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Indiana Public Retirement System

Public Employees' 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 Public Employees' Retirement Fund ("PERF") and has been prepared to present the current funded status of the Plan, contribution requirements for the 2019 fiscal year of the State (July 1, 2018 through June 30, 2019) and participating Political Subdivisions (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 Rates

The Board sets, at its discretion, the applicable employer contribution rates upon considering the results of the actuarial valuation and other analysis as appropriate.

The Actuarially Determined Contribution Rate for the State for the year beginning July 1, 2018 is 10.03%. However, the Board has approved an employer contribution rate for the State of 11.2%. The actual dollar amount of employer cost for the year beginning July 1, 2018 will depend on the actual payroll during year.

The aggregate Actuarially Determined Contribution Rate for the Political Subdivisions for the year beginning January 1, 2019 is 10.37%. However, the Board has approved a Composite Rate of 11.2%. Political Subdivisions paying a rate less than the Composite Rate in 2018 will be migrated toward the Composite Rate via an increase of (up to) 1.5% in contribution rate (not to exceed the composite rate of 11.2%) for 2019. The weighted average contribution rate for all Political Subdivisions is expected to be 11.2% in 2019, as all Political Subdivisions will have fully migrated to the Composite Rate at that date. The actual dollar amount of employer cost will depend on the actual payroll during calendar year 2019.

Employees of the State and participating Political Subdivisions contribute 3% of their compensation to an Annuity Savings Account. Employers may "pick up" the employee contributions. The accumulated balance in each member's Annuity Savings Account can be withdrawn as a lump sum upon termination or can be converted to an annuity that is paid monthly in addition to the benefit that is funded by the employer contributions upon retirement. Beginning January 1, 2018, INPRS will no longer annuitize member Annuity Savings Account balances internally. Members who wish to annuitize their balance may purchase an annuity from an external annuity provider.

Funded Status

The funded status of PERF is measured by the funded ratio, which is the ratio of the assets available for benefits to a benefit liability measure for PERF. 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 smoothes the market gains and losses over five (5) years, the PERF AAL funded ratio decreased from 79.1% at June 30, 2016 to 79.0% at June 30, 2017. The decrease is primarily due to losses resulting from refinements to the valuation procedures and delayed recognition (i.e. smoothing) of favorable investment returns, partially offset by contributions greater than the actuarially determined amount, cost-of-living adjustments being lower than assumed, and other minor changes to the actuarial assumptions and plan provisions.

The funded ratio with ASA balances removed from the AVA and AAL is 75.5% at June 30, 2017, unchanged from June 30, 2016.

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 PERF, including member ASA balances, as of the prior valuation date and contribution and benefit payment activity during the year, the allocation of returns to PERF represent a return of approximately 7.4% on market value and 5.5% 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

Cost-of-living increases for retired members have historically been granted on an "ad hoc" basis. INPRS has confirmed that no increase in monthly benefits will be provided to retired members, disabled members, or beneficiaries as of January 1, 2018 and January 1, 2019. Instead, a "13th check" is required to be paid to each member (or survivor or beneficiary) in pay status no later than October 1, 2018 and October 1, 2019. The amount of the 13th check varies based on the years of creditable service the member had earned prior to retirement.

Changes in Actuarial Assumptions

For active and inactive vested members, a salary load of \$400 was added to approximate the impact on average monthly earnings of unused sick leave accumulated at termination of employment.

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

Changes in Plan Provisions

Per INPRS, ASA annuitizations will be accommodated through a third party annuity provider beginning January 1, 2018, compared to the previous anticipated start date of April 1, 2017. When this occurs, it is our understanding that member ASA balances will be treated as a stand-alone defined contribution plan for GASB reporting purposes, separate from the employer-funded defined benefit plan. This will not impact the calculation of collective employer expense for defined benefit under GASB 68, but ASA balances will be removed from the Plan Fiduciary Net Pension and Total Pension Liability, under GASB 67 and GASB 68, affecting the funded percentage that is reported. Similarly, for funding purposes, the actuarially determined contribution rate calculation will not be affected, but removal of ASA balances from plan assets and the Actuarial Accrued Liability would affect the funded percentage of the defined benefit plan if INPRS chooses to present the plans separately rather than aggregated. The funded percentage of the defined benefit plan when ASA balances are excluded from assets and liabilities is noted in several places in this report.

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.

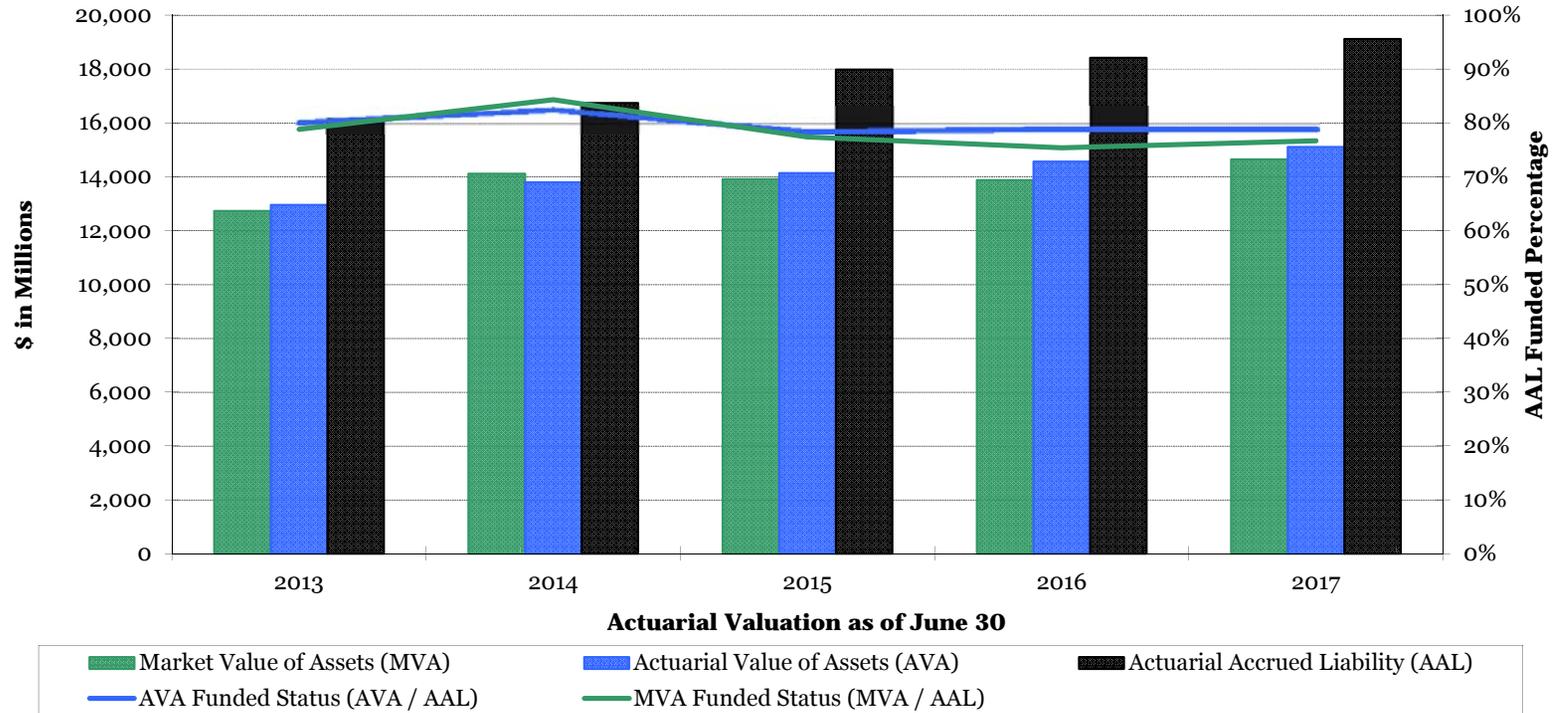
Governmental Accounting Standards

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

HISTORICAL SUMMARY

Total PERF – 5 Year History of Funded Status

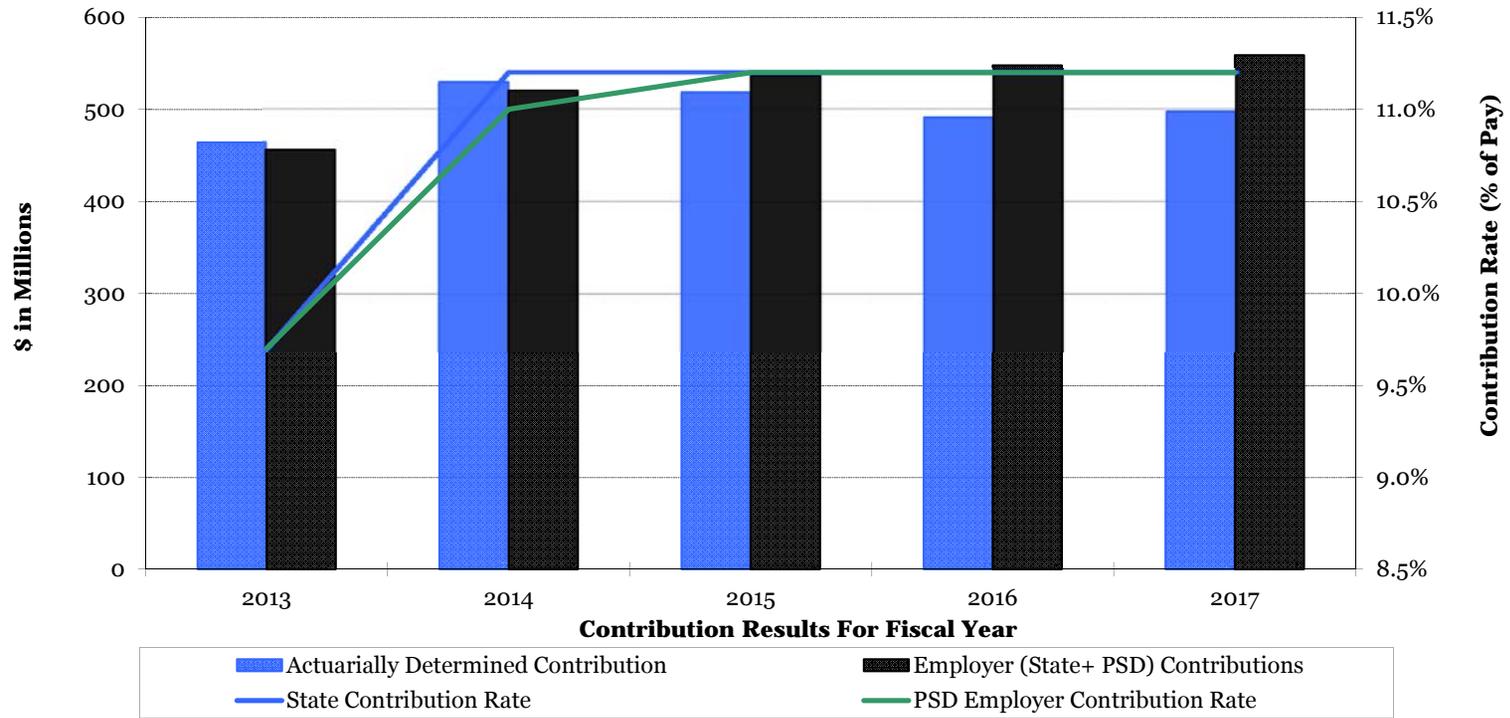


Actuarial Valuation as of June 30:	2013	2014	2015	2016	2017
Actuarial Accrued Liability (AAL)	\$16,145.7	\$16,732.2	\$17,980.6	\$18,409.0	\$19,106.2
Actuarial Value of Assets (AVA)	12,947.3	13,791.3	14,131.9	14,553.1	15,098.9
Market Value of Assets (MVA)	12,720.6	14,104.3	13,907.7	13,870.5	14,644.7
Unfunded Liability (AAL - AVA)	3,198.4	2,940.9	3,848.7	3,855.9	4,007.3
AVA Funded Status (AVA / AAL)	80.2%	82.4%	78.6%	79.1%	79.0%
MVA Funded Status (MVA / AAL)	78.8%	84.3%	77.3%	75.3%	76.6%

