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Indiana Public Retirement System

1977 Police Officers' and Firefighters' Retirement Fund

Actuarial Valuation as of
June 30, 2017



November 8, 2017

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

Re: Certification of the Actuarial Valuations of the Indiana Public Retirement System as of June 30, 2017

Dear Board of Trustees:

Actuarial valuations are performed annually as required under statute for the Indiana Public Retirement System ("INPRS") defined benefit pension plans. The results of the June 30, 2017 actuarial valuations for all plans other than the Teachers' Retirement Fund are presented in individual valuation reports pursuant to the engagement letter between INPRS and PricewaterhouseCoopers LLP ("PwC"). These plans (the "Plans") include:

- Public Employees' Retirement Fund
- 1977 Police Officers' and Firefighters' Retirement Fund
- Judges' Retirement System
- Excise, Gaming and Conservation Officers' Retirement Fund
- Prosecuting Attorneys' Retirement Fund
- Legislators' Defined Benefit Fund

The reports are intended to provide the Board of Trustees ("Board") and INPRS staff with information on the funded status of the Plans, development of the contribution rates, and certain financial statement disclosure information. The reports are intended for the sole use and benefit of the Board, and are not intended for reliance by other persons.

For accounting purposes, the actuarial assumptions and methods used in the June 30, 2017 valuations were selected and approved by the Board, and are in accordance with our understanding of GASB No.67.

For funding purposes, employer contribution rates and amounts, as applicable, are adopted annually for each Plan by the Board, per Indiana statutes. The contributions are actuarially determined based on the funding policy, actuarial assumptions, and actuarial methods selected and approved by the Board. Contributions determined by the actuarial valuation become effective either twelve or eighteen months after the valuation date, depending on the applicable participating employer. Therefore, contribution rates and amounts determined by the June 30, 2017 actuarial valuation and adopted by the Board will become effective on either July 1, 2018 or January 1, 2019. If new legislation is enacted between the valuation date and the date the contributions become effective, the Board may adjust the recommended contributions before adopting them, in order to reflect this new legislation. Such adjustments are based on information supplied by the actuary.

Financing Objectives and Funding Policy

In setting contribution levels, the Board's principal objectives have been:

- To set contributions such that the unfunded actuarial accrued liability ("UAAL") of plans that are open to new entrants will be amortized over a period not greater than 20 years for any UAAL arising since June 30, 2015, and 30 years for any UAAL that arose on or before June 30, 2015. For plans that are closed to new entrants, the UAAL will be amortized over a period not greater than 5 years.
- To set contributions that remain stable over time as determined by the Board.

To accomplish this, the Board's funding policy requires that employer contributions be equal to the sum of the employer normal cost (which pays the current year cost of benefits accruing) and an amortization of the UAAL in equal installments.

Progress Toward Realization of Financing Objectives

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a Plan's funded status. In the absence of benefit improvements and/or adverse experience it should increase over time, until it reaches 100% if contributions equal or exceed the actuarially determined amount. The combined funded ratio for all Plans (excluding the Teachers' Retirement Fund) remains at 84.6%, primarily due to contributions exceeding the actuarially determined amounts and cost-of-living adjustments being less than assumed, offset by the delayed recognition (i.e. smoothing) of favorable investment returns, plan changes, assumption changes, and adverse member experience.



Benefit Provisions

The benefit provisions reflected in the valuation reports are those which were in effect at June 30, 2017, as set forth in Indiana statutes. There were no material changes in benefit provisions since the 2016 valuations except for the following:

- PERF: Per INPRS, ASA annuitizations will be accommodated through a third party annuity provider beginning January 1, 2018, compared to the previously effective date of April 1, 2017.
- 1977 Fund: Per 2017 House Enrolled Act No. 1617, a member who experiences a catastrophic physical personal injury in the line of duty will receive an enhanced disability retirement benefit.
- PARF: Per Senate Enrolled Act No. 265, the PERF benefit offset reflected in the PARF benefit formula was changed to be the actual PERF benefit amount the member is receiving for members who commence their PERF benefit before their PARF benefit.

Assets and Member Data

The valuations were based on asset values of the trust funds as of June 30, 2017 and member census data as of June 30, 2016, adjusted for certain activity during fiscal year 2017 where applicable. All asset information and member data were provided by INPRS and INPRS takes responsibility for the accuracy and completeness of the information provided. While certain checks for reasonableness were performed, the data was used unaudited. The accuracy of the results presented in the reports is dependent upon the accuracy and completeness of the underlying asset and census information.

Actuarial Assumptions and Methods

The actuarial assumptions were adopted by the Board pursuant to an experience study completed in April 2015, which reflected the experience period from July 1, 2010 through June 30, 2014, as well as data from earlier studies. The actuarial assumptions used in the June 30, 2017 valuations were the same assumptions used in the 2016 valuations, except for the mortality assumption for disabled members. The RP-2014 (with MP-2014 improvement removed) Disability Mortality Table was assumed instead of the RP-2014 (with MP-2014 improvement removed) Healthy Annuitant Mortality Tables with collar adjustments. Other minor assumption changes and refinements were made pursuant to the actuarial audit completed since the prior year and are summarized in the report.

The June 30, 2017 valuations incorporate member census data as of June 30, 2016, adjusted for certain activity during fiscal year 2017. The valuation results from June 30, 2016 were rolled-forward to June 30, 2017 to reflect benefit accruals during the year less benefits paid.

The actuarial assumptions and methods are summarized in the Actuarial Assumptions and Methods section of each valuation report. We believe the actuarial assumptions and methods are reasonable for the purposes of the valuation reports and comply with the parameters set forth in Statements No. 67 and No. 68 of the Governmental Accounting Standards Board ("GASB"). Different assumptions and methods may be reasonable for other purposes. As such, the results presented in the valuation reports should only be relied upon for the intended purposes stated therein by the intended parties.

Certification

We certify that the information presented herein is accurate and fairly portrays the actuarial position of each Plan administered by INPRS (other than the Teachers' Retirement Fund) as of June 30, 2017, based on the underlying census data and asset information provided by INPRS and the selected assumptions and methods. This information is presented in several schedules and exhibits in this report, including the following:

Financial Section:

- Note 1 - Tables of Plan Membership (Included in the Historical Summary)
- Note 7 - Net Pension Liability and Actuarial Information - Defined Benefit Plans (Included in the Accounting Section)
- Schedule of Changes in Net Pension Liability and Plan Fiduciary Net Position
- Schedule of Contributions (Actuarially Determined Contribution)
- Schedule of Notes to Required Supplementary Information

Actuarial Section:

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

Statistical Section:

- Membership Data Summary (Included in the Historical Summary)
- Ratio of Active Members to Annuitants (Census Counts Included in the Historical Summary)
- Schedule of Benefit Recipients by Type of Benefit Option
- Schedule of Average Benefit Payments



Subject to reliance on the data provided, all estimates are based on information available as of a point in time and are subject to ongoing unforeseen and random events. As such, any reported results must be viewed as having a likely range of variability from the estimate, both up and down. Differences between our estimates and actual results depend on the extent to which future experience conforms to the assumptions made for this analysis. It is certain that actual experience will not conform exactly to the assumptions used in this analysis. Although estimated amounts have not been rounded, no inference should be made regarding the precision of such results.

A range of results, different from those presented in this report could be considered reasonable. Future actuarial measurements may differ significantly from the current measurement presented in this report due to a number of factors including but not limited to: plan experience differing from that anticipated by the economic and demographic assumptions; increases or decreases expected as part of the natural operation of the methods 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); rounding conventions; and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.

To the best of our knowledge our actuarial reports are complete and accurate and have been prepared in accordance with generally accepted actuarial principles and practice and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with our understanding of the requirements of Indiana state law. The undersigned actuaries are members of the Society of Actuaries and other professional organizations, including the American Academy of Actuaries, and meet the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States relating to pension plans. There is no relationship between the PwC practitioners involved in this engagement and INPRS that may impair our objectivity.

Respectfully submitted,

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The content of this document is limited to the matters specifically addressed herein and does not address any other potential tax consequences, or the potential application of tax penalties, to any matter other than as set forth herein. Our conclusions are not binding upon any taxing authority or the courts and there is no assurance that any relevant taxing authority will not successfully assert a contrary position. In addition, no exceptions (including the reasonable cause exception) are available for any federal or state penalties imposed if any portion of a transaction is determined to lack economic substance or fails to satisfy any similar rule of law, and our advice will not protect you from any such penalties. This document supersedes all prior written or oral advice with respect to the issues addressed in this document and all such prior communications should not be relied upon by any person for any purpose.

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SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT

This report presents the results of the actuarial valuation of the 1977 Police Officers' and Firefighters' Retirement Fund (the "1977 Fund") and has been prepared to present the current funded status of the Plan, contribution requirements for calendar year 2019 (January 1, 2019 through December 31, 2019), and certain financial statement disclosure information. The valuation was performed using census data for plan members as of June 30, 2016, adjusted for certain activity during fiscal year 2017 as applicable, as provided by INPRS and summarized in Section IV, asset information as of June 30, 2017 provided by INPRS, the actuarial assumptions and methods approved by the Board and summarized in Section V, and the plan provisions effective June 30, 2017 and summarized in Section VI.

Contribution Rate

The Board sets, at its discretion, the applicable employer contribution rate upon considering the results of the actuarial valuation and other analysis as appropriate. The Board has approved an employer contribution rate of 17.5% for calendar year 2019. The contribution rate becomes effective on January 1, 2019. Therefore, the actual dollar amount of employer cost will depend on the actual payroll during calendar year 2019. The approved rate exceeds the actuarially determined contribution rate for calendar year 2019 of 8.86%.

Members of the 1977 Fund contribute 6% of the compensation of a first class officer during their first 32 years of service. However, the employer may elect to "pick-up" all or part of the employee contribution. If a member terminates employment with less than 20 years of service, the accumulated contributions with interest can be withdrawn as a lump sum or the member may direct the 1977 Fund to make a direct rollover of the distribution amount. When a member becomes vested with at least 20 years of service, the member's account balance may not be refunded and is instead combined with the employer contributions in order to fund the member's future retirement annuity benefit.

Funded Status

The funded status of the 1977 Fund is measured by the funded ratio, which is the ratio of the assets available for benefits to a benefit liability measure for the 1977 Fund. While there are several such measures that could be appropriately used, the benefit liability measure that ties most closely to INPRS's funding strategy is the Actuarial Accrued Liability ("AAL").

Using the Actuarial Value of Assets ("AVA"), an asset value that smoothest the market gains and losses over four (5) years, the 1977 Fund AAL funded ratio decreased from 104.3% at June 30, 2016 to 103.7% at June 30, 2017. The decrease is primarily due to census experience losses resulting from salary and cost-of-living increases being higher than assumed. The net effect of other experience, assumption changes, and plan changes was largely offsetting.

Investment Experience

For the fiscal year ending June 30, 2017, the INPRS actual time-weighted return net of fees was 7.9%. Based on the value of assets allocated to the 1977 Fund as of the prior valuation date and contribution and benefit payment activity during the year, the allocation of returns to the 1977 Fund represent a return of approximately 8.0% on market value and 5.3% on actuarial value. The return on actuarial value is different due to the smoothing of returns greater or less than expected returns over five years.

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)

Cost-of-Living Adjustment

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, and is assumed to be 2.0% annually. There was a 2.5% increase in monthly benefits provided to retired members, disabled members, and beneficiaries effective July 1, 2017. There was a 1.1% increase in monthly benefits provided to retired members, disabled members, and beneficiaries effective July 1, 2016.

