



Cavanaugh Macdonald
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The experience and dedication you deserve

Indiana Public Retirement System
1977 Police Officers' and Firefighters'
Retirement Fund

Actuarial Valuation as of
June 30, 2020





Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 6, 2020

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 1977 Police Officers' and Firefighters' Retirement Fund ('77 Fund) as of June 30, 2020, for the purpose of estimating the actuarial determined contribution rate for the calendar year 2022. The major findings of the valuation are contained in this report, which reflects the benefit and funding provisions in place on June 30, 2020. There were no changes in the benefit provisions or actuarial methods from last year. However, this report reflects the updated economic and demographic assumptions proposed in the 2014-2019 Experience Study that were adopted by the Board in June 2020. Please refer to that Study (available on the INPRS web site) for complete details.

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 the '77 Fund 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 2020 valuations to the Board on February 21, 2020, and the Board subsequently adopted their use. These assumptions are applicable to both the funding and Governmental Accounting Standards Board (GASB) Statement Number 67 valuation calculations, unless otherwise noted.



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.

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 the '77 Fund 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, 2020 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 Comprehensive Annual Financial Report (CAFR) for INPRS contains several exhibits that disclose the actuarial position of the System. This annual report, prepared as of June 30, 2020, provides data and tables that we prepared for use in the following sections of the CAFR:

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,

A handwritten signature in blue ink that reads 'Brent A. Banister'.

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

A handwritten signature in blue ink that reads 'Edward J. Koebel'.

Edward Koebel, FCA, EA, MAAA
Chief Executive Officer

A handwritten signature in black ink that reads 'Virginia Fritz'.

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



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SECTION 1 – BOARD SUMMARY

This report presents the results of the June 30, 2020 actuarial valuation of the 1977 Police Officers’ and Firefighters’ Retirement Fund (’77 Fund). The primary purposes of performing this actuarial valuation are to:

- Determine the employer contribution rate for the calendar year ending December 31, 2022 that will be sufficient to meet the funding policy.
- 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, 2020.
- Analyze and report on trends in plan contributions, assets and liabilities over the past several years.

VALUATION RESULTS

The 2014-2019 Experience Study was presented to the Board in February 2020 and the recommended assumptions and methods were adopted by the Board at their June meeting. Once the Asset-Liability Model work is completed, there may be a need to propose revised economic assumptions, particularly if the work leads to significant changes in the investment portfolio. There were no changes to the plan benefits, actuarial methods, or funding policy between the June 30, 2019 and June 30, 2020 valuations.

The actuarial valuation results provide a “snapshot” view of the plan’s financial condition on June 30, 2020. The plan’s UAAL changed from a deficit of \$89.3 million last year to \$115.6 million this year and the funded ratio had a slight decrease from 98.6% to 98.3%. Contributions exceeded the prior year’s actuarially determined contributions by approximately \$41 million, helping to reduce the UAAL, but there were losses from investment experience of \$55.7 million (primarily resulting from the prior year’s investment experience flowing through the deferred asset losses) and demographic experience of \$11.7 million.

A summary of the key results from the June 30, 2020 actuarial valuation compared to the June 30, 2019 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, 2019	June 30, 2020
Unfunded Actuarial Accrued Liability	\$ 89,253,395	\$ 115,573,578
Funded Ratio (Actuarial Assets)	98.60%	98.30%
Normal Cost	18.30%	19.49%
UAAL Amortization	0.87%	1.06%
Total Recommended Contribution	19.17%	20.55%
Estimated Member Contributions	(5.93%)	(5.88%)
Actuarially Determined Contribution Rate	13.24%	14.67%

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, 2019 and June 30, 2020.



SECTION 1 – BOARD SUMMARY

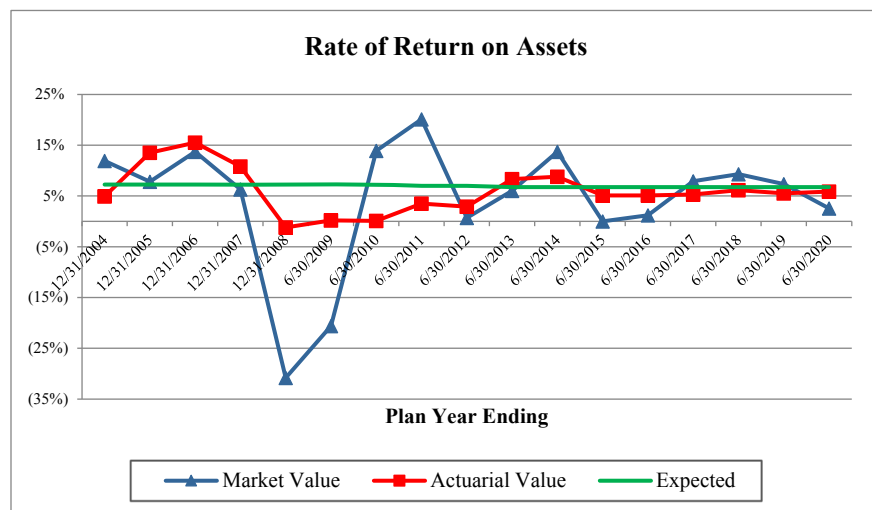
ASSETS

As of June 30, 2020, the plan had net assets of \$6.54 billion, when measured on a market value basis. This was an increase of \$163 million 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 determined 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, termed the actuarial value of assets. In this year’s valuation, the actuarial value of assets is \$6.67 billion, an increase of \$370 million 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, 2019	\$ 6,379,785,641	\$ 6,299,748,211
- Employer and Member Contributions	+ 216,497,314	+ 216,497,314
- Benefit Payments and Refunds	- 215,750,367	- 215,750,367
- Net Investment Income	+ 162,267,403	+ 369,539,050
Net Assets, June 30, 2020	\$ 6,542,799,991	\$ 6,670,034,208
Estimated Rate of Return, Net of Expenses	2.5%	5.9%

The estimated rate of return on the actuarial value of assets was 5.9%, which was lower than the 6.75% investment return assumption applicable for the year ended June 30, 2020. As a result, there was an experience loss on actuarial assets of \$55.7 million. The estimated investment return on the market value of assets for FY 2020 of 2.5% resulted in a change in the deferred investment experience from a net deferred investment gain of \$80 million in last year’s valuation to a net deferred investment loss of \$127 million in the current valuation. See Table 1 and Table 2 of this report for detailed information on the market and actuarial value of assets.



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



SECTION 1 – BOARD SUMMARY

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 on both a market value and actuarial value of assets basis is shown as of June 30, 2020 in the following table:

	Market Value	Actuarial Value
Actuarial Accrued Liability	\$ 6,785,607,786	\$ 6,785,607,786
Value of Assets	6,542,799,991	6,670,034,208
Unfunded Actuarial Accrued Liability	\$ 242,807,795	\$ 115,573,578
Funded Ratio	96.42%	98.30%

See Table 3 of this report for the development of the unfunded actuarial accrued liability.

The net change in the UAAL from June 30, 2019 to June 30, 2020 was an increase of \$26.3 million. Losses occurred from demographic experience, especially larger-than-expected salary increases, and recognition of deferred asset losses. The new assumptions resulting from the 2014-2019 Experience Study increased liabilities by \$2.3 million. Contributions in excess of the actuarially determined contribution rate helped to offset these losses. The components of the change in the UAAL are quantified in Table 5 of this report. See Table 6 and Table 7 of this report for a breakdown of the components of experience gains/losses for greater detail.

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).

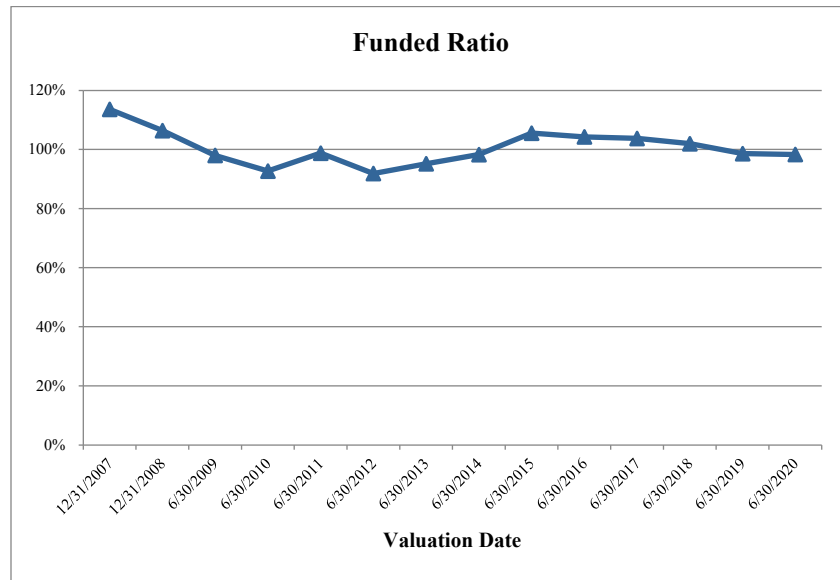
	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
Funded Ratio	104.3%	103.8%	102.0%	98.6%	98.3%
UAAL (in millions)	(\$215.4)	(\$201.8)	(\$114.3)	\$89.3	\$115.6

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.



SECTION 1 – BOARD SUMMARY

As the following graph of historical funded ratios shows, the '77 Fund has maintained a strong funded level for a number of years.



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 amortization base. Whenever the Plan funded ratio exceeds 100%, 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.

The employer actuarially determined contribution rate is the total actuarially determined contribution rate less the expected member contribution rate. Members with less than 32 years of service contribute 6% of pay into the plan, so the effective member contribution rate over all payroll (including the members with more than 32 years of service) is estimated to be 5.88% of pay.



SECTION 1 – BOARD SUMMARY

See Table 10 of this report for the detailed development of the contribution rates which are summarized in the following table:

	June 30, 2019	June 30, 2020
Normal Cost	18.30%	19.49%
UAAL Amortization	0.87%	1.06%
Total Recommended Contribution	19.17%	20.55%
Estimated Member Contributions	(5.93%)	(5.88%)
Actuarially Determined Contribution Amount	13.24%	14.67%
Estimated Payroll	\$ 887,956,760	\$ 966,359,445
Actuarially Determined Contribution Amount	\$ 117,565,475	\$ 141,764,931

In keeping with Board policy, the Board has for a number of years approved an employer funding rate of 17.50% in order to provide a cushion against the potential need to increase rates in the future. This additional funding has helped improve the plan's funded status. The Board policy will begin to reduce rates once the Plan reaches 105% funded, thus preventing accumulating unreasonable levels of surplus.