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Total PERF – 5 Year History of Contributions



Contribution Results For Fiscal Year:	2013	2014	2015	2016	2017
Actuarially Determined Contribution ¹	\$464.0	\$528.6	\$517.7	\$490.5	\$496.9
Employer (State+ PSD) Contributions	\$455.7	\$519.6	\$536.2	\$547.7	\$558.7
ADC % Contributed	98.2%	98.3%	103.6%	111.7%	112.4%
State Contribution Rate ²	9.7%	11.2%	11.2%	11.2%	11.2%
PSD Employer Contribution Rate ²	9.7%	11.0%	11.2%	11.2%	11.2%
Member Contribution Rate	3.0%	3.0%	3.0%	3.0%	3.0%

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 Rates shown are those in effect on July 1 during the fiscal year for the State and January 1 during the fiscal year for the political subdivisions. Contribution dollar amounts are for the fiscal year.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Total PERF – 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	\$ 4,766,909,874	\$ 5,080,092,296	\$ 4,964,813,388	\$ 5,014,011,948	\$ 5,130,436,746
2. Normal Cost (Beginning of Year)					
a. Amount	\$ 258,069,653	\$ 273,909,865	\$ 191,055,506	\$ 194,101,310	\$ 202,323,634
b. Percentage of Payroll	5.41%	5.39%	3.85%	3.87%	3.94%
3. Unfunded Actuarial Accrued Liability Annual Amortizations					
a. Amount	\$ 244,924,393	\$ 229,329,868	\$ 299,549,285	\$ 305,375,181	\$ 324,202,715
b. Percentage of Payroll	5.14%	4.51%	6.03%	6.09%	6.32%
4. Actuarially Determined Contribution Rate: (2)(b) + (3)(b)	10.55%	9.90%	9.88%	9.96%	10.26%
<u>Fiscal / Calendar Year</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Approved Funding Rate ²	11.19%	11.20%	11.20%	11.20%	11.20%

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

² The Approved Funding Rate shown is the weighted average of the rates approved by the Board for the State and Political Subdivisions. The funding rates determined by the June 30, 2017 valuation become effective July 1, 2018 for the State and January 1, 2019 for the Political Subdivisions.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

State – Summary of Valuation Results ¹

<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	\$ 1,647,453,669	\$ 1,758,268,220	\$ 1,698,936,078	\$ 1,654,540,326	\$ 1,676,236,445
2. Normal Cost (Beginning of Year)					
a. Amount	\$ 76,718,697	\$ 81,560,106	\$ 57,464,009	\$ 56,202,817	\$ 57,208,360
b. Percentage of Payroll	4.65%	4.64%	3.38%	3.40%	3.41%
3. Unfunded Actuarial Accrued Liability Annual Amortizations					
a. Amount	\$ 97,160,297	\$ 90,674,549	\$ 114,273,153	\$ 107,347,055	\$ 110,949,617
b. Percentage of Payroll	5.90%	5.16%	6.73%	6.49%	6.62%
4. Actuarially Determined Contribution Rate:					
a. Percentage of Payroll: (2)(b) + (3)(b)	10.55%	9.80%	10.11%	9.89%	10.03%
b. Effective Date	July 1, 2014	July 1, 2015	July 1, 2016	July 1, 2017	July 1, 2018
<u>Fiscal Year</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Approved Funding Rate ²	11.20%	11.20%	11.20%	11.20%	11.20%

Political Subdivisions – Summary of Valuation Results ¹

<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 the Aggregate Actuarially Determined Contribution Rate:					
1. Anticipated Payroll	\$ 3,119,456,205	\$ 3,321,824,076	\$ 3,265,877,310	\$ 3,359,471,622	\$ 3,454,200,301
2. Normal Cost (Beginning of Year)					
a. Amount	\$ 181,350,956	\$ 192,349,759	\$ 133,591,497	\$ 137,898,493	\$ 145,115,274
b. Percentage of Payroll	5.81%	5.79%	4.09%	4.10%	4.20%
3. Unfunded Actuarial Accrued Liability Annual Amortizations					
a. Amount	\$ 147,764,096	\$ 138,655,319	\$ 185,276,132	\$ 198,028,126	\$ 213,253,098
b. Percentage of Payroll	4.74%	4.17%	5.67%	5.89%	6.17%
4. Aggregate Actuarially Determined Contribution Rate:					
a. Percentage of Payroll: (2)(b) + (3)(b)	10.55%	9.96%	9.76%	9.99%	10.37%
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 ^{2,3}	11.19%	11.20%	11.20%	11.20%	11.20%

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

² The Approved Funding Rates shown are the rates approved by the Board based on the results of the June 30, 2017 valuation and become effective July 1, 2018 for the State and January 1, 2019 for the Political Subdivisions.

³ The Approved Funding Rate shown is the aggregate rate for Political Subdivisions.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Total PERF – Summary of Valuation Results (Continued)^{1, 2}

	<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 ³					
Number					
State	42,742	42,770	41,313	38,194	38,394
Political Subdivisions	95,125	94,727	96,976	92,260	95,379
ASA Only	<u>70</u>	<u>70</u>	<u>371</u>	<u>724</u>	<u>1,136</u>
Total	137,937	137,567	138,660	131,178	134,909
Average Age	47.8	47.8	47.7	47.8	47.4
Average Years of Service	11.6	11.6	11.5	11.5	11.1
Anticipated Payroll of Actives ⁴					
State	1,647,453,669	1,758,268,220	1,698,936,078	1,654,540,326	1,676,236,445
Political Subdivisions	<u>3,119,456,205</u>	<u>3,321,824,076</u>	<u>3,265,877,310</u>	<u>3,359,471,622</u>	<u>3,454,200,301</u>
Total	\$ 4,766,909,874	\$ 5,080,092,296	\$ 4,964,813,388	\$ 5,014,011,948	\$ 5,130,436,746
Inactive - Vested					
Number	23,496	24,013	26,681	29,702	30,816
Average Age	53.1	53.0	53.6	53.3	53.3
Average Years of Service	12.0	11.9	12.1	11.8	11.6
Inactive - Non-Vested					
Number	50,997	50,997	43,803	50,212	50,312
Retiree/Beneficiary/Disabled					
Number	75,950	75,950	79,198	83,188	85,130
Average Age	72.5	72.5	72.6	72.5	72.6
Annual Benefits Payable ⁵					
Pension	515,868,841	515,868,841	551,559,148	601,327,808	628,097,871
ASA Annuities	<u>102,108,467</u>	<u>102,108,467</u>	<u>112,208,080</u>	<u>128,038,484</u>	<u>129,753,450</u>
Total	\$ 617,977,308	\$ 617,977,308	\$ 663,767,228	\$ 729,366,292	\$ 757,851,321

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

² Headcounts reflect the record counts used in the valuation, which may include duplicate records for members such as members with multiple periods of service.

³ Does not include statistics on active members who joined after the date of the census data, except for the number of actives.

⁴ Figures shown are the anticipated pay for the one-year period following the valuation date.

⁵ Figures shown reflect cost-of-living increases effective January 1 following the date of the census data, if provided, but do not reflect one-time 13th check amounts provided or new ASA annuitizations after the date of the census data.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Total PERF – 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)					
ASA Account Balance	\$ 2,796,102,616	\$ 2,851,500,608	\$ 2,717,173,311	\$ 2,656,892,220	\$ 2,770,961,812
ASA Annuities - Retiree/Beneficiary/Disabled	1,005,166,415	1,090,399,829	1,303,756,949	1,344,611,097	1,353,656,867
Pension - Retiree/Beneficiary/Disabled	5,362,652,879	5,160,501,824	5,677,550,747	6,250,477,584	6,481,305,285
Pension - Active and Inactive					
State	2,635,640,409	2,855,695,328	3,058,855,272	2,929,937,140	3,000,644,492
Political Subdivisions	4,346,118,470	4,774,125,060	5,223,231,984	5,227,028,939	5,499,646,538
Total	<u>\$ 6,981,758,879</u>	<u>\$ 7,629,820,388</u>	<u>\$ 8,282,087,256</u>	<u>\$ 8,156,966,079</u>	<u>\$ 8,500,291,030</u>
Total	\$ 16,145,680,789	\$ 16,732,222,649	\$ 17,980,568,263	\$ 18,408,946,980	\$ 19,106,214,994
Actuarial Value of Assets (AVA)					
ASA Account Balance	\$ 2,796,102,616	\$ 2,851,500,608	\$ 2,717,173,311	\$ 2,656,892,220	\$ 2,770,961,812
ASA Annuities - Retiree/Beneficiary/Disabled	1,005,166,415	1,090,399,829	1,303,756,949	1,344,611,097	1,353,656,867
Pension - Retiree/Beneficiary/Disabled	5,362,652,879	5,160,501,824	5,677,550,747	6,250,477,584	6,481,305,285
Pension - Active and Inactive	3,783,361,323	4,688,858,694	4,433,402,602	4,301,078,525	4,492,995,709
Total	<u>\$ 12,947,283,233</u>	<u>\$ 13,791,260,955</u>	<u>\$ 14,131,883,609</u>	<u>\$ 14,553,059,426</u>	<u>\$ 15,098,919,673</u>
Market Value of Assets (MVA)					
ASA Account Balance	\$ 2,796,102,616	\$ 2,851,500,608	\$ 2,717,173,311	\$ 2,656,892,220	\$ 2,770,961,812
ASA Annuities - Retiree/Beneficiary/Disabled	1,005,166,415	1,090,399,829	1,303,756,949	1,344,611,097	1,353,656,867
Pension - Retiree/Beneficiary/Disabled	5,362,652,879	5,160,501,824	5,677,550,747	6,250,477,584	6,481,305,285
Pension - Active and Inactive	3,556,679,808	5,001,885,293	4,209,185,206	3,618,521,543	4,038,747,561
Total	<u>\$ 12,720,601,718</u>	<u>\$ 14,104,287,554</u>	<u>\$ 13,907,666,213</u>	<u>\$ 13,870,502,444</u>	<u>\$ 14,644,671,525</u>
Unfunded Actuarial Accrued Liability: AAL - AVA					
ASA Account Balance	\$ -	\$ -	\$ -	\$ -	\$ -
ASA Annuities - Retiree/Beneficiary/Disabled	-	-	-	-	-
Pension - Retiree/Beneficiary/Disabled	-	-	-	-	-
Pension - Active and Inactive	3,198,397,556	2,940,961,694	3,848,684,654	3,855,887,554	4,007,295,321
Total	<u>\$ 3,198,397,556</u>	<u>\$ 2,940,961,694</u>	<u>\$ 3,848,684,654</u>	<u>\$ 3,855,887,554</u>	<u>\$ 4,007,295,321</u>
Funded Percentage: AVA / AAL ^{1,2}					
ASA Account Balance	100.0%	100.0%	100.0%	100.0%	100.0%
ASA Annuities - Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Pension - Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Pension - Active and Inactive	54.2%	61.5%	53.5%	52.7%	52.9%
Total	<u>80.2%</u>	<u>82.4%</u>	<u>78.6%</u>	<u>79.1%</u>	<u>79.0%</u>
Summary of Assumptions					
Valuation Interest Rate	6.75%	6.75%	6.75%	6.75%	6.75%
Salary Scale	3.25% - 4.5%	3.25% - 4.5%	2.5% - 4.25%	2.5% - 4.25%	2.5% - 4.25%
Cost-of-Living Assumption	1.0%	1.0%	1.0%	1.0%	1.0%

¹ For the 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 ASA Annuities, then to the retiree/beneficiary/disabled liability, and then to the active/inactive liability.