Changes in Actuarial Assumptions

For disabled members, the mortality assumption is updated from the RP-2014 (with MP-2014 improvement removed) Blue Collar Mortality tables to the RP-2014 (with MP-2014 improvement removed) Disability Mortality tables.

1% of the members who become disabled are assumed to sustain a catastrophic disability and receive the enhanced disability benefit (100% of salary) added by 2017 House Enrolled Act No. 1617.

Changes in Plan Provisions

Per 2017 House Enrolled Act No. 1617, a member who experiences a catastrophic physical personal injury in the line of duty will receive an enhanced disability retirement benefit. See Section VI for further details.

Changes in Actuarial Methods

There were no method changes for the June 30, 2017 valuation.

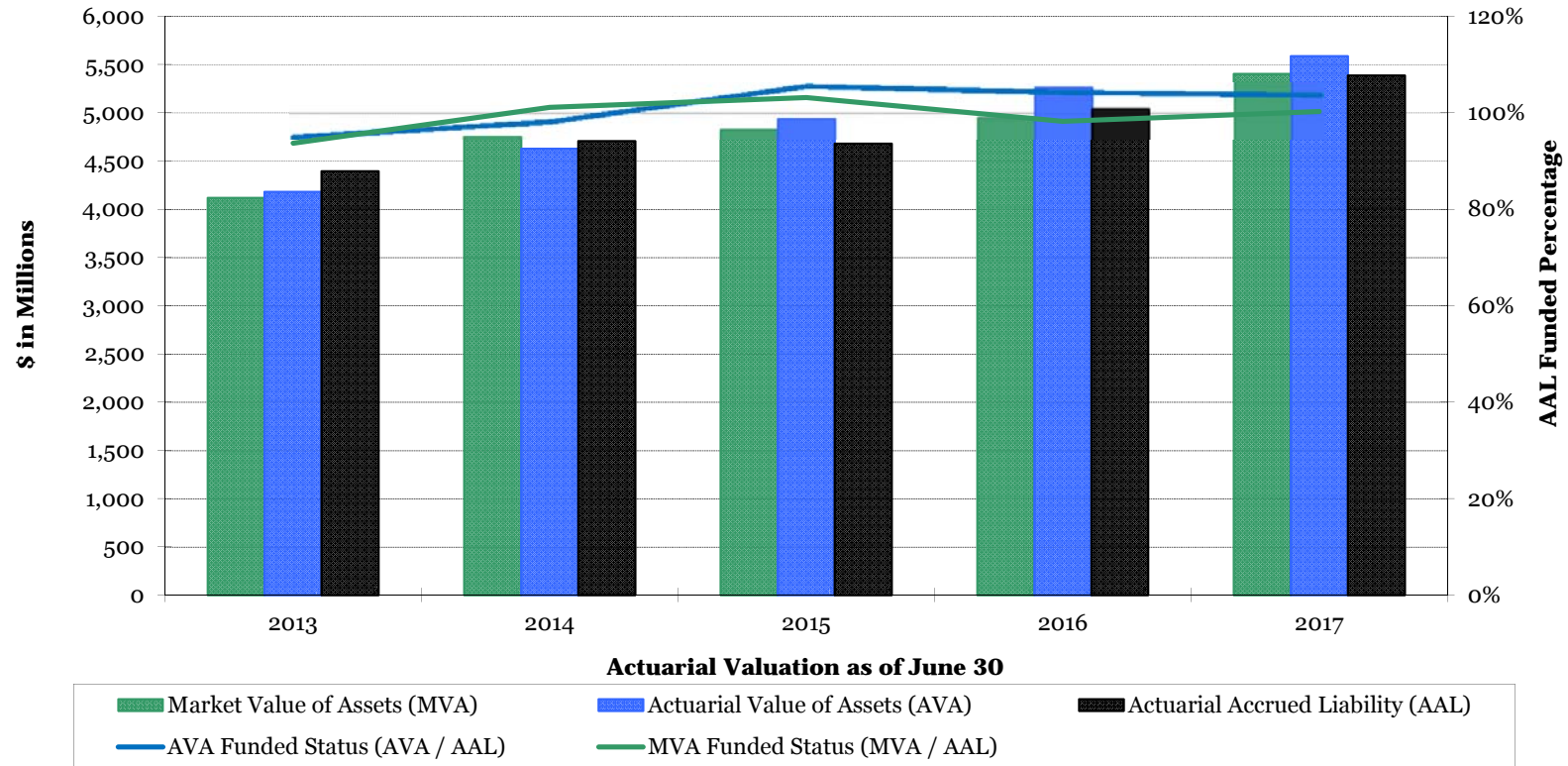
Actuarial Audit

Since the prior actuarial valuation, a comprehensive review of our valuation procedures was performed by a third-party actuarial consulting firm, Nyhart. The results and recommendations from their review, as documented in their report dated March 7, 2017, have been reflected in this valuation and consist of very minor updates to our valuation assumption and methods. The impact on this valuation is shown in Section II.

Governmental Accounting Standards

This report contains certain financial statement information, including notes and required supplemental information, prepared in accordance with our understanding of Governmental Accounting Standards No. 67 and No. 68 ("GASB 67" and "GASB 68") in order to assist INPRS with its financial report requirements and to assist INPRS in preparing financial reporting information for participating employers.

SECTION I - EXECUTIVE SUMMARY

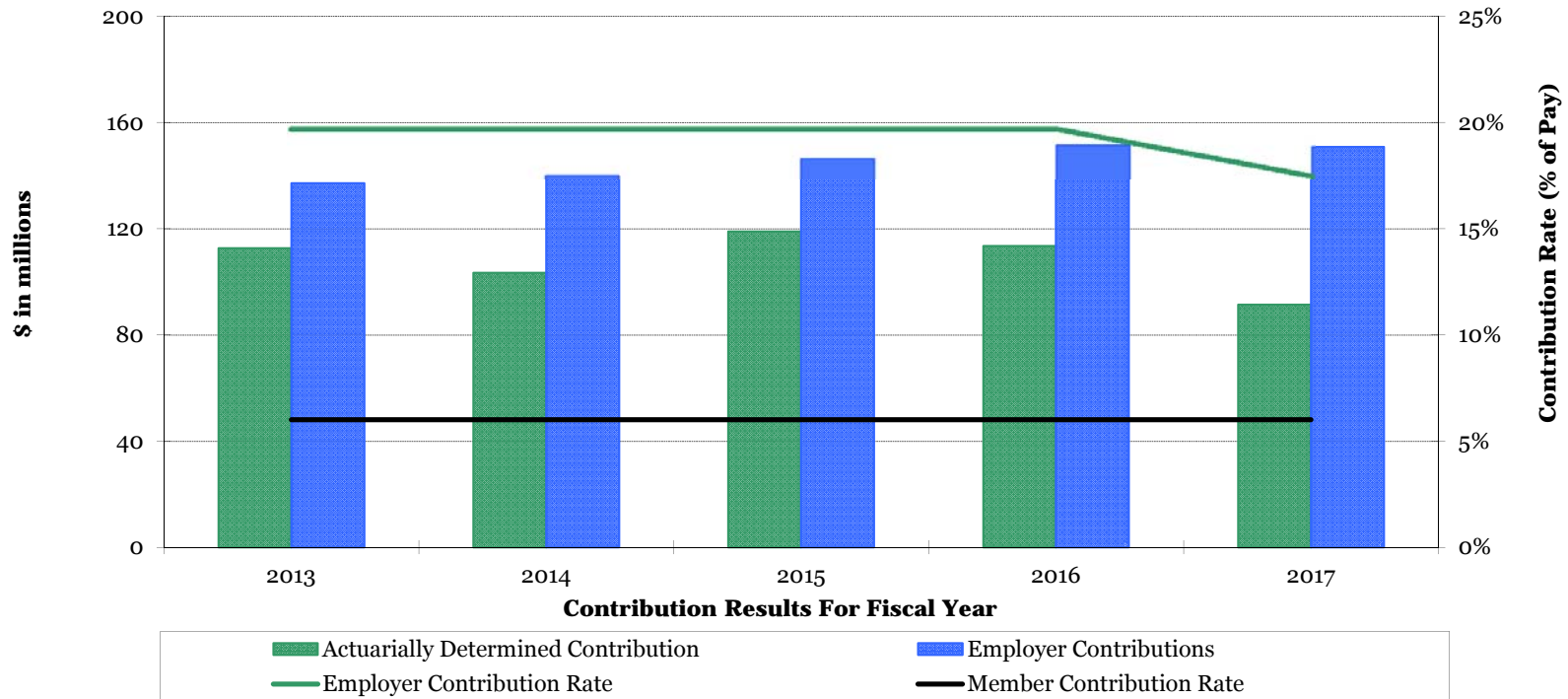


Actuarial Valuation as of June 30:	2013	2014	2015	2016	2017
Actuarial Accrued Liability (AAL)	\$4,392.9	\$4,707.0	\$4,680.7	\$5,039.8	\$5,385.8
Actuarial Value of Assets (AVA)	4,180.7	4,625.5	4,939.3	5,255.2	5,587.6
Market Value of Assets (MVA)	4,116.9	4,758.0	4,828.4	4,951.0	5,401.2
Unfunded Liability (AAL - AVA)	212.2	81.5	(258.6)	(215.4)	(201.8)
AVA Funded Status (AVA / AAL)	95.2%	98.3%	105.5%	104.3%	103.7%
MVA Funded Status (MVA / AAL)	93.7%	101.1%	103.2%	98.2%	100.3%

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

1977 Fund – 5 Year History of Contributions



Contribution Results For Fiscal Year:	2013	2014	2015	2016	2017
Actuarially Determined Contribution ¹	\$112.6	\$103.4	\$118.9	\$113.4	\$91.3
Employer Contributions ²	\$137.1	\$140.1	\$146.4	\$151.3	\$150.7
ADC% Contributed	121.8%	135.5%	123.1%	133.4%	165.1%
Employer Contribution Rate ³	19.7%	19.7%	19.7%	19.7%	17.5%
Member Contribution Rate ⁴	6.0%	6.0%	6.0%	6.0%	6.0%

¹ The ADC amount is based on the ADC Rates in effect during the fiscal year, multiplied by actual payroll for the fiscal year.

² Excludes employer service purchases.

³ Rates shown are those in effect on January 1 during the fiscal year.

⁴ Members contribute 6% of pay to the Fund during their first 32 years of service.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Summary of Valuation Results¹

<u>Valuation Date</u>	<u>June 30, 2013</u>	<u>June 30, 2014</u>	<u>June 30, 2015</u>	<u>June 30, 2016</u>	<u>June 30, 2017</u>
Development of Actuarially Determined Contribution Rate:					
1. Anticipated Payroll ²	\$ 706,603,233	\$ 734,023,680	\$ 764,214,642	\$ 791,508,489	\$ 829,736,440
2. Normal Cost (Beginning of Year)					
a. Amount	\$ 133,074,656	\$ 138,204,281	\$ 129,369,091	\$ 134,489,476	\$ 136,640,454
b. Percentage of Payroll	18.83%	18.83%	16.93%	16.99%	16.47%
3. Unfunded Actuarial Accrued Liability Annual Amortizations					
a. Amount	\$ 16,255,805	\$ 6,857,014	\$ (19,036,586)	\$ (15,855,710)	\$ (14,853,122)
b. Percentage of Payroll	2.30%	0.93%	(2.49%)	(2.00%)	(1.79%)
4. Expected Employee Contributions ³					
a. Amount	\$ 40,636,183	\$ 42,213,980	\$ 45,065,879	\$ 46,206,515	\$ 48,282,334
b. Percentage of Payroll	5.75%	5.75%	5.90%	5.84%	5.82%
5. Actuarially Determined Contribution Rate:					
a. Percentage of Payroll: (2)(b) + (3)(b) - 4(b)	15.38%	14.01%	8.54%	9.15%	8.86%
b. Effective Date	January 1, 2015	January 1, 2016	January 1, 2017	January 1, 2018	January 1, 2019
<u>Calendar Year</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Approved Funding Rate	19.7%	19.7%	17.5%	17.5%	17.5%

¹ The contribution rates shown were developed on a funding basis only and do not reflect accounting requirements

² For the 1977 Fund, payroll is the applicable first class officer pay for each member.