While the change in the assumptions did not have a significant impact on the Actuarial Accrued Liability of the Fund, the new assumptions did result in a marked increase in the normal cost rate. This leads to an increase in the Actuarially Determined Contribution Rate and reduces the current margin between the Board policy rate and the Actuarially Determined Contribution Rate.

**SECTION 1 – BOARD SUMMARY****SUMMARY OF PRINCIPAL RESULTS**

	June 30, 2018	June 30, 2019	June 30, 2020
MEMBERSHIP			
Active Members	13,171	13,433	13,686
Members in DROP	708	686	556
Retired Members and Beneficiaries	3,945	4,348	4,731
Disabled Members	806	839	850
Inactive Members	1,361	1,443	1,590
Total Members	<u>19,991</u>	<u>20,749</u>	<u>21,413</u>
Projected Annual Salaries in Following Year	\$ 863,232,987	\$ 887,956,760	\$ 966,359,445
Annual Retirement Payments for Retired Members, Disabled Members and Beneficiaries	\$ 132,206,622	\$ 151,304,660	\$ 169,933,139
ASSETS AND LIABILITIES			
Net Assets			
Market Value of Assets (MVA)	\$ 5,927,570,189	\$ 6,379,785,641	\$ 6,542,799,991
Actuarial Value of Assets (AVA)	5,953,978,304	6,299,748,211	6,670,034,208
Actuarial Accrued Liability (AAL)	5,839,659,033	6,389,001,606	6,785,607,786
Unfunded Actuarial Accrued Liability (UAAL): AAL - AVA	\$ (114,319,271)	\$ 89,253,395	\$ 115,573,578
Funded Ratios			
AVA / AAL	101.96%	98.60%	98.30%
MVA / AAL	101.51%	99.86%	96.42%
CONTRIBUTIONS			
Normal Cost Rate	17.41%	18.30%	19.49%
UAAL Rate	<u>(0.97%)</u>	<u>0.87%</u>	<u>1.06%</u>
Total Recommended Contribution Rate	16.44%	19.17%	20.55%
Expected Employee Contribution Rate	<u>(5.92%)</u>	<u>(5.93%)</u>	<u>(5.88%)</u>
Actuarially Determined Contribution Rate	10.52%	13.24%	14.67%
Actuarially Determined Contribution Amount	\$ 90,812,110	\$ 117,565,475	\$ 141,764,931



SECTION 2 – SCOPE OF THE REPORT

This report presents the actuarial valuation results of the 1977 Police Officers’ and Firefighters’ Retirement Fund as of June 30, 2020. 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, 2020.
- 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.



SECTION 3 – ASSETS

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, 2020. 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. Table 12 (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 2 shows the development of the actuarial value of assets (AVA) as of the valuation date.



TABLE 1
DEVELOPMENT OF MARKET VALUE OF ASSETS

	June 30, 2019	June 30, 2020
1. Market Value of Assets, Beginning of Year	\$ 5,927,570,189	\$ 6,379,785,641
2. Receipts		
a. Member (Includes Purchased Service) ¹	\$ 52,810,729	\$ 54,175,163
b. Employer (Includes Purchased Service) ²	155,051,201	162,302,282
c. Miscellaneous	1,878	19,869
d. Total	<u>\$ 207,863,808</u>	<u>\$ 216,497,314</u>
3. Expenditures		
a. Benefit Payments	\$ 186,487,867	\$ 212,523,500
b. Refund of Contributions	3,463,570	3,226,867
c. Administrative Expense	1,903,810	1,960,735
d. Miscellaneous	22,107	0
e. Total	<u>\$ 191,877,354</u>	<u>\$ 217,711,102</u>
4. Investment Return		
a. Investment Income	\$ 435,747,210	\$ 163,876,502
b. Securities Lending Income	481,788	351,636
c. Total Investment Return	<u>\$ 436,228,998</u>	<u>\$ 164,228,138</u>
5. Market Value of Assets, End of Year: (1) + (2d) - (3e) + (4c)	\$ 6,379,785,641	\$ 6,542,799,991
6. Estimated Rate of Return, Net of Expenses ³	7.32%	2.54%

¹ Includes \$1,883,302 of member service purchases during fiscal year 2019 and \$666,593 of member service purchases during fiscal year 2020.

² Includes \$822,763 of employer service purchases during fiscal year 2019 and \$246,623 of employer service purchases during fiscal year 2020.

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



TABLE 2
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

					For the Year Ending June 30, 2020
1. Market Value as of June 30, 2019					\$ 6,379,785,641
2. Receipts					216,497,314
3. Expenditures, Net of Administrative Expenses					(215,750,367)
4. Expected Return on Assets ¹					<u>430,660,740</u>
5. Expected Market Value as of June 30, 2020: (1) + (2) + (3) + (4)					\$ 6,811,193,328
6. Actual Market Value as of June 30, 2020					\$ 6,542,799,991
7. Year End 2020 Asset Gain/(Loss): (6) - (5)					\$ (268,393,337)
8. Deferred Investment Gains and Losses					
	Year Ended June 30:	Gain/(Loss)	Factor	Deferred Amount	
a. 2017		\$ 60,587,926	20%	\$ 12,117,585	
b. 2018		137,991,564	40%	55,196,626	
c. 2019		33,610,404	60%	20,166,242	
d. 2020		(268,393,337)	80%	<u>(214,714,670)</u>	
e. Total				\$ (127,234,217)	
9. Initial Actuarial Value as of June 30, 2020: (6) - (8e)					\$ 6,670,034,208
10. Constraining Values					
a. 80% of Market Value: (6) x 0.8					\$ 5,234,239,993
b. 120% of Market Value: (6) x 1.2					\$ 7,851,359,989
11. Actuarial Value as of June 30, 2020					\$ 6,670,034,208
12. Actuarial Rate of Return, Net of Expenses ²					5.87%
13. Actuarial Value of Assets as a Percent of Market Value: (11) / (6)					101.9%

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

² Assumes cash flows occur at mid-year.



SECTION 4 – PLAN LIABILITIES

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 1977 Police Officers' and Firefighters' Retirement Fund as of the valuation date, June 30, 2020. 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, 2020 valuation of the 1977 Police Officers' and Firefighters' Retirement Fund valuation are based on census data collected as of June 30, 2019. Standard actuarial techniques are used to adjust these results from June 30, 2019 to June 30, 2020. While these roll-forward techniques are based on the expectation that all actuarial assumptions are met during the intervening year, there will, of course, be many of the assumptions that are not 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, 2020.

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 perform 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 3 contains the calculation of actuarial accrued liability for the plan. The Entry Age Normal actuarial cost method is used to develop the actuarial accrued liability.



TABLE 3
ACTUARIAL ACCRUED LIABILITY

	As of June 30, 2020	
1. Actuarial Accrued Liability		
a. Member Contribution Balances	\$	895,202,919
b. Active & Inactive Members		3,512,467,923
c. In-pay Members		<u>2,377,936,944</u>
d. Total	\$	6,785,607,786
2. Actuarial Value of Assets	\$	6,670,034,208
3. Unfunded Actuarial Accrued Liability: (1d) – (2)	\$	115,573,578
4. Funded Ratio: (2)/(1d)		98.30%



SECTION 4 – PLAN LIABILITIES

TABLE 4
SOLVENCY TEST

Actuarial Valuation as of June 30	Actuarial Accrued Liabilities (AAL)				Actuarial Value of Assets	Portion of AAL Covered by Assets			
	Active Member Contributions	Retirees and Beneficiaries	Active Member (Employer Financed Portion)	Total Actuarial Accrued Liabilities		Active Member Contributions	Retirees and Beneficiaries	Active Member (Employer Financed Portion)	Total Actuarial Accrued Liabilities
2020	\$895,203	\$2,377,937	\$3,512,468	\$6,785,608	\$6,670,034	100.0%	100.0%	96.7%	98.3%
2019	883,706	2,169,744	3,335,552	6,389,002	6,299,748	100.0	100.0	97.3	98.6
2018	866,551	1,910,154	3,062,954	5,839,659	5,953,978	100.0	100.0	103.7	102.0
2017	857,426	1,715,503	2,812,824	5,385,753	5,587,551	100.0	100.0	107.2	103.7
2016	843,628	1,532,936	2,663,272	5,039,836	5,255,255	100.0	100.0	108.1	104.3
2015	832,760	1,362,021	2,485,913	4,680,694	4,939,330	100.0	100.0	110.4	105.5
2014	809,877	1,280,920	2,616,200	4,706,997	4,625,475	100.0	100.0	96.9	98.3
2013	782,124	1,288,457	2,322,366	4,392,947	4,180,704	100.0	100.0	90.9	95.2
2012	728,892	1,135,538	2,258,006	4,122,436	3,786,595	100.0	100.0	85.1	91.9
2011	679,849	970,676	1,988,431	3,638,956	3,593,787	100.0	100.0	97.7	98.8

Note: Dollar amounts are in thousands of dollars.



TABLE 5

RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY

	For Year Ending June 30, 2020
1. Unfunded Actuarial Accrued Liability as of June 30, 2019	\$ 89,253,395
2. Normal Cost	162,496,087
3. Actuarially Determined Contribution	(170,235,564)
4. Interest	<u>5,502,189</u>
5. Expected Unfunded Actuarial Accrued Liability as of June 30, 2020	\$ 87,016,107
6. Actuarial Value of Asset Changes	
a. Investment Experience (Gain)/Loss	\$ 55,719,164
b. Contributions (Above)/Below the Actuarially Determined Contribution and Other (Gain)/Loss	\$ (41,118,753)
7. Actuarial Accrued Liability Changes	
a. Actuarial Accrued Liability Experience (Gain)/Loss	\$ 11,678,881
b. Additional Liability Due to Benefit Changes	0
c. Additional Liability Due to Assumption Changes	<u>2,278,179</u>
8. Total Experience (Gain)/Loss	\$ 28,557,471
9. June 30, 2020 Unfunded Actuarial Accrued Liability: (5) + (8)	\$ 115,573,578



TABLE 6
ACTUARIAL GAIN/(LOSS)

Liabilities	
1. Actuarial Accrued Liability as of June 30, 2019	\$ 6,389,001,606
2. Normal Cost for Plan Year Ending June 30, 2020	162,496,087
3. Benefit Payments During Plan Year ¹	(215,736,008)
4. Service Purchases (employee and employer)	913,216
5. Interest at 6.75%	434,975,825
6. Change Due to Benefit Changes	0
7. Change Due to Assumption Changes	2,278,179
8. Expected Actuarial Accrued Liability as of June 30, 2020	\$ 6,773,928,905
9. Actuarial Accrued Liability as of June 30, 2020	\$ 6,785,607,786
Assets	
10. Actuarial Value of Assets as of June 30, 2019	\$ 6,299,748,211
11. Receipts During Plan Year	216,497,314
12. Expenditures, Excluding Expenses, During Plan Year	(215,750,367)
13. Interest at 6.75%	425,258,214
14. Expected Actuarial Value of Assets as of June 30, 2020	\$ 6,725,753,372
15. Actuarial Value of Assets as of June 30, 2020	\$ 6,670,034,208
Experience Gain / (Loss)	
16. Liability Actuarial Experience Gain/(Loss): (8) - (9)	\$ (11,678,881)
17. Asset Actuarial Experience Gain/(Loss): (15) - (14)	(55,719,164)
18. Total Actuarial Experience Gain/(Loss): (16) + (17)	\$ (67,398,045)

¹ Does not include miscellaneous expenses or benefit overpayments.