² The funded percentage as of June 30, 2017 with ASA balances removed from AVA and AAL is 75.5%.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

State – Summary of Valuation Results (Continued) ¹

	June 30, 2013	June 30, 2014	June 30, 2015	June 30, 2016	June 30, 2017
Actuarial Accrued Liability (AAL)					
ASA Account Balance	\$ 932,034,205	\$ 950,500,203	\$ 905,724,437	\$ 885,630,740	\$ 923,653,937
ASA Annuities - Retiree/Beneficiary/Disabled	335,055,472	363,466,610	434,585,650	448,203,699	451,218,956
Pension - Retiree/Beneficiary/Disabled	1,787,550,960	1,720,167,275	1,892,516,915	2,083,492,528	2,160,435,095
Pension - Active and Inactive	2,635,640,409	2,855,695,328	3,058,855,272	2,929,937,140	3,000,644,492
Total	\$ 5,690,281,046	\$ 5,889,829,416	\$ 6,291,682,274	\$ 6,347,264,107	\$ 6,535,952,480
Actuarial Value of Assets (AVA)					
ASA Account Balance	\$ 932,034,205	\$ 950,500,203	\$ 905,724,437	\$ 885,630,740	\$ 923,653,937
ASA Annuities - Retiree/Beneficiary/Disabled	335,055,472	363,466,610	434,585,650	448,203,699	451,218,956
Pension - Retiree/Beneficiary/Disabled	1,787,550,960	1,720,167,275	1,892,516,915	2,083,492,528	2,160,435,095
Pension - Active and Inactive	1,360,730,908	1,686,564,962	1,586,987,445	1,560,578,149	1,611,901,199
Total	\$ 4,415,371,545	\$ 4,720,699,050	\$ 4,819,814,447	\$ 4,977,905,116	\$ 5,147,209,187
Market Value of Assets (MVA)					
ASA Account Balance	\$ 932,034,205	\$ 950,500,203	\$ 905,724,437	\$ 885,630,740	\$ 923,653,937
ASA Annuities - Retiree/Beneficiary/Disabled	335,055,472	363,466,610	434,585,650	448,203,699	451,218,956
Pension - Retiree/Beneficiary/Disabled	1,787,550,960	1,720,167,275	1,892,516,915	2,083,492,528	2,160,435,095
Pension - Active and Inactive	1,279,202,204	1,799,159,461	1,506,726,250	1,312,923,170	1,448,935,734
Total	\$ 4,333,842,841	\$ 4,833,293,549	\$ 4,739,553,252	\$ 4,730,250,137	\$ 4,984,243,722
Unfunded Actuarial Accrued Liability: AAL - AVA					
ASA Account Balance	\$ -	\$ -	\$ -	\$ -	\$ -
ASA Annuities - Retiree/Beneficiary/Disabled	-	-	-	-	-
Pension - Retiree/Beneficiary/Disabled	-	-	-	-	-
Pension - Active and Inactive	1,274,909,501	1,169,130,366	1,471,867,827	1,369,358,991	1,388,743,293
Total	\$ 1,274,909,501	\$ 1,169,130,366	\$ 1,471,867,827	\$ 1,369,358,991	\$ 1,388,743,293
Funded Percentage: AVA / AAL ²					
ASA Account Balance	100.0%	100.0%	100.0%	100.0%	100.0%
ASA Annuities - Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Pension - Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Pension - Active and Inactive	51.6%	59.1%	51.9%	53.3%	53.7%
Total	77.6%	80.2%	76.6%	78.4%	78.8%
Summary of Assumptions					
Valuation Interest Rate	6.75%	6.75%	6.75%	6.75%	6.75%
Salary Scale	3.25% - 4.5%	3.25% - 4.5%	2.5% - 4.25%	2.5% - 4.25%	2.5% - 4.25%
Cost-of-Living Assumption	1.0%	1.0%	1.0%	1.0%	1.0%

¹ As requested by INPRS, one-third (1/3) of the retired / disabled / beneficiary member liability, ASA account balances, and ASA annuities has been allocated to the State and the remaining two-thirds (2/3) to the Political Subdivisions.

² For the 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 ASA Annuities, then to the retiree/beneficiary/disabled liability, and then to the active/inactive liability.

SECTION I - EXECUTIVE SUMMARY

HISTORICAL SUMMARY (CONTINUED)

Political Subdivisions – 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>
Actuarial Accrued Liability (AAL)					
ASA Account Balance	\$ 1,864,068,411	\$ 1,901,000,405	\$ 1,811,448,874	\$ 1,771,261,480	\$ 1,847,307,875
ASA Annuities - Retiree/Beneficiary/Disabled	670,110,943	726,933,219	869,171,299	896,407,398	902,437,911
Pension - Retiree/Beneficiary/Disabled	3,575,101,919	3,440,334,549	3,785,033,832	4,166,985,056	4,320,870,190
Pension - Active and Inactive	4,346,118,470	4,774,125,060	5,223,231,984	5,227,028,939	5,499,646,538
Total	<u>\$ 10,455,399,743</u>	<u>\$ 10,842,393,233</u>	<u>\$ 11,688,885,989</u>	<u>\$ 12,061,682,873</u>	<u>\$ 12,570,262,514</u>
Actuarial Value of Assets (AVA)					
ASA Account Balance	\$ 1,864,068,411	\$ 1,901,000,405	\$ 1,811,448,874	\$ 1,771,261,480	\$ 1,847,307,875
ASA Annuities - Retiree/Beneficiary/Disabled	670,110,943	726,933,219	869,171,299	896,407,398	902,437,911
Pension - Retiree/Beneficiary/Disabled	3,575,101,919	3,440,334,549	3,785,033,832	4,166,985,056	4,320,870,190
Pension - Active and Inactive	2,422,630,415	3,002,293,732	2,846,415,157	2,740,500,376	2,881,094,510
Total	<u>\$ 8,531,911,688</u>	<u>\$ 9,070,561,905</u>	<u>\$ 9,312,069,162</u>	<u>\$ 9,575,154,310</u>	<u>\$ 9,951,710,486</u>
Market Value of Assets (MVA)					
ASA Account Balance	\$ 1,864,068,411	\$ 1,901,000,405	\$ 1,811,448,874	\$ 1,771,261,480	\$ 1,847,307,875
ASA Annuities - Retiree/Beneficiary/Disabled	670,110,943	726,933,219	869,171,299	896,407,398	902,437,911
Pension - Retiree/Beneficiary/Disabled	3,575,101,919	3,440,334,549	3,785,033,832	4,166,985,056	4,320,870,190
Pension - Active and Inactive	2,277,477,604	3,202,725,832	2,702,458,956	2,305,598,373	2,589,811,827
Total	<u>\$ 8,386,758,877</u>	<u>\$ 9,270,994,005</u>	<u>\$ 9,168,112,961</u>	<u>\$ 9,140,252,307</u>	<u>\$ 9,660,427,803</u>
Unfunded Actuarial Accrued Liability: AAL - AVA					
ASA Account Balance	\$ -	\$ -	\$ -	\$ -	\$ -
ASA Annuities - Retiree/Beneficiary/Disabled	-	-	-	-	-
Pension - Retiree/Beneficiary/Disabled	-	-	-	-	-
Pension - Active and Inactive	1,923,488,055	1,771,831,328	2,376,816,827	2,486,528,563	2,618,552,028
Total	<u>\$ 1,923,488,055</u>	<u>\$ 1,771,831,328</u>	<u>\$ 2,376,816,827</u>	<u>\$ 2,486,528,563</u>	<u>\$ 2,618,552,028</u>
Funded Percentage: AVA / AAL ²					
ASA Account Balance	100.0%	100.0%	100.0%	100.0%	100.0%
ASA Annuities - Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Pension - Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Pension - Active and Inactive	55.7%	62.9%	54.5%	52.4%	52.4%
Total	<u>81.6%</u>	<u>83.7%</u>	<u>79.7%</u>	<u>79.4%</u>	<u>79.2%</u>
Summary of Assumptions					
Valuation Interest Rate	6.75%	6.75%	6.75%	6.75%	6.75%
Salary Scale	3.25% - 4.5%	3.25% - 4.5%	2.5% - 4.25%	2.5% - 4.25%	2.5% - 4.25%
Cost-of-Living Assumption	1.0%	1.0%	1.0%	1.0%	1.0%

¹ As requested by INPRS, one-third (1/3) of the retired / disabled / beneficiary member liability, ASA account balances, and ASA annuities has been allocated to the State and the remaining two-thirds (2/3) to the Political Subdivisions.

² For the 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 ASA Annuities, 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 Status¹

	June 30, 2016	June 30, 2017
1. Actuarial Accrued Liability		
a. Annuity Savings Account Balances ²	\$ 2,656,892,220	\$ 2,770,961,812
b. Annuity Savings Account Annuities	1,344,611,097	1,353,656,867
c. Retirees, Beneficiaries, and Disableds	6,250,477,584	6,481,305,285
d. Actives and Inactives	8,156,966,079	8,500,291,030
e. Total: (1)(a) + (1)(b) + (1)(c) + (1)(d)	\$ 18,408,946,980	\$ 19,106,214,994
2. Actuarial Value of Assets		
a. Annuity Savings Account Balances ³	\$ 2,656,892,220	\$ 2,770,961,812
b. Annuity Savings Account Annuities	1,344,611,097	1,353,656,867
c. Retirees, Beneficiaries, and Disableds	6,250,477,584	6,481,305,285
d. Actives and Inactives	4,301,078,525	4,492,995,709
e. Total: (2)(a) + (2)(b) + (2)(c) + (2)(d)	\$ 14,553,059,426	\$ 15,098,919,673
3. Unfunded Actuarial Accrued Liability ²		
a. Annuity Savings Account Balances: (1)(a) - (2)(a)	\$ -	\$ -
b. Annuity Savings Account Annuities: (1)(b) - (2)(b)	-	-
c. Retirees, Beneficiaries, and Disableds: (1)(c) - (2)(c)	-	-
d. Actives and Inactives: (1)(d) - (2)(d)	3,855,887,554	4,007,295,321
e. Total: (1)(e) - (2)(e)	\$ 3,855,887,554	\$ 4,007,295,321
4. Funded Percentage ²		
a. Annuity Savings Account Balances: (2)(a) / (1)(a)	100.0%	100.0%
b. Annuity Savings Account Annuities: (2)(b) / (1)(b)	100.0%	100.0%
c. Retirees, Beneficiaries, and Disableds: (2)(c) / (1)(c)	100.0%	100.0%
d. Actives and Inactives: (2)(d) / (1)(d)	52.7%	52.9%
e. Total: (2)(e) / (1)(e)	79.1%	79.0%

¹ The funded percentage with ASA balances removed from AVA and AAL as of June 30, 2016 and June 30, 2017 is 75.5% and 75.5%, respectively.

² Includes non-vested balances of \$1,708,107 as of June 30, 2016 and \$2,228,097 as of June 30, 2017 for ASA-only members.

³ For the 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 ASA Annuities, 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	\$	3,855,887,554
2. Normal Cost		194,101,310
3. Actuarially Determined Contribution		499,476,491
4. Interest of 6.75% on (1) + (2) - (3)		239,659,585
5. Expected June 30, 2017 Unfunded Actuarial Accrued Liability (1) + (2) - (3) + (4)	\$	3,790,171,958
6. Actuarial Value of Assets Experience (Gain)/Loss		
a. Investment Experience	\$	198,231,371
b. Contribution and Payroll Experience		(64,115,086)
7. Actuarial Accrued Liability Experience (Gain)/Loss		
a. Actuarial Accrued Liability Experience	\$	173,640,672
b. Additional Liability Due to Actuarial Audit Changes ¹		70,061,426
c. Additional Liability Due to Cost-of-living Adjustments ²		(90,677,044)
d. Additional Liability Due to Changes in Actuarial Assumptions ³		(47,252,253)
e. Additional Liability Due to Changes in Plan Provisions ⁴		(22,765,723)
8. Total Experience (Gain)/Loss - New Amortization Base (6)(a) + (6)(b) + (7)(a) + (7)(b) + (7)(c) + (7)(d) + (7)(e)	\$	217,123,363
9. Actual June 30, 2017 Unfunded Actuarial Accrued Liability (5) + (8)	\$	4,007,295,321

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 adding a load on final average salary of \$400 to reflect unused sick leave accumulated at termination of employment for active and inactive vested members.