³ Only members with less than 32 years of service contribute to the plan. Current payroll for active members with less than 32 years of service as of June 30, 2016 is \$804,705,574.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Summary of Valuation Results (Continued)¹

	<u>June 30, 2013</u>	<u>June 30, 2014</u>	<u>June 30, 2015</u>	<u>June 30, 2016</u>	<u>June 30, 2017</u>
Census Information					
Active					
Number	13,287	13,295	13,390	13,506	13,587
Average Age	41.9	41.9	42.1	42.2	42.2
Average Years of Service	14.4	14.4	14.7	14.6	14.6
Anticipated Payroll of Actives ²	\$ 706,603,233	\$ 734,023,680	\$ 764,214,642	\$ 791,508,489	\$ 829,736,440
Inactive - Vested					
Number	129	129	155	186	195
Average Age	49.9	49.9	50.0	50.3	49.6
Average Years of Service	22.6	22.6	22.7	23.2	22.6
Inactive - Non-Vested ³					
Number	796	796	822	933	1,005
Retiree/Beneficiary/Disabled					
Number	3,491	3,491	3,736	4,004	4,374
Average Age	61.7	61.7	62.2	62.3	62.6
Annual Benefits Payable ⁴	\$ 87,301,272	\$ 87,301,272	\$ 96,335,985	\$ 105,218,382	\$ 118,471,604

¹ The valuation results beginning as of June 30, 2014 were calculated using census data as of the prior year end, adjusted for certain activity during the current fiscal year.

² For the 1977 Fund, payroll is the applicable first class officer pay for each member. Figures shown are the anticipated pay for the one-year period following the valuation date.

³ As of June 30, 2016, inactive non-vested members entitled to a refund of their member contributions totaling \$11,027,082.

⁴ Figures shown reflect cost-of-living increases effective July 1 following the date of the census data.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Summary of Valuation Results (Continued)

	<u>June 30, 2013</u>	<u>June 30, 2014</u>	<u>June 30, 2015</u>	<u>June 30, 2016</u>	<u>June 30, 2017</u>
Actuarial Accrued Liability (AAL)					
Member Contribution Balance	\$ 782,124,168	\$ 809,877,043	\$ 832,760,403	\$ 843,627,868	\$ 857,425,831
Retiree/Beneficiary/Disabled	1,288,456,658	1,280,920,387	1,362,021,464	1,532,935,648	1,715,503,632
Active and Inactive	<u>2,322,366,151</u>	<u>2,616,200,032</u>	<u>2,485,912,578</u>	<u>2,663,272,471</u>	<u>2,812,823,677</u>
Total	\$ 4,392,946,977	\$ 4,706,997,462	\$ 4,680,694,445	\$ 5,039,835,987	\$ 5,385,753,140
Actuarial Value of Assets (AVA)					
Member Contribution Balance	\$ 782,124,168	\$ 809,877,043	\$ 832,760,403	\$ 843,627,868	\$ 857,425,831
Retiree/Beneficiary/Disabled	1,288,456,658	1,280,920,387	1,362,021,464	1,532,935,648	1,715,503,632
Active and Inactive	<u>2,110,122,792</u>	<u>2,534,677,540</u>	<u>2,744,548,162</u>	<u>2,878,691,926</u>	<u>3,014,621,734</u>
Total	\$ 4,180,703,618	\$ 4,625,474,970	\$ 4,939,330,029	\$ 5,255,255,442	\$ 5,587,551,197
Market Value of Assets (MVA)					
Member Contribution Balance	\$ 782,124,168	\$ 809,877,043	\$ 832,760,403	\$ 843,627,868	\$ 857,425,831
Retiree/Beneficiary/Disabled	1,288,456,658	1,280,920,387	1,362,021,464	1,532,935,648	1,715,503,632
Active and Inactive	<u>2,046,280,295</u>	<u>2,667,180,355</u>	<u>2,633,632,694</u>	<u>2,574,435,549</u>	<u>2,828,249,073</u>
Total	\$ 4,116,861,121	\$ 4,757,977,785	\$ 4,828,414,561	\$ 4,950,999,065	\$ 5,401,178,536
Unfunded Actuarial Accrued Liability: AAL - AVA ¹					
Member Contribution Balance	\$ -	\$ -	\$ -	\$ -	\$ -
Retiree/Beneficiary/Disabled	-	-	-	-	-
Active and Inactive	<u>212,243,359</u>	<u>81,522,492</u>	<u>(258,635,584)</u>	<u>(215,419,455)</u>	<u>(201,798,057)</u>
Total	\$ 212,243,359	\$ 81,522,492	\$ (258,635,584)	\$ (215,419,455)	\$ (201,798,057)
Funded Percentage: AVA / AAL ¹					
Member Contribution Balance	100.0%	100.0%	100.0%	100.0%	100.0%
Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Active and Inactive	<u>90.9%</u>	<u>96.9%</u>	<u>110.4%</u>	<u>108.1%</u>	<u>107.2%</u>
Total	95.2%	98.3%	105.5%	104.3%	103.7%
Summary of Assumptions					
Valuation Interest Rate	6.75%	6.75%	6.75%	6.75%	6.75%
Salary Scale	3.25%	3.25%	2.50%	2.50%	2.50%
Cost-of-Living Assumption	2.25%	2.25%	2.00%	2.00%	2.00%

¹ For purposes of this summary, in determining the unfunded actuarial accrued liability and funded percentage, the assets are allocated first to member contribution balances, then to the retiree/beneficiary/disabled liability, and then to the active/inactive liability.

SECTION II - FUNDING

FUNDING

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SECTION II - FUNDING

A. Development of Funded Status

	June 30, 2016	June 30, 2017
1. Actuarial Accrued Liability		
a. Member Contribution Account	843,627,868	857,425,831
b. Retirees, Beneficiaries, and Disableds	1,532,935,648	1,715,503,632
c. Actives and Inactives	2,663,272,471	2,812,823,677
d. Total: (1)(a) + (1)(b) + (1)(c)	\$ 5,039,835,987	\$ 5,385,753,140
2. Actuarial Value of Assets ¹		
a. Member Contribution Account	843,627,868	857,425,831
b. Retirees, Beneficiaries, and Disableds	1,532,935,648	1,715,503,632
c. Actives and Inactives	2,878,691,926	3,014,621,734
d. Total: (2)(a) + (2)(b) + (2)(c)	\$ 5,255,255,442	\$ 5,587,551,197
3. Unfunded Actuarial Accrued Liability ¹		
a. Member Contribution Account: (1)(a) - (2)(a)	-	-
b. Retirees, Beneficiaries, and Disableds: (1)(b) - (2)(b)	-	-
c. Actives and Inactives: (1)(c) - (2)(c)	(215,419,455)	(201,798,057)
d. Total: (1)(d) - (2)(d)	\$ (215,419,455)	\$ (201,798,057)
4. Funded Percentage ¹		
a. Member Contribution Account: (2)(a) / (1)(a)	100.0%	100.0%
b. Retirees, Beneficiaries, and Disableds: (2)(b) / (1)(b)	100.0%	100.0%
c. Actives and Inactives: (2)(c) / (1)(c)	108.1%	107.2%
d. Total: (2)(d) / (1)(d)	104.3%	103.7%

¹ For purposes of this summary, in determining the unfunded actuarial accrued liability and funded percentage, the assets are allocated first to member contribution balances, then to the retiree/beneficiary/disabled liability, and then to the active/inactive liability.

SECTION II - FUNDING

B. Unfunded Actuarial Accrued Liability Reconciliation

1. June 30, 2016 Unfunded Actuarial Accrued Liability	\$	(215,419,455)
2. Normal Cost		134,489,476
3. Actuarially Determined Contribution (Employer and Member)		118,633,766
4. Interest of 6.75% on (1) + (2) - (3)		<u>(13,470,553)</u>
5. Expected June 30, 2017 Unfunded Actuarial Accrued Liability (1) + (2) - (3) + (4)	\$	(213,034,298)
6. Actuarial Value of Assets Experience (Gain)/Loss		
a. Investment Experience	\$	89,383,569
b. Contribution and Payroll Experience		(89,479,632)
7. Actuarial Accrued Liability Experience (Gain)/Loss		
a. Actuarial Accrued Liability Experience	\$	24,031,202
b. Additional Liability Due to Actuarial Audit Changes ¹		16,710,006
c. Additional Liability Due to Cost-of-living Adjustments ²		9,377,502
d. Additional Liability Due to Changes in Actuarial Assumptions ³		(40,109,431)
e. Additional Liability Due to Changes in Plan Provisions ⁴		<u>1,323,025</u>
8. Total Experience (Gain)/Loss (6)(a) + (6)(b) + (7)(a) + (7)(b) + (7)(c) + (7)(d) + (7)(e)	\$	11,236,241
9. Actual June 30, 2017 Unfunded Actuarial Accrued Liability (5) + (8)	\$	(201,798,057)

¹ As a result of the actuarial audit that was completed during the plan year, minor updates were made to the valuation of liabilities. The updates include applying IRC Section 415 limits to all benefits, refining the mortality rates used in the valuation to properly reflect the RP-2014 (with MP-2014 improvement removed) Blue Collar Mortality tables, updating the retirement rates to properly reflect the April 2015 experience study, and updating the salary scale assumption from 3.25% to 2.50% that is used for the Class III disability benefit.

² A Cost-of-Living Adjustment (COLA) of 2.5% was effective as of July 1, 2017, rather than the assumed COLA of 2.0%.

³ For disabled members, the RP-2014 (with MP-2014 improvement removed) Disability Mortality tables are assumed instead of the RP-2014 (with MP-2014 improvement removed) Blue Collar Mortality tables.

⁴ Per 2017 House Enrolled Act No. 1617, a member who experiences a catastrophic physical personal injury in the line of duty will receive an enhanced disability retirement benefit. See Section VI for further details.