TABLE 7
EXPERIENCE GAIN/(LOSS) ANALYSIS BY SOURCE

Liability Sources (in thousands)		Gain/(Loss)
Retirement/DROP	\$	22,748
Termination		(12,607)
Disability		(2,365)
Mortality		4,560
Salary		(20,048)
New Entrants/Rehires		(13,773)
Miscellaneous/COLA		9,806
Total Liability Experience Gain/(Loss)	\$	(11,679)
as a % of AAL		(0.2%)
Asset Experience Gain/(Loss)	\$	(55,719)
Total Actuarial Experience Gain/(Loss)	\$	(67,398)



TABLE 8
PROJECTED BENEFIT PAYMENTS

<u>Plan Year Ending June 30</u>	<u>Benefit Amount</u>
2021	\$ 247,623,317
2022	257,723,128
2023	291,573,233
2024	313,555,210
2025	339,021,969
2026	365,521,670
2027	393,465,419
2028	421,638,447
2029	450,942,895
2030	480,303,730
2031	509,830,495
2032	539,622,414
2033	570,186,469
2034	599,490,767
2035	628,181,507
2036	656,282,137
2037	684,497,958
2038	712,975,557
2039	740,431,549
2040	769,330,165
2041	797,867,883
2042	825,887,488
2043	853,260,917
2044	878,072,514
2045	901,892,193
2046	924,544,385
2047	944,155,847
2048	961,502,847
2049	976,149,867
2050	987,853,222

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



SECTION 5 – EMPLOYER CONTRIBUTIONS

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 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. The unfunded actuarial accrued liability is calculated each year and reflects experience gains and losses.

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The contribution rate based on the June 30, 2020 actuarial will be used to calculate the actuarially determined employer contribution rate to the 1977 Police Officers' and Firefighters' Retirement Fund for the 2022 calendar year. Based on the Board funding policy, the current employer funding rate of 17.5% will be retained. This rate exceeds the actuarially determined contribution rate and allows for stability, as well as for more aggressive funding of the retirement system.

Contribution Rate Summary

In Table 9, the amortization payment related to the unfunded actuarial accrued liability/(surplus), as of June 30, 2020, is developed. Table 10 develops the actuarial determined 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 11 the contribution rates under alternative discount rates are provided to illustrate the sensitivity of the contribution requirements to the selection of the investment return assumption.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 9

SCHEDULE OF AMORTIZATION BASES

Amortization Bases	Original Amount	June 30, 2020 Remaining Payments	Date of Last Payment	Outstanding Balance as of June 30, 2020	Annual Contribution
2019 UAAL Base ¹	89,253,395	19	7/1/2039	87,016,107	7,739,477
2020 UAAL Base	28,557,471	20	7/1/2040	<u>28,557,471</u>	<u>2,476,319</u>
Total				\$ 115,573,578	\$ 10,215,796
1. Total UAAL Amortization Payments					\$ 10,215,796
2. Projected Payroll for FY 2021					\$ 966,359,445
3. UAAL Amortization Payment Rate					1.06%
4. Remaining Amortization Period in Years (Weighted) ²					19.2

¹ The 2019 UAAL base reflects the change from a plan surplus position, which was amortized over an open, 30-year period, to the closed, 20-year period.

² 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.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 10
ACTUARIAL DETERMINED CONTRIBUTION RATE

1. Projected Payroll for FY 2021	\$ 966,359,445
2. Normal Cost Rate	19.49%
3. Amortization of UAAL as of June 30, 2020	
a. Dollar Amount	\$ 10,215,796
b. Percent of Projected Pay	1.06%
4. Total Recommended Contribution Rate: (2) + (3b)	20.55%
5. Expected Employee Contribution Rate ¹	5.88%
6. Actuarially Determined Contribution Rate: (4) - (5)	14.67%
7. Estimated Actuarially Determined Contribution Amount: (1) x (6)	\$ 141,764,931
8. Actuarially Determined Contribution Rate for FY 2022	
a. July 1, 2021 to December 31, 2021	13.24%
b. January 1, 2022 to June 30, 2022	<u>14.67%</u>
c. Average	13.96%
9. Approved Funding Rate	17.50%
10. Expected Percentage of Actuarially Determined Contribution Contributed	125.36%

¹ Member contribution rate of 6% is made only on payroll of those with less than 32 years of service.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 11

INVESTMENT RETURN SENSITIVITY

	1.00% Decrease: (5.75%)	0.75% Decrease: (6.00%)	0.50% Decrease: (6.25%)	0.25% Decrease: (6.50%)	Current Assumption: (6.75%)
Funded Status					
Actuarial Accrued Liability	\$7,835,967,077	\$7,551,698,143	\$7,282,517,101	\$7,027,453,450	\$6,785,607,786
Actuarial Value of Assets	<u>6,670,034,208</u>	<u>6,670,034,208</u>	<u>6,670,034,208</u>	<u>6,670,034,208</u>	<u>6,670,034,208</u>
Unfunded Actuarial Accrued Liability	\$1,165,932,869	\$881,663,935	\$612,482,893	\$357,419,242	\$115,573,578
Funded Ratio	85.1%	88.3%	91.6%	94.9%	98.3%
Actuarially Determined Contribution Amount					
Normal Cost Rate	25.50%	23.82%	22.26%	20.82%	19.49%
UAAL Amortization Rate	9.77%	7.52%	5.33%	3.17%	1.06%
Expected Member Contribution Rate	<u>(5.88%)</u>	<u>(5.88%)</u>	<u>(5.88%)</u>	<u>(5.88%)</u>	<u>(5.88%)</u>
Actuarially Determined Employer Contrib. Rate	29.39%	25.47%	21.71%	18.12%	14.67%
	0.25% Increase: (7.00%)	0.50% Increase: (7.25%)	0.75% Increase: (7.50%)	1.00% Increase: (7.75%)	1.25% Increase: (8.00%)
Funded Status					
Actuarial Accrued Liability	\$6,556,146,084	\$6,338,294,455	\$6,131,334,368	\$5,934,598,275	\$5,747,465,612
Actuarial Value of Assets	<u>6,670,034,208</u>	<u>6,670,034,208</u>	<u>6,670,034,208</u>	<u>6,670,034,208</u>	<u>6,670,034,208</u>
Unfunded Actuarial Accrued Liability	(\$113,888,124)	(\$331,739,753)	(\$538,699,840)	(\$735,435,933)	(\$922,568,596)
Funded Ratio	101.7%	105.2%	108.8%	112.4%	116.1%
Actuarially Determined Contribution Amount					
Normal Cost Rate	18.26%	17.11%	16.05%	15.07%	14.15%
UAAL Amortization Rate	(0.89%)	(2.64%)	(4.39%)	(6.13%)	(7.85%)
Expected Member Contribution Rate	<u>(5.88%)</u>	<u>(5.88%)</u>	<u>(5.88%)</u>	<u>(5.88%)</u>	<u>(5.88%)</u>
Actuarially Determined Employer Contrib. Rate	11.49%	8.59%	5.78%	3.06%	0.42%



SECTION 6 – GASB INFORMATION

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 the required actuarial calculations set out in GASB 67 and 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 6.75%. 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 12

STATEMENT OF FIDUCIARY NET POSITION

	June 30, 2020
1. Assets	
a. Cash	\$ 494,618
b. Receivables	
i. Contributions and Miscellaneous Receivables	\$ 1,580,313
ii. Investments Receivable	180,609,917
iii. Foreign Exchange Contracts Receivable	1,534,794,323
iv. Interest and Dividends	15,070,282
v. Receivables Due From Other Funds	0
vi. Total Receivables	<u>\$ 1,732,054,835</u>
c. Investments	
i. Short-Term Investments	\$ 0
ii. Pooled Repurchase Agreements	1,511,408
iii. Pooled Short-Term Investments	297,234,528
iv. Pooled Fixed Income	2,262,342,374
v. Pooled Equity	1,451,854,022
vi. Pooled Alternative Investments	2,824,142,167
vii. Pooled Derivatives	3,002,515
viii. Pooled Investments	0
ix. Securities Lending Collateral	33,868,865
x. Total Investments	<u>\$ 6,873,955,879</u>
d. Net Capital Assets	0
e. Other Assets	0
f. Total Assets: a + b(vi) + c(x) + d + e	\$ 8,606,505,332
2. Liabilities	
a. Administrative Payable	\$ 67,644
b. Retirement Benefits Payable	3,657,381
c. Investments Payable	404,801,124
d. Foreign Exchange Contracts Payable	1,538,384,684
e. Securities Lending Obligations	33,868,865
f. Securities Sold Under Agreement to Repurchase	82,720,935
g. Due To Other Funds	204,708
h. Due to Other Governments	0
i. Total Liabilities: a + b + c + d + e + f + g + h	<u>\$ 2,063,705,341</u>
3. Fiduciary Net Position Restricted for Pensions: (1)(f) - (2)(i)	\$ 6,542,799,991



TABLE 13

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

		For Fiscal Year Ending June 30, 2020
1. Fiduciary Net Position as of June 30, 2019		\$ 6,379,785,641
2. Additions		
a. Contributions		
i. Member Contributions		53,508,570
ii. Employer Contributions		162,055,659
iii. Service Purchases (Employer and Member) ¹		913,216
iv. Non-Employer Contributing Entity Contributions		0
v. Total Contributions		<u>\$ 216,477,445</u>
b. Investment Income/(Loss)		
i. Net Appreciation/(Depreciation)		\$ 152,927,747
ii. Net Interest and Dividend Income		53,817,463
iii. Securities Lending Income		455,672
iv. Other Net Investment Income		733,189
v. Investment Management Expenses		(42,332,494)
vi. Direct Investment Expenses		(1,269,403)
vii. Securities Lending Expenses		(104,036)
viii. Total Investment Income/(Loss)		<u>\$ 164,228,138</u>
c. Other Additions		
i. Member Reassignments		0
ii. Miscellaneous Receipts		19,869
iii. Total Other Additions		<u>\$ 19,869</u>
d. Total Revenue (Additions): a(v) + b(viii) + c(iii)		<u>\$ 380,725,452</u>
3. Deductions		
a. Pension, Survivor and Disability Benefits		\$ 211,604,781
b. Death and Funeral Benefits		918,719
c. Distributions of Contributions and Interest		3,226,867
d. Administrative Expenses		1,960,735
e. Member Reassignments		0
f. Miscellaneous Expenses		0
g. Total Expenses (Deductions)		<u>\$ 217,711,102</u>
4. Net Increase (Decrease) in Fiduciary Net Position: (2)(d) - (3)(g)		\$ 163,014,350
5. Fiduciary Net Position as of June 30, 2020: (1) + (4)		\$ 6,542,799,991

¹ Service purchases paid by employer of \$246,623 and employee of \$666,593.