² Retired members will be provided a 13th check by October 1, 2017 and October 1, 2018, rather than a 1.0% COLA on January 1, 2018 and January 1, 2019, respectively.

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) Total Data Set Mortality tables.

⁴ Per INPRS, ASA annuitizations will be accommodated through a third party annuity provider beginning January 1, 2018, compared to the previous anticipated start date of April 1, 2017.

SECTION II - FUNDING

C. Actuarial Accrued Liability Reconciliation

1. June 30, 2016 Total Actuarial Accrued Liability	\$	18,408,946,980	
2. June 30, 2016 Annuity Savings Account Balances		2,656,892,220	
3. June 30, 2016 Actuarial Accrued Liability, Excluding ASA Balances: (1) - (2)	\$	15,752,054,760	
4. Normal Cost	\$	194,101,310	
5. Actual Benefit Payments ¹		824,338,986	
6. ASA Annuitizations		78,792,615	
7. Service Purchases (Employer and Member)		418,922	
8. Interest of 6.75% on (3) + (4) - (5)/2 + (6)/2 + (7)/2		1,051,217,483	
9. Expected June 30, 2017 Actuarial Accrued Liability, Excluding ASA Balances: (3) + (4) - (5) + (6) + (7) + (8)	\$	16,252,246,104	
		<u>Dollar Change in</u>	<u>Percent Change in</u>
		<u>Defined Benefit Liability</u>	<u>Defined Benefit Liability</u>
10. (Gain)/Loss Components			
a. Actuarial Accrued Liability Experience	\$	173,640,672	1.1%
b. Actuarial Audit Changes ²		70,061,426	0.4%
c. Cost-of-Living Adjustment ³		(90,677,044)	(0.6%)
d. Changes in Actuarial Assumptions ⁴		(47,252,253)	(0.3%)
e. Changes in Plan Provisions ⁵		(22,765,723)	(0.1%)
f. Total: (10)(a) + (10)(b) + (10)(c) + (10)(d) + (10)(e)	\$	83,007,078	0.5%
11. Actual June 30, 2017 Actuarial Accrued Liability, Excluding ASA Balances	\$	16,335,253,182	
12. June 30, 2017 Annuity Savings Account Balances		2,770,961,812	
13. Actual June 30, 2017 Total Actuarial Accrued Liability: (11) + (12)	\$	19,106,214,994	

¹ Includes net interfund transfers of employer contributed amounts, but does not include ASA lump sum payments to retired members or other distribution of accumulated ASA balances.

² 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 adding a load on final average salary of \$400 to reflect unused sick leave accumulated at termination of employment for active and inactive vested members.

³ Retired members will be provided a 13th check by October 1, 2017 and October 1, 2018, rather than a 1.0% COLA on January 1, 2018 and January 1, 2019, respectively.

⁴ 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) Total Data Set Mortality tables.

⁵ Per INPRS, ASA annuitizations will be accommodated through a third party annuity provider beginning January 1, 2018, compared to the previous anticipated start date of April 1, 2017.

SECTION II - FUNDING

D. Reconciliation of Market Value of Assets

	June 30, 2016	June 30, 2017
1. Market Value of Assets, Prior June 30 ¹	\$ 13,907,666,213	\$ 13,870,502,444
2. Receipts		
a. Employer Contributions ²	\$ 615,773,383	\$ 558,892,767
b. Member Contributions ³	161,904,594	168,111,354
c. Investment Income and Dividends Net of Fees	148,365,200	1,039,746,676
d. Security Lending Income Net of Fees	1,528,629	1,137,755
e. Transfers In	5,543,095	6,117,303
f. Miscellaneous Income	905,304	55,031
g. Total Receipts: (2)(a) + (2)(b) + (2)(c) + (2)(d) + (2)(e) + (2)(f)	\$ 934,020,205	\$ 1,774,060,886
3. Disbursements		
a. Benefits Paid During the Year ⁴	\$ 879,088,391	\$ 917,033,358
b. Refund of Contributions and Interest	57,183,690	47,820,459
c. Administrative Expenses	24,098,191	24,483,053
d. Transfers Out	10,813,702	10,554,935
e. Miscellaneous Disbursements	-	-
f. Total Disbursements: (3)(a) + (3)(b) + (3)(c) + (3)(d) + (3)(e)	\$ 971,183,974	\$ 999,891,805
4. Market Value of Assets, Current June 30: (1) + (2)(g) - (3)(f) ¹	\$ 13,870,502,444	\$ 14,644,671,525
5. Market Value of Assets Approximate Annual Rate of Return ⁵	0.9%	7.4%

¹ Includes member ASA balances.

² Includes \$316,697 of employer service purchases during fiscal year 2016 and \$231,880 of employer service purchases during fiscal year 2017.

³ Includes \$176,993 of member service purchases during fiscal year 2016 and \$187,042 of member service purchases during fiscal year 2017.

⁴ Includes ASA lump sum payments to retired members and other distributions of accumulated ASA balances.

⁵ Based on individual fund experience, including ASA balances. Net of expenses and assumes cash flows occur at mid-year.

SECTION II - FUNDING

E. Reconciliation of Actuarial Value of Assets

1.	Market Value of Assets, June 30, 2016																						
	a. Total Market Value of Assets, June 30, 2016	\$	13,870,502,444																				
	b. Annuity Savings Account Balances, June 30, 2016		2,656,892,220																				
	c. Market Value of Assets, Excluding ASA Balances: June 30, 2016:	\$	11,213,610,224																				
	(1)(a) - (1)(b)																						
2.	Market Value of Assets, June 30, 2017																						
	a. Total Market Value of Assets, June 30, 2017	\$	14,644,671,525																				
	b. Annuity Savings Account Balances, June 30, 2017		2,770,961,812																				
	c. Market Value of Assets, Excluding ASA Balances: June 30, 2017:	\$	11,873,709,713																				
	(2)(a) - (2)(b)																						
3.	Expected Earnings/Expenses at 6.75% on June 30, 2016 Defined Benefit Market Value of Assets																						
	a. Expected Investment Earnings at 6.75% on June 30, 2016 Market Value	\$	756,918,690																				
	b. Receipts with Expected Investment Earnings at 6.75% ¹		582,717,567																				
	c. Disbursements with Expected Investment Earnings at 6.75% ¹		856,456,144																				
	d. ASA Annuizations with Expected Investment Earnings at 6.75% ¹		81,451,866																				
4.	Expected Market Value of Assets, June 30, 2017																						
	a. Expected Market Value of Assets, Excluding ASA Balances, June 30, 2017: (1)(c) + (3)(a) + (3)(b) - (3)(c) + (3)(d)	\$	11,778,242,203																				
	b. Annuity Savings Account Balances, June 30, 2017		2,770,961,812																				
	c. Expected Total Market Value of Assets, June 30, 2017	\$	14,549,204,015																				
5.	2016-2017 Gain/(Loss): (2)(c) - (4)(a)	\$	95,467,510																				
6.	Smoothing of Gain/(Loss)																						
	<table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Year</th> <th style="text-align: center; border-bottom: 1px solid black;">Gain/(Loss)</th> <th style="text-align: center; border-bottom: 1px solid black;">% Unrecognized</th> <th></th> </tr> </thead> <tbody> <tr> <td>a. 2016-2017</td> <td style="text-align: right;">\$ 95,467,510</td> <td style="text-align: center;">80%</td> <td style="text-align: right;">\$ 76,374,008</td> </tr> <tr> <td>b. 2015-2016</td> <td style="text-align: right;">\$ (628,978,831)</td> <td style="text-align: center;">60%</td> <td style="text-align: right;">\$ (377,387,299)</td> </tr> <tr> <td>c. 2014-2015</td> <td style="text-align: right;">\$ (793,525,289)</td> <td style="text-align: center;">40%</td> <td style="text-align: right;">\$ (317,410,116)</td> </tr> <tr> <td>d. 2013-2014</td> <td style="text-align: right;">\$ 820,876,296</td> <td style="text-align: center;">20%</td> <td style="text-align: right;">\$ 164,175,259</td> </tr> </tbody> </table>	Year	Gain/(Loss)	% Unrecognized		a. 2016-2017	\$ 95,467,510	80%	\$ 76,374,008	b. 2015-2016	\$ (628,978,831)	60%	\$ (377,387,299)	c. 2014-2015	\$ (793,525,289)	40%	\$ (317,410,116)	d. 2013-2014	\$ 820,876,296	20%	\$ 164,175,259		
Year	Gain/(Loss)	% Unrecognized																					
a. 2016-2017	\$ 95,467,510	80%	\$ 76,374,008																				
b. 2015-2016	\$ (628,978,831)	60%	\$ (377,387,299)																				
c. 2014-2015	\$ (793,525,289)	40%	\$ (317,410,116)																				
d. 2013-2014	\$ 820,876,296	20%	\$ 164,175,259																				
7.	Preliminary Actuarial Value of Assets, June 30, 2017: (2)(a) - (6)(a) - (6)(b) - (6)(c) - (6)(d)	\$	15,098,919,673																				
8.	Corridor																						
	a. 120% of Market Value: 1.2 x (2)(a)		17,573,605,830																				
	b. 80% of Market Value: 0.8 x (2)(a)		11,715,737,220																				
9.	Actuarial Value of Assets, June 30, 2017: (7), but not greater than (8)(a) or less than (8)(b)	\$	15,098,919,673																				
10.	Actuarial Value of Assets as a Percent of Market Value: (9) / (2)(a)		103.1%																				
11.	Actuarial Value of Assets Approximate Annual Rate of Investment Return ²		5.5%																				

¹ Assumes cash flows occur at mid-year.

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

SECTION II - FUNDING

F. Allocation of Assets

	June 30, 2016	June 30, 2017
1. Total Assets Available for Benefit		
a. Market Value of Assets	\$ 13,870,502,444	\$ 14,644,671,525
b. Actuarial Value of Assets	14,553,059,426	15,098,919,673
2. Annuity Savings Accounts	2,656,892,220	2,770,961,812
3. Assets for Retirees, Beneficiaries, and Disabled Members, including ASA Annuities		
a. Retirees, Beneficiaries, and Disabled	\$ 6,250,477,584	\$ 6,481,305,285
b. ASA Annuities	1,344,611,097	1,353,656,867
c. Total	\$ 7,595,088,681	\$ 7,834,962,152
4. Total Non-Retired Assets		
a. Market Value of Assets: (1)(a) - (2) - (3)(c)	\$ 3,618,521,543	\$ 4,038,747,561
b. Actuarial Value of Assets: (1)(b) - (2) - (3)(c)	\$ 4,301,078,525	\$ 4,492,995,709
5. Total Ledger Assets	\$ 4,923,994,793	\$ 4,992,324,641
a. State Amount	\$ 1,786,593,440	\$ 1,791,039,786
b. State Percent	36.3%	35.9%
c. Political Subdivisions Amount	\$ 3,137,401,353	\$ 3,201,284,855
d. Political Subdivisions Percent	63.7%	64.1%
6. State Allocation of Non-Retired Assets		
a. Market Value of Assets: (4)(a) x (5)(b)	\$ 1,312,923,170	\$ 1,448,935,734
b. Actuarial Value of Assets: (4)(b) x (5)(b)	\$ 1,560,578,149	\$ 1,611,901,199
7. Political Subdivisions Allocation of Non-Retired Assets		
a. Market Value of Assets: (4)(a) x (5)(d)	\$ 2,305,598,373	\$ 2,589,811,827
b. Actuarial Value of Assets: (4)(b) x (5)(d)	\$ 2,740,500,376	\$ 2,881,094,510

