities:	June 30, 2020 – The TPL as of June 30, 2021 was determined based on an actuarial valuation prepared as of June 30, 2020 rolled forward one year to June 30, 2021, using the following key actuarial assumptions and other inputs, such as benefit accruals and actual benefit payments during that time period.
Inflation	2.00%
Future Salary Increases	2.65% - 8.65% based on service
Cost-of-Living Increases	As of June 30, 2021: Members in pay were granted a 1.00% COLA on January 1, 2022 and no COLA on January 1, 2023. Thereafter, the following COLAs, compounded annually, were assumed: 0.4% beginning on January 1, 2024 0.5% beginning on January 1, 2034 0.6% beginning on January 1, 2039 As of June 30, 2020: In lieu of a COLA on January 1, 2021, members in pay were provided a 13th check on October 1, 2020. Thereafter, the following COLAs, compounded annually, were assumed: 0.4% beginning on January 1, 2022 0.5% beginning on January 1, 2034 0.6% beginning on January 1, 2039

Mortality Assumption	Pub-2010 Public Retirement Plans Mortality Tables (Amount-Weighted) with a fully generational projection of mortality improvements using SOA Scale MP-2019. *Healthy Employees* – General Employee table with a 3 year set forward for males and a 1 year set forward for females. *Retirees* – General Retiree table with a 3 year set forward for males and a 1 year set forward for females. *Beneficiaries* – Contingent Survivor table with no set forward for males and a 2 year set forward for females. *Disableds* – General Disabled table with a 140% load.
Experience Study	The most recent comprehensive experience study, based on member experience between June 30, 2014 and June 30, 2019, was completed in February 2020. The demographic assumptions were approved by the Board in June 2020 and were used beginning with the June 30, 2020 actuarial valuation. Economic assumptions were updated and approved by the Board in May 2021 following the completion of an Asset-Liability study and first used in the June 30, 2021 actuarial valuation.
Discount Rate	6.25%, net of investment expenses The discount rate is equal to the expected long-term rate of return on plan investments, net of investment expense and including price inflation. The discount rate decreased from the 6.75% used on the prior measurement date. The INPRS Board of Trustees has established a funding policy of setting the employer contribution rate equal to the greater of 11.2% (the current contribution rate) or a rate equal to the actuarially determined contribution rate, which is based on the assumptions and methods selected by the Board for the annual actuarial valuations and projected covered member payroll. The June 30, 2021 actuarial valuation assumes a long-term rate of return on assets of 6.25%, a 20-year level dollar closed method for amortizing the future layers of unfunded actuarial accrued liability (30 years for amortization layers established prior to June 30, 2016), and a 5-year smoothing method for recognizing investment gains and losses in the actuarial value of assets. In the past several years, the Board has followed its current funding policy and the State has complied in its contributions to the plan. Therefore, if past practice is continued, the appropriations will be sufficient to fully fund the plan within 20 to 30 years. Deterministic projections indicate the actuarially determined contribution rate will decline over the coming years. As a result, it is presumed that the projected plan assets will be sufficient to cover the future benefit payments for current members and a detailed projection of plan assets and cash flows has not been prepared.

Discount Rate Sensitivity

	1% Decrease 5.25%	Current Rate 6.25%	1% Increase 7.25%
Net Pension Liability	$3,441,518,642	$1,315,847,703	($457,243,192)

Classes of Plan Members Covered

The June 30, 2021 valuation was performed using census data provided by INPRS as of June 30, 2020. Standard actuarial techniques were used to roll forward the total pension liability computed as of June 30, 2020 to the June 30, 2021 measurement date using actual benefit payments during that period of time.

Number as of June 30, 2020	
1. Currently Receiving Benefits:	
Retired Members, Disabled Members, and Beneficiaries	94,851
2. Inactive Members Entitled To But Not Yet Receiving Benefits	33,931
3. Inactive Non-vested Members Entitled to a Refund of Member Contributions	0
4. Active Members	125,386
Total Covered Plan Members: (1)+(2)+(3)+(4)	254,168

Money-Weighted Rate of Return

The money-weighted rate of return equals investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. For the fiscal year ending June 30, 2021, the money-weighted return on the plan assets is 25.5%.

Components of Net Pension Liability

As of June 30, 2021	
Total Pension Liability	$ 17,563,157,462
Fiduciary Net Position	16,247,309,759
Net Pension Liability	$ 1,315,847,703
Ratio of Fiduciary Net Position to Total Pension Liability	92.51%

GASB NO. 67 AND GASB NO. 68: REQUIRED SUPPLEMENTAL INFORMATION
SCHEDULE OF CHANGES IN THE TOTAL PENSION LIABILITY AND PLAN FIDUCIARY NET POSITION

Fiscal Year Ending June 30	2017	2018	2019	2020	2021
Total Pension Liability					
Total Pension Liability - beginning	$18,408,946,980	$19,106,214,994	$16,091,372,940	$16,576,060,167	$16,281,754,235
DC Account Balances - beginning [1]	2,656,892,220	2,770,961,812	0	0	0
DB Pension Liability - beginning	$15,752,054,760	$16,335,253,182	$16,091,372,940	$16,576,060,167	$16,281,754,235
Service Cost (SC), beginning-of-year	194,101,310	202,323,634	195,382,841	201,143,591	206,224,841
Interest Cost, including interest on SC	1,051,217,483	1,088,503,109	1,069,184,188	1,101,241,510	1,080,919,775
Experience (Gains)/Losses	82,963,628	20,103,378	101,180,620	(54,831,797)	30,428,538
Assumption Changes	22,809,173	(731,600,714)	0	(616,829,795)	896,589,242
Plan Amendments	(22,765,723)	0	12,919,637	0	15,946,383
DC Annuitizations	78,792,615	43,873,966	0	0	0
Actual Benefit Payments	(820,721,414)	(860,613,831)	(888,510,777)	(922,190,241)	(946,107,172)
Member Reassignments	(3,617,572)	(7,030,159)	(5,787,037)	(3,163,150)	(3,056,997)
Service Purchases	418,922	560,375	317,755	323,950	458,617
Net Change in Total Pension Liability	583,198,422	(243,880,242)	484,687,227	(294,305,932)	1,281,403,227
DB Pension Liability - ending	$16,335,253,182	$16,091,372,940	$16,576,060,167	$16,281,754,235	$17,563,157,462
DC Account Balances - ending [1]	2,770,961,812	0	0	0	0
(a) Total Pension Liability - ending	$19,106,214,994	$16,091,372,940	$16,576,060,167	$16,281,754,235	$17,563,157,462
Plan Fiduciary Net Position					
Plan Fiduciary Net Position – beginning	$13,870,502,444	$14,644,671,525	$12,694,327,690	$13,270,996,471	$13,261,359,961
DC Account Balances - beginning [1]	2,656,892,220	2,770,961,812	0	0	0
DB Plan Fiduciary Net Position – beginning	$11,213,610,224	$11,873,709,713	$12,694,327,690	$13,270,996,471	$13,261,359,961
Contributions – employer	558,892,767	571,373,825	581,873,684	599,100,479	627,316,041
Contributions – non-employer	0	0	0	0	0
Contributions – member	589,663	708,034	294,752	126,815	129,035
Net investment income	870,591,483	1,093,094,099	906,388,001	335,138,985	3,325,549,968
Actual benefit payments	(820,721,414)	(860,613,831)	(888,510,777)	(922,190,241)	(946,107,172)
Net member reassignments	(3,617,572)	(7,030,159)	(5,787,037)	(3,163,150)	(3,056,997)
DC Annuitizations	78,792,615	43,873,966	0	0	0
Administrative expense	(24,483,053)	(20,844,003)	(18,471,916)	(18,886,120)	(18,003,369)
Other	55,000	56,046	882,074	236,722	122,292
Net change in Plan Fiduciary Net Position	660,099,489	820,617,977	576,668,781	(9,636,510)	2,985,949,798
DB Plan Fiduciary Net Position – ending	$11,873,709,713	$12,694,327,690	$13,270,996,471	$13,261,359,961	$16,247,309,759
DC Account Balances - ending [1]	2,770,961,812	0	0	0	0
(b) Plan Fiduciary Net Position - ending	$14,644,671,525	$12,694,327,690	$13,270,996,471	$13,261,359,961	$16,247,309,759
Net Pension Liability - ending, (a) - (b)	$4,461,543,469	$3,397,045,250	$3,305,063,696	$3,020,394,274	$1,315,847,703

[1] Effective January 1, 2018, DC account balances are handled by a third party annuity provider and are treated as a separate defined contribution plan.