SECTION II - FUNDING

C. Actuarial Accrued Liability Reconciliation

1. June 30, 2016 Actuarial Accrued Liability	\$	5,039,835,987	
2. Normal Cost		134,489,476	
3. Actual Benefit Payments ¹		148,865,005	
4. Service Purchases (Employer and Member) ²		4,563,582	
5. Interest of 6.75% on (1) + (2) - (3)/2 + (4)/2		<u>344,396,796</u>	
6. Expected June 30, 2017 Actuarial Accrued Liability: (1) + (2) - (3) + (4) + (5)	\$	5,374,420,836	
		<u>Dollar Change</u>	<u>Percent Change</u>
		in Liability	in Liability
7. (Gain)/Loss Components			
a. Actuarial Accrued Liability Experience	\$	24,031,202	0.4%
b. Actuarial Audit Changes ³		16,710,006	0.3%
c. Cost-of-Living Adjustment ⁴		9,377,502	0.2%
d. Changes in Actuarial Assumptions ⁵		(40,109,431)	(0.7%)
e. Changes in Plan Provisions ⁶		<u>1,323,025</u>	<u>0.0%</u>
f. Total: (7)(a) + (7)(b) + (7)(c) + (7)(d) + (7)(e)	\$	11,332,304	0.2%
8. Actual June 30, 2017 Actuarial Accrued Liability: (6) + (7)(f)	\$	5,385,753,140	

¹ Includes refunds of accumulated member contributions and net interfund transfers.

² Includes \$158,766 of employer service purchases and \$4,404,816 of member service purchases.

³ As a result of the actuarial audit that was completed during the plan year, minor updates were made to the valuation of liabilities. The updates include applying IRC Section 415 limits to all benefits, refining the mortality rates used in the valuation to properly reflect the RP-2014 (with MP-2014 improvement removed) Blue Collar Mortality tables, updating the retirement rates to properly reflect the April 2015 experience study, and updating the salary scale assumption from 3.25% to 2.50% that is used for the Class III disability benefit.

⁴ A Cost-of-Living Adjustment (COLA) of 2.5% was effective as of July 1, 2017, rather than the assumed COLA of 2.0%.

⁵ For disabled members, the RP-2014 (with MP-2014 improvement removed) Disability Mortality tables are assumed instead of the RP-2014 (with MP-2014 improvement removed) Blue Collar Mortality tables.

⁶ Per 2017 House Enrolled Act No. 1617, a member who experiences a catastrophic physical personal injury in the line of duty will receive an enhanced disability retirement benefit. See Section VI for further details.

SECTION II - FUNDING

D. Reconciliation of Market Value of Assets

	June 30, 2016	June 30, 2017
1. Market Value of Assets, Prior June 30	\$ 4,828,414,561	\$ 4,950,999,065
2. Receipts		
a. Employer Contributions ¹	\$ 151,674,202	\$ 150,857,418
b. Member Contributions ²	44,918,203	51,520,565
c. Investment Income and Dividends Net of Fees	59,652,391	397,684,989
d. Security Lending Income Net of Fees	669,041	511,108
e. Member Reassignments	-	-
f. Miscellaneous Income	143,258	77,453
g. Total Receipts: (2)(a) + (2)(b) + (2)(c) + (2)(d) + (2)(e) + (2)(f)	\$ 257,057,095	\$ 600,651,533
3. Disbursements		
a. Benefits Paid During the Year	\$ 128,709,387	\$ 145,591,101
b. Refund of Contributions and Interest	4,037,448	3,273,904
c. Administrative Expenses	1,651,340	1,607,057
d. Member Reassignments	74,416	-
e. Miscellaneous Disbursements	-	-
f. Total Disbursements: (3)(a) + (3)(b) + (3)(c) + (3)(d) + (3)(e)	\$ 134,472,591	\$ 150,472,062
4. Market Value of Assets, Current June 30: (1) + (2)(g) - (3)(f)	\$ 4,950,999,065	\$ 5,401,178,536
5. Market Value of Assets Approximate Annual Rate of Return ³	1.2%	8.0%

¹ Includes \$374,748 of employer service purchases during fiscal year 2016 and \$158,766 of employer service purchases during fiscal year 2017.

² Includes \$276,894 of member service purchases during fiscal year 2016 and \$4,404,816 of member service purchases during fiscal year 2017.

³ Based on individual fund experience. Net of expenses and assuming cash flows occur at mid-year.

SECTION II - FUNDING

E. Reconciliation of Actuarial Value of Assets

1.	Market Value of Assets, June 30, 2016		\$ 4,950,999,065
2.	Market Value of Assets, June 30, 2017		5,401,178,536
3.	Expected Earnings/Expenses		
a.	Expected Investment Earnings at 6.75% on June 30, 2016 Market Value		334,192,437
b.	Receipts with Expected Investment Earnings at 6.75% ¹		209,288,307
c.	Disbursements with Expected Investment Earnings at 6.75% ¹		153,889,199
4.	Expected Assets, June 30, 2017: (1) + (3)(a) + (3)(b) - (3)(c)		\$ 5,340,590,610
5.	2016-2017 Gain/(Loss): (2) - (4)		60,587,926
6.	Smoothing of Gain/(Loss)		
	<u>Year</u>	<u>Gain/(Loss)</u>	<u>% Unrecognized</u>
a.	2016-2017	\$ 60,587,926	80%
b.	2015-2016	\$ (269,405,003)	60%
c.	2014-2015	\$ (326,960,603)	40%
d.	2013-2014	\$ 287,921,206	20%
			57,584,241
7.	Preliminary Actuarial Value of Assets, June 30, 2017: (2) - (6)(a) - (6)(b) - (6)(c) - (6)(d)		\$ 5,587,551,197
8.	Corridor		
a.	120% of Market Value: 1.2 x (2)		6,481,414,243
b.	80% of Market Value: 0.8 x (2)		4,320,942,829
9.	Actuarial Value of Assets, June 30, 2017: (7), but not greater than (8)(a) or less than (8)(b)		\$ 5,587,551,197
10.	Actuarial Value of Assets as a Percent of Market Value: (9) / (2)		103.5%
11.	Actuarial Value of Assets Approximate Annual Rate of Investment Return ²		5.3%

¹ Assumes cash flows occur at mid-year.

² Net of expenses and assuming cash flows occur at mid-year.

SECTION II - FUNDING

F. Contribution Rate

	June 30, 2016	June 30, 2017
Development of Actuarially Determined Contribution Rate:		
1. Anticipated Payroll ¹	\$ 791,508,489	\$ 829,736,440
2. Normal Cost (Beginning of Year)		
a. Amount	\$ 134,489,476	\$ 136,640,454
b. Percentage of Payroll	16.99%	16.47%
3. Unfunded Actuarial Accrued Liability (UAAL) Annual Amortizations		
a. Amount	\$ (15,855,710)	\$ (14,853,122)
b. Percentage of Payroll	(2.00%)	(1.79%)
4. Expected Employee Contributions ²		
a. Amount	\$ 46,206,515	\$ 48,282,334
b. Percentage of Payroll	5.84%	5.82%
5. Actuarially Determined Contribution Rate:		
a. Percentage of Payroll: (2)(b) + (3)(b) - 4(b)	9.15%	8.86%
b. Effective Date	January 1, 2018	January 1, 2019
Approved Funding Rate:	17.5%	17.5%
Expected Percentage of Actuarially Determined Contribution Contributed:		
6. Fiscal Year Beginning	July 1, 2017	July 1, 2018
7. Actuarially Determined Contribution Rates for:		
a. July 1 - December 31	8.54%	9.15%
b. January 1 - June 30	9.15%	8.86%
8. Approved Funding Rates for:		
a. July 1 - December 31	17.5%	17.5%
b. January 1 - June 30	17.5%	17.5%
9. Expected Percentage of Actuarially Determined Contribution Contributed: $\frac{\{(8)(a) + (8)(b)\}}{2} / \frac{\{(7)(a) + (7)(b)\}}{2}$	197.85%	194.34%

¹ For the 1977 Fund, payroll is the applicable first class officer pay for each member.

² Only members with less than 32 years of service contribute to the plan. Anticipated payroll for active members with less than 32 years of service as of June 30, 2017 is \$804,705,574.

SECTION II - FUNDING

G. Unfunded Actuarial Accrued Liability Amortization Schedule

	<u>Date Base Established</u>	<u>Reason</u>	<u>Remaining Unfunded</u>	<u>Remaining Period</u>	<u>Amortization Amount</u>
1.	6/30/2017	Surplus ¹	<u>(201,798,057)</u>	<u>30</u>	<u>(14,853,122)</u>
	Total		\$ (201,798,057)	30.0	¹ \$ (14,853,122)

¹ 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 II - FUNDING

H. History of Employer Contribution Rates ¹

<u>Valuation Date</u>	<u>Effective Date</u>	<u>Contribution Rate</u>
December 31, 2000	July 1, 2002	21.0%
December 31, 2001	July 1, 2003	21.0%
December 31, 2002	July 1, 2004	21.0%
December 31, 2003	July 1, 2005	21.0%
December 31, 2004	July 1, 2006	21.0%
December 31, 2005	July 1, 2007	21.0%
December 31, 2006	July 1, 2008	19.5%
December 31, 2007	July 1, 2009	19.5%
December 31, 2008	July 1, 2010	19.5%
June 30, 2009	January 1, 2011	19.5%
June 30, 2010	January 1, 2012	19.7%
June 30, 2011	January 1, 2013	19.7%
June 30, 2012	January 1, 2014	19.7%
June 30, 2013	January 1, 2015	19.7%
June 30, 2014	January 1, 2016	19.7%
June 30, 2015	January 1, 2017	17.5%
June 30, 2016	January 1, 2018	17.5%
June 30, 2017	January 1, 2019	17.5%

¹ Valuation results prior to June 30, 2010 were calculated by the prior actuary.

SECTION II - FUNDING

I. Approximate Annual Rate of Return for Year Ending June 30, 2017¹

	<u>Market Value of Assets</u>	<u>Actuarial Value of Assets</u>
1. Balance, beginning of year	\$ 4,950,999,065	\$ 5,255,255,442
2. Balance, end of year	5,401,178,536	5,587,551,197
3. Total increase: (2) - (1)	450,179,471	332,295,755
4. Contributions	202,455,436	202,455,436
5. Benefit payments ²	148,865,005	148,865,005
6. Net additions: (4) - (5)	53,590,431	53,590,431
7. Net investment increase: (3) - (6)	396,589,040	278,705,324
8. Average assets: [(1) + (2) - (7)] / 2	4,977,794,281	5,282,050,658
9. Approximate rate of return: (7) / (8)	8.0%	5.3%

J. Historical Investment Experience

<u>Year Ending</u>	<u>Actual Rate of Investment Return</u>		<u>Actuarial Assumed</u>
	<u>Market Basis ⁴</u>	<u>Actuarial Basis ¹</u>	<u>Interest Rate</u>
December 31, 2008	(30.8%)	(1.2%)	7.25%
June 30, 2009 ⁵	(20.6%)	0.2%	7.25%
June 30, 2010	13.9%	0.1%	7.25%
June 30, 2011	20.1%	3.5%	7.0%
June 30, 2012	0.7%	2.9%	7.0%
June 30, 2013	6.0%	8.3%	6.75%
June 30, 2014	13.7%	8.8%	6.75%
June 30, 2015	0.0%	5.1%	6.75%
June 30, 2016	1.2%	5.1% ³	6.75%
June 30, 2017	7.9%	5.3%	6.75%

¹ Based on individual fund experience. Net of expenses and assuming cash flows occur at mid-year. Approximate Market Value of Assets return is not equal to money-weighted return for GASB purposes shown in Accounting Section.

² Includes refunds of accumulated member contributions and net interfund transfers.

³ Net of the impact of changing from four-year to a five-year smoothing.

⁴ INPRS actual time-weighted rate of return net of fees for 2012-2017. PERF Consolidated Defined Benefit time-weighted rate of return reported as gross of fees for 2007-2011.

⁵ Figures shown are for the six-month period from January 1, 2009 to June 30, 2009.