SECTION II - FUNDING

G. State – Contribution Rate

	June 30, 2016	June 30, 2017
Development of Actuarially Determined Contribution Rate:		
1. Anticipated Payroll	\$ 1,654,540,326	\$ 1,676,236,445
2. Normal Cost (Beginning of Year)		
a. Amount	\$ 56,202,817	\$ 57,208,360
b. Percentage of Payroll	3.40%	3.41%
3. Unfunded Actuarial Accrued Liability (UAAL) Annual Amortizations		
a. Amount	\$ 107,347,055	\$ 110,949,617
b. Percentage of Payroll	6.49%	6.62%
4. Actuarially Determined Contribution Rate:		
a. Percentage of Payroll: (2)(b) + (3)(b)	9.89%	10.03%
b. Effective Date	July 1, 2017	July 1, 2018
Approved Funding Rate:	11.2%	11.2%
Expected Percentage of Actuarially Determined Contribution Contributed:		
6. Fiscal Year Beginning	July 1, 2017	July 1, 2018
7. Actuarially Determined Contribution Rate:	9.89%	10.03%
8. Approved Funding Rate:	11.2%	11.2%
9. Expected Percentage of Actuarially Determined Contribution Rate Contributed: (8) / (7)	113.25%	111.67%

SECTION II - FUNDING

H. Political Subdivisions – Aggregate Contribution Rate

	June 30, 2016	June 30, 2017
Development of Aggregate Actuarially Determined Contribution:		
1. Anticipated Payroll	\$ 3,359,471,622	\$ 3,454,200,301
2. Normal Cost (Beginning of Year)		
a. Amount	\$ 137,898,493	\$ 145,115,274
b. Percentage of Payroll	4.10%	4.20%
3. Unfunded Actuarial Accrued Liability (UAAL) Annual Amortizations		
a. Amount	\$ 198,028,126	\$ 213,253,098
b. Percentage of Payroll	5.89%	6.17%
4. Aggregate Actuarially Determined Contribution Rate:		
a. Percentage of Payroll: (2)(b) + (3)(b)	9.99%	10.37%
b. Effective Date	January 1, 2018	January 1, 2019
Approved Funding Rate:	11.2% ¹	11.2% ²
Expected Percentage of Aggregate Actuarially Determined Contribution Rate Contributed:		
6. Fiscal Year Beginning	July 1, 2017	July 1, 2018
7. Aggregate Actuarially Determined Contribution Rates for:		
a. July 1 - December 31	9.76%	9.99%
b. January 1 - June 30	9.99%	10.37%
8. Approved Funding Rates for:		
a. July 1 - December 31	11.2%	11.2%
b. January 1 - June 30	11.2%	11.2%
9. Expected Percentage of Aggregate Actuarially Determined Contribution Rate Contributed:	113.42%	110.02%
$\frac{\{(8)(a) + (8)(b)\} / 2}{\{(7)(a) + (7)(b)\} / 2}$		

¹ Weighted average approved rate for all Political Subdivisions. The approved composite rate is 11.20% for the year beginning January 1, 2018, but a lower rate was approved for some Political Subdivisions that have yet to be phased into the composite rate group.

² For the year beginning January 1, 2019 based on June 30, 2017 valuation, all Political Subdivisions have been phased into the composite rate group.

SECTION II - FUNDING

Unfunded Actuarial Accrued Liability Amortization Schedule ¹

I. State

	Date Base Established	Reason	Remaining Unfunded	Remaining Period	Amortization Amount
1.	6/30/2008	Fresh Start	\$ 38,654,570	21	\$ 3,274,972
2.	6/30/2009	Actuarial Experience	246,821,572	22	20,471,745
3.	6/30/2010	Actuarial Experience and Changes in Actuarial Assumptions	503,785,690	23	40,977,084
4.	6/30/2011	Actuarial Experience and Changes in Actuarial Assumptions	221,726,673	24	17,714,135
5.	6/30/2012	Actuarial Experience and Changes in Actuarial Assumptions	288,798,371	25	22,694,524
6.	6/30/2013	Actuarial Experience and Changes in Plan Provisions	(103,006,808)	26	(7,972,163)
7.	6/30/2014	Actuarial Experience and Changes in Plan Provisions	(84,987,964)	27	(6,485,747)
8.	6/30/2015	Actuarial Experience and Changes in Actuarial Assumptions	313,276,798	28	23,598,603
9.	6/30/2016	Actuarial Experience	(77,871,164)	19	(6,926,098)
10.	6/30/2017	Actuarial Experience, Changes in Actuarial Assumptions and Changes in Plan Provisions	41,545,555	20	3,602,562
	Total		\$ 1,388,743,293	24.1 ²	\$ 110,949,617

J. Political Subdivisions

	Date Base Established	Reason	Remaining Unfunded	Remaining Period	Amortization Amount
1.	6/30/2006	Fresh Start	\$ 193,160,898	19	\$ 17,180,318
2.	6/30/2007	Actuarial Experience and Changes in Actuarial Assumptions	3,907,414	20	338,826
3.	6/30/2008	Actuarial Experience	40,848,705	21	3,460,869
4.	6/30/2009	Actuarial Experience	302,270,411	22	25,070,753
5.	6/30/2010	Actuarial Experience and Changes in Actuarial Assumptions	603,212,094	23	49,064,261
6.	6/30/2011	Actuarial Experience and Changes in Actuarial Assumptions	504,646,073	24	40,317,066
7.	6/30/2012	Actuarial Experience and Changes in Actuarial Assumptions	477,217,739	25	37,501,005
8.	6/30/2013	Actuarial Experience and Changes in Plan Provisions	(325,203,903)	26	(25,169,001)
9.	6/30/2014	Actuarial Experience and Changes in Plan Provisions	(119,359,616)	27	(9,108,776)
10.	6/30/2015	Actuarial Experience and Changes in Actuarial Assumptions	618,901,813	28	46,620,811
11.	6/30/2016	Actuarial Experience	143,372,592	19	12,751,994
12.	6/30/2017	Actuarial Experience, Changes in Actuarial Assumptions and Changes in Plan Provisions	175,577,808	20	15,224,972
	Total		\$ 2,618,552,028	23.2 ²	\$ 213,253,098

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

² The weighted average remaining UAAL amortization period is calculated by weighting the remaining amortization period of each base by the amortization amount of each base.

SECTION II - FUNDING

K. History of Employer Contribution Rates ¹

<u>Valuation Date</u>	<u>State</u>		<u>Political Subdivisions (Aggregate)</u>		<u>Weighted Average</u>
	<u>Effective Date</u>	<u>Contribution Rate</u>	<u>Effective Date</u>	<u>Contribution Rate</u>	
June 30, 2001	July 1, 2002	5.2%	January 1, 2003	5.0%	5.1%
June 30, 2002	July 1, 2003	5.6%	January 1, 2004	6.2%	5.9%
June 30, 2003	July 1, 2004	3.8%	January 1, 2005	4.7%	4.4%
June 30, 2004	July 1, 2005	4.5%	January 1, 2006	5.3%	5.0%
June 30, 2005	July 1, 2006	5.5%	January 1, 2007	6.3%	6.0%
June 30, 2006	July 1, 2007	6.3%	January 1, 2008	6.9%	6.7%
June 30, 2007	July 1, 2008	6.3%	January 1, 2009	6.9%	6.6%
June 30, 2008	July 1, 2009	6.5%	January 1, 2010	7.1%	6.8%
June 30, 2009	July 1, 2010	7.0%	January 1, 2011	7.9%	7.6%
June 30, 2010	July 1, 2011	8.6%	January 1, 2012	8.8%	8.7%
June 30, 2011	July 1, 2012	9.7%	January 1, 2013	9.7%	9.7%
June 30, 2012	July 1, 2013	11.2%	January 1, 2014	11.0%	11.1%
June 30, 2013	July 1, 2014	11.2%	January 1, 2015	11.2%	11.2%
June 30, 2014	July 1, 2015	11.2%	January 1, 2016	11.2%	11.2%
June 30, 2015	July 1, 2016	11.2%	January 1, 2017	11.2%	11.2%
June 30, 2016	July 1, 2017	11.2%	January 1, 2018	11.2%	11.2%
June 30, 2017	July 1, 2018	11.2%	January 1, 2019	11.2%	11.2%

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

SECTION II - FUNDING

L. Approximate Annual Rate of Return for Year Ending June 30, 2017 ¹

	<u>Market Value of Assets</u>	<u>Actuarial Value of Assets</u>
1. Balance, beginning of year	\$ 13,870,502,444	\$ 14,553,059,426
2. Balance, end of year	14,644,671,525	15,098,919,673
3. Total increase: (2) - (1)	774,169,081	545,860,247
4. Contributions ²	727,059,152	727,059,152
5. Benefit payments ³	969,291,449	969,291,449
6. Net additions: (4) - (5)	(242,232,297)	(242,232,297)
7. Net investment increase: (3) - (6)	1,016,401,378	788,092,544
8. Average assets: [(1) + (2) - (7)] / 2	13,749,386,296	14,431,943,278
9. Approximate rate of return: (7) / (8)	7.4%	5.5%

M. Historical Investment Experience

<u>Year Ending June 30</u>	<u>Actual Rate of Investment Return</u>		<u>Actuarial Assumed Interest Rate</u>
	<u>Market Basis ⁵</u>	<u>Actuarial Basis ¹</u>	
2008	(7.6%)	5.3%	7.25%
2009	(20.6%)	(0.9%)	7.25%
2010	13.9%	(0.7%)	7.25%
2011	20.1%	(1.2%)	7.0%
2012	0.7%	2.3%	7.0%
2013	6.0%	8.7%	6.75%
2014	13.7%	7.7%	6.75%
2015	0.0%	4.1%	6.75%
2016	1.2%	4.2% ⁴	6.75%
2017	7.9%	5.5%	6.75%

¹ Based on individual fund experience, including ASA balances. 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 miscellaneous income.

³ Includes refunds of accumulated member contributions, ASA lump sum distributions to retired members, and net interfund transfers.

⁴ Net of the impact of changing from four-year to a five-year smoothing.

⁵ INPRS actual time-weighted rate of return net of fees for 2012-2017, excluding ASA balances. PERF Consolidated Defined Benefit time-weighted rate of return reported as gross of fees for 2008-2011.

SECTION II - FUNDING

N. 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 fiscal year beginning July 1, 2018 for State and January 1, 2019 for Political Subdivisions) are shown below and on the following page at interest rates from 5.75% to 8.00%, in 0.25% increments.

	<u>1.00%</u> Decrease: (5.75%)	<u>0.75%</u> Decrease: (6.00%)	<u>0.50%</u> Decrease: (6.25%)	<u>0.25%</u> Decrease: (6.50%)	<u>Current</u> Assumption: (6.75%)
<u>Funded Status</u>					
Actuarial Accrued Liability	\$ 21,151,652,773	\$ 20,603,391,290	\$ 20,080,679,649	\$ 19,582,068,186	\$ 19,106,214,994
Actuarial Value of Assets	<u>15,098,919,673</u>	<u>15,098,919,673</u>	<u>15,098,919,673</u>	<u>15,098,919,673</u>	<u>15,098,919,673</u>
Unfunded Actuarial Accrued Liability	\$ 6,052,733,100	\$ 5,504,471,617	\$ 4,981,759,976	\$ 4,483,148,513	\$ 4,007,295,321
Funded Ratio	71.4%	73.3%	75.2%	77.1%	79.0%
<u>Actuarially Determined Contribution Rate</u>¹					
Normal Cost Percentage	5.16%	4.82%	4.51%	4.22%	3.94%
UAAL Amortization Percentage	<u>9.05%</u>	<u>8.35%</u>	<u>7.66%</u>	<u>6.99%</u>	<u>6.32%</u>
Actuarially Determined Contribution Rate	14.21%	13.17%	12.17%	11.21%	10.26%

¹ Weighted average rate for all participating employers, State and Political Subdivisions.