TABLE 14

SCHEDULE OF CHANGES IN NET PENSION LIABILITY

	For Fiscal Year Ending June 30, 2020		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
1. Balance at June 30, 2019	\$ 6,389,001,606	\$ 6,379,785,641	\$ 9,215,965
2. Changes for the Year:			
Service Cost (SC) ¹	162,496,087		162,496,087
Interest Cost	434,975,340		434,975,340
Experience (Gains)/Losses	11,693,725		11,693,725
Assumption Changes	2,278,179		2,278,179
Plan Amendments	0		0
Benefit Payments ²	(215,750,367)	(215,750,367)	0
Service Purchases			
Employer Contributions	246,623	246,623	0
Employee Contributions	666,593	666,593	0
Member Reassignments	0	0	0
Employer Contributions		162,055,659	(162,055,659)
Non-employer Contributions		0	0
Employee Contributions		53,508,570	(53,508,570)
Net Investment Income		164,228,138	(164,228,138)
Administrative Expenses		(1,960,735)	1,960,735
Other		19,869	(19,869)
Net Changes	\$ 396,606,180	\$ 163,014,350	\$ 233,591,830
3. Balance at June 30, 2020	\$ 6,785,607,786	\$ 6,542,799,991	\$ 242,807,795

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

² Includes special death benefits of \$918,719 and refund of member contributions of \$3,226,867.



TABLE 15
DEFERRED OUTFLOWS OF RESOURCES

	June 30, 2019	Remaining Period	Recognition	June 30, 2020
1. Liability Experience				
June 30, 2020 Loss	\$ 11,693,725	8.11	\$ 1,441,890	\$ 10,251,835
June 30, 2019 Loss	27,420,704	7.62	3,598,518	23,822,186
June 30, 2018 Loss	94,744,748	6.69	14,162,145	80,582,603
June 30, 2017 Loss	22,058,066	5.83	3,783,546	18,274,520
June 30, 2016 Loss	23,261,772	5.04	4,615,431	18,646,341
June 30, 2015 Loss	0	4.31	0	0
June 30, 2014 Loss	0	3.29	0	0
2. Assumption Changes				
June 30, 2020 Loss	\$ 2,278,179	8.11	\$ 280,910	\$ 1,997,269
June 30, 2019 Loss	0	7.62	0	0
June 30, 2018 Loss	0	6.69	0	0
June 30, 2017 Loss	0	5.83	0	0
June 30, 2016 Loss	0	5.04	0	0
June 30, 2015 Loss	0	4.31	0	0
June 30, 2014 Loss	0	3.29	0	0
3. Investment Experience				
June 30, 2020 Loss	\$ 266,366,427	5.00	\$ 53,273,286	\$ 213,093,141
June 30, 2019 Loss	0	4.00	0	0
June 30, 2018 Loss	0	3.00	0	0
June 30, 2017 Loss	0	2.00	0	0
June 30, 2016 Loss	53,521,113	1.00	53,521,113	0
Total Outflows:				
(1)+(2)+(3)	\$ 501,344,734		\$ 134,676,839	\$ 366,667,895

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 16
DEFERRED INFLOWS OF RESOURCES

	June 30, 2019	Remaining Period	Recognition	June 30, 2020
1. Liability Experience				
June 30, 2020 Gain	\$ 0	8.11	\$ 0	\$ 0
June 30, 2019 Gain	0	7.62	0	0
June 30, 2018 Gain	0	6.69	0	0
June 30, 2017 Gain	0	5.83	0	0
June 30, 2016 Gain	0	5.04	0	0
June 30, 2015 Gain	28,536,011	4.31	6,620,886	21,915,125
June 30, 2014 Gain	4,162,701	3.29	1,265,261	2,897,440
2. Assumption Changes				
June 30, 2020 Gain	\$ 0	8.11	\$ 0	\$ 0
June 30, 2019 Gain	0	7.62	0	0
June 30, 2018 Gain	0	6.69	0	0
June 30, 2017 Gain	15,449,449	5.83	2,649,992	12,799,457
June 30, 2016 Gain	0	5.04	0	0
June 30, 2015 Gain	143,420,281	4.31	33,276,169	110,144,112
June 30, 2014 Gain	0	3.29	0	0
3. Investment Experience				
June 30, 2020 Gain	\$ 0	5.00	\$ 0	\$ 0
June 30, 2019 Gain	28,462,773	4.00	7,115,694	21,347,079
June 30, 2018 Gain	83,813,730	3.00	27,937,910	55,875,820
June 30, 2017 Gain	24,910,020	2.00	12,455,010	12,455,010
June 30, 2016 Gain	0	1.00	0	0
Total Inflows:				
(1)+(2)+(3)	\$ 328,754,965		\$ 91,320,922	\$ 237,434,043

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 17

DEFERRED INFLOWS / OUTFLOWS TO BE RECOGNIZED IN PENSION EXPENSE

Fiscal Year Ending June 30	Deferred Outflows	Deferred Inflows	Net Deferred Outflows/(Inflows)
Current Year:			
2020	\$ 134,676,839	\$ 91,320,922	\$ 43,355,917
Future Years:			
2021	\$ 81,155,726	\$ 91,320,922	\$ (10,165,196)
2022	81,155,726	78,865,912	2,289,814
2023	81,155,726	50,029,656	31,126,070
2024	81,155,723	15,018,064	66,137,659
2025	22,808,416	2,199,489	20,608,927
Thereafter	19,236,578	0	19,236,578



TABLE 18
PENSION EXPENSE UNDER GASB NO. 68

		For Fiscal Year Ending June 30, 2020
1. Service Cost, beginning of year	\$	162,496,087
2. Interest Cost, including interest on service cost		434,975,340
3. Member Contributions ¹		(53,508,570)
4. Administrative Expenses		1,960,735
5. Expected Return on Assets ²		(430,594,565)
6. Plan Amendments		0
7. Recognition of Deferred Inflows / Outflows of Resources Related to:		
a. Liability Experience (Gains) / Losses	19,715,383	
b. Assumption Change (Gains) / Losses	(35,645,251)	
c. Investment Experience (Gains) / Losses	<u>59,285,785</u>	
d. Total: (7a)+(7b)+(7c)		43,355,917
8. Miscellaneous (Income) / Expense		(19,869)
9. Total Collective Pension Expense: (1)+(2)+(3)+(4)+(5)+(6)+(7d)+(8)		158,665,075
10. Employer Service Purchases ³		246,623
Pension Expense / (Income): (9) + (10)	\$	158,911,698

¹ Excludes member paid service purchases of \$666,593.

² Cash flows assumed to occur mid-year.

³ 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 1977 Police Officers’ and Firefighters’ Retirement Fund is a cost-sharing multiple-employer plan for GASB accounting purposes.
Measurement Date	June 30, 2020
Valuation Date	
Assets:	June 30, 2020
Liabilities:	June 30, 2019 – The TPL as of June 30, 2020 was determined based on an actuarial valuation prepared as of June 30, 2019 rolled forward one year to June 30, 2020, using the following key actuarial assumptions and other inputs, such as benefit accruals and actual benefit payments during that time period.
Inflation	2.25%
Future Salary Increases	2.75%
Cost-of-Living Increases	As of June 30, 2020: 2.1% compounded annually, beginning July 1, 2020. Actual COLA increases at July 1, 2019 (1.6%) and July 1, 2020 (2.1%) are reflected in the valuation. As of June 30, 2019: 2.0% compounded annually, beginning July 1, 2020. Actual COLA increases at July 1, 2018 (2.2%) and July 1, 2019 (1.6%) are reflected in the valuation.
Mortality Assumption	Pub-2010 Public Retirement Plans Mortality Tables (Amount-Weighted) with a fully generational projection of mortality improvements using SOA Scale MP-2019. <i>Healthy Employees</i> – Safety Employee table with a 3 year set forward for males and no set forward for females.



SECTION 6 – GASB INFORMATION

Retirees – Safety Retiree table with a 3-year set forward for males and no 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.

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 updated as appropriate based on the results of the study for this June 30, 2020 actuarial valuation.

Discount Rate

6.75%, 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. There was no change in the discount rate from 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 17.5% (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, 2020 actuarial valuation assumes a long-term rate of return on assets of 6.75%, a 20-year level dollar closed method for amortizing the future layers of unfunded actuarial accrued liability (dropped below 100% funded as of June 30, 2019), and a 5-year smoothing method for recognizing investment gains and losses in the actuarial value of assets.



SECTION 6 – GASB INFORMATION

Discount Rate Sensitivity

	1% Decrease 5.75%	Current Rate 6.75%	1% Increase 7.75%
Net Pension Liability	\$1,293,167,086	\$242,807,795	(\$608,201,716)

Classes of Plan Members Covered

The June 30, 2020 valuation was performed using census data provided by INPRS as of June 30, 2019. Standard actuarial techniques were used to roll forward the total pension liability computed as of June 30, 2019 to the June 30, 2020 Measurement Date using actual benefit payments during that period of time.

Number as of June 30, 2019	
1. Currently Receiving Benefits:	
Retired Members, Disabled Members, and Beneficiaries	5,581
2. Inactive Members Entitled To But Not Yet Receiving Benefits	283
3. Inactive Non-vested Members Entitled to a Refund of Member Contributions	1,307
4. Active Members	14,242
Total Covered Plan Members: (1)+(2)+(3)+(4)	21,413

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, 2020, the money-weighted return on the plan assets is 2.6%.