SECTION II - FUNDING

K. Interest Rate Sensitivity

The investment return assumption (discount rate) should be based on an estimated long-term investment yield for the plan, with consideration given to the nature and mix of current and expected plan investments. Management and the Board continually monitor the investment rate of return assumption and the Board formally reviews the assumption and makes changes as appropriate. The Board last changed the assumption for the June 30, 2012 valuation from 7.0% to 6.75%.

To illustrate the importance of the investment rate of return, which is used to discount the actuarial liabilities of the Plan, the Funded Ratio and Actuarially Determined Contribution Rate (for the calendar year beginning January 1, 2019) are shown below and on the following page at interest rates from 5.75% to 8.00%, in 0.25% increments.

	1.00% Decrease: (5.75%)	0.75% Decrease: (6.0%)	0.50% Decrease: (6.25%)	0.25% Decrease: (6.5%)	Current Assumption: (6.75%)
<u>Funded Status</u>					
Actuarial Accrued Liability	\$ 6,244,725,132	\$ 6,012,049,967	\$ 5,791,854,468	\$ 5,583,336,750	\$ 5,385,753,140
Actuarial Value of Assets	<u>5,587,551,197</u>	<u>5,587,551,197</u>	<u>5,587,551,197</u>	<u>5,587,551,197</u>	<u>5,587,551,197</u>
Unfunded Actuarial Accrued Liability	\$ 657,173,935	\$ 424,498,770	\$ 204,303,271	\$ (4,214,447)	\$ (201,798,057)
Funded Ratio	89.5%	92.9%	96.5%	100.1%	103.7%
<u>Actuarially Determined Contribution Rate</u>					
Normal Cost Percentage	21.58%	20.15%	18.82%	17.60%	16.47%
UAAL Amortization Percentage	6.73%	4.54%	2.39%	(0.04%)	(1.79%)
Expected Employee Contribution Percentage	<u>5.82%</u>	<u>5.82%</u>	<u>5.82%</u>	<u>5.82%</u>	<u>5.82%</u>
Actuarially Determined Contribution Rate	22.49%	18.87%	15.39%	11.74%	8.86%

SECTION II - FUNDING

K. Interest Rate Sensitivity (Continued)

	0.25% Increase: (7.0%)	0.50% Increase: (7.25%)	0.75% Increase: (7.5%)	1.00% Increase: (7.75%)	1.25% Increase: (8.0%)
<u>Funded Status</u>					
Actuarial Accrued Liability	\$ 5,198,413,552	\$ 5,020,677,255	\$ 4,851,949,001	\$ 4,691,675,493	\$ 4,539,342,114
Actuarial Value of Assets	<u>5,587,551,197</u>	<u>5,587,551,197</u>	<u>5,587,551,197</u>	<u>5,587,551,197</u>	<u>5,587,551,197</u>
Unfunded Actuarial Accrued Liability	\$ (389,137,645)	\$ (566,873,942)	\$ (735,602,196)	\$ (895,875,704)	\$ (1,048,209,083)
Funded Ratio	107.5%	111.3%	115.2%	119.1%	123.1%
<u>Actuarially Determined Contribution Rate</u>					
Normal Cost Percentage	15.42%	14.45%	13.55%	12.71%	11.94%
UAAL Amortization Percentage	(3.53%)	(5.26%)	(6.98%)	(8.69%)	(10.39%)
Expected Employee Contribution Percentage	<u>5.82%</u>	<u>5.82%</u>	<u>5.82%</u>	<u>5.82%</u>	<u>5.82%</u>
Actuarially Determined Contribution Rate	6.07%	3.37%	0.75%	0.00%	0.00%

SECTION III - ACCOUNTING

ACCOUNTING

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SECTION III - ACCOUNTING

PLAN FINANCIAL STATEMENTS UNDER GASB #67

A. Statement of Fiduciary Net Position under GASB #67 as of June 30, 2017

1. Assets		
a. Cash	\$	1,541,265
b. Receivables		
i. Contributions and Miscellaneous Receivables	\$	3,180,495
ii. Investments Receivable		34,772,279
iii. Foreign Exchange Contract Receivable		1,504,522,328
iv. Interest and Dividends		14,152,768
v. Due From Other Funds		17,134
vi. Total Receivables	\$	1,556,645,004
c. Total Investments		
i. Short-Term Investments	\$	-
ii. Pooled Repurchase Agreements		385,106
iii. Pooled Short-Term Investments		254,125,913
iv. Pooled Fixed Income		1,764,339,028
v. Pooled Equity		1,285,757,462
vi. Pooled Alternative Investments		2,162,536,542
vii. Pooled Derivatives		(661,692)
viii. Pooled Investments at Contract Value		-
ix. Securities Lending Collateral		58,986,228
x. Total Investments	\$	5,525,468,587
d. Net Capital Assets		33,295
e. Other Assets		-
f. Total Assets: (1)(a) + (1)(b)(vi) + (1)(c)(x) + (1)(d) + (1)(e)	\$	7,083,688,151
2. Liabilities		
a. Administrative Payable	\$	32,782
b. Retirement Benefits Payable		1,907,490
c. Investments Payable		54,789,362
d. Foreign Exchange Contracts Payable		1,509,906,083
e. Securities Lending Obligations		58,986,228
f. Securities Sold Under Agreement to Repurchase		56,677,559
g. Due To Other Funds		210,111
h. Due To Other Governments		-
i. Total Liabilities: (2)(a) + (2)(b) + (2)(c) + (2)(d) + (2)(e) + (2)(f) + (2)(g) + (2)(h)	\$	1,682,509,615
3. Fiduciary Net Position Restricted for Pensions: (1)(f) - (2)(i)	\$	5,401,178,536

SECTION III - ACCOUNTING

PLAN FINANCIAL STATEMENTS UNDER GASB #67

B. Statement of Changes in Fiduciary Net Position under GASB #67 for the Year Ended June 30, 2017

1.	Fiduciary Net Position as of June 30, 2016	\$	4,950,999,065
2.	Additions		
a.	Contributions		
i.	Member Contributions	\$	47,115,749
ii.	Employer Contributions		150,698,652
iii.	Service Purchases (Employer and Member) ¹		4,563,582
iv.	Non-Employer Contributing Entity Contributions		-
v.	Total Contributions	\$	202,377,983
b.	Investment Income/(Loss)		
i.	Net Appreciation/(Depreciation) ^{2,3}	\$	361,658,353
ii.	Net Interest and Dividend Income		73,116,638
iii.	Securities Lending Income		635,046
iv.	Other Net Investment Income		737,120
v.	Investment Management Expenses		(36,238,419)
vi.	Direct Investment Expenses		(1,588,703)
vii.	Securities Lending Expenses		(123,938)
viii.	Total Investment Income/(Loss)	\$	398,196,097
c.	Other Additions		
i.	Member Reassignments	\$	-
ii.	Miscellaneous Receipts		77,453
iii.	Total Other Additions	\$	77,453
d.	Total Revenue (Additions): (2)(a)(v) + (2)(b)(viii) + (2)(c)(iii)	\$	600,651,533
3.	Deductions		
a.	Pension and Disability Benefits	\$	144,782,101
b.	Death, Survivor, and Funeral Benefits		809,000
c.	Distributions of Contributions and Interest		3,273,904
d.	Member Reassignments		-
e.	Administrative Expenses		1,607,057
f.	Total Expenses (Deductions): (3)(a) + (3)(b) + (3)(c) + (3)(d) + (3)(e)	\$	150,472,062
4.	Net Increase (Decrease) in Fiduciary Net Position: (2)(d) - (3)(h)	\$	450,179,471
5.	Fiduciary Net Position as of June 30, 2017: (1) + (4)	\$	5,401,178,536

¹ Includes \$158,766 of employer service purchases and \$4,404,816 of member service purchases.

² The calculation of realized gains and losses is independent of the calculation of the net change in the fair value of pension plan investments.

³ Realized gains and losses on investments that had been held in more than one reporting period and sold in the current period were included as a change in the fair value reported in the prior period(s) and the current period.

SECTION III - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68

C. Collective Net Pension Liability under GASB #68 for the Year Ended June 30, 2017

1.	Total Pension Liability		
	a. Total Pension Liability - Beginning of Year	\$	5,039,835,987
	b. Service Cost ¹		134,489,476
	c. Interest Cost ²		344,396,796
	d. Experience (Gains)/Losses		33,408,704
	e. Assumption Changes		(23,399,425)
	f. Plan Amendments		1,323,025
	g. Benefit Payments ³		(148,865,005)
	h. Member Reassignments ⁴		-
	i. Service Purchases (Employer and Member) ⁵		4,563,582
	j. Total Pension Liability - End of Year	\$	<u>5,385,753,140</u>
2.	Plan Fiduciary Net Position		
	a. Plan Fiduciary Net Position - Beginning of Year	\$	4,950,999,065
	b. Employer Contributions ⁵		150,857,418
	c. Member Contributions ⁵		51,520,565
	d. Non-Employer Contributing Entity Contributions		-
	e. Investment Return		
	i. Expected Investment Return ⁶	\$	335,998,500
	ii. Investment Gain/(Loss)		<u>62,275,050</u>
	iii. Net Investment Return		398,273,550
	f. Benefit Payments ³		(148,865,005)
	g. Member Reassignments ⁴		-
	h. Administrative Expenses		<u>(1,607,057)</u>
	i. Plan Fiduciary Net Position - End of Year	\$	<u>5,401,178,536</u>
3.	Collective Net Pension Liability		
	a. Collective Net Pension Liability: (1)(j) - (2)(i)	\$	(15,425,396)
	b. Plan Fiduciary Net Position as a Percentage of the Collective Pension Liability : (2)(i) / (1)(j)		100.3%

¹ As of the beginning of the year.

² Includes interest of 6.75% on the beginning-of-year service cost.

³ Includes refunds of accumulated member contributions.

⁴ Includes net interfund transfers.

⁵ Includes \$158,766 of employer service purchases and \$4,404,816 of member service purchases.

⁶ 6.75%, net of investment expenses and assuming cash flows occur at mid-year.

SECTION III - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68

D. Collective Deferred Inflows and Outflows of Resources under GASB #68 for the Year Ended June 30, 2017 ¹

Fiscal Year Established	Reason	Remaining Balance At Beginning of Year	Remaining Period ²	Annual Recognition	Remaining Balance At End of Year
1. Liability Experience					
a. Inflows					
2014	Experience Gain	\$ 7,958,484	6.29	\$ 1,265,261	\$ 6,693,223
2015	Experience Gain	\$ 48,398,669	7.31	\$ 6,620,886	\$ 41,777,783
b. Outflows					
2016	Experience Loss	\$ (37,108,065)	8.04	\$ (4,615,431)	\$ (32,492,634)
2017	Experience Loss	\$ (33,408,704)	8.83	\$ (3,783,546)	\$ (29,625,158)
2. Assumption Changes					
a. Inflows					
2015	Assumption Change Gain	\$ 243,248,788	7.31	\$ 33,276,169	\$ 209,972,619
2017	Assumption Change Gain	\$ 23,399,425	8.83	\$ 2,649,992	\$ 20,749,433
b. Outflows					
None					
3. Investment experience ³					
a. Inflows					
2014	Investment Gain	\$ 102,476,128	2.00	\$ 51,238,066	\$ 51,238,062
2017	Investment Gain	\$ 62,275,050	5.00	\$ 12,455,010	\$ 49,820,040
b. Outflows					
2015	Investment Loss	\$ (216,235,341)	3.00	\$ (72,078,447)	\$ (144,156,894)
2016	Investment Loss	\$ (214,084,455)	4.00	\$ (53,521,114)	\$ (160,563,341)
4. Total Collective Deferred Inflows / Outflows: (1) + (2) + (3)					
a. Inflows					
	Total	\$ 487,756,544		\$ 107,505,384	\$ 380,251,160
b. Outflows					
	Total	\$ (500,836,565)		\$ (133,998,538)	\$ (366,838,027)

¹ INPRS determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information was prepared prospectively from June 30, 2013 for GASB #68 purposes.