SECTION II - FUNDING

N. Interest Rate Sensitivity (Continued)

	0.25% Increase: (7.00%)	0.50% Increase: (7.25%)	0.75% Increase: (7.50%)	1.00% Increase: (7.75%)	1.25% Increase: (8.00%)
<u>Funded Status</u>					
Actuarial Accrued Liability	\$ 18,651,801,630	\$ 18,217,683,317	\$ 17,802,727,509	\$ 17,405,886,872	\$ 17,026,179,000
Actuarial Value of Assets	<u>15,098,919,673</u>	<u>15,098,919,673</u>	<u>15,098,919,673</u>	<u>15,098,919,673</u>	<u>15,098,919,673</u>
Unfunded Actuarial Accrued Liability	\$ 3,552,881,957	\$ 3,118,763,644	\$ 2,703,807,836	\$ 2,306,967,199	\$ 1,927,259,327
Funded Ratio	81.0%	82.9%	84.8%	86.7%	88.7%
<u>Actuarially Determined Contribution Rate¹</u>					
Normal Cost Percentage	3.70%	3.47%	3.25%	3.05%	2.87%
UAAL Amortization Percentage	<u>5.66%</u>	<u>5.01%</u>	<u>4.37%</u>	<u>3.74%</u>	<u>3.12%</u>
Actuarially Determined Contribution Rate	9.36%	8.48%	7.62%	6.79%	5.99%

¹ Weighted average rate for all participating employers, State and Political Subdivisions.

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	\$	3,331,681
	b.	Receivables		
		i.	Contributions and Miscellaneous Receivables	\$ 9,867,102
		ii.	Investments Receivable	84,318,792
		iii.	Foreign Exchange Contract Receivable	3,312,933,509
		iv.	Interest and Dividends	37,931,696
		v.	Due From Other Funds	2,222,813
		vi.	Total Receivables	<u>\$ 3,447,273,912</u>
	c.	Total Investments		
		i.	Short-Term Investments	8,674,756
		ii.	Pooled Repurchase Agreements	846,121
		iii.	Pooled Short-Term Investments	682,121,073
		iv.	Pooled Fixed Income	4,109,420,294
		v.	Pooled Equity	3,887,014,365
		vi.	Pooled Alternative Investments	4,751,364,257
		vii.	Pooled Derivatives	(1,358,101)
		viii.	Pooled Investments at Contract Value	1,348,310,917
		ix.	Securities Lending Collateral	<u>129,603,364</u>
		x.	Total Investments	\$ 14,915,997,046
	d.	Net Capital Assets		5,820,276
	e.	Other Assets		<u>102,256</u>
	f.	Total Assets: (1)(a) + (1)(b)(vi) + (1)(c)(x) + (1)(d) + (1)(e)	\$	18,372,525,171
2.	Liabilities			
	a.	Administrative Payable	\$	6,662,102
	b.	Retirement Benefits Payable		9,893,583
	c.	Investments Payable		131,358,445
	d.	Foreign Exchange Contracts Payable		3,324,758,818
	e.	Securities Lending Obligations		129,603,364
	f.	Securities Sold Under Agreement to Repurchase		124,527,055
	g.	Due To Other Funds		1,050,279
	h.	Due To Other Governments		-
	i.	Total Liabilities: (2)(a) + (2)(b) + (2)(c) + (2)(d) + (2)(e) + (2)(f) + (2)(g) + (2)(h)	\$	<u>3,727,853,646</u>
3.	Fiduciary Net Position Restricted for Pensions: (1)(f) - (2)(j)		\$	14,644,671,525

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 ¹	\$	13,870,502,444
2.	Additions		
	a. Contributions		
	i. Member Contributions ¹	\$	167,924,312
	ii. Employer Contributions		558,660,887
	iii. Service Purchases (Employer and Member)		418,922
	iv. Non-Employer Contributing Entity Contributions		-
	v. Total Contributions	\$	727,004,121
	b. Investment Income/(Loss)		
	i. Net Appreciation/(Depreciation) ^{2,3}	\$	935,663,900
	ii. Net Interest and Dividend Income		196,888,826
	iii. Securities Lending Income		1,413,772
	iv. Other Net Investment Income		1,676,501
	v. Investment Expenses		(84,647,041)
	vi. Direct Investment Expenses		(9,835,509)
	vii. Securities Lending Expenses		(276,018)
	viii. Total Investment Income/(Loss)	\$	1,040,884,431
	c. Other Additions		
	i. Member Reassignments	\$	6,117,303
	ii. Miscellaneous Receipts		55,031
	iii. Total Other Additions	\$	6,172,334
	d. Total Revenue (Additions): (2)(a)(v) + (2)(b)(vii) + (2)(c)(iii)	\$	1,774,060,886
3.	Deductions		
	a. Pension and Disability Benefits ⁴	\$	917,033,358
	b. Death, Survivor, and Funeral Benefits		-
	c. Distributions of Contributions and Interest		47,820,459
	d. Member Reassignments		10,554,935
	e. Administrative Expenses ⁵		24,483,053
	f. Total Expenses (Deductions): (3)(a) + (3)(b) + (3)(c) + (3)(d) + (3)(e)	\$	999,891,805
4.	Net Increase (Decrease) in Fiduciary Net Position: (2)(d) - (3)(f)	\$	774,169,081
5.	Fiduciary Net Position as of June 30, 2017: (1) + (4) ¹	\$	14,644,671,525

¹ Includes member ASA balances.

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.

⁴ Includes ASA lump sum payments to retired members.

⁵ Includes \$1,070,073 of hybrid plan contributions and \$237,071 of ASA Only plan contributions by INPRS for its employees.

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		\$ 18,408,946,980
b. Annuity Savings Account Balances - Beginning of Year		2,656,892,220
c. Pension Liability, Excluding ASA Balances - Beginning of Year: (1)(a) - (1)(b)		<u>\$ 15,752,054,760</u>
d. Service Cost ¹		\$ 194,101,310
e. Interest Cost ²		1,051,217,483
f. Experience (Gains)/Losses		82,963,628
g. Assumption Changes		22,809,173
h. Plan Amendments		(22,765,723)
i. ASA Annuitizations		78,792,615
j. Benefit Payments ³		(820,721,414)
k. Member Reassignments ⁴		(3,617,572)
l. Service Purchases (Employer and Member) ⁵		<u>418,922</u>
m. Pension Liability, Excluding ASA Balances - End of Year		\$ 16,335,253,182
n. Annuity Savings Account Balances - End of Year		<u>2,770,961,812</u>
o. Total Pension Liability - End of Year: (1)(m) + (1)(n)		<u>\$ 19,106,214,994</u>
2. Plan Fiduciary Net Position		
a. Plan Fiduciary Net Position - Beginning of Year		\$ 13,870,502,444
b. Annuity Savings Account Balances - Beginning of Year		2,656,892,220
c. Plan Fiduciary Net Position, Excluding ASA Balances - Beginning of Year: (2)(a) - (2)(b)		<u>\$ 11,213,610,224</u>
d. Employer Contributions ⁶		558,892,767
e. Member Contributions ⁷		589,663
f. Non-Employer Contributing Entity Contributions		-
g. Investment Return		
i. Expected Investment Return ⁸	\$ 750,639,032	
ii. Investment Gain/(Loss)	<u>120,007,451</u>	
iii. Net Investment Return		870,646,483
h. ASA Annuitizations		78,792,615
i. Benefit Payments ³		(820,721,414)
j. Member Reassignments ⁴		(3,617,572)
k. Administrative Expenses ⁹		<u>(24,483,053)</u>
l. Plan Fiduciary Net Position, Excluding ASA Balances - End of Year		\$ 11,873,709,713
m. Annuity Savings Account Balances - End of Year		<u>2,770,961,812</u>
n. Plan Fiduciary Net Position - End of Year: (2)(l) + (2)(m)		<u>\$ 14,644,671,525</u>
3. Collective Net Pension Liability		
a. Collective Net Pension Liability: (1)(o) - (2)(n)		\$ 4,461,543,469
b. Plan Fiduciary Net Position as a Percentage of the Collective Pension Liability : (2)(n) / (1)(o) ¹⁰		76.6%

¹ As of the beginning of the year.

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

³ Does not include net interfund transfers of employer contributed amounts, ASA lump sum payments to retired members, or other distributions of accumulated ASA balances.

⁴ Includes net interfund transfers of employer contributed amounts.

⁵ Includes \$231,880 of employer service purchases and \$187,042 of member service purchases.

⁶ Includes \$231,880 of employer service purchases.

⁷ Includes \$187,042 of member service purchases and \$402,621 of ASA Only plan forfeitures transferred to the PERF defined benefit assets.

⁸ 6.75%, net of investment expenses and assuming cash flows occur at mid-year.

⁹ Includes \$1,070,073 of hybrid plan contributions and \$237,071 of ASA Only plan contributions by INPRS for its employees.

¹⁰ The percentage is 75.4% with ASA balances removed from the Plan Fiduciary Net Position and Total Pension Liability.

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, 2017¹

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	\$ 5,053,839	1.50	\$ 3,369,226	\$ 1,684,613
2016	Experience Gain	\$ 3,323,962	2.15	\$ 1,546,029	\$ 1,777,933
b. Outflows					
2015	Experience Loss	\$ (101,678,173)	1.39	\$ (73,149,765)	\$ (28,528,408)
2017	Experience Loss	\$ (82,963,628)	3.10	\$ (26,762,461)	\$ (56,201,167)
2. Assumption Changes					
a. Inflows					
	None				
b. Outflows					
2015	Assumptions Change Loss	\$ (200,239,757)	1.39	\$ (144,057,380)	\$ (56,182,377)
2017	Assumptions Change Loss	\$ (22,809,173)	3.10	\$ (7,357,798)	\$ (15,451,375)
3. Investment Experience ³					
a. Inflows					
2014	Investment Gain	\$ 255,360,797	2.00	\$ 127,680,400	\$ 127,680,397
2017	Investment Gain	\$ 120,007,451	5.00	\$ 24,001,491	\$ 96,005,960
b. Outflows					
2015	Investment Loss	\$ (515,056,518)	3.00	\$ (171,685,507)	\$ (343,371,011)
2016	Investment Loss	\$ (483,155,824)	4.00	\$ (120,788,957)	\$ (362,366,867)
4. Total Deferred Inflows / Outflows: (1) + (2) + (3)					
a. Inflows					
	Total	\$ 383,746,049		\$ 156,597,146	\$ 227,148,903
b. Outflows					
	Total	\$ (1,405,903,073)		\$ (543,801,868)	\$ (862,101,205)

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 collective deferred inflows / (outflows) of resources to be recognized in pension expense:

Year Ending June 30:		
2017	\$	(387,204,722)
2018	\$	(256,392,978)
2019	\$	(302,361,325)
2020	\$	(100,199,486)
2021	\$	24,001,487
2022	\$	-
Thereafter	\$	-

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	\$ 194,101,310
b. Member Contributions ²	\$ (402,621)
c. Administrative Expenses ³	\$ 23,175,909
d. Total Employer Service Cost: (1)(a) + (1)(b) + (1)(c)	\$ 216,874,598
2. Interest Cost ⁴	\$ 1,051,217,483
3. Expected Return on Assets ⁵	\$ (750,639,032)
4. Plan Amendments	\$ (22,765,723)
5. Recognition of Deferred (Inflows) / Outflows of Resources Related to:	
a. Liability Experience (Gains) / Losses	\$ 94,996,971
b. Assumption Change (Gains) / Losses	\$ 151,415,178
c. Investment (Gains) / Losses	\$ 140,792,573
d. Total: (5)(a) + (5)(b) + (5)(c)	\$ 387,204,722
6. Total Collective Pension Expense: (1)(d) + (2) + (3) + (4) + (5)(d)	\$ 881,892,048
7. Employer Service Purchases ⁶	231,880
8. Total Pension Expense: (6) + (7)	\$ 882,123,928

¹ As of the beginning of the year.

² ASA Only plan forfeitures transferred to the PERF defined benefit assets.

³ Excludes \$1,070,073 of hybrid plan contributions and \$237,071 of ASA Only plan contributions by INPRS for its employees.

⁴ Includes interest of 6.75% on the beginning-of-year service cost.