Components of Net Pension Liability

As of June 30, 2020	
Total Pension Liability	\$ 6,785,607,786
Fiduciary Net Position	6,542,799,991
Net Pension Liability	\$ 242,807,795
Ratio of Fiduciary Net Position to Total Pension Liability	96.42%



SECTION 6 – GASB INFORMATION

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	2016	2017	2018	2019	2020
Total Pension Liability					
Total Pension Liability - beginning	\$4,680,694,445	\$5,039,835,987	\$5,385,753,140	\$5,839,659,033	\$6,389,001,606
Service Cost (SC), beginning-of-year	129,369,091	134,489,476	136,640,454	150,288,863	162,496,087
Interest Cost, including interest on SC	320,218,564	344,396,796	366,931,750	398,001,952	434,975,340
Experience (Gains)/Losses	41,723,496	33,408,704	123,069,038	31,019,222	11,693,725
Assumption Changes	0	(23,399,425)	0	0	2,278,179
Plan Amendments	0	1,323,025	0	157,277,908	0
Actual Benefit Payments	(132,746,835)	(148,865,005)	(172,907,999)	(189,951,437)	(215,750,367)
Member Reassignments	(74,416)	0	0	0	0
Service Purchases	651,642	4,563,582	172,650	2,706,065	913,216
Net Change in Total Pension Liability	359,141,542	345,917,153	453,905,893	549,342,573	396,606,180
(a) Total Pension Liability - ending	\$5,039,835,987	\$5,385,753,140	\$5,839,659,033	\$6,389,001,606	\$6,785,607,786
Plan Fiduciary Net Position					
Plan Fiduciary Net Position – beginning	\$4,828,414,561	\$4,950,999,065	\$5,401,178,536	\$5,927,570,189	\$6,379,785,641
Contributions – employer	151,674,202	150,857,418	147,094,151	155,051,201	162,302,282
Contributions – non-employer	0	0	0	0	0
Contributions – member	44,918,203	51,520,565	48,838,461	52,810,729	54,175,163
Net investment income	60,464,690	398,273,550	504,991,361	436,228,998	164,228,138
Actual benefit payments	(132,746,835)	(148,865,005)	(172,907,999)	(189,951,437)	(215,750,367)
Net member reassignments	(74,416)	0	0	0	0
Administrative expense	(1,651,340)	(1,607,057)	(1,642,550)	(1,903,810)	(1,960,735)
Other	0	0	18,229	(20,229)	19,869
Net change in Plan Fiduciary Net Position	122,584,504	450,179,471	526,391,653	452,215,452	163,014,350
(b) Plan Fiduciary Net Position - ending	\$4,950,999,065	\$5,401,178,536	\$5,927,570,189	\$6,379,785,641	\$6,542,799,991
Net Pension Liability - ending, (a) - (b)	\$88,836,922	(\$15,425,396)	(\$87,911,156)	\$9,215,965	\$242,807,795

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.



SECTION 6 – GASB INFORMATION

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
Total Pension Liability			
Total Pension Liability - beginning	\$4,122,436,112	\$4,392,946,977	\$4,706,997,462
Service Cost (SC), beginning-of-year	130,912,451	133,074,656	138,204,281
Interest Cost, including interest on SC	283,732,680	301,824,523	323,129,528
Experience (Gains)/Losses	(39,592,111)	(11,754,267)	(61,640,441)
Assumption Changes	(4,810,241)	0	(309,801,126)
Plan Amendments	0	0	0
Actual Benefit Payments	(99,802,915)	(109,094,427)	(116,489,902)
Member Reassignments	71,001	0	0
Service Purchases	0	0	294,643
Net Change in Total Pension Liability	270,510,865	314,050,485	(26,303,017)
(a) Total Pension Liability - ending	\$4,392,946,977	\$4,706,997,462	\$4,680,694,445
Plan Fiduciary Net Position			
Plan Fiduciary Net Position – beginning	\$3,817,013,634	\$4,116,861,121	\$4,757,977,785
Contributions – employer	137,110,691	140,119,065	146,696,360
Contributions – non-employer	0	0	0
Contributions – member	40,786,098	41,791,345	43,523,241
Net investment income	223,527,670	570,088,526	(1,584,662)
Actual benefit payments	(99,802,915)	(109,094,427)	(116,489,902)
Net member reassignments	71,001	0	0
Administrative expense	(1,845,058)	(1,787,845)	(1,708,261)
Other	0	0	0
Net change in Plan Fiduciary Net Position	299,847,487	641,116,664	70,436,776
(b) Plan Fiduciary Net Position - ending	\$4,116,861,121	\$4,757,977,785	\$4,828,414,561
Net Pension Liability - ending, (a) - (b)	\$276,085,856	(\$50,980,323)	(\$147,720,116)

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.



SECTION 6 – GASB INFORMATION

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

SCHEDULE OF THE NET PENSION LIABILITY

Fiscal Year Ending June 30	2016	2017	2018	2019	2020
Total Pension Liability	\$5,039,835,987	\$5,385,753,140	\$5,839,659,033	\$6,389,001,606	\$6,785,607,786
Plan Fiduciary Net Position	<u>4,950,999,065</u>	<u>5,401,178,536</u>	<u>5,927,570,189</u>	<u>6,379,785,641</u>	<u>6,542,799,991</u>
Net Pension Liability	\$88,836,922	(\$15,425,396)	(\$87,911,156)	\$9,215,965	\$242,807,795
Ratio of Plan Fiduciary Net Position to Total Pension Liability	98.24%	100.29%	101.51%	99.86%	96.42%
Covered-employee payroll ¹	\$771,948,731	\$809,382,060	\$842,178,524	\$866,299,278	\$940,495,810
Net Pension Liability as a percentage of covered-employee payroll	11.51%	-1.91%	-10.44%	1.06%	25.82%

Fiscal Year Ending June 30	2013	2014	2015
Total Pension Liability	\$4,392,946,977	\$4,706,997,462	\$4,680,694,445
Plan Fiduciary Net Position	<u>4,116,861,121</u>	<u>4,757,977,785</u>	<u>4,828,414,561</u>
Net Pension Liability	\$276,085,856	(\$50,980,323)	(\$147,720,116)
Ratio of Plan Fiduciary Net Position to Total Pension Liability	93.72%	101.08%	103.16%
Covered-employee payroll ¹	\$695,000,000	\$710,580,690	\$745,336,167
Net Pension Liability as a percentage of covered-employee payroll	39.72%	-7.17%	-19.82%

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.



SECTION 6 – GASB INFORMATION

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

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ending June 30	2016	2017	2018	2019	2020
Actuarially Determined Contribution ¹	\$113,437,866	\$91,257,827	\$74,490,690	\$78,010,250	\$91,134,044
Actual employer contributions ²	<u>\$151,299,454</u>	<u>\$150,698,652</u>	<u>\$147,074,327</u>	<u>\$154,228,438</u>	<u>\$162,055,659</u>
Annual contribution (deficiency) / excess	\$37,861,588	\$59,440,825	\$72,583,637	\$76,218,188	\$70,921,615
Covered-employee payroll ³	\$771,948,731	\$809,382,060	\$842,178,524	\$866,299,278	\$940,495,810
Actual contributions as a percentage of covered-employee payroll	19.60%	18.62%	17.46%	17.80%	17.23%

Fiscal Year Ending June 30	2013	2014	2015
Actuarially Determined Contribution ¹	\$112,590,000	\$103,425,019	\$118,881,119
Actual employer contributions ²	<u>\$137,110,691</u>	<u>\$140,119,065</u>	<u>\$146,401,717</u>
Annual contribution (deficiency) / excess	\$24,520,691	\$36,694,046	\$27,520,598
Covered-employee payroll ³	\$695,000,000	\$710,580,690	\$745,336,167
Actual contributions as a percentage of covered-employee payroll	19.73%	19.72%	19.64%

¹ Actuarially determined contribution rate for July-December was developed in the actuarial funding valuation completed two years prior to the fiscal year. Actuarially determined contribution rate for January-June was developed in the actuarial funding valuation completed one year prior to the fiscal year. The average of these two rates was applied to the actual covered employee payroll for the fiscal year to determine the contribution amount.

² Excludes service purchases paid for by the employer of \$246,623.

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

<u>For Fiscal Year Ending June 30</u>	<u>Money-Weighted Return</u>
2020	2.6%
2019	7.3%
2018	9.3%
2017	8.0%
2016	1.2%
2015	(0.1%)
2014	13.7%
2013	5.9%

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



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<i>A glossary of actuarial terms used in the valuation report.</i>	



APPENDIX A – MEMBERSHIP DATA

MEMBER DATA RECONCILIATION
For June 30, 2019 Data used in the June 30, 2020 Valuation

	Active Members	Actives in DROP	Inactive Vested ¹	Inactive Nonvested	Disabled	Retired	Beneficiary	Total
1. As of June 30, 2018	13,433	686	243	1,200	839	3,553	795	20,749
2. Data Adjustments								
New Participants	906	0	0	0	0	0	0	906
Rehires	18	0	(1)	(17)	0	0	0	0
Terminations:								
Not Vested	(233)	0	0	233	0	0	0	0
Deferred Vested	(83)	0	83	0	0	0	0	0
DROP	(98)	98	0	0	0	0	0	0
Disability	(40)	(2)	0	0	42	0	0	0
Retirements	(120)	(224)	(42)	0	0	386	0	0
Refund / Benefits Ended	(83)	0	(1)	(105)	0	0	(2)	(191)
Deaths:								
With Beneficiary	(11)	0	0	0	(11)	(37)	59	0
Without Beneficiary	(3)	0	0	(3)	(7)	(19)	(21)	(53)
Entitled to Future Benefit	0	(2)	2	0	0	0	0	0
Data Corrections	0	0	(1)	(1)	(13)	18	(1)	2
Net Change	253	(130)	40	107	11	348	35	664
3. As of June 30, 2019	13,686	556	283	1,307	850	3,901	830	21,413

¹ Includes one inactive in DROP member as of June 30, 2018 that retired during the year.