Information was provided prospectively from June 30, 2013 for GASB No. 67 and GASB No. 68 purposes. Results prior to 2018 were produced by the prior actuary.

GASB NO. 67 AND GASB NO. 68: REQUIRED SUPPLEMENTAL INFORMATION
SCHEDULE OF CHANGES IN THE TOTAL PENSION LIABILITY AND PLAN FIDUCIARY NET POSITION (continued)

Fiscal Year Ending June 30	2013	2014	2015	2016
Total Pension Liability				
Total Pension Liability - beginning	$15,784,239,911	$16,145,680,789	$16,732,222,649	$17,980,568,263
DC Account Balances - beginning [1]	2,749,448,762	2,796,102,616	2,851,500,608	2,717,173,311
DB Pension Liability - beginning	$13,034,791,149	$13,349,578,173	$13,880,722,041	$15,263,394,952
Service Cost (SC), beginning-of-year	270,973,983	258,069,653	273,909,865	191,055,506
Interest Cost, including interest on SC	875,615,527	895,453,921	936,403,574	1,018,992,903
Experience (Gains)/Losses	(104,470,833)	(15,161,517)	247,977,703	(4,869,991)
Assumption Changes	0	0	488,354,517	0
Plan Amendments	(167,485,633)	(42,984,699)	0	0
DC Annuitizations	107,520,485	119,094,145	196,788,238	75,035,755
Actual Benefit Payments	(662,283,487)	(680,203,104)	(752,895,719)	(786,606,562)
Member Reassignments	(5,083,018)	(3,124,531)	(8,155,200)	(5,441,493)
Service Purchases	0	0	289,933	493,690
Net Change in Total Pension Liability	314,787,024	531,143,868	1,382,672,911	488,659,808
DB Pension Liability - ending	$13,349,578,173	$13,880,722,041	$15,263,394,952	$15,752,054,760
DC Account Balances - ending [1]	2,796,102,616	2,851,500,608	2,717,173,311	2,656,892,220
(a) Total Pension Liability - ending	$16,145,680,789	$16,732,222,649	$17,980,568,263	$18,408,946,980
Plan Fiduciary Net Position				
Plan Fiduciary Net Position – beginning	$12,243,753,114	$12,720,601,718	$14,104,287,554	$13,907,666,213
DC Account Balances - beginning [1]	2,749,448,762	2,796,102,616	2,851,500,608	2,717,173,311
DB Plan Fiduciary Net Position – beginning	$9,494,304,352	$9,924,499,102	$11,252,786,946	$11,190,492,902
Contributions – employer	455,658,474	526,089,688	538,059,283	615,773,383
Contributions – non-employer	0	0	0	0
Contributions – member	0	0	0	442,809
Net investment income	563,532,572	1,393,813,042	(10,667,128)	147,106,621
Actual benefit payments	(662,283,487)	(680,203,104)	(752,895,719)	(786,606,562)
Net member reassignments	(5,083,018)	(3,124,531)	(8,155,200)	(5,441,493)
DC Annuitizations	107,520,485	119,094,145	196,788,238	75,035,755
Administrative expense	(29,181,276)	(27,433,396)	(25,506,518)	(24,098,191)
Other	31,000	52,000	83,000	905,000
Net change in Plan Fiduciary Net Position	430,194,750	1,328,287,844	(62,294,044)	23,117,322
DB Plan Fiduciary Net Position – ending	$9,924,499,102	$11,252,786,946	$11,190,492,902	$11,213,610,224
DC Account Balances - ending [1]	2,796,102,616	2,851,500,608	2,717,173,311	2,656,892,220
(b) Plan Fiduciary Net Position - ending	$12,720,601,718	$14,104,287,554	$13,907,666,213	$13,870,502,444
Net Pension Liability - ending, (a) - (b)	$3,425,079,071	$2,627,935,095	$4,072,902,050	$4,538,444,536

[1] Effective January 1, 2018, DC account balances are handled by a third party annuity provider and are treated as a separate defined contribution plan.
Information was provided prospectively from June 30, 2013 for GASB No. 67 and GASB No. 68 purposes. Results prior to 2018 were produced by the prior actuary.

GASB NO. 67 AND GASB NO. 68: REQUIRED SUPPLEMENTAL INFORMATION

SCHEDULE OF THE NET PENSION LIABILITY

Fiscal Year Ending June 30	2017	2018	2019	2020	2021
Total Pension Liability	$19,106,214,994	$16,091,372,940	$16,576,060,167	$16,281,754,235	$17,563,157,462
Plan Fiduciary Net Position	14,644,671,525	12,694,327,690	13,270,996,471	13,261,359,961	16,247,309,759
Net Pension Liability	$4,461,543,469	$3,397,045,250	$3,305,063,696	$3,020,394,274	$1,315,847,703
Ratio of Plan Fiduciary Net Position to Total Pension Liability	76.65%	78.89%	80.06%	81.45%	92.51%
Covered-employee payroll [1]	$4,997,555,495	$5,083,130,815	$5,205,242,704	$5,380,842,933	$5,482,242,349
Net Pension Liability as a percentage of covered-employee payroll	89.27%	66.83%	63.49%	56.13%	24.00%

Fiscal Year Ending June 30	2013	2014	2015	2016
Total Pension Liability	$16,145,680,789	$16,732,222,649	$17,980,568,263	$18,408,946,980
Plan Fiduciary Net Position	12,720,601,718	14,104,287,554	13,907,666,213	13,870,502,444
Net Pension Liability	$3,425,079,071	$2,627,935,095	$4,072,902,050	$4,538,444,536
Ratio of Plan Fiduciary Net Position to Total Pension Liability	78.79%	84.29%	77.35%	75.35%
Covered-employee payroll [1]	$4,700,000,000	$4,896,635,240	$4,804,145,033	$4,868,709,366
Net Pension Liability as a percentage of covered-employee payroll	72.87%	53.67%	84.78%	93.22%

[1] As provided by INPRS.

Information was provided prospectively from June 30, 2013 for GASB No. 67 and GASB No. 68 purposes. Results prior to 2018 were produced by the prior actuary.

GASB NO. 67 AND GASB NO. 68: REQUIRED SUPPLEMENTAL INFORMATION

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ending June 30	2017	2018	2019	2020	2021
Actuarially Determined Contribution [1]	$496,867,070	$502,205,573	$527,836,147	$482,316,183	$452,332,617
Actual employer contributions [2]	$558,660,887	$571,098,939	$581,850,681	$598,903,344	$626,986,459
Annual contribution (deficiency) / excess	$61,793,817	$68,893,366	$54,014,534	$116,587,161	$174,653,842
Covered-employee payroll [3]	$4,997,555,495	$5,083,130,815	$5,205,242,704	$5,380,842,933	$5,482,242,349
Actual contributions as a percentage of covered-employee payroll	11.18%	11.24%	11.18%	11.13%	11.44%

Fiscal Year Ending June 30	2013	2014	2015	2016
Actuarially Determined Contribution [1]	$464,046,667	$528,562,365	$517,716,612	$491,999,602
Actual employer contributions [2]	$455,658,474	$519,575,670	$536,202,332	$547,684,477
Annual contribution (deficiency) / excess	($8,388,193)	($8,986,695)	$18,485,720	$55,684,875
Covered-employee payroll [3]	$4,700,000,000	$4,896,635,240	$4,804,145,033	$4,868,709,366
Actual contributions as a percentage of covered-employee payroll	9.69%	10.61%	11.16%	11.25%

[1] The State and Political Subdivision employer rates were applied to the actual covered employee payroll for the fiscal year to determine the contribution amount.
The surcharge rate used for both State and Political Subdivision uses the valuation completed two years ago for July-December and one year ago for January-June.
State - The actuarially determined amortization and normal cost rates were developed in the actuarial report completed one year prior to the fiscal year.
Political Subdivisions - The rate is determined as the average of these two rates:
a. Actuarially determined amortization and normal cost rates for January-June were developed in the actuarial report completed one year prior to the fiscal year.
b. Actuarially determined amortization and normal cost rates for July-December were developed in the actuarial report completed two years prior to the fiscal year.