⁵ 6.75% net of investment expenses and assuming cash flows occur at mid-year.

⁶ Includes \$231,880 of employer service purchases 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

F PERF 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% - 4.25%
- Cost-of-Living Increases 1.0% compounded annually on employer funded pension, beginning January 1, 2020. Retired members were provided a 13th check by October 1, 2017, and will be provided a 13th check by October 1, 2018, which is reflected in the valuation.
- Mortality Assumption
(Healthy) RP-2014 (with MP-2014 improvement removed) Total Data Set Mortality Table with 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 Table with 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 11.2%, 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. 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 20-year level dollar closed method for amortizing future layers of unfunded actuarial accrued liability (30 years for amortization layers established prior to June 30, 2016), and a 5-year smoothing method for recognizing investment gains and losses in the actuarial value of assets.

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) 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 fully fund the plan within 20 to 30 years. 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 10.9%. 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.

	<u>1% Decrease (5.75%)</u>	<u>Current Rate (6.75%)</u>	<u>1% Increase (7.75%)</u>
- Discount Rate Sensitivity Net Pension Liability	\$ 6,506,981,248	\$ 4,461,543,469	\$ 2,761,215,347

3. Classes of Plan Members Covered:¹

- Retired Members, Beneficiaries and Disabled Members Receiving Benefits:	85,130
- Terminated Vested Plan Members Entitled to but Not Yet Receiving Benefits:	30,816
- Terminated Non-Vested Plan Members Entitled to a Distribution of Contributions:	50,312
- Active Plan Members:	134,909
- Total Membership:	301,167

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 7.6%.

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

- Total Pension Liability	\$ 19,106,214,994
- Plan Fiduciary Net Position	14,644,671,525
- Net Pension Liability	\$ 4,461,543,469
- Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	76.6%

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 Includes 724 ASA Only Plan members.

SECTION III - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68

G. Schedule of Changes in the Total Pension Liability and Plan Fiduciary Total 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	\$ 15,784,239,911	\$ 16,145,680,789	\$ 16,732,222,649	\$ 17,980,568,263	\$ 18,408,946,980
b. Annuity Savings Account Balances - Beginning of Year	<u>2,749,448,762</u>	<u>2,796,102,616</u>	<u>2,851,500,608</u>	<u>2,717,173,311</u>	<u>2,656,892,220</u>
c. Defined Benefit Pension Liability - Beginning of Year: (1)(a) - (1)(b)	\$ 13,034,791,149	\$ 13,349,578,173	\$ 13,880,722,041	\$ 15,263,394,952	\$ 15,752,054,760
d. Service Cost ²	\$ 270,973,983	\$ 258,069,653	\$ 273,909,865	\$ 191,055,506	\$ 194,101,310
e. Interest Cost ³	875,615,527	895,453,921	936,403,574	1,018,992,903	1,051,217,483
f. Experience (Gains)/Losses	(104,470,833)	(15,161,517)	247,977,703	(4,869,991)	82,963,628
g. Assumption Changes	-	-	488,354,517	-	22,809,173
h. Plan Amendments	(167,485,633)	(42,984,699)	-	-	(22,765,723)
i. ASA Annuity Payments	107,520,485	119,094,145	196,788,238	75,035,755	78,792,615
j. Benefit Payments ⁴	(662,283,487)	(680,203,104)	(752,895,719)	(786,606,562)	(820,721,414)
k. Member Reassignments ⁵	(5,083,018)	(3,124,531)	(8,155,200)	(5,441,493)	(3,617,572)
l. Service Purchases (Employer and Member)	-	-	289,933	493,690	418,922
m. Defined Benefit Pension Liability - End of Year	\$ 13,349,578,173	\$ 13,880,722,041	\$ 15,263,394,952	\$ 15,752,054,760	\$ 16,335,253,182
n. Annuity Savings Account Balances - End of Year	<u>2,796,102,616</u>	<u>2,851,500,608</u>	<u>2,717,173,311</u>	<u>2,656,892,220</u>	<u>2,770,961,812</u>
o. Total Pension Liability - End of Year: (1)(l) + (1)(m)	\$ 16,145,680,789	\$ 16,732,222,649	\$ 17,980,568,263	\$ 18,408,946,980	\$ 19,106,214,994
2. Plan Fiduciary Net Position					
a. Plan Fiduciary Net Position - Beginning of Year	\$ 12,243,753,114	\$ 12,720,601,718	\$ 14,104,287,554	\$ 13,907,666,213	\$ 13,870,502,444
b. Annuity Savings Account Balances - Beginning of Year	<u>2,749,448,762</u>	<u>2,796,102,616</u>	<u>2,851,500,608</u>	<u>2,717,173,311</u>	<u>2,656,892,220</u>
c. Plan Fiduciary Net Position, Excluding ASA Balances - Beginning of Year: (2)(a) - (2)(b)	\$ 9,494,304,352	\$ 9,924,499,102	\$ 11,252,786,946	\$ 11,190,492,902	\$ 11,213,610,224
d. Employer Contributions ⁶	455,658,474	526,089,688	538,059,283	615,773,383	558,892,767
e. Member Contributions	-	-	-	442,809	589,663
f. Non-Employer Contributing Entity Contributions	-	-	-	-	-
g. Net Investment Return	563,563,572	1,393,865,042	(10,584,128)	148,011,621	870,646,483
h. ASA Annuity Payments	107,520,485	119,094,145	196,788,238	75,035,755	78,792,615
i. Benefit Payments ⁴	(662,283,487)	(680,203,104)	(752,895,719)	(786,606,562)	(820,721,414)
j. Member Reassignments ⁵	(5,083,018)	(3,124,531)	(8,155,200)	(5,441,493)	(3,617,572)
k. Administrative Expenses ⁷	(29,181,276)	(27,433,396)	(25,506,518)	(24,098,191)	(24,483,053)
l. Plan Fiduciary Net Position, Excluding ASA Balances - End of Year	\$ 9,924,499,102	\$ 11,252,786,946	\$ 11,190,492,902	\$ 11,213,610,224	\$ 11,873,709,713
m. Annuity Savings Account Balances - End of Year	<u>2,796,102,616</u>	<u>2,851,500,608</u>	<u>2,717,173,311</u>	<u>2,656,892,220</u>	<u>2,770,961,812</u>
n. Plan Fiduciary Net Position - End of Year: (2)(l) + (2)(m)	\$ 12,720,601,718	\$ 14,104,287,554	\$ 13,907,666,213	\$ 13,870,502,444	\$ 14,644,671,525

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 Does not include ASA lump sum payments to retired members or refunds of accumulated ASA balances for non-retired members.

⁵ Includes net interfund transfers of employer contributed amounts.

⁶ For the year ending June 30, 2017, includes \$231,880 of employer service purchases.

⁷ For the year ending June 30, 2017, includes \$1,070,073 of hybrid plan contributions and \$237,071 of ASA Only plan contributions by INPRS for its employees.

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	\$ 16,145,680,789	\$ 12,720,601,718	\$ 3,425,079,071	78.8%	\$ 4,700,000,000	72.9%
6/30/2014	\$ 16,732,222,649	\$ 14,104,287,554	\$ 2,627,935,095	84.3%	\$ 4,896,635,240	53.7%
6/30/2015	\$ 17,980,568,263	\$ 13,907,666,213	\$ 4,072,902,050	77.3%	\$ 4,804,145,033	84.8%
6/30/2016	\$ 18,408,946,980	\$ 13,870,502,444	\$ 4,538,444,536	75.3%	\$ 4,853,223,860	93.5%
6/30/2017	\$ 19,106,214,994	\$ 14,644,671,525	\$ 4,461,543,469	76.6%	\$ 4,967,655,728	89.8%

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. Contribution Excess / (Deficiency) (3) - (2)	5. Actual Covered Employee Payroll ⁴	6. Contributions as a Percentage of Covered Payroll (3) / (5)
6/30/2013	\$ 464,046,667	\$ 455,658,474	\$ (8,388,193)	\$ 4,700,000,000	9.7%
6/30/2014	\$ 528,562,365	\$ 519,575,670	\$ (8,986,695)	\$ 4,896,635,240	10.6%
6/30/2015	\$ 517,716,612	\$ 536,202,332	\$ 18,485,720	\$ 4,804,145,033	11.2%
6/30/2016	\$ 491,999,602 ⁵	\$ 547,684,477	\$ 55,684,875	\$ 4,853,223,860	11.3%
6/30/2017	\$ 496,867,070 ⁵	\$ 558,660,887 ⁶	\$ 61,793,817	\$ 4,967,655,728	11.2%

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 For each employer, the actuarially determined contribution amount is based on the actual payroll during the fiscal year multiplied by the actuarially determined contribution rate(s) effective for the fiscal year. For the State the actuarially determined contribution rate for the fiscal year is based on the prior year June 30 valuation. For each Political Subdivision the actuarially determined contribution rate for the fiscal year is an average of the actuarially determined contribution rates from the prior two June 30 valuations.

⁴ Pensionable pay for defined benefit members as provided by INPRS.

⁵ Per INPRS, the total actuarially determined contribution amount, based on actual payroll for 2016 and 2017, is \$491,999,602 for the fiscal year ending June 30, 2016 and \$496,867,070 for the fiscal year ending June 30, 2017.

⁶ Excludes \$231,880 of employer service purchases.

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	5.8%
6/30/2014	12.3%
6/30/2015	0.3%
6/30/2016	1.1%
6/30/2017	7.6%

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.

SECTION IV - CENSUS DATA

CENSUS DATA

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SECTION IV - CENSUS DATA

A. Reconciliation of Participant Data^{1,2}

	Actives	Inactive Non-Vested ASA Balance	Inactive Vested	Inactive Deceased ³	Disabled	Retired	Beneficiary	ASA Only Active and Inactive	Total
Total as of June 30, 2015	130,421	50,176	29,537	149	5,298	68,393	9,497	724	294,195
<u>Data Adjustments for Activity During Fiscal Year 2016</u>									
Withdrawals	(52)	-	52	-	-	-	-	-	-
New Units / Enlargements	85	-	-	-	-	-	-	-	85
PERF to 1977 Fund Transfer	-	-	-	-	-	-	-	-	-
Adjusted Total as of June 30, 2015	130,454	50,176	29,589	149	5,298	68,393	9,497	724	294,280
New Entrants	18,222	-	-	-	-	-	-	424	18,646
Rehires	2,057	(1,433)	(624)	-	-	-	-	-	-
Non-Vested Terminations	(10,468)	10,518	(50)	-	-	-	-	-	-
Vested Terminations	(3,300)	(456)	3,756	-	-	-	-	-	-
Retirements	(2,907)	(20)	(1,454)	-	(2,431)	6,812	-	-	-
Disabilities	(130)	(23)	(67)	-	230	(10)	-	-	-
Death with Beneficiary	(57)	(3)	(99)	(12)	(105)	(604)	880	-	-
Death - Entitled to ASA and/or Pension Benefits	(34)	(9)	(26)	69	-	-	-	-	-
Death without Beneficiary	(166)	(309)	(269)	(94)	(177)	(2,139)	(589)	(2)	(3,745)
Refunds	(1,778)	(7,360)	(82)	-	-	-	-	(28)	(9,248)
TRF Transfer / Millie Morgan	(5)	(1,105)	(191)	-	(8)	2	-	-	(1,307)
Hybrid Plan / ASA Only Plan Transfers	(12)	(6)	(1)	-	-	-	-	19	-
Data Adjustments	1,886	317	247	-	14	51	16	(1)	2,530
Total as of June 30, 2016	133,762	50,287	30,729	112	2,821	72,505	9,804	1,136	301,156
<u>Data Adjustments for Activity During Fiscal Year 2017</u>									
Withdrawals ⁴	(2)	-	2	-	-	-	-	-	-
New Units / Enlargements ⁵	14	-	-	-	-	-	-	-	14
PERF to 1977 Fund Transfer	(1)	(1)	(1)	-	-	-	-	-	(3)
Adjusted Total as of June 30, 2016	133,773	50,286	30,730	112	2,821	72,505	9,804	1,136	301,167

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 Headcounts reflect the record counts used in the valuation, which may include multiple records for individual members such as members with multiple periods of service.