**APPENDIX A – MEMBERSHIP DATA****SUMMARY OF MEMBERSHIP DATA**

Valuation Date	June 30, 2019	June 30, 2020	% Change
Date of Membership Data ¹	June 30, 2018	June 30, 2019	
ACTIVE MEMBERS			
Number of Members			
Active	13,433	13,686	1.9%
Active in DROP	686	556	(19.0%)
Total	14,119	14,242	0.9%
Annual Membership Data Salary ²	\$ 866,790,927	\$ 901,491,161	4.0%
Anticipated Payroll for Next Fiscal Year	\$ 887,956,760	\$ 966,359,445	8.8%
Active Member Averages			
Age	41.7	41.6	(0.8%)
Service	14.1	14.0	(0.3%)
Annual Membership Data Salary	\$ 61,392	\$ 63,298	3.1%
INACTIVE MEMBERS			
Number of Members			
Inactive Vested	243	283	16.5%
Inactive Non-Vested	1,200	1,307	8.9%
Total	1,443	1,590	10.2%
Inactive Vested Member Averages			
Age	48.8	49.3	1.0%
Service	21.7	21.8	0.8%
RETIREEES, DISABLEDS, AND BENEFICIARIES			
Number of Members			
Retired	3,553	3,901	9.8%
Disabled	839	850	1.3%
Beneficiaries	795	830	4.4%
Total	5,187	5,581	7.6%
Annual Benefits			
Retired	\$ 114,825,731	\$ 130,957,152	14.0%
Disabled	22,933,818	24,210,568	5.6%
Beneficiaries	13,545,111	14,765,419	9.0%
Total	\$ 151,304,660	\$ 169,933,139	12.3%

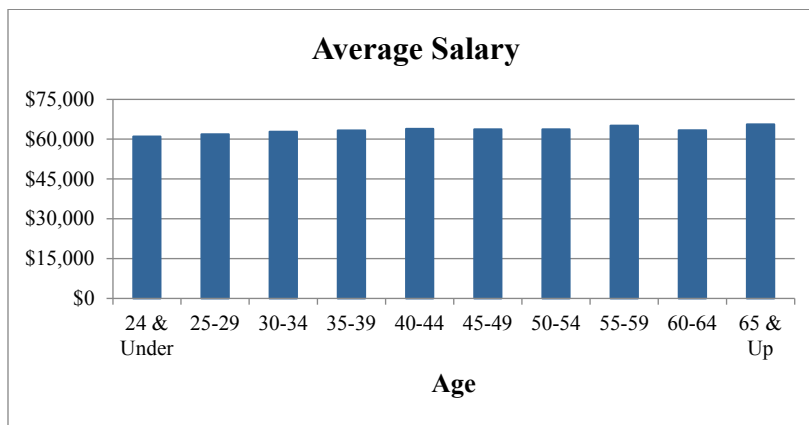
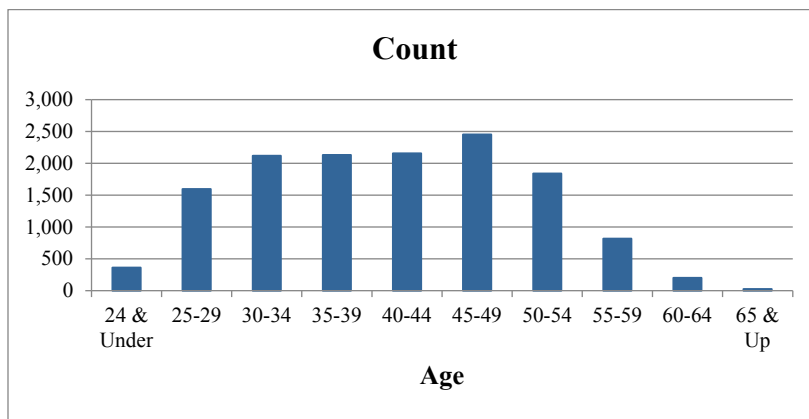
¹ Valuation results were calculated using the prior year's census data, adjusted for certain activity during fiscal year.² Annualized for actives with less than a year of service. Actives missing a salary are defaulted to the average salary.



APPENDIX A – MEMBERSHIP DATA

**ACTIVE MEMBERS
As of June 30, 2019 for the June 30, 2020 Valuation**

<u>Age</u>	<u>Count of Members</u>			<u>FY 2019 Annual Membership Data Salary</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
24 & Under	317	43	360	\$ 19,238,693	\$ 2,709,714	\$ 21,948,407
25-29	1,461	133	1,594	90,127,882	8,375,092	98,502,974
30-34	1,984	134	2,118	124,082,775	8,870,741	132,953,516
35-39	2,021	108	2,129	127,537,399	7,214,596	134,751,995
40-44	2,024	132	2,156	128,923,133	8,821,969	137,745,102
45-49	2,337	115	2,452	148,717,608	7,399,641	156,117,249
50-54	1,749	89	1,838	111,070,720	5,973,566	117,044,286
55-59	782	34	816	50,702,029	2,401,962	53,103,991
60-64	196	3	199	12,408,567	190,418	12,598,985
65 & Up	<u>23</u>	<u>1</u>	<u>24</u>	<u>1,496,949</u>	<u>76,101</u>	<u>1,573,050</u>
Total	12,894	792	13,686	\$ 814,305,755	\$ 52,033,800	\$ 866,339,555





APPENDIX A – MEMBERSHIP DATA

**AGE AND SERVICE DISTRIBUTION
As of June 30, 2019 for the June 30, 2020 Valuation**

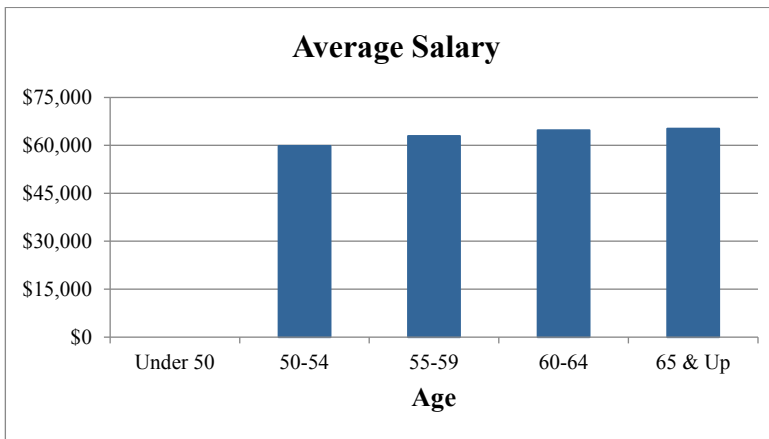
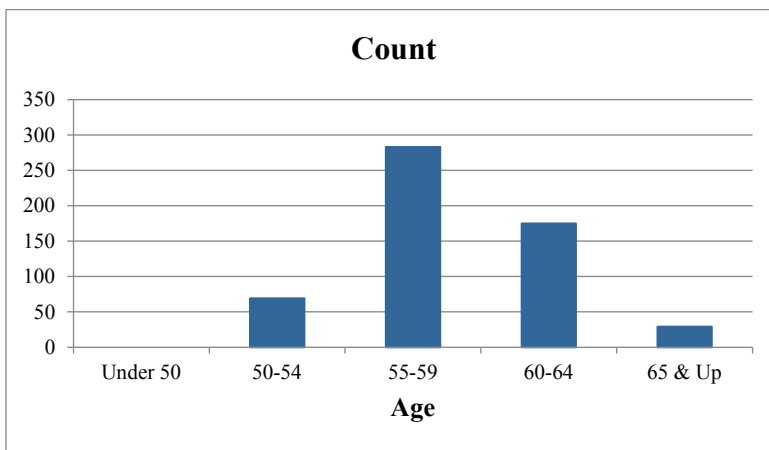
Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
24 & Under	Number	360	0	0	0	0	0	0	0	360
	Total Salary	\$ 21,948,407	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 21,948,407
	Average Sal.	\$ 60,968	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 60,968
25-29	Number	1,455	139	0	0	0	0	0	0	1,594
	Total Salary	\$ 89,743,776	\$ 8,759,198	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 98,502,974
	Average Sal.	\$ 61,680	\$ 63,016	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 61,796
30-34	Number	1,240	710	168	0	0	0	0	0	2,118
	Total Salary	\$ 77,498,835	\$ 44,830,540	\$ 10,624,141	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 132,953,516
	Average Sal.	\$ 62,499	\$ 63,142	\$ 63,239	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 62,773
35-39	Number	465	586	944	134	0	0	0	0	2,129
	Total Salary	\$ 28,911,936	\$ 36,678,028	\$ 60,588,402	\$ 8,573,629	\$ 0	\$ 0	\$ 0	\$ 0	\$ 134,751,995
	Average Sal.	\$ 62,176	\$ 62,590	\$ 64,183	\$ 63,982	\$ 0	\$ 0	\$ 0	\$ 0	\$ 63,294
40-44	Number	30	253	772	923	178	0	0	0	2,156
	Total Salary	\$ 1,686,250	\$ 15,575,949	\$ 49,436,770	\$ 59,726,309	\$ 11,319,824	\$ 0	\$ 0	\$ 0	\$ 137,745,102
	Average Sal.	\$ 56,208	\$ 61,565	\$ 64,037	\$ 64,709	\$ 63,595	\$ 0	\$ 0	\$ 0	\$ 63,889
45-49	Number	7	19	426	902	993	104	1	0	2,452
	Total Salary	\$ 402,817	\$ 1,138,672	\$ 27,079,320	\$ 57,694,069	\$ 63,132,998	\$ 6,592,997	\$ 76,376	\$ 0	\$ 156,117,249
	Average Sal.	\$ 57,545	\$ 59,930	\$ 63,566	\$ 63,962	\$ 63,578	\$ 63,394	\$ 76,376	\$ 0	\$ 63,669
50-54	Number	3	2	35	408	712	560	118	0	1,838
	Total Salary	\$ 175,794	\$ 114,960	\$ 2,242,011	\$ 25,733,665	\$ 45,099,599	\$ 35,969,558	\$ 7,708,700	\$ 0	\$ 117,044,286
	Average Sal.	\$ 58,598	\$ 57,480	\$ 64,057	\$ 63,073	\$ 63,342	\$ 64,231	\$ 65,328	\$ 0	\$ 63,680
55-59	Number	0	0	2	28	189	287	310	0	816
	Total Salary	\$ 0	\$ 0	\$ 128,279	\$ 1,740,928	\$ 11,777,191	\$ 18,786,705	\$ 20,670,888	\$ 0	\$ 53,103,991
	Average Sal.	\$ 0	\$ 0	\$ 64,139	\$ 62,176	\$ 62,313	\$ 65,459	\$ 66,680	\$ 0	\$ 65,078
60-64	Number	0	0	3	1	24	50	121	0	199
	Total Salary	\$ 0	\$ 0	\$ 179,918	\$ 75,148	\$ 1,505,384	\$ 3,067,335	\$ 7,771,200	\$ 0	\$ 12,598,985
	Average Sal.	\$ 0	\$ 0	\$ 59,973	\$ 75,148	\$ 62,724	\$ 61,347	\$ 64,225	\$ 0	\$ 63,311
65 & Up	Number	1	0	0	1	4	1	17	0	24
	Total Salary	\$ 58,819	\$ 0	\$ 0	\$ 75,148	\$ 290,029	\$ 59,489	\$ 1,089,565	\$ 0	\$ 1,573,050
	Average Sal.	\$ 58,819	\$ 0	\$ 0	\$ 75,148	\$ 72,507	\$ 59,489	\$ 64,092	\$ 0	\$ 65,544
Total	Number	3,561	1,709	2,350	2,397	2,100	1,002	567	0	13,686
	Total Salary	\$ 220,426,634	\$ 107,097,347	\$ 150,278,840	\$ 153,618,896	\$ 133,125,025	\$ 64,476,084	\$ 37,316,729	\$ 0	\$ 866,339,555
	Average Sal.	\$ 61,900	\$ 62,667	\$ 63,948	\$ 64,088	\$ 63,393	\$ 64,347	\$ 65,814	\$ 0	\$ 63,301