[2] Excludes service purchases paid for by the employer of $329,582.

[3] As provided by INPRS.

Information was provided prospectively from June 30, 2013 for GASB No. 67 and GASB No. 68 purposes. Results prior to 2018 were produced by the prior actuary.

GASB NO. 67 AND GASB NO. 68: REQUIRED SUPPLEMENTAL INFORMATION

SCHEDULE OF MONEY-WEIGHTED RETURNS

For Fiscal Year Ending June 30	Money-Weighted Return
2021	25.5%
2020	2.6%
2019	7.3%
2018	9.3%
2017	7.6%
2016	1.1%
2015	0.3%
2014	12.3%
2013	5.8%

Information was provided prospectively from June 30, 2013 for GASB No. 67 and GASB No. 68 purposes. Returns provided by INPRS.

Appendix **Page**

MEMBER DATA RECONCILIATION
For June 30, 2020 Data used in the June 30, 2021 Valuation

	Active Members	Inactive Vested	Inactive Deceased	Disabled	Retired	Beneficiary	Total
1. As of June 30, 2019	**125,780**	**33,441**	**134**	**2,613**	**79,371**	**10,452**	**251,791**
2. Data Adjustments							
New Participants	15,426	0	0	0	0	0	15,426
Rehires	472	(471)	0	0	(1)	0	0
Terminations:							
Not Vested	(10,012)	0	0	0	0	0	(10,012)
Deferred Vested	(2,731)	2,731	0	0	0	0	0
Disability	(85)	0	0	85	0	0	0
Retirements	(3,248)	(1,946)	(6)	0	5,194	6	0
Refund / Benefits Ended	0	(204)	(19)	(9)	(1)	(84)	(317)
Transfer	(8)	(190)	0	0	0	0	(198)
Deaths:							
With Beneficiary	(44)	(26)	0	(46)	(777)	893	0
Without Beneficiary	(107)	(67)	0	(58)	(2,215)	(719)	(3,166)
Entitled to Future Benefit	(6)	(2)	8	0	0	0	0
Data Corrections [1]	(51)	548	0	92	10	45	644
Net Change	(394)	373	(17)	64	2,210	141	2,377
3. As of June 30, 2020 [2]	**125,386**	**33,814**	**117**	**2,677**	**81,581**	**10,593**	**254,168**

[1] Data corrections reflect the movement between Disabled and Retired status, along with other movements in the INPRS data.
[2] Valuation results as of June 30, 2021 were calculated using June 30, 2020 census data, adjusted for certain activity before the valuation date. Headcounts may include multiple records for individuals, such as members with multiple periods of service.

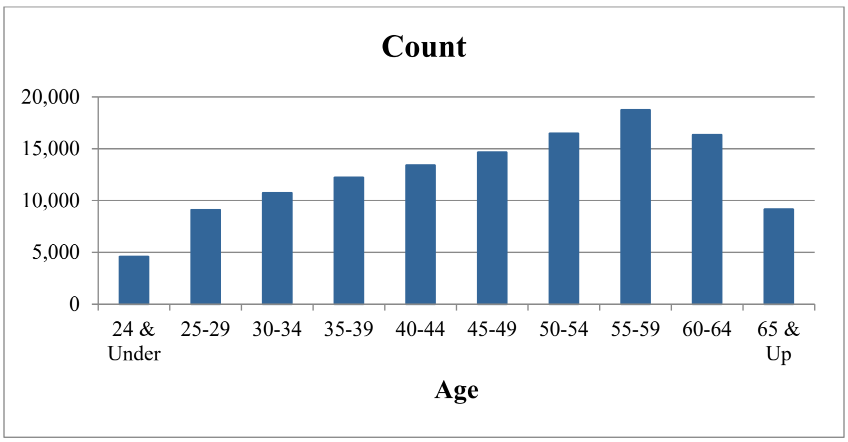
SUMMARY OF MEMBERSHIP DATA

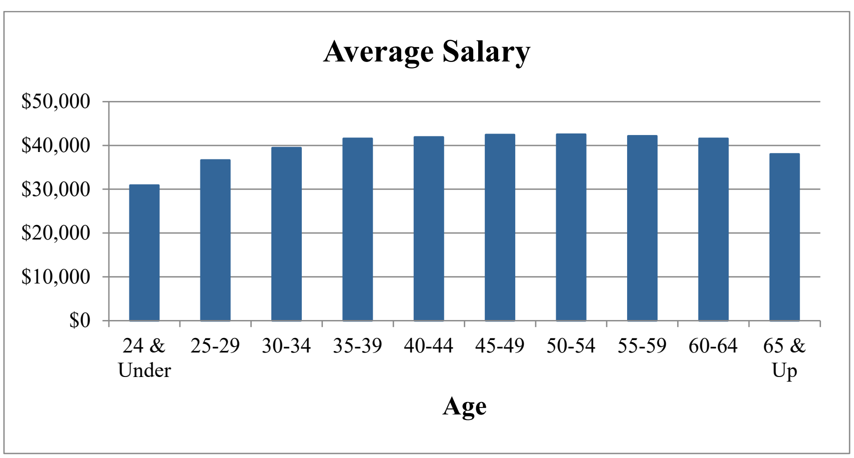
Valuation Date	June 30, 2020	June 30, 2021	% Change
Date of Membership Data [1]	July 1, 2019	July 1, 2020	
ACTIVE MEMBERS			
Number of Active Members [2]	125,780	125,386	(0.3%)
Annual Membership Data Salary [3]	$ 4,994,902,497	$ 5,104,883,896	2.2%
Anticipated Payroll for Next Fiscal Year	$ 5,528,816,114	$ 5,627,521,771	1.8%
Active Member Averages			
Age	47.6	47.5	(0.2%)
Service	11.2	11.1	(0.9%)
Annual Membership Data Salary	$ 39,711	$ 40,713	2.5%
INACTIVE MEMBERS			
Number of Inactive Members	33,575	33,931	1.1%
Inactive Member Averages			
Age	53.7	53.9	0.4%
Service	11.7	11.6	(0.9%)
RETIREES, DISABLEDS, AND BENEFICIARIES			
Number of Members			
Retired	79,371	81,581	2.8%
Disabled	2,613	2,677	2.4%
Beneficiaries	10,452	10,593	1.3%
Total	92,436	94,851	2.6%
Annual Benefits			
Retired	776,149,299	804,897,948	3.7%
Disabled	13,262,833	13,875,597	4.6%
Beneficiaries	70,014,870	72,394,377	3.4%
Total	$ 859,427,002	$ 891,167,922	3.7%
Annual Benefits			
Pension	729,882,390	765,032,059	4.8%
DC Plan Annuities	129,544,612	126,135,863	(2.6%)
Total	$ 859,427,002	$ 891,167,922	3.7%

[1] The valuation results were calculated using the prior year's census data and were adjusted for certain activity during fiscal year, such as new units, enlargements, or withdrawals.
[2] Data specs provided without data adjustments for activity that occurred during the year.
[3] Annualized for actives with less than a year of service. Actives with no salary provided are defaulted to the average salary.