² The initial amortization period for liability experience gains / losses and assumption change gains / losses is equal to the expected future working lifetime of all members, active and inactive. The initial amortization period for investment gains / losses is five years.

³ Net of investment expenses.

SECTION III - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68

D. Collective Deferred Inflows and Outflows of Resources under GASB #68 for the Year Ended June 30, 2017 (Continued)¹

Amounts reported as deferred inflows / (outflows) of resources to be recognized in pension expense:

Year Ending June 30:

2017	\$	(26,493,154)
2018	\$	(26,493,158)
2019	\$	(77,731,220)
2020	\$	(5,652,772)
2021	\$	47,868,341
2022	\$	35,413,331
Thereafter	\$	40,008,611

SECTION III - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68

E. Collective Pension Expense under GASB #68 for the Year Ended June 30, 2017

1. Service Cost	
a. Total Service Cost ¹	\$ 134,489,476
b. Member Contribution ²	(47,115,749)
c. Administrative Expenses	<u>1,607,057</u>
d. Net Employer Service Cost: (1)(a) + (1)(b) + (1)(c)	88,980,784
2. Interest Cost ³	344,396,796
3. Expected Return on Assets ⁴	(335,998,500)
4. Plan Amendments	1,323,025
5. Recognition of Deferred (Inflows) / Outflows of Resources Related to:	
a. Liability Experience (Gains) / Losses	512,830
b. Assumption Change (Gains) / Losses	(35,926,161)
c. Investment (Gains) / Losses	<u>61,906,485</u>
d. Total: (5)(a) + (5)(b) + (5)(c)	26,493,154
6. Total Collective Pension Expense: (1)(d) + (2) + (3) + (4) + (5)(d)	\$ 125,195,259
7. Employer Service Purchases ⁵	<u>158,766</u>
8. Total Pension Expense: (6) + (7)	\$ 125,354,025

¹ As of the beginning of the year.

² Does not include \$4,404,816 of member service purchases.

³ Includes interest of 6.75% on the beginning-of-year service cost.

⁴ 6.75% net of investment expenses and assuming cash flows occur at mid-year. Includes a half year of interest on member contributions.

⁵ To be expensed by the employers who purchased service for members during the year.

SECTION III - ACCOUNTING

NOTES TO THE FINANCIAL STATEMENTS UNDER GASB #67 AND #68

F. Selected Notes to the Financial Statements under GASB #67 and #68

1. The 1977 Fund is a cost-sharing multiple-employer plan for GASB accounting purposes.
2. Significant actuarial assumptions and other inputs used to measure the total pension liability:
 - Measurement Date June 30, 2017
 - Valuation Date
 Assets: June 30, 2017
 - Liabilities: June 30, 2016 - Member census data as of June 30, 2016 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30, 2016 and June 30, 2017. The valuation results from June 30, 2016 were rolled-forward to June 30, 2017 to reflect benefit accruals during the year less benefits paid.
 - Inflation 2.25%
 - Future Salary Increases 2.5%
 - Cost-of-Living Increases 2.0% compounded annually, beginning July 1, 2018. Actual COLA increases at July 1, 2016 (1.1%) and July 1, 2017 (2.5%) are reflected in the valuation.
 - Mortality Assumption (Healthy) RP-2014 (with MP-2014 improvement removed) Blue Collar mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.
 - Mortality Assumption (Disabled) RP-2014 (with MP-2014 improvement removed) Disability mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.
 - Experience Study The most recent comprehensive experience study was completed in April 2015 and was based on member experience between June 30, 2010 and June 30, 2014. The demographic assumptions were updated as needed for the June 30, 2015 actuarial valuation based on the results of the study.
 - Discount Rate The discount rate used to measure the total pension liability as of June 30, 2017, is 6.75% and is equal to the long-term expected return on plan investments, net of administrative expenses. The INPRS Board of Trustees has established a funding policy of setting the employer contribution rate equal to the greater of: 1) the current contribution rate of 17.5%, or 2) the actuarially determined contribution rate computed by the actuary using the assumptions and methods selected by the Board for the annual actuarial valuations.

SECTION III - ACCOUNTING

NOTES TO THE FINANCIAL STATEMENTS UNDER GASB #67 AND #68

F. Selected Notes to the Financial Statements under GASB #67 and #68 (Continued)

- Discount Rate
(Continued)

The assumptions and methods selected by the Board for the June 30, 2017 actuarial valuation include a 6.75% expected return on assets assumption, a 30-year level dollar open method for amortizing the surplus of assets over the actuarially accrued liability (since the plan is over 100% funded as of June 30, 2017), and a 5-year smoothing method for recognizing investment gains and losses in the actuarial value of assets. Therefore, if the Board continues to follow its current funding policy, which it has done for the past several years, the employer contribution rates established will be sufficient to maintain the fully funded status of the plan. Furthermore, we note that a deterministic projection assuming no future gains or losses shows that the actuarially determined contribution rate is expected to reach a peak of 9.1%. As a result, a detailed projection of plan assets and cash flows was not separately prepared to demonstrate that plan assets will be sufficient to pay all future benefit payments for current members.

	1% Decrease (5.75%)	Current Rate (6.75%)	1% Increase (7.75%)
- Discount Rate Sensitivity Net Pension Liability	\$ 843,546,596	\$ (15,425,396)	\$ (709,503,043)

3. Classes of Plan Members Covered:¹

- Retired Members, Beneficiaries and Disabled Members Receiving Benefits:	\$	4,374
- Terminated Vested Plan Members Entitled to but Not Yet Receiving Benefits:		195
- Terminated Non-Vested Plan Members Entitled to a Distribution of Contributions:		1,005
- Active Plan Members:		13,587
- Total Membership:	\$	19,161

4. 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, 2017, the money-weighted return on the plan assets is 8.0%.

5. The components of the Net Pension Liability for the total 1977 Fund plan as of June 30, 2017, are as follows:

- Total Pension Liability	\$	5,385,753,140
- Plan Fiduciary Net Position		5,401,178,536
- Net Pension Liability	\$	(15,425,396)
- Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		100.3%

¹ The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017.

SECTION III - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68

G. Schedule of Changes in the Total Pension Liability and Plan Fiduciary Net Position under GASB #67 and #68¹

Year Ending June 30:	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
1. Total Pension Liability					
a. Total Pension Liability - Beginning of Year	\$ 4,122,436,112	\$ 4,392,946,977	\$ 4,706,997,462	\$ 4,680,694,445	\$ 5,039,835,987
b. Service Cost ²	130,912,451	133,074,656	138,204,281	129,369,091	134,489,476
c. Interest Cost ³	283,732,680	301,824,523	323,129,528	320,218,564	344,396,796
d. Experience (Gains)/Losses	(39,592,111)	(11,754,267)	(61,640,441)	41,723,496	33,408,704
e. Assumption Changes	(4,810,241)	-	(309,801,126)	-	(23,399,425)
f. Plan Amendments	-	-	-	-	1,323,025
g. Benefit Payments ⁴	(99,802,915)	(109,094,427)	(116,489,902)	(132,746,835)	(148,865,005)
h. Member Reassignments ⁵	71,001	-	-	(74,416)	-
i. Service Purchases (Employer and Member)	-	-	294,643	651,642	4,563,582
j. Total Pension Liability - End of Year	<u>\$ 4,392,946,977</u>	<u>\$ 4,706,997,462</u>	<u>\$ 4,680,694,445</u>	<u>\$ 5,039,835,987</u>	<u>\$ 5,385,753,140</u>
2. Plan Fiduciary Net Position					
a. Plan Fiduciary Net Position - Beginning of Year	\$ 3,817,013,634	\$ 4,116,861,121	\$ 4,757,977,785	\$ 4,828,414,561	\$ 4,950,999,065
b. Employer Contributions	137,110,691	140,119,065	146,696,360	151,674,202	150,857,418
c. Member Contributions	40,786,098	41,791,345	43,523,241	44,918,203	51,520,565
d. Non-Employer Contributing Entity Contributions	-	-	-	-	-
e. Net Investment Return	223,527,670	570,088,526	(1,584,662)	60,464,690	398,273,550
f. Benefit Payments ⁴	(99,802,915)	(109,094,427)	(116,489,902)	(132,746,835)	(148,865,005)
g. Member Reassignments ⁵	71,001	-	-	(74,416)	-
h. Administrative Expenses	(1,845,058)	(1,787,845)	(1,708,261)	(1,651,340)	(1,607,057)
i. Plan Fiduciary Net Position - End of Year	<u>\$ 4,116,861,121</u>	<u>\$ 4,757,977,785</u>	<u>\$ 4,828,414,561</u>	<u>\$ 4,950,999,065</u>	<u>\$ 5,401,178,536</u>

¹ INPRS determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information was prepared prospectively from June 30, 2012 for GASB #67 purposes and prospectively from June 30, 2013 for GASB #68 purposes.

² As of the beginning of the year.

³ Includes interest of 6.75% on the beginning-of-year service cost.

⁴ Includes refunds of accumulated member contributions.

⁵ Includes net interfund transfers.

SECTION III - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68

H. Schedule of Net Pension Liability and Related Ratios under GASB #67 and #68¹

1. Year Ending	2. Total Pension Liability	3. Plan Fiduciary Net Position	4. Net Pension Liability (2) - (3)	5. Fiduciary Net Position as a Percentage of Total Pension Liability (3) / (2)	6. Actual Covered Employee Payroll ²	7. Net Pension Liability as a Percentage of Covered Payroll (4) / (6)
6/30/2013	\$ 4,392,946,977	\$ 4,116,861,121	\$ 276,085,856	93.7%	\$ 695,000,000	39.7%
6/30/2014	\$ 4,706,997,462	\$ 4,757,977,785	\$ (50,980,323)	101.1%	\$ 710,580,690	-7.2%
6/30/2015	\$ 4,680,694,445	\$ 4,828,414,561	\$ (147,720,116)	103.2%	\$ 745,336,167	-19.8%
6/30/2016	\$ 5,039,835,987	\$ 4,950,999,065	\$ 88,836,922	98.2%	\$ 771,948,731	11.5%
6/30/2017	\$ 5,385,753,140	\$ 5,401,178,536	\$ (15,425,396)	100.3%	\$ 809,382,060	-1.9%

¹ INPRS determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information was prepared prospectively from June 30, 2012 for GASB #67 purposes and prospectively from June 30, 2013 for GASB #68 purposes.

² Pensionable pay as provided by INPRS.