APPENDIX A – MEMBERSHIP DATA

**ACTIVE MEMBERS IN DROP
As of June 30, 2019 for the June 30, 2020 Valuation**

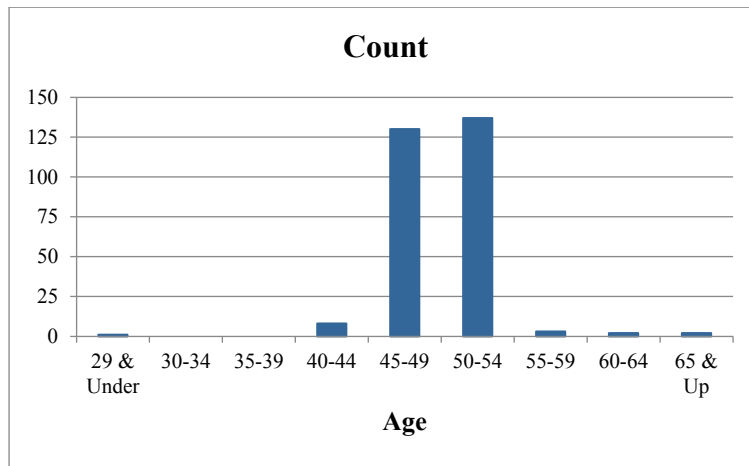
<u>Age</u>	<u>Count of Members</u>			<u>FY 2019 Annual Membership Data Salary</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
Under 50	0	0	0	\$ 0	\$ 0	\$ 0
50-54	65	4	69	3,853,609	274,201	4,127,810
55-59	267	16	283	16,790,971	1,020,051	17,811,022
60-64	168	7	175	10,858,186	463,593	11,321,779
65 & Up	<u>26</u>	<u>3</u>	<u>29</u>	<u>1,662,692</u>	<u>228,303</u>	<u>1,890,995</u>
Total	526	30	556	\$ 33,165,458	\$ 1,986,148	\$ 35,151,606





**INACTIVE VESTED MEMBERS
As of June 30, 2019 for the June 30, 2020 Valuation**

<u>Age</u>	<u>Count of Members</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>
29 & Under	1	0	1
30-34	0	0	0
35-39	0	0	0
40-44	8	0	8
45-49	122	8	130
50-54	132	5	137
55-59	3	0	3
60-64	2	0	2
65 & Up	<u>2</u>	<u>0</u>	<u>2</u>
Total	270	13	283

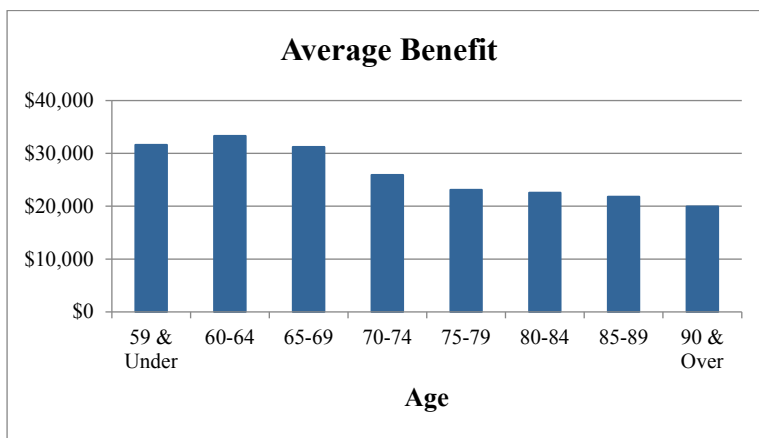
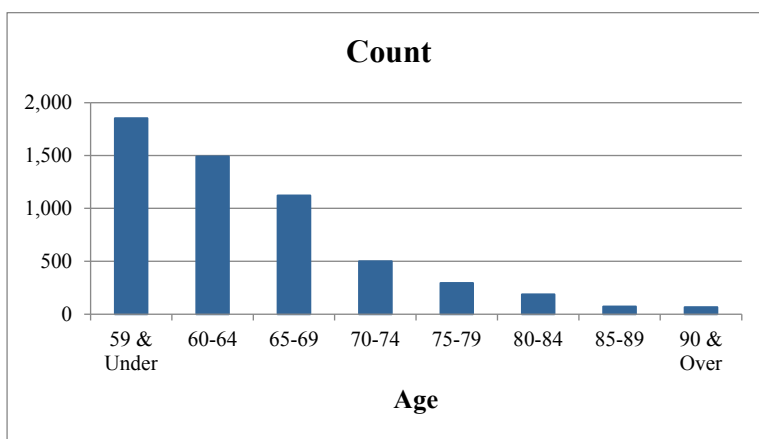




APPENDIX A – MEMBERSHIP DATA

**MEMBERS AND BENEFICIARIES RECEIVING BENEFITS
As of June 30, 2019 for the June 30, 2020 Valuation**

Age	Count of Members			Annual Benefits		
	Male	Female	Total	Male	Female	Total
59 & Under	1,496	356	1,852	\$ 49,091,815	\$ 9,430,585	\$ 58,522,400
60-64	1,293	198	1,491	44,462,035	5,168,605	49,630,640
65-69	947	175	1,122	31,167,831	3,832,327	35,000,158
70-74	369	131	500	10,581,982	2,368,183	12,950,165
75-79	186	108	294	4,995,129	1,795,925	6,791,054
80-84	119	67	186	3,134,895	1,058,974	4,193,869
85-89	30	41	71	893,820	653,991	1,547,811
90 & Over	<u>19</u>	<u>46</u>	<u>65</u>	<u>537,504</u>	<u>759,538</u>	<u>1,297,042</u>
Total	4,459	1,122	5,581	\$ 144,865,011	\$ 25,068,128	\$ 169,933,139





APPENDIX A – MEMBERSHIP DATA

MEMBERS AND BENEFICIARIES RECEIVING BENEFITS
As of June 30, 2019 for the June 30, 2020 Valuation

Schedule of Average Benefit Payments ¹

For the Year Ended June 30, 2020	Years of Credited Service						Total
	< 10	10 - 14	15 - 19	20 - 24	25 - 29	30 +	
Average Monthly Defined Benefit	\$2,040	\$2,213	\$2,121	\$2,132	\$2,795	\$3,261	\$2,537
Average Final Average Salary ²	\$44,866	\$52,021	\$50,391	\$48,647	\$51,914	\$55,065	\$51,122
Number of Benefit Recipients ³	251	252	306	2,095	1,617	1,060	5,581

Schedule of Benefit Recipients by Type of Benefit Option ¹

Amount of Monthly Benefit (in dollars)	Joint with 60% Survivor Benefits	Survivors	Disability	Total Benefit Recipients
1 - 500	0	7	0	7
501 - 1,000	2	114	20	136
1,001 - 1,500	72	392	61	525
1,501 - 2,000	409	206	174	789
2,001 - 2,500	920	71	265	1,256
2,501 - 3,000	1,096	23	181	1,300
Over 3,000	1,402	17	149	1,568
Total	3,901	830	850	5,581

¹ Calculated using the prior year census data, adjusted for certain activity during the fiscal year.

² Members with less than 20 years of service are primarily members receiving a disability benefit.

³ Excludes the 1,320 in-pay members who are missing a final average salary in the data.



**MEMBERS AND BENEFICIARIES RECEIVING BENEFITS
As of June 30, 2019 for the June 30, 2020 Valuation**

Schedule of Retirees and Beneficiaries

	<u>Added to Rolls</u>		<u>Removed from Rolls</u>		<u>Rolls - End of Year</u>		Percent Change In Total Annual Benefits ^{1,2}	Average Annual Benefit	Percent Change In Average Annual Benefit
	Number	Annual Benefits	Number	Annual Benefits	Number	Total Annual Benefits			
2020 ³	444	\$16,965	50	\$1,036	5,581	\$169,933	12.3%	\$30,449	4.4%
2019 ³	476	17,344	40	803	5,187	151,305	14.4	29,170	4.8
2018 ³	429	14,914	52	1,002	4,751	132,207	11.6	27,827	2.7
2017 ³	407	13,321	37	642	4,374	118,472	12.6	27,085	3.1
2016 ³	312	10,074	44	834	4,004	105,218	9.2	26,278	1.9
2015 ³	283	8,858	38	727	3,736	96,336	10.3	25,786	3.1
2014 ³	0	0	0	0	3,491	87,301	0.0	25,008	0.0
2013	326	10,098	43	845	3,491	87,301	13.5	25,008	4.3
2012	281	7,900	39	814	3,208	76,917	12.8	23,977	4.3
2011	218	6,179	34	609	2,966	68,179	13.2	22,987	6.2

¹ Dollar amounts are in thousands except for the average annual benefit.

² 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.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Definitions

Fiscal year	Twelve month period ending June 30.
Participation	All full-time, fully-paid police officers and firefighters who work for employers participating in the 1977 Fund and who are hired or rehired after April 30, 1977.
Member contributions	Members are assumed to contribute at the rate of 6% of salary until they have completed 32 years of service.

Eligibility for Benefits

Deferred vested	20 or more years of creditable service and no longer active.
Disability retirement	As determined by a disability medical panel.
Early retirement	Age 50 with 20 or more years of creditable service.
Normal retirement	Age 52 with 20 or more years of creditable service.
Pre-retirement death	Immediate.

Monthly Benefits Payable

Normal retirement	The retirement benefit valued is 52% of the base salary (first-class salary) of a First Class Police Officer and Firefighter with 20 years of service, plus an additional 1% for each completed 6 months of service over 20 years up to a maximum of 76% with 32 years of service.
Early retirement	Early retirement benefits are reduced by 7% per year for commencement between ages 50 and 52.
Deferred retirement	<p>If a member ends employment other than by death or disability before completing 20 years of active service, the member shall be entitled to the member's contributions plus accumulated interest. This benefit is not available to converted members.</p> <p>If termination is after earning 20 years of service, the termination benefit is the accrued retirement benefit determined as of the termination date and payable commencing of the normal retirement date. The member may elect to receive a reduced early retirement benefit.</p>



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Disability

Hired before 1990

This disability benefit is only available to members hired prior to January 1, 1990 and who do not choose to be covered by the disability benefit for members hired after 1989. The disability benefit is equal to the benefit the member would have received if the member had retired. If the member does not have 20 years of service or is not at least age 52 on the date of disability, the benefit is computed as if the member does have 20 years of service and is age 52 on the date of disability.