ACTIVE MEMBERS [1]
As of June 30, 2020 for the June 30, 2021 Valuation

	Count of Members			FY 2020 Annual Membership Data Salary		
Age	Male	Female	Total	Male	Female	Total
24 & Under	2,311	2,278	4,589	$ 79,451,678	$ 62,330,517	$ 141,782,195
25-29	4,047	5,058	9,105	160,838,810	172,761,388	333,600,198
30-34	4,484	6,237	10,721	201,691,421	221,105,239	422,796,660
35-39	4,821	7,405	12,226	233,580,949	274,353,560	507,934,509
40-44	4,992	8,409	13,401	250,803,257	310,458,538	561,261,795
45-49	5,473	9,187	14,660	280,398,407	341,736,188	622,134,595
50-54	6,032	10,441	16,473	306,135,525	394,067,502	700,203,027
55-59	7,162	11,564	18,726	357,113,374	431,678,809	788,792,183
60-64	6,219	10,112	16,331	305,086,041	373,391,806	678,477,847
65 & Up	4,168	4,986	9,154	178,850,460	169,050,427	347,900,887
Total	49,709	75,677	125,386	$ 2,353,949,922	$ 2,750,933,974	$ 5,104,883,896





[1] Includes 284 actives who were missing a salary. Their salaries are defaulted to the average salary of $40,713.

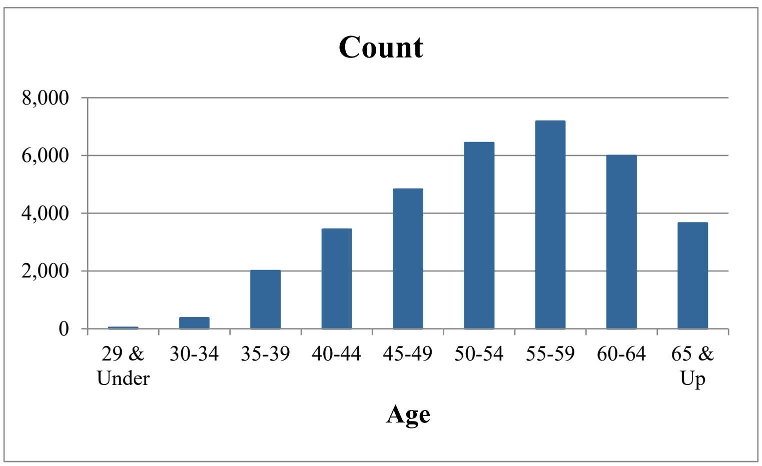
AGE AND SERVICE DISTRIBUTION [1]
As of June 30, 2020 for the June 30, 2021 Valuation

Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
24 & Under	Number	4,567	22	0	0	0	0	0	0	4,589
	Total Salary	$ 140,755,057	$ 1,027,138	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 141,782,195
	Average Sal.	$ 30,820	$ 46,688	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 30,896
25-29	Number	7,945	1,154	6	0	0	0	0	0	9,105
	Total Salary	$ 284,402,174	$ 48,917,556	$ 280,468	$ 0	$ 0	$ 0	$ 0	$ 0	$ 333,600,198
	Average Sal.	$ 35,796	$ 42,390	$ 46,745	$ 0	$ 0	$ 0	$ 0	$ 0	$ 36,639
30-34	Number	6,588	3,489	634	10	0	0	0	0	10,721
	Total Salary	$ 229,900,151	$ 161,633,462	$ 30,801,788	$ 461,259	$ 0	$ 0	$ 0	$ 0	$ 422,796,660
	Average Sal.	$ 34,897	$ 46,327	$ 48,583	$ 46,126	$ 0	$ 0	$ 0	$ 0	$ 39,436
35-39	Number	5,669	3,378	2,500	663	16	0	0	0	12,226
	Total Salary	$ 189,621,294	$ 153,045,286	$ 129,865,000	$ 34,562,411	$ 840,518	$ 0	$ 0	$ 0	$ 507,934,509
	Average Sal.	$ 33,449	$ 45,306	$ 51,946	$ 52,130	$ 52,532	$ 0	$ 0	$ 0	$ 41,545
40-44	Number	5,219	3,192	2,333	1,898	746	12	1	0	13,401
	Total Salary	$ 168,612,011	$ 132,689,771	$ 116,586,358	$ 103,170,120	$ 39,474,540	$ 685,166	$ 43,829	$ 0	$ 561,261,795
	Average Sal.	$ 32,307	$ 41,569	$ 49,973	$ 54,357	$ 52,915	$ 57,097	$ 43,829	$ 0	$ 41,882
45-49	Number	4,496	3,232	2,506	2,000	1,824	571	28	3	14,660
	Total Salary	$ 146,286,194	$ 126,369,915	$ 112,426,501	$ 101,036,045	$ 102,053,107	$ 32,297,498	$ 1,536,098	$ 129,237	$ 622,134,595
	Average Sal.	$ 32,537	$ 39,100	$ 44,863	$ 50,518	$ 55,950	$ 56,563	$ 54,861	$ 43,079	$ 42,438
50-54	Number	3,964	3,106	2,777	2,256	1,995	1,600	728	47	16,473
	Total Salary	$ 130,813,860	$ 115,589,190	$ 114,982,487	$ 104,602,931	$ 101,093,418	$ 90,220,428	$ 40,452,150	$ 2,448,563	$ 700,203,027
	Average Sal.	$ 33,000	$ 37,215	$ 41,405	$ 46,367	$ 50,673	$ 56,388	$ 55,566	$ 52,097	$ 42,506
55-59	Number	3,416	2,955	2,847	2,828	2,632	1,731	1,546	771	18,726
	Total Salary	$ 111,781,931	$ 111,148,911	$ 114,341,852	$ 116,509,795	$ 117,862,297	$ 87,968,093	$ 86,407,257	$ 42,772,047	$ 788,792,183
	Average Sal.	$ 32,723	$ 37,614	$ 40,162	$ 41,199	$ 44,781	$ 50,819	$ 55,891	$ 55,476	$ 42,123
60-64	Number	2,360	2,321	2,444	2,372	2,342	1,635	1,261	1,596	16,331
	Total Salary	$ 72,750,759	$ 85,705,537	$ 95,973,573	$ 96,069,814	$ 97,748,923	$ 74,922,337	$ 65,110,120	$ 90,196,784	$ 678,477,847
	Average Sal.	$ 30,827	$ 36,926	$ 39,269	$ 40,502	$ 41,737	$ 45,824	$ 51,634	$ 56,514	$ 41,545
65 & Up	Number	1,493	1,717	1,564	1,277	1,017	693	613	780	9,154
	Total Salary	$ 37,734,599	$ 55,296,804	$ 59,638,999	$ 49,895,691	$ 41,773,126	$ 29,788,783	$ 28,105,323	$ 45,667,562	$ 347,900,887
	Average Sal.	$ 25,274	$ 32,205	$ 38,132	$ 39,073	$ 41,075	$ 42,985	$ 45,849	$ 58,548	$ 38,005
Total	Number	45,717	24,566	17,611	13,304	10,572	6,242	4,177	3,197	125,386
	Total Salary	$ 1,512,658,030	$ 991,423,570	$ 774,897,026	$ 606,308,066	$ 500,845,929	$ 315,882,305	$ 221,654,777	$ 181,214,193	$ 5,104,883,896
	Average Sal.	$ 33,087	$ 40,358	$ 44,001	$ 45,573	$ 47,375	$ 50,606	$ 53,066	$ 56,683	$ 40,713

[1] Includes 284 actives who were missing a salary. Their salaries are defaulted to the average salary of $40,713.