SECTION III - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68

I. Schedule of Contributions under GASB #67 and #68^{1,2}

1. Year Ending	2. Actuarially Determined Contribution ³	3. Actual Employer Contributions ⁴	4. Contribution Excess / (Deficiency) (Deficiency) (3) - (2)	5. Actual Covered Employee Payroll ⁵	6. Contributions as a Percentage of Covered Payroll (3) / (5)
6/30/2013	\$ 112,590,000	\$ 137,110,691	\$ 24,520,691	\$ 695,000,000	19.7%
6/30/2014	\$ 103,425,019	\$ 140,119,065	\$ 36,694,046	\$ 710,580,690	19.7%
6/30/2015	\$ 118,881,119	\$ 146,401,717	\$ 27,520,598	\$ 745,336,167	19.6%
6/30/2016	\$ 113,437,866	\$ 151,299,454	\$ 37,861,588	\$ 771,948,731	19.6%
6/30/2017	\$ 91,257,827	\$ 150,698,652	\$ 59,440,825	\$ 809,382,060	18.6%

¹ INPRS determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information was prepared prospectively from June 30, 2012 for GASB #67 purposes and prospectively from June 30, 2013 for GASB #68 purposes.

² The information shown relates to the employers participating in the Fund. There are no non-employer contributing entities.

³ The actuarially determined contribution amounts are based on the average of the actuarially determined contribution rates developed in the actuarial valuations completed one year and two years prior to the beginning of the fiscal year, multiplied by actual payroll during the fiscal year.

⁴ Excludes employer service purchases.

⁵ Pensionable pay as provided by INPRS.

SECTION III - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68

J. Schedule of Money-Weighted Returns under GASB #67 and #68¹

1. Year Ending	2. Money-Weighted Rate of Return
6/30/2013	5.9%
6/30/2014	13.7%
6/30/2015	(0.1%)
6/30/2016	1.2%
6/30/2017	8.0%

¹ INPRS determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information was prepared prospectively from June 30, 2012 for GASB #67 purposes and prospectively from June 30, 2013 for GASB #68 purposes.

SECTION IV - CENSUS DATA

CENSUS DATA

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SECTION IV - CENSUS DATA

A. Reconciliation of Participant Data¹

	Actives	Inactive Non-Vested With Member Contribution Balance	Inactive Vested	Disabled	Retired	Beneficiary	Total
Total as of June 30, 2015	13,500	933	186	745	2,576	683	18,623
<u>Data Adjustments for Activity During Fiscal Year 2016</u>							
New Units ²	6	-	-	-	-	-	6
Adjusted Total as of June 30, 2015	13,506	933	186	745	2,576	683	18,629
New Entrants	742	-	-	-	-	-	742
Rehires	27	(22)	(4)	-	(1)	-	-
Non-Vested Terminations	(191)	192	(1)	-	-	-	-
Vested Terminations	(72)	(1)	73	-	-	-	-
Retirements	(283)	-	(55)	(6)	344	-	-
Disabilities	(53)	(1)	(2)	57	(1)	-	-
Death with Beneficiary	(8)	(2)	(2)	(17)	(46)	75	-
Death without Beneficiary	(1)	(8)	-	(8)	(10)	(18)	(45)
Refunds	(87)	(68)	-	-	-	-	(155)
Data Adjustments	2	(18)	-	-	-	1	(15)
Total as of June 30, 2016	13,582	1,005	195	771	2,862	741	19,156
<u>Data Adjustments for Activity During Fiscal Year 2017</u>							
New Units ³	5	-	-	-	-	-	5
Adjusted Total as of June 30, 2016	13,587	1,005	195	771	2,862	741	19,161

¹ The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017.

² The employer that joined the 1977 Fund as a new unit during fiscal year 2016 is Brownstown Police Department.

³ The employers that joined the 1977 Fund as a new unit during fiscal year 2017 are Jonesboro Police Department, Scottsburg Fire Department, and Logansport Police Department.

SECTION IV - CENSUS DATA

B. Census Information as of June 30, 2016¹

	<u>Male</u>	<u>Female</u>	<u>Total</u>
1. Active			
a. Number	12,828	759	13,587
b. Average Age	42.2	41.1	42.2
c. Average Years of Service	14.7	13.8	14.6
d. Anticipated Payroll of Actives ²	\$ 781,231,452	\$ 48,504,988	\$ 829,736,440
2. Inactive - Vested			
a. Number	183	12	195
b. Average Age	49.7	47.8	49.6
c. Average Years of Service	22.7	22.0	22.6
3. Inactive - Non-Vested ³			
a. Number	887	118	1,005
4. Retiree/Beneficiary/Disabled			
a. Number	3,419	955	4,374
b. Average Age	62.2	64.0	62.6
c. Annual Benefits Payable ⁴	\$ 99,769,667	\$ 18,701,937	\$ 118,471,604

¹ The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017.

² For the 1977 Fund, payroll is the applicable first class officer pay for each member. Figures shown are the anticipated pay for the one-year period following June 30, 2017.

³ As of June 30, 2016, inactive non-vested members entitled to a refund of their member contributions totaling \$11,027,082.

⁴ Figures shown reflect the 1.1% cost-of-living increase effective July 1, 2016.

SECTION IV - CENSUS DATA

C. Schedule of Active Member Valuation Data^{1, 2}

1. Valuation Date	2. Active Members	3. Anticipated Payroll (\$ in Thousands) ³	4. Average Pay (3) / (2)	5. Annual Percent Change
12/31/2008	13,095	644,936	49,251	2.8%
6/30/2009	13,184	649,018	49,228	(0.0%)
6/30/2010	13,362	675,797	50,576	2.7%
6/30/2011	13,376	687,342	51,386	1.6%
6/30/2012	13,390	697,111	52,062	1.3%
6/30/2013	13,287	706,603	53,180	2.1%
6/30/2014	13,295	734,024	55,211	3.8%
6/30/2015	13,390	764,215	57,074	3.4%
6/30/2016	13,506	791,508	58,604	2.7%
6/30/2017	13,587	829,736	61,068	4.2%

¹ Valuation results prior to June 30, 2010 were calculated by the prior actuary.

² The valuation results beginning as of June 30, 2014 were calculated using census data as of the prior year end, adjusted for certain activity during the current fiscal year.

³ For the 1977 Fund, payroll is the applicable first class officer pay for each member. Figures shown are the anticipated pay for the one-year period following the valuation date.

SECTION IV - CENSUS DATA

D. Schedule of Retirees, Beneficiaries, and Disabled Members^{1, 2}

1.	2.	3.	4.	5.	6.	7.	8.	9.
Valuation Date	Added Number	Annual Allowances (\$ in Thousands) ⁴	Removed Number	Annual Allowances (\$ in Thousands) ⁴	End of Year ³ Number	Annual Allowances (\$ in Thousands) ⁴	% Change in Annual Allowances ⁴	Average Annual Allowances ⁴
12/31/2008	255	5,861	273	4,565	2,530	53,588	8.2%	21,181
6/30/2009	102	2,571	24	479	2,608	55,564	3.7%	21,305
6/30/2010	208	4,918	34	641	2,782	60,220	8.4%	21,646
6/30/2011	218	6,179	34	609	2,966	68,179	13.2%	22,987
6/30/2012	281	7,900	39	814	3,208	76,917	12.8%	23,977
6/30/2013	326	10,098	43	845	3,491	87,301	13.5%	25,008
6/30/2014	-	-	-	-	3,491	87,301	0.0%	25,008
6/30/2015	283	8,858	38	727	3,736	96,336	10.3%	25,786
6/30/2016	312	10,074	44	834	4,004	105,218	9.2%	26,278
6/30/2017	407	13,321	37	642	4,374	118,472	12.6%	27,085

¹ Valuation results prior to June 30, 2010 were calculated by the prior actuary.

² The valuation results beginning as of June 30, 2014 were calculated using census data as of the prior year end, adjusted for certain activity during the current fiscal year.

³ End of year annual allowances are not equal to the prior end of year annual allowances plus additions and less removals because of reductions for beneficiary benefits, data changes, and cost-of-living increases.

⁴ Annual allowances reflect cost-of-living increases effective July 1 following the date of the census data.

SECTION IV - CENSUS DATA

E. Distribution of Active Members by Age and Service ¹

Attained	Distribution of Active Members by Age and Service as of June 30, 2016 ¹								
Age	Under 10	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	Over 40 years	Total
<25	233								233
25-29	1,182								1,182
30-34	1,698	159							1,857
35-39	1,048	889	235						2,172
40-44	425	780	1,070	130					2,405
45-49	44	443	977	843	171				2,478
50-54	5	28	400	502	806	114			1,855
55-59	5	4	40	175	428	364	12		1,028
60-64	2	1	14	17	101	167	33		335
65-69		1	3	2	1	32	2		41
70&Above							1		1
Total	4,642	2,305	2,739	1,669	1,507	677	48		13,587

¹ The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017.

SECTION IV - CENSUS DATA

F. Distribution of Inactive Vested Members by Age and Service¹

Attained Age	Distribution of Inactive Vested Members by Age and Service as of June 30, 2016 ¹				
	Under 20 years	20 to 24 years	25 to 29 years	Over 30 years	Total
<25					
25-29					
30-34					
35-39					
40-44		9			9
45-49		111	6		117
50-54		40	13		53
55-59		1	4	5	10
60-64			1	2	3
65-69		2		1	3
70&Above					
Total		163	24	8	195

¹ The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017.

SECTION IV - CENSUS DATA

G. Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired¹

Attained Age	Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired as of June 30, 2016 ¹						
	Under 10	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	Over 30 years	Total
<40	65	4	2		1		72
40-44	69	16	7	3			95
45-49	97	25	15	7	1		145
50-54	333	51	35	17	3	2	441
55-59	856	47	39	25	17	12	996
60-64	852	201	52	51	14	14	1,184
65-69	207	140	131	56	45	29	608
70-74	22	25	180	50	31	17	325
75-79	1		53	156	28	27	265
80-84	1		13	41	51	14	120
85-89			4	27	25	25	81
90&Above				4	14	24	42
Total	2,503	509	531	437	230	164	4,374

¹ The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017.

SECTION IV - CENSUS DATA

H. Schedule of Benefit Recipients by Type of Benefit Option¹

Number of Benefit Recipients by Benefit Option as of June 30, 2016

Amount of Monthly Benefit	Retiree Single Life Annuity	Retiree 60%		Survivors	Disability	Total
		Joint and Survivor Annuity				
\$ 1 - 500	-	-	15	-	15	
501 - 1,000	1	4	138	18	161	
1,001 - 1,500	2	117	365	84	568	
1,501 - 2,000	9	452	156	209	826	
2,001 - 3,000	92	1,605	60	395	2,152	
over 3,000	53	527	7	65	652	
Total	157	2,705	741	771	4,374	

I. Schedule of Average Benefit Payments as of June 30, 2016^{1,2}

	Years of Credited Service						Total
	0-10	10-14	15-19	20-24	25-29	30+	
Average Monthly Defined Benefit	\$ 1,643	\$ 1,975	\$ 1,893	\$ 2,010	\$ 2,546	\$ 2,892	\$ 2,257
Average Final Average Salary	\$ 42,129	\$ 48,847	\$ 47,060	\$ 45,714	\$ 48,551	\$ 51,649	\$ 47,703
Number of Benefit Recipients	382	234	271	1,586	1,202	699	4,374

¹ The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017. Monthly benefits reflect the 1.1% cost-of-living increase effective July 1, 2016.

² For some members average salary at retirement were not available. The average salary for each group excludes these members.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

ACTUARIAL ASSUMPTIONS AND METHODS

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SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

The assumptions used in the valuation were selected and approved by the INPRS Board of Trustees. The demographic assumptions are reviewed at least every five years through a study of actual experience. The last study was completed in April 2015. In this way, the actuary provides guidance to the Board in selecting the assumptions. The actuary and other economic and investment professionals also provide advice to the Board for selecting the economic assumptions. In our opinion, the assumptions are reasonable for purposes of this valuation.