2017 House Enrolled Act Number 1617 Enhanced Disability:

For catastrophic physical personal injuries that result in a degree of impairment of at least 67% and permanently prevents the member from performing any gainful work, the member will receive a disability benefit equal to 100% of base salary. Additionally, the benefit is increased by the increase in the base salary.

Hired after 1989

This disability benefit is for members hired after 1989, or hired prior to January 1, 1990, who have chosen to be covered by this disability benefit. The following describes the three different classes of impairments and the amount of base benefit for each class:

Class 1 Impairment:

A personal injury that occurs while on duty, while responding to an emergency, or due to an occupational disease. The disability benefit is equal to a base benefit of 45% of base salary, plus an additional amount between 10% and 45% of this salary based on degree of impairment. The benefit is payable for life, at which time the member is entitled to a retirement benefit based on the salary and service the member would have earned had the member remained in active service.

Class 2 Impairment:

A proven duty-related disease. The disability benefit is equal to a base benefit of 22% of base salary, plus an additional 0.5% of this salary for each year of service up to a maximum of 30 years of service, plus an additional amount between 10% and 45% of this salary based on degree of impairment. If the member's total benefit is less than 30% of this salary and the member has fewer than 4 years of service, then the benefit is payable for a period equal to the years of service of the member. Otherwise, the benefit is payable for life.



Class 3 Impairment:

All other impairments that are not Class 1 or Class 2. The disability benefit is equal to a base benefit of 1% of base salary for each year of service up to a maximum of 30 years of service, plus an additional amount between 10% and 45% of this salary based on degree of impairment. If the member's total benefit is less than 30% of this salary and the member has fewer than 4 years of service, then the benefit is payable for a period equal to the years of service of the member. Otherwise, the benefit is payable until age 52, at which time the member is entitled to a retirement benefit based on 20 years of service.

2017 House Enrolled Act No. 1617 Enhanced Disability:

For catastrophic physical personal injuries that result in a degree of impairment of at least 67% and permanently prevents the member from performing any gainful work, the member will receive a disability benefit equal to 100% of base salary. Additionally, the benefit is increased by the increase in the base salary.

Pre-retirement death
Surviving spouse

If a member dies other than in the line of duty, the spouse's benefit is equal to 70% of the monthly benefit the member was receiving or was entitled to receive on the date of death.

If a member dies in the line of duty, the spouse's benefit is equal to the monthly benefit the member was receiving or was entitled to receive on the date of death.

In either case, if the member does not have 20 years of service or is not at least age 52 on the date of death, the benefit is computed as if the member does have 20 years of service and is age 52 on the date of death.

Children

A payment shall be made to each child of a deceased member equal to 20% of the member's benefit until the later of (a) the date the child becomes age 18, or (b) the date the child becomes age 23 if enrolled in a qualified school. If a child is at least 18 and is mentally or physically incapacitated, the child is entitled to an amount equal to the greater of 30% of the base salary, or 55% of the member's benefit payable for the duration of the incapacity. If the member does not have 20 years of service or is not at least age 52 on the date of death, the benefit is computed as if the member does have 20 years of service and is age 52 on the date of death.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Dependent parents	If a deceased member leaves no surviving spouse and no qualified child but does leave a dependent parent or parents, an amount equal to 50% of the member's benefit shall be paid to the parent or parents jointly during their lifetime. If the member does not have 20 years of service or is not at least age 52 on the date of death, the benefit is computed as if the member does have 20 years of service and is age 52 on the date of death.
No spouse or dependent	If a deceased member leaves no surviving spouse, no qualified dependent child, nor a dependent parent, a refund of the member's contributions plus accumulated interest will be made to the member's estate.
Additional death benefits	A funeral death benefit is paid to the heirs or estate upon the member's death from any cause and is equal to at least \$12,000. An additional death benefit of \$150,000 is paid from the Pension Relief Fund to a surviving spouse, children, or parent(s) if death occurs in the line of duty.
Deferred retirement option plan (“DROP”)	<p>The DROP is an optional form of benefit, which allows members who are eligible for an unreduced retirement benefit to continue to work and earn a salary while accumulating a DROP benefit payable in a lump sum or three annual installments. A member who elects to enter the DROP shall execute an irrevocable election to retire on the DROP retirement date. The member shall select a DROP retirement date not less than 12 months and not more than 36 months after the member’s DROP entry date. While in the DROP, the member shall continue to make applicable fund contributions.</p> <p>When a member enters the DROP, a “DROP frozen benefit” will be calculated. This is equal to the member's monthly retirement benefit based on accrued service and base salary as of the date member enters the DROP. Upon DROP retirement, the member is eligible to receive a lump sum equal to the amount of the DROP frozen benefit multiplied by the number of months in the DROP. You may elect to receive this amount in three annual installments instead of in a single lump sum. In addition, the member will receive a monthly retirement benefit equal to the DROP frozen benefit. The member will not continue to accrue service credit for the years in the DROP. Cost of living adjustments will not apply to the frozen monthly benefit while in the DROP. The cost of living adjustments will begin to be applied to the frozen monthly benefit, however, in the year after the year in which the member retires.</p>



APPENDIX B – SUMMARY OF PLAN PROVISIONS

If the member elected to participate in the DROP, the member may, upon retirement, elect to forego DROP benefits, and instead receive monthly retirement benefits calculated as if the member never elected to participate in the DROP. These benefits would be based on accrued service and base salary as of the date the member retires.

Cost-of-Living-Adjustments

Benefits for retired members are increased annually based on increases in the CPI-U index. The increase is subject to a 3% maximum and 0% minimum.

Forms of payment

a. Single life annuity

Member will receive a monthly benefit for life, but there are no monthly payments to anyone after death.

b. Joint with 70% survivor benefits

Member will be paid a monthly benefit for life. After death, 70% of the benefit will be paid to the spouse or parent for their lifetime or the dependent until age 18.

Changes in Plan Provisions since the Prior Year

None.



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 closed 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. 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 an open 30-year period with level payments each year. 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 from 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, 2019 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30, 2019 and June 30, 2020. The valuation results from June 30, 2019 were rolled-forward to June 30, 2020 to reflect benefit accruals during the year less benefits paid.

2. Asset Valuation Method

The Actuarial Value of Assets smoothes the recognition of gains and losses on the Market Value of Assets over five years, subject to a 20% corridor.

3. Employer Contribution Rate

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 rate.

4. Anticipated Payroll

The anticipated payroll for the fiscal year following the valuation date is equal to the actual payroll during the year ending on the valuation date, increased with one year of salary scale.

Changes in Methods since the Prior Year – None



APPENDIX C – SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

ACTUARIAL ASSUMPTIONS

Valuation Date June 30, 2020

Economic Assumptions

- 1. Investment return 6.75% per year, compounded annually (net of administrative and investment expenses)
- 2. Inflation 2.25% per year
- 3. Salary increase 2.75% per year
- 4. Interest on member balances 3.50% per year
- 5. Cost-of-Living Adjustment (COLA) 2.1% compounded annually, beginning July 1, 2021. Actual COLA increases at July 1, 2019 (1.6%) and July 1, 2020 (2.1%) are reflected in the valuation. For benefits paid under the 2017 House Enrolled Act No. 1617, the annual cost-of-living assumption is 2.75%, which is the same as the salary increase assumption for active members.

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* – Safety Employee table with a 3 year set forward for males and no set forward for females.
 - Retirees* – Safety Retiree table with a 3 year set forward for males and no 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.

2. Disability

Age	Sample Rates
<=30	0.100%
35	0.200%
40	0.300%
45	0.400%
50+	0.500%

Rates for ages 30-50 increase by 0.02% per year.



APPENDIX C – SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

3. Retirement

Retirement Rate		Of those who retire:		
Age	Rate	Service	Enter DROP	Commence Immediately
50-51	5.0%	<=20	35%	65%
52-55	15.0%	21	40%	60%
56-58	20.0%	22	45%	55%
59	22.5%	23	50%	50%
60-64	25.0%	24-26	55%	45%
65-69	50.0%	27	60%	40%
70+	100.0%	28	65%	35%
		29+	70%	30%

Active members who elect to enter DROP are assumed be in DROP for a period of 3 years, upon which time they take the full lump sum and commence their annuity benefit.

Inactive vested members are assumed to commence their retirement benefit at their earliest eligible retirement date (age 50, or current age if greater).

4. Termination

Years of Service	Rate
0	10.0%
1	5.0%
2	4.0%
3-4	3.5%
5	2.5%
6-8	2.0%
9-11	1.5%
12-19	1.0%
20+	2.0%

Other Assumptions

1. Form of payment

Members are assumed to elect either a single life annuity or a 70% joint survivor benefit based on the marriage assumptions below.

2. Marital status

a. Percent married

80% of male members and 60% of female members are assumed to be married 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.



APPENDIX C – SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

3. Decrement timing	Decrements are assumed to occur at the beginning of the year.
4. Members in DROP	Members who are participating in the DROP are assumed to receive an annuity benefit commencing at the end of their DROP period, as well as a lump sum payment equal to the number of years they were in the DROP times their annual annuity benefit.
5. Active member death	20% are assumed to be in the line of duty and 80% are other than in the line of duty.
6. Active member disability retirement	<p>For members hired after 1989 who become disabled: 59% are assumed to be Class 1, 10% are assumed to be Class 2, 30% are assumed to be Class 3, and 1% are assumed to be a catastrophic disability (HEA 1617).</p> <p>The additional monthly amount determined under IC 36-8-8-13.5(f) based on the degree of impairment is assumed to be 17%.</p> <p>For members hired before 1989 who become disabled: 99% are assumed to be a non-catastrophic disability, and 1% are assumed to be a catastrophic disability (HEA 1617).</p>

Changes in Assumptions since the Prior Year

As a result of the 2014-2019 Experience Study, there were changes to many assumptions. Please see that Study for complete details (available on the INPRS web site).

Data Adjustments

Active and retired member data is reported as of June 30. Member census data as of June 30, 2019 was used in the valuation and adjusted. Standard actuarial roll-forward techniques were then used to project the liability computed as of June 30, 2019 to the June 30, 2020 valuation date. The normal cost rate is assumed to remain unchanged between June 30, 2019 and June 30, 2020.

The member total payroll and the asset information for this valuation were furnished as of June 30, 2020. Total payroll in FYE 2021 is assumed to increase by the salary growth assumption over the total payroll observed for FYE 2020. 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.



TECHNICAL VALUATION PROCEDURES

Other 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, except those due a refund of contributions.



APPENDIX D – GLOSSARY OF ACTUARIAL TERMS

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	<p>The difference between actuarial liability and the actuarial value of assets. Sometimes referred to as “unfunded accrued liability” or “unfunded liability”.</p> <p>Most retirement plans have unfunded actuarial liability. They arise anytime new benefits are added and anytime an actuarial loss is realized.</p>