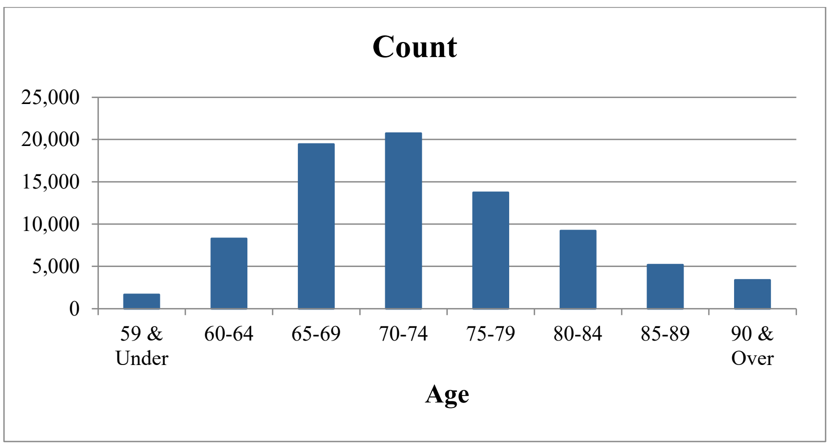
INACTIVE VESTED MEMBERS
As of June 30, 2020 for the June 30, 2021 Valuation

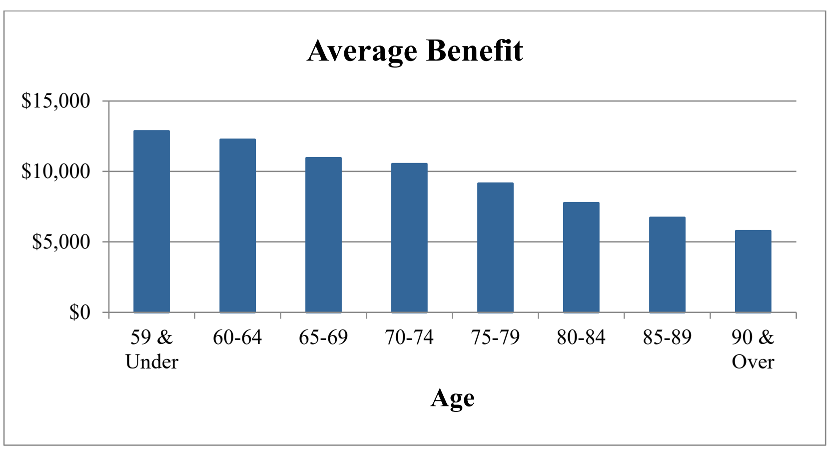
	Count of Members		
Age	Male	Female	Total
29 & Under	7	30	37
30-34	121	249	370
35-39	663	1,340	2,003
40-44	1,177	2,263	3,440
45-49	1,530	3,294	4,824
50-54	1,976	4,463	6,439
55-59	2,114	5,063	7,177
60-64	1,682	4,305	5,987
65 & Up	1,214	2,440	3,654
Total	10,484	23,447	33,931



RETIRED MEMBERS
As of June 30, 2020 for the June 30, 2021 Valuation

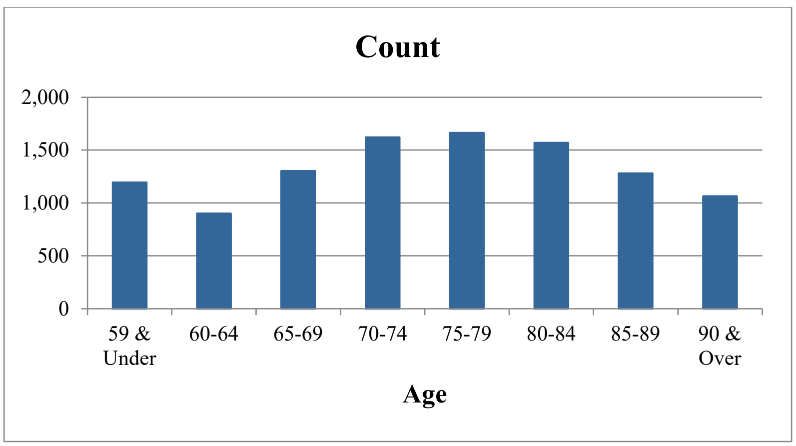
	Count of Members			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
59 & Under	768	890	1,658	$ 11,629,603	$ 9,692,634	$ 21,322,237
60-64	3,257	5,027	8,284	48,739,933	52,735,691	101,475,624
65-69	7,077	12,368	19,445	94,318,971	118,645,671	212,964,642
70-74	7,327	13,397	20,724	94,424,702	123,697,968	218,122,670
75-79	4,334	9,384	13,718	47,884,198	77,486,030	125,370,228
80-84	2,727	6,480	9,207	25,866,781	45,586,713	71,453,494
85-89	1,420	3,755	5,175	11,667,759	23,079,705	34,747,464
90 & Over	704	2,666	3,370	5,343,644	14,097,945	19,441,589
Total	27,614	53,967	81,581	$ 339,875,591	$ 465,022,357	$ 804,897,948

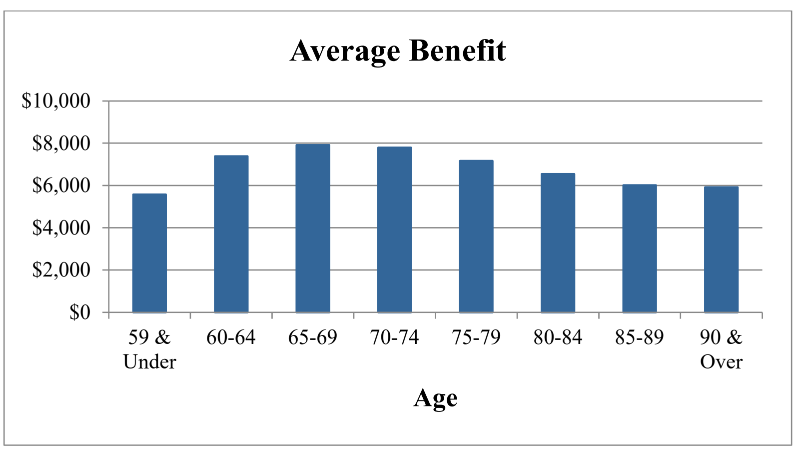




BENEFICIARIES RECEIVING BENEFITS
As of June 30, 2020 for the June 30, 2021 Valuation

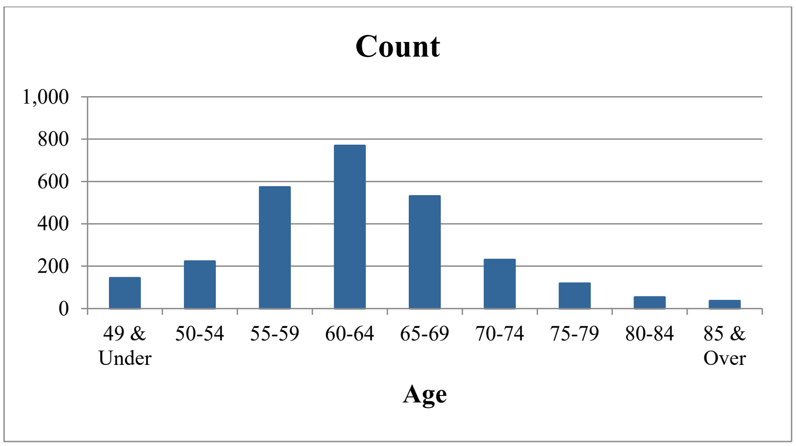
	Count of Members			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
59 & Under	332	861	1,193	$ 1,602,716	$ 5,050,316	$ 6,653,032
60-64	207	693	900	1,214,448	5,429,830	6,644,278
65-69	299	1,004	1,303	2,081,103	8,224,744	10,305,847
70-74	395	1,226	1,621	2,590,757	10,041,004	12,631,761
75-79	372	1,291	1,663	2,102,197	9,807,318	11,909,515
80-84	312	1,257	1,569	1,686,795	8,573,977	10,260,772
85-89	232	1,048	1,280	1,036,876	6,656,703	7,693,579
90 & Over	101	963	1,064	435,095	5,860,498	6,295,593
Total	2,250	8,343	10,593	$ 12,749,987	$ 59,644,390	$ 72,394,377