Interest Rate / Investment Return

Funding	6.75% (net of administrative and investment expenses)
Accounting	6.75% (net of investment expenses)

Interest on Member Balances 3.5% per year

Future Salary Increases 2.5% per year

Inflation 2.25% per year

Cost of Living Increases 2.0% per year in retirement beginning July 1, 2018. Actual cost-of-living increases of 1.1% at July 1, 2016 and 2.5% at July 1, 2017 are reflected in the liability valuation at June 30, 2017. For benefits paid under the 2017 House Enrolled Act No. 1617, the annual cost-of-living assumption is 2.5%, which is the same as the salary increase assumption for active members.

Mortality (Healthy) RP-2014 (with MP-2014 improvement removed) Blue Collar mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.

Mortality (Disabled) RP-2014 (with MP-2014 improvement removed) Disability mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.

Disability Based on 2010-2014 experience. Illustrative rates shown below:

Age	Rate
<= 30	0.10%
35	0.16%
40	0.26%
45	0.36%
50	0.46%
55	0.56%
60	0.66%
62+	0.70%

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (Continued)

Termination

Based on 2010-2014 experience. Rates shown below:

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

Retirement

Based on 2010-2014 experience. Rates shown below:

<u>Ages</u>	<u>Service <32</u>	<u>Service >=32</u>
50-57	10.0%	20.0%
58-61	15.0%	20.0%
62-64	20.0%	20.0%
65-69	50.0%	50.0%
70+	100.0%	100.0%

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

Decrement Timing

Decrements are assumed to occur at the beginning of the year.

Active 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. The annuity benefit is estimated based on salary and service at the time the member entered the DROP.

Spouse/Beneficiary

80% of male members and 50% of female members are assumed to be married or to have a dependent beneficiary. Male members are assumed to be three (3) years older than females and female members are assumed to be the same age as males.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (Continued)

Disability Retirement	For members hired after 1989 that become disabled, 1% are assumed to sustain a catastrophic disability and receive the enhanced disability benefit (100% of salary) added by 2017 House Enrolled Act No. 1617, 44% are assumed to sustain a Class 1 disability (at 65% of salary), 10% are assumed to sustain a Class 2 disability (at 50% of salary), and 45% are assumed to sustain a Class 3 disability (at 36% of salary). For members hired before 1989 that become disabled, 1% are assumed to sustain a catastrophic disability and receive the enhanced disability benefit (100% of salary) added by 2017 House Enrolled Act No. 1617 and 99% are assumed to sustain a non-catastrophic disability and receive their accrued retirement benefit.
Pre-Retirement Death	Of active member deaths, 10% are assumed to be in the line of duty and 90% are other than in the line of duty.
Data Assumptions	Actives and inactives with either no date of birth and/or no gender are assumed to be age 42 and/or male. Spouse gender is assumed to be the opposite gender of the member.
Changes in Assumptions	For disabled members, the mortality assumption is updated from the RP-2014 (with MP-2014 improvement removed) Blue Collar Mortality tables to the RP-2014 (with MP-2014 improvement removed) Disability Mortality tables. 1% of the members who become disabled are assumed to sustain a catastrophic disability and receive the enhanced disability benefit (100% of salary) added by 2017 House Enrolled Act No. 1617.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

B. Assumptions Rationale

Investment Return

The investment return assumption is based on analysis completed by the INPRS investment advisor and an independent, high-level analysis completed by PwC using a "building block" approach that considered the target asset allocation from the Board's investment policy and capital market forecasts from various investment professionals.

Other Assumptions

The Board of Trustees adopts actuarial assumptions, each of which individually represents a reasonable long-term estimate of anticipated experience under the System, derived from experience studies conducted at least every five years. The most recent comprehensive experience study was completed in April 2015. The economic and demographic assumptions listed previously in the report were reviewed and updated, where appropriate, based on the historical experience observed during the study and expectations for the future.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods

The actuarial methods used in this valuation were selected and approved by the Board. In general, the methods provide orderly funding of all benefits being accrued, as well as unfunded past-service benefit liabilities, over a period of twenty years. However, the smoothing methods employed in determining the Actuarial Value of Assets may accelerate or lengthen the effective funding period, depending on whether gains or losses are experienced. In our opinion, the actuarial methods are reasonable for the purposes of this valuation.

1. Actuarial Cost Method

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

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

For funding, gains and losses occurring from census experience different than assumed, assumption changes, and benefit changes are amortized over a 20-year period with level payments each year. A new gain or loss base is established each year based on the additional gain or loss during that year and that base is amortized over a new 20-year period. However, when the plan is at or above 100% funded (based on Actuarial Value of Assets), the past amortization bases are considered fully amortized and a single amortization base equal to the surplus is amortized over a 30-year period with level payments each year. 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 (active and inactive). 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, 2016 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30, 2016 and June 30, 2017. The valuation results from June 30, 2016 were rolled-forward to June 30, 2017 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, but has ultimate authority in setting the employer contribution rate.

4. Anticipated Payroll

The Anticipated Payroll of \$829,736,440 for the fiscal year beginning July 1, 2017 is equal to the actual 1st class officer salary paid during the year ending June 30, 2017 increased with one year of salary scale, plus the 1st class officer salary in effect at June 30, 2017 for three new units.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods (Continued)

5. Changes in Actuarial Methods

There were no method changes for the June 30, 2017 valuation.

SECTION VI - SUMMARY OF PLAN PROVISIONS

SUMMARY OF PLAN PROVISIONS

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SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions

The benefit provisions for the 1977 Fund are set forth in IC 36-8-8. Below is a summary of the plan provisions that are pertinent to the valuation herein and may exclude certain provision that are not deemed relevant to our calculations. This summary is based on our understanding of the plan provisions set forth in the applicable statutes of the State of Indiana. If there is a discrepancy between the summary below and the applicable statutes, the applicable statutes shall govern.

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.

Eligibility for Defined Pension Benefits

- a. Normal Retirement Age 52 with 20 or more years of creditable service
- b. Early Retirement Age 50 with 20 or more years of creditable service
- c. Late Retirement Subject to continued employment after normal retirement
- d. Disability Retirement As determined by a disability medical panel.
- e. Termination 20 or more years of creditable service and no longer active (i.e. vested inactive)
- f. Pre-Retirement Death Immediate

Amount of Benefits

- a. Normal Retirement The retirement benefit valued was 50% 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 74% with 32 years of service.
- b. Early Retirement Early retirement benefits are reduced by 7% per year for commencement between ages 50 and 52.
- c. Late Retirement The late retirement benefit is calculated in the same manner as the normal retirement benefit. Creditable service and earnings earned after normal retirement is included in the computation.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

Amount of Benefits (continued)

d. Disability Retirement

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.

House Enrolled Act Number 1617 Enhanced Disability Benefit:

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.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

Amount of Benefits (continued)

d. Disability Retirement (continued)

Hired after 1989
(continued)

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 Benefit:

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.

e. Termination

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.

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.

f. Pre-Retirement Death

Surviving Spouse

If a member dies other than in the line of duty, the spouse's benefit is equal to 60% 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.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

Amount of Benefits (continued)

f. Pre-Retirement Death (continued)

Surviving Spouse (continued) 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.

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.

g. 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.

Member Contributions Members are assumed to contribute at the rate of 6% of salary until they have completed 32 years of service.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

Withdrawal from Fund

If a member's employment is terminated prior to eligibility for a retirement annuity, the member may withdraw their contributions from the Fund.

Deferred Retirement Option Plan
("DROP")

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.

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.

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.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

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 60% Survivor Benefits Member will be paid a monthly benefit for life. After death, 60% of the benefit will be paid to the spouse or parent for their lifetime or the dependent until age 18.

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.

Changes in Provisions

Per House Enrolled Act No. 1617, 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 annually of the same rate as the increase in base salary for a First Class Police Officer or Firefighter.

SECTION VII - DEFINITIONS OF TECHNICAL TERMS

DEFINITIONS OF TECHNICAL TERMS

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Definitions of Technical Terms

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SECTION VII - DEFINITIONS OF TECHNICAL TERMS

Definitions of Technical Terms

Actuarial Accrued Liability (AAL)	That portion, as determined by a particular Actuarial Cost Method, of the Present Value of Future Benefits (PVFB) and expenses which is not provided for by future Normal Costs. Generally, the portion of the PVFB attributable to past service.
Actuarial Assumptions	Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided pension benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.
Actuarial Cost Method	A mathematical procedure for allocating the Present Value of Future Benefits to service periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.
Actuarial Gain/(Loss)	The difference between actual Unfunded Actuarial Accrued Liability and anticipated Unfunded Actuarial Accrued Liability resulting from differences between actual and expected plan experience between two valuation dates.
Actuarial Present Value	The single amount that is equal to a payment or series of payments in the future. It is determined by discounting future payments using predetermined Actuarial Assumptions for interest and by probabilities of payment.
Actuarial Valuation	The determination, as of an Actuarial Valuation Date, of the Present Value of Future Benefits, Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values.
Actuarial Valuation Date	The date as of which an Actuarial Valuation is performed.
Actuarially Determined Contribution	The precise actuarial contribution rate (expressed as a percentage of covered payroll) or amount determined in accordance with a Funding Policy, which generally reflects the Normal Cost and amortization of any Unfunded Actuarial Accrued Liability.
Actuarially Equivalent	Having the same Actuarial Present Value, based on a set of Actuarial Assumptions.

SECTION VII - DEFINITIONS OF TECHNICAL TERMS

Definitions of Technical Terms (Continued)

Amortization	The payment of a present value financial obligation on an installment basis over a future period.
Creditable Service	Service credited under the system that was rendered before the date of the actuarial valuation.
Funding Policy	A set of principles, often including a prescribed Actuarial Cost Method, Actuarial Assumptions, and/or Unfunded Actuarial Accrued Liability Amortization Method, that guide the calculation of the Actuarially Determined Contribution and management decisions regarding funding.
Level Dollar Amortization	Amortization where the installments are equal dollar amounts during each period.
Level Percent Amortization	Amortization where the installments are an equal percent of employee payroll during each period.
Normal Cost (NC)	That portion of the Present Value of Future Benefits which is allocated to the year following the Actuarial Valuation Date by the Actuarial Cost Method. The normal cost is specific to the cost method used.
Plan Assets	Resources, usually in the form of stocks, bonds, and other classes of investments, that have been segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employer(s) or plan administrator, for the payment of benefits in accordance with the terms of the plan.
Plan Members	The individuals covered by the terms of a pension plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

SECTION VII - DEFINITIONS OF TECHNICAL TERMS

Definitions of Technical Terms (Continued)

Present Value of Future Benefits (PVFB)

Projected benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members upon retirement) as a result of their service through the valuation date and their expected future service. The actuarial present value of projected future benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment (taking into account mortality, turnover, probability of participating in plan retirement, etc.). Alternatively, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay the projected benefits when due.

Unfunded Actuarial Accrued Liability (UAAL)

The difference between the Actuarial Accrued Liability and Plan Assets as of a particular date. Plan assets may be market value or a smoothed value.

Unfunded Actuarial Accrued Liability Amortization Method

A predetermined process by which any Unfunded Actuarial Accrued Liability will be amortized for calculating the Actuarially Determined Contribution.