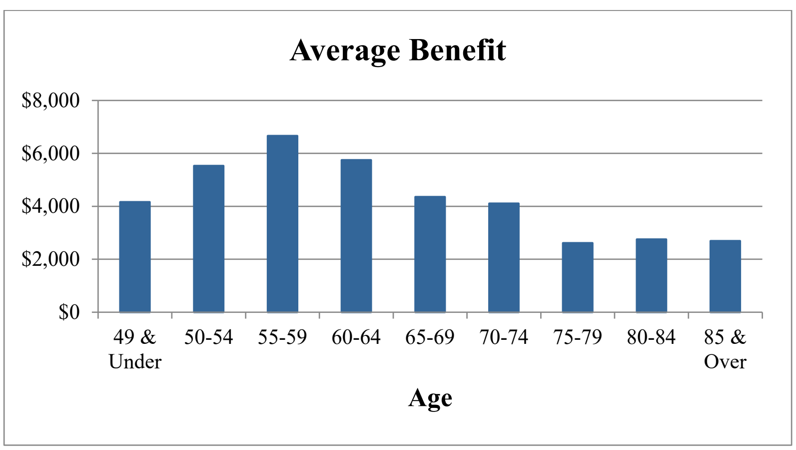




DISABLED MEMBERS
As of June 30, 2020 for the June 30, 2021 Valuation

	Count of Members			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
49 & Under	60	84	144	$ 288,852	$ 310,135	$ 598,987
50-54	88	135	223	574,040	658,598	1,232,638
55-59	246	327	573	1,956,443	1,861,313	3,817,756
60-64	317	452	769	2,115,419	2,303,118	4,418,537
65-69	199	332	531	926,287	1,386,192	2,312,479
70-74	99	131	230	469,798	474,447	944,245
75-79	47	71	118	129,586	178,583	308,169
80-84	18	35	53	50,264	95,684	145,948
85 & Over	10	26	36	24,190	72,648	96,838
Total	1,084	1,593	2,677	$ 6,534,879	$ 7,340,718	$ 13,875,597





ADDITIONAL IN PAY INFORMATION
As of June 30, 2020 for the June 30, 2021 Valuation

Schedule of Average Benefit Payments [1]

	Years of Credited Service						
For the Year Ended June 30, 2021	< 10 [2]	10 - 14	15 - 19	20 - 24	25 - 29	30 +	Total
Average Monthly Defined Benefit	$155	$302	$423	$591	$828	$1,330	$672
Average Monthly DC Annuity [3]	$48	$111	$151	$208	$281	$486	$242
Average Final Average Salary [4]	$26,038	$27,156	$29,199	$31,565	$35,182	$42,972	$32,947
Number of Benefit Recipients	3,224	16,508	22,856	18,616	14,252	19,395	94,851

[1]Calculated using the prior year census data, adjusted for certain activity during the fiscal year.
[2]Members with less than 10 years of service are: (1) a member receiving a disability benefit from INPRS; (2) a member who has at least eight years of creditable service as a county clerk, county auditor, county recorder, county treasurer, county sheriff or county coroner eligible for a normal retirement after reaching age 65 (applies to only members retiring after June 30, 2002); (3) a member who has at least eight years of creditable service as a state auditor, state treasurer, or secretary of state (whose term commences after the November 5, 2002 election).
[3]This represents those retirees who elected to receive their DC account as a supplemental monthly payment in addition to the monthly Defined Benefit payment.
[4]Excludes the 1,875 in-pay members who are missing a final average salary in the data.

ADDITIONAL IN PAY INFORMATION
As of June 30, 2020 for the June 30, 2021 Valuation

Schedule of Benefit Recipients by Type of Benefit Option [1]

	Number of Recipients by Benefit Option [2]							
Amount of Monthly Benefit (in dollars)	5-Year Certain & Life [3]	Straight Life	Joint with 100% Survivor Benefits	Joint with Two-Thirds Survivor Benefits	Joint with One-Half Survivor Benefits	Survivors	Disability	Total Benefit Recipients
1-500	11,382	9,788	7,933	913	2,004	6,196	1,917	40,133
501-1,000	7,517	9,798	5,569	1,140	2,374	2,929	545	29,872
1,001-1,500	2,792	4,518	3,202	724	1,287	967	158	13,648
1,501-2,000	1,132	2,125	1,396	448	594	311	50	6,056
2,001-2,500	466	1,038	699	194	341	115	4	2,857
2,501-3,000	221	426	293	99	150	45	1	1,235
Over 3,000	137	418	223	114	126	30	2	1,050
Total	23,647	28,111	19,315	3,632	6,876	10,593	2,677	94,851

[1] Calculated using the prior year census data, adjusted for certain activity during the fiscal year.
[2] Beginning October 2014, social security integration can apply to any optional form.
[3] Includes members who elected a modified cash refund plus 5-year certain & life.

ADDITIONAL IN PAY INFORMATION
As of June 30, 2020 for the June 30, 2021 Valuation

Schedule of Retirees and Beneficiaries [1]

	Added to Rolls		Removed from Rolls		Rolls - End of Year				
	Number	Annual Benefits [2]	Number	Annual Benefits [2]	Number	Total Annual Benefits [2]	Percent Change In Total Annual Benefits	Average Annual Benefit	Percent Change In Average Annual Benefit
2021 [3]	5,502	$55,399	3,087	$21,538	94,851	$891,168	3.7%	$9,395	1.0%
2020 [3]	5,194	50,481	2,690	18,520	92,436	859,427	3.7	9,298	0.9
2019 [3]	5,077	50,319	3,135	21,565	89,932	829,035	3.4	9,218	1.2
2018 [3]	5,249	55,236	2,389	15,609	87,990	801,551	5.8	9,110	2.3
2017 [3]	4,855	49,980	2,913	18,808	85,130	757,851	3.9	8,902	1.5
2016 [3]	6,478	78,487	2,488	15,597	83,188	729,366	9.9	8,768	4.6
2015 [3]	5,489	60,538	2,241	14,107	79,198	663,767	7.4	8,381	3.0
2014 [3]	0	0	0	0	75,950	617,977	0.0	8,137	0.0
2013	5,231	55,523	2,273	13,898	75,950	617,977	7.2	8,137	3.0
2012	4,751	49,766	2,139	12,540	72,992	576,678	6.8	7,901	3.0

[1]Dollar amounts are in thousands except for the average annual benefit.
[2] Annual benefits includes members selecting an annuity for their DC account. End of year annual benefits are not equal to prior end of year annual benefits plus additions less removals due to beneficiary benefit changes, data changes, and COLA increases.
[3]The valuation results were calculated using the prior year census data, adjusted for certain activity during the fiscal year.

Definitions

Fiscal year	Twelve month period ending June 30.
Participation	All full time employees of the State of Indiana and all full time employees of Political Subdivisions which have adopted the plan become members of PERF upon date of hire.
Average monthly earnings	The monthly average of earnings during 20 quarters (in groups of 4 consecutive contribution quarters) preceding retirement that produce the highest such average. Earnings include basic salary, the member's 3% mandatory contribution paid by the employer, the member's salary reduction agreement under Section 125, 430(b), or 457 of the Internal Revenue Code, and up to $2,000 of additional compensation received from the employer in anticipation of the member's termination or retirement.
Member contributions	Each member is required to contribute to a Defined Contribution Account at the rate of 3% of pay (unless the employer has opted to make the contribution for the employee). These contributions are kept on deposit and credited with interest based on the investment elections of each member until such time as they are withdrawn or annuitized by the member. The Defined Contribution Account benefit is in addition to the annuity benefits provided by employer contributions. During FYE 2018, the Defined Contribution Accounts were completely separated from the defined benefit plan, and so are no longer relevant to the valuation process.
Minimum pension benefit	The minimum pension benefit paid to a member with 10 or more years of creditable service receiving any pension benefit is $180 per month.

Eligibility for Benefits

Deferred vested	10 or more years of vesting service and no longer active.
Disability retirement	5 or more years of vesting service and qualified for Social Security disability benefits or federal Civil Service disability benefits.
Early retirement	Age 50 with 15 or more years of vesting service.

Normal retirement Earliest of:

- Age 65 with 10 or more years of vesting service
- Age 60 with 15 or more years of vesting service
- Age 55 with sum of age and vesting service equal to 85 or more.

Pre-retirement death 10 or more years of vesting service.

Monthly Benefits Payable

Normal retirement The normal retirement benefit is a pension payable for life with 60 months guaranteed and is equal to 1.1% of average monthly earnings multiplied by years of creditable service earned. The minimum monthly benefit is $180 if the member has at least 10 years of creditable service.

Early retirement The early retirement benefit is the accrued retirement benefit determined as of the early retirement date and payable commencing at the normal retirement date. A member may elect to have the benefit commence prior to normal retirement provided the benefit is reduced by 1/10% for each of the first 60 months and by 5/12% for each of the next 120 months that the benefit commencement date precedes the normal retirement date. The minimum monthly benefit is $180 if the member has at least 10 years of creditable service.

Deferred retirement The termination benefit is the accrued retirement benefit determined as of the termination date and payable commencing at age 65. If the member has 15 or more years of creditable service, then the member may elect to receive a reduced early retirement benefit prior to age 65. The minimum monthly benefit is $180 if the member has at least 10 years of creditable service.

Disability The disability retirement benefit is the accrued retirement benefit determined as of the disability date and payable commencing the month following disability date without reduction for early commencement. The minimum monthly benefit is $180.

Pre-retirement death The spouse or dependent beneficiary is entitled to receive the monthly life benefit payable immediately under the assumption that the member retired on the later of age 50 or the date before the date of death and elected the joint and full survivor option. The minimum monthly benefit is $180 if the member has at least 10 years of creditable service.

Cost-of-Living-Adjustments	The employer-funded monthly pension benefits for members in pay status are increased periodically to preserve purchasing power that is diminished due to inflation. Such increases are not guaranteed by Statute and will only be provided by legislative action. A "13th check" was paid to each member in pay status during fiscal year 2018, 2019, 2020 and 2021. The amount of the 13th check varied based on the years of creditable service the member had earned prior to retirement. Legislation passed in the 2018 legislative session creates a funding mechanism to provide for future benefit increases or 13^{th} checks. The INPRS Board has the authority to have employers contribute up to 1% of member pay into the fund. Increases or payments are made upon passed legislation subject to the availability of funds to provide the benefit. Legislation passed in 2021 provided for a 1% increase effective January 1, 2022 and no increase through the remainder of the biennium.
Forms of payment	
a. 5-Year Guaranteed Beneficiary Benefit (Option 10)	Member will receive a monthly benefit for the rest of their life. If the member dies before receiving benefits for 5 years, the beneficiary will receive that monthly benefit for the remainder of those 5 years or a lump sum distribution equal to the present value of those payments. After 5 years, there are no payments available to the beneficiary.
b. Benefit with No Guarantee (Option 20)	Member will receive a monthly benefit for life, but there are no monthly payments to anyone after death. However, the balance of the Defined Contribution Account will be distributed to the beneficiary or estate if it is larger than the payments previously made to the member.
c. Joint with Full Survivor Benefits (Option 30)	Member will be paid a monthly benefit for life. After death, the same monthly benefit will be paid to the beneficiary for their lifetime.
d. Joint with Two-Thirds Survivor Benefits (Option 40)	Member will be paid a monthly benefit for life. After death, two-thirds (2/3) of the benefit will be paid to the beneficiary for their lifetime.

e. Joint with One-Half Survivor Benefits (Option 50)	Member will be paid a monthly benefit for life. After death, one-half (1/2) of the benefit will be paid to the beneficiary for their lifetime.
f. Integration with Social Security (Option 61)	A member who retires between ages 50 and 62 may integrate the PERF monthly pension benefit with the member's estimated Social Security benefits. This does not affect the amount of the benefit received from the Social Security Administration.
	Before age 62, the member's benefits will equal the sum of the member's Social Security estimate, multiplied by actuarial factors, and the member's early retirement benefit. This will result in the member receiving a larger monthly benefit payment before age 62. After age 62, the member's benefit will equal the difference between the member's Social Security estimate, multiplied by actuarial factors, and the member's pre-62 monthly pension benefit. Depending upon the member's estimated Social Security disbursement, benefit payments may be greatly reduced or terminated at age 62.
g. 5-Year Guaranteed Beneficiary Benefit with Cash Refund (Option 71)	In order to select this option, the member must choose to combine at least a portion of their Defined Contribution Account with their lifetime monthly pension benefit. If selected, the member will receive a monthly benefit for the rest of their life. If the member dies before receiving payments for 5 years, the beneficiary will receive the pension portion of their monthly benefit for the remainder of those 5 years or a lump sum equal to the present value of those remaining payments. Also, upon death (whether death occurs before or after receiving 5 years of benefits), the beneficiary may receive any remaining balance of the Defined Contribution Account.

Changes in Plan Provisions since the Prior Year

House Enrolled Act No. 1001 was passed in April 2021 and granted a 1.00% cost-of-living adjustment effective January 1, 2022 to be paid from the Supplemental Reserve Account. No supplemental benefits were granted for fiscal year 2023.

ACTUARIAL METHODS

1. **Actuarial Cost Method**

The actuarial cost method is Entry Age Normal - Level Percent of Payroll.

The normal cost is calculated separately for each active member and is equal to the level percentage of payroll needed as an annual contribution from entry age to retirement age to fund projected benefits. The actuarial accrued liability on any valuation date is the accumulated value of such normal costs from entry age to the valuation date.

For funding, gains and losses occurring from census experience different than assumed, assumption changes, and benefit changes are amortized over a 20-year period with level payments each year. A new gain or loss base is established each year based on the additional gain or loss during that year and that base is amortized over a new 20-year period (gain or loss bases established prior to June 30, 2016 were amortized over 30 years and will continue to be amortized over 30 -year period). However, when the plan is at or above 100% funded (based on Actuarial Value of Assets), the past amortization bases are considered fully amortized and a single amortization base equal to the surplus is amortized over a 30-year period with level payments each year. Effective June 30, 2018, the bases are calculated without regards to the COLA provisions. The purpose of the method is to give a smooth progression of the costs from year to year and, at the same time, provide for an orderly funding of the unfunded liabilities.

For accounting, gains and losses occurring from census experience different than assumed and assumption changes are amortized into expense over the average expected future service of all plan participants. Gains and losses occurring from investment experience different than assumed are amortized into expense over a 5-year period. The effect of plan changes on the plan liability are fully recognized in expense in the year in which they occur.

Member census data as of June 30, 2020 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30,2020 and June 30, 2021. The valuation results from June 30, 2020 were rolled-forward to June 30, 2021 to reflect benefit accruals during the year less benefits paid.

2. **COLA Surcharge**

The COLA Surcharge is developed by determining the assets needed at the start of the next biennium to fund the post-retirement benefit increases anticipated to be granted in that biennium. This amount is divided by the present value of expected payroll over which the accumulations will occur.

3. **Asset Valuation Method**

Actuarial Value of Assets is equal to a five-year smoothing of gains and losses on the Market Value of Assets subject to a 20% corridor.

4. **Anticipated Payroll**

   The Anticipated Payroll for the fiscal year beginning July 1, 2021 is equal to the actual payroll during the year ending June 30, 2021, increased with one year of salary scale.

5. **Employer Contribution Rates**

   Based on the assumptions and methods previously described, an actuarially determined contribution rate is computed. The Board considers this information and has ultimate authority in setting the employer contribution rates.

Changes in Methods since the Prior Year

None.

ACTUARIAL ASSUMPTIONS

Valuation Date June 30, 2021

Economic Assumptions

1. Investment return — 6.25% per year, compounded annually (net of administrative and investment expenses)

2. Inflation — 2.00% per year

3. Salary increase

Service	Wage Inflation	Merit	Salary Increase
0	2.65%	6.00%	8.65%
1	2.65%	5.00%	7.65%
2	2.65%	4.00%	6.65%
3	2.65%	3.00%	5.65%
4	2.65%	2.50%	5.15%
5	2.65%	2.00%	4.65%
6	2.65%	1.75%	4.40%
7	2.65%	1.50%	4.15%
8	2.65%	1.25%	3.90%
9	2.65%	1.00%	3.65%
10	2.65%	0.75%	3.40%
11	2.65%	0.50%	3.15%
12	2.65%	0.25%	2.90%
13+	2.65%	0.00%	2.65%

4. Cost-of-Living Adjustment (COLA) — Members in pay were granted a 1.00% COLA effective January 1, 2022 for the next biennium. Thereafter, the following COLAs, compounded annually, were assumed:

0.4% beginning on January 1, 2024
0.5% beginning on January 1, 2034
0.6% beginning on January 1, 2039

Demographic Assumptions

1. Mortality

Pub-2010 Public Retirement Plans Mortality Tables (Amount-Weighted) with a fully generational projection of mortality improvements using SOA Scale MP-2019.

Healthy Employees – General Employee table with a 3 year set forward for males and a 1 year set forward for females.

Retirees – General Retiree table with a 3 year set forward for males and a 1 year set forward for females.

Beneficiaries – Contingent Survivor table with no set forward for males and a 2 year set forward for females.

Disableds – General Disabled table with a 140% load.

2. Disability

	Sample Rates	
Age	**Male**	**Female**
20	0.004%	0.003%
25	0.008%	0.006%
30	0.014%	0.010%
35	0.024%	0.018%
40	0.042%	0.032%
45	0.080%	0.061%
50	0.160%	0.124%
55+	0.300%	0.200%

3. Retirement

Age	Eligible for **Reduced** Benefit	Eligible for **Unreduced** Benefit
50-54	4%	N/A
55	5%	14%
56-59	5%	10%
60	N/A	12%
61	N/A	16%
62	N/A	22%
63	N/A	19%
64	N/A	24%
65-74	N/A	30%
75+	N/A	100%

Active members: 30% commence benefit immediately (reduced for early retirement, if applicable). 70% defer to earliest unreduced retirement date.

Inactive vested members are assumed to commence their retirement benefit at their earliest normal retirement date.

4. Termination

Service	State Unisex	PSD, Salary >$20K Unisex
0	24.00%	18.00%
1	20.00%	16.00%
2	18.00%	14.00%
3	16.00%	12.00%
4	14.00%	10.00%
5	12.00%	8.00%
6	11.00%	7.50%
7	10.00%	7.00%
8	9.00%	6.50%
9	8.00%	6.50%
10	7.00%	6.50%
11	6.50%	6.25%
12	6.00%	6.00%
13	5.75%	5.75%
14	5.50%	5.50%
15	5.25%	5.25%
16	5.00%	5.00%
17	4.75%	4.75%
18	4.50%	4.50%
19	4.25%	4.25%
20	4.00%	4.00%
21	4.00%	3.75%
22	4.00%	3.50%
23	4.00%	3.25%
24	4.00%	3.00%
25	4.00%	3.00%
26	4.00%	3.00%
27+	1.00%	3.00%

	PSD, Salary <$20k	
Age	Male	Female
15-22	34.00%	40.00%
23	34.00%	38.00%
24	34.00%	36.00%
25	34.00%	34.00%
26	34.00%	32.00%
27	34.00%	30.00%
28	34.00%	29.00%
29	34.00%	28.00%
30	29.00%	27.00%
31	29.00%	26.00%
32	29.00%	25.00%
33	29.00%	24.00%
34	29.00%	23.00%
35	25.00%	22.00%
36	25.00%	21.00%
37	25.00%	20.00%
38	25.00%	19.00%
39	25.00%	18.00%
40	24.00%	17.00%
41	24.00%	16.00%
42	24.00%	15.00%
43	24.00%	14.00%
44	24.00%	13.00%
45-49	21.00%	12.00%
50-60	17.00%	12.00%
61+	14.00%	12.00%

Other Assumptions

1. Form of payment	100% of members are assumed to elect the normal form of benefit payment, a single life annuity with a five-year certain period.
2. Marital status	
a. Percent married	80% of male members and 65% of female members are assumed to be married and or to have a dependent beneficiary.
b. Spouse's age	Male members are assumed to be three (3) years older than their spouses and female members are assumed to be two (2) years younger than their spouses.
3. Decrement timing	Decrements are assumed to occur at the beginning of the year.
4. Miscellaneous adjustments	For active members, the Average Annual Compensation was increased by $200 for additional wages received upon termination, such as severance or unused sick leave.

Changes in Assumptions since the Prior Year

As a result of the Asset-Liability work completed and discussed at the May 7, 2021 Board meeting, the Board made portfolio revisions and adopted a new set of economic assumptions for the June 30, 2021 actuarial valuations as follows:

- The investment return assumption was lowered from 6.75% (as of June 30, 2020) to 6.25%.
- Price inflation was lowered from 2.25% (as of June 30, 2020) to 2.00%.
- General wage inflation was lowered from 2.75% (as of June 30, 2020) to 2.65%.

Legislation granted a 1.00% cost-of-living adjustment effective January 1, 2022 to be paid from the Supplemental Reserve Account. No supplemental benefits were granted for fiscal year 2023. This replaces the COLA assumption of 0.4% for Fiscal Years 2022 and 2023 but does not change the assumption for future years.

Data Adjustments

Active and retired member data is reported as of June 30. Member census data as of June 30, 2020 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30, 2020 and June 30, 2021. Standard actuarial roll-forward techniques were then used to project the liability computed as of June 30, 2020 to the June 30, 2021 measurement date. The normal cost rate is assumed to remain unchanged between June 30, 2020 and June 30, 2021.

The member payroll and asset information for this valuation were furnished as of June 30, 2021. Projected FYE 2022 payroll is assumed to increase by the salary growth assumption over the total payroll observed for FYE 2021. We did not audit the information provided, but we did review it thoroughly for reasonableness and compared it with the prior year's submission for consistency.

Actives and inactives with no date of birth are assumed to be the average age of the member population with their respective status. Additionally, payroll for new hires is annualized, and actives missing a salary are assumed to earn the average active salary amount.

Other Technical Valuation Procedures

Salary increases are assumed to apply to annual amounts.

Decrements are assumed to occur at the beginning of the year. Standard adjustments are made for multiple decrements.

No actuarial liability is included for participants who terminated without being vested prior to the valuation date.

Accrued Service	Service credited under the plan that was rendered before the date of the actuarial valuation.
Actuarial Assumptions	Estimates of future experience with respect to demographic or economic events. Demographic assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement plan benefits between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method."
Actuarial Equivalent	A single amount or series of amounts of equal value to another single amount or series of amounts computed on the basis of a given set of actuarial assumptions.
Actuarial Accrued Liability	The difference between the actuarial present value of plan benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability."
Actuarial Present Value	The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.
Amortization	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
Experience Gain (Loss)	The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.
Normal Cost	The actuarial present value of retirement plan benefits allocated to the current year by the actuarial cost method.
Unfunded Actuarial Accrued Liability	The difference between actuarial liability and the actuarial value of assets. Sometimes referred to as "unfunded accrued liability" or "unfunded liability". Most retirement plans have unfunded actuarial liability. They arise anytime new benefits are added and anytime an actuarial loss is realized.