³ Inactive deceased counts include 86 members with vested benefits.

⁴ There were no employers with active members as of June 30, 2016 that completed a full withdrawal during fiscal year 2017. Additionally, employers with active members as of June 30, 2016 that completed a partial withdrawal during fiscal year 2017 include Indiana University (ER 8009) and PERU Utilities (ER 424).

⁵ The new unit with filled positions during fiscal year 2017 is Hamilton County Airport Authority (ER 1907). Enlargements with filled positions during fiscal year 2017 include Indiana State Museum and Historic Sites Corporation (ER 8026), Hoosier Lottery (ER 8025), Town of St. John (ER 1233), City of Union City (ER 1287), City of Dunkirk (ER 1622), Sullivan County Public Library (ER 1691), Town of Palestine (ER 1731), and Yorktown - Mt. Pleasant Twp Community Library (ER 1734).

SECTION IV - CENSUS DATA

B. Census Information as of June 30, 2016^{1,2}

	<u>Male</u>	<u>Female</u>	<u>Total</u>
1. Active ³			
a. Number			
i. State	16,804	21,590	38,394
ii. Political Subdivisions	36,395	58,970	95,365
iii. ASA Only	499	637	1,136
iv. Total	<u>53,698</u>	<u>81,197</u>	<u>134,895</u>
b. Average Age	46.9	47.7	47.4
c. Average Years of Service	11.4	11.0	11.1
d. Anticipated Payroll of Actives ⁴			
i. State	\$ 796,968,753	\$ 879,267,692	\$ 1,676,236,445
ii. Political Subdivisions	1,571,743,319	1,882,456,982	3,454,200,301
iii. Total	<u>\$ 2,368,712,072</u>	<u>\$ 2,761,724,674</u>	<u>\$ 5,130,436,746</u>
2. Inactive - Vested			
a. Number	9,322	21,494	30,816
b. Average Age	53.1	53.4	53.3
c. Average Years of Service	13.0	11.0	11.6
3. Inactive - Non-Vested			
a. Number			50,312
4. Retiree/Beneficiary/Disabled			
a. Number	27,909	57,221	85,130
b. Average Age	71.1	73.4	72.6
c. Annual Benefits Payable ⁵			
i. Pension	250,232,369	377,865,502	628,097,871
ii. ASA Annuities	55,258,344	74,495,106	129,753,450
iii. Total	<u>\$ 305,490,713</u>	<u>\$ 452,360,608</u>	<u>\$ 757,851,321</u>

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 Headcounts reflect the record counts used in the valuation, which may include duplicate records for members such as members with multiple periods of service.

³ Does not include statistics on 14 active members who joined after June 30, 2016 as part of a new unit or enlargement.

⁴ Figures shown are the anticipated pay for the one-year period following the valuation date.

⁵ Figures shown reflect cost-of-living increases effective January 1 following the date of the census data, if provided, but do not reflect one-time 13th check amounts provided or new ASA annuitizations after the date of the census data.

SECTION IV - CENSUS DATA

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

1. Valuation Date	2. Active Members ³	3. Anticipated Payroll (\$ in Thousands) ⁴	4. Average Pay ⁴ (3) / (2)	5. Annual Percent Change
6/30/2008	140,146	4,600,354	32,825	3.9%
6/30/2009	147,792	4,931,423	33,367	1.7%
6/30/2010	149,877	4,896,013	32,667	(2.1%)
6/30/2011	147,933	4,818,774	32,574	(0.3%)
6/30/2012	145,519	4,904,052	33,700	3.5%
6/30/2013	137,937	4,766,910	34,559	2.5%
6/30/2014	137,567	5,080,092	36,928	6.9%
6/30/2015	138,660	4,964,813	35,806	(3.0%)
6/30/2016	131,178	5,014,012	38,223	6.8%
6/30/2017	134,909	5,130,437	38,029	(0.5%)

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 Headcounts reflect the record counts used in the valuation, which may include duplicate records for members such as members with multiple periods of service.

⁴ 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^{1,2,3}

(\$ in Thousands)

1.	2. Added		3. Removed		4. End of Year ⁴		5.	6.	7.	8.	9.
Valuation Date	Number	Annual Allowances (\$ in Thousands) ^{5,6}	Number	Annual Allowances (\$ in Thousands) ^{5,6}	Number	Annual Allowances (\$ in Thousands) ^{5,6}	Number	Annual Allowances (\$ in Thousands) ^{5,6}	Annual Allowances (\$ in Thousands) ^{5,6}	% Increase in Annual Allowances ^{5,6}	Average Annual Allowances ^{5,6}
6/30/2008	5,376	43,915	3,284	18,022	62,424	436,749				5.8%	6,996
6/30/2009	6,047	55,726	3,372	19,103	65,099	477,553				9.3%	7,336
6/30/2010	4,827	39,214	2,760	19,022	67,166	498,199				4.3%	7,417
6/30/2011	5,402	56,185	2,188	11,698	70,380	539,747				8.3%	7,669
6/30/2012	4,751	49,766	2,139	12,540	72,992	576,678				6.8%	7,901
6/30/2013	5,231	55,523	2,273	13,898	75,950	617,977				7.2%	8,137
6/30/2014	-	-	-	-	75,950	617,977				0.0%	8,137
6/30/2015	5,489	60,538	2,241	14,107	79,198	663,767				7.4%	8,381
6/30/2016	6,478	78,487	2,488	15,597	83,188	729,366				9.9%	8,768
6/30/2017	4,855	49,980	2,913	18,808	85,130	757,851				3.9%	8,902

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

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

³ Headcounts reflect the record counts used in the valuation, which may include duplicate records for members such as members with multiple periods of service.

⁴ 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.

⁵ Annual allowances include pension and ASA annuity benefits.

⁶ Annual allowances reflect cost-of-living increases effective January 1 following the date of the census data, if provided, but do not reflect one-time 13th check amounts or new ASA annuitizations after the date of the census data.

SECTION IV - CENSUS DATA

E. Distribution of Active Members by Age and Service ^{1,2,3}

Attained Age	Distribution of Active Members by Age and Service as of June 30, 2016								
	Under 10 years	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	4,616		1						4,617
25-29	10,254	18	1		1				10,274
30-34	10,439	929	17						11,385
35-39	9,216	2,545	925	20					12,706
40-44	8,492	2,404	2,167	611	19	2			13,695
45-49	8,759	2,892	2,462	1,900	816	48	10	4	16,891
50-54	7,926	3,353	3,086	2,097	1,990	955	78	2	19,487
55-59	6,974	3,382	3,575	2,639	2,245	1,537	1,097	57	21,506
60-64	4,916	2,532	2,709	2,068	1,811	1,002	955	442	16,435
65-69	2,124	986	850	595	579	342	262	257	5,995
70&Up	872	398	296	129	80	51	38	40	1,904
Total	74,588	19,439	16,089	10,059	7,541	3,937	2,440	802	134,895

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 Headcounts reflect the record counts used in the valuation, which may include duplicate records for members such as members with multiple periods of service.

³ Does not include statistics on 14 active members who joined after June 30, 2016 as part of a new unit or enlargement.

SECTION IV - CENSUS DATA

F. Distribution of Inactive Vested Members by Age and Service ^{1,2}

Attained Age	Distribution of Inactive Vested Members by Age and Vesting Service as of June 30, 2016						
	Under 10 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	Over 30 years	Total
<25		17					17
25-29	7	94					101
30-34	19	436	5				460
35-39	16	1,605	270	3	3		1,897
40-44	15	1,840	952	229	7		3,043
45-49	14	2,396	1,167	872	203	54	4,706
50-54	17	2,775	1,378	769	473	134	5,546
55-59	18	3,255	1,801	882	484	235	6,675
60-64	12	3,212	1,115	600	279	276	5,494
65-69	2	1,242	375	227	130	167	2,143
70&Up	2	332	126	86	68	120	734
Total	122	17,204	7,189	3,668	1,647	986	30,816

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 Headcounts reflect the record counts used in the valuation, which may include duplicate records for members such as members with multiple periods of service.

SECTION IV - CENSUS DATA

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

Attained Age	Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired as of June 30, 2016 ^{1, 2}						
	Under 10 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	Over 30 years	Total
<40	25	2	1				28
40-44	71	6	1				78
45-49	116	45	8	1			170
50-54	508	70	41	25	1		645
55-59	3,470	198	102	65	10	1	3,846
60-64	9,912	907	192	106	39	3	11,159
65-69	16,941	2,322	750	179	52	13	20,257
70-74	10,126	4,039	1,483	543	68	23	16,282
75-79	3,336	4,980	2,982	1,030	329	45	12,702
80-84	693	1,662	3,716	2,164	620	200	9,055
85-89	191	440	961	2,877	1,252	468	6,189
90&Up	51	120	251	607	1,944	1,746	4,719
Total	45,440	14,791	10,488	7,597	4,315	2,499	85,130

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 Headcounts reflect the record counts used in the valuation, which may include duplicate records for members such as members with multiple periods of service.

SECTION IV - CENSUS DATA

H. Schedule of Benefit Recipients by Type of Benefit Option ¹

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

Amount of Monthly Benefit	Five Year Guaranteed Beneficiary Benefit (Certain & Life) ²	Benefit with No Guarantee (Life Annuity)	Joint with Full Survivor Benefits (Option 30)	Joint with Two- Thirds Survivor Benefits (Option 40)	Joint with One- Half Survivor Benefits (Option 50)	Integration with Social Security (Level Income)	Benefit with No Guarantee (Lump Sum)	Survivors	Disabled	Total
\$ 1 - 500	11,835	8,581	7,036	750	1,758	260	0	6,214	2,093	38,527
501 - 1,000	7,105	8,137	4,731	971	2,084	167	0	2,535	523	26,253
1,001 - 1,500	2,475	3,675	2,546	607	1,117	75	0	708	147	11,350
1,501 - 2,000	951	1,701	1,072	366	484	82	0	232	45	4,933
2,001 - 3,000	562	1,122	726	246	402	95	0	99	9	3,261
over 3,000	101	316	166	97	95	11	0	16	4	806
Total	23,029	23,532	16,277	3,037	5,940	690	0	9,804	2,821	85,130

I. Schedule of Average Benefit Payments as of June 30, 2016 ^{1,3}

	Years of Credited Service						Total
	0-9	10-14	15-19	20-24	25-29	30+	
Average Monthly Defined Benefit	\$ 155	\$ 282	\$ 392	\$ 548	\$ 765	\$ 1,241	\$ 618
Average Monthly ASA Annuity	\$ 45	\$ 104	\$ 142	\$ 199	\$ 273	\$ 478	\$ 230
Average Final Average Salary	\$ 24,719	\$ 24,631	\$ 26,902	\$ 29,142	\$ 32,445	\$ 39,990	\$ 30,347
Number of Benefit Recipients	3,077	14,268	21,252	17,139	12,718	16,676	85,130

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 do not reflect 13th check payments made in October 2016, October 2017, and October 2018. No cost-of-living increases were approved for January 1, 2017, January 1, 2018 or January 1, 2019.

² The number of benefit recipients for the Certain and Life option also includes recipients who elected the Five Year Guaranteed Beneficiary Benefit with ASA Cash Refund.

³ 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.

Inflation 2.25% per year

Interest Rate / Investment Return

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

Future Salary Increases Based on 2010-2014 experience. Illustrative rates shown below:

<u>Age</u>	<u>Inflation</u>	<u>Productivity, Merit, and Promotion</u>	<u>Total Individual Salary growth</u>
<31	2.25%	2.00%	4.25%
31-45	2.25%	1.50%	3.75%
46-55	2.25%	1.00%	3.25%
56-60	2.25%	0.50%	2.75%
>= 61	2.25%	0.25%	2.50%

Load to Salary For active and inactive vested members, a load on final average salary of \$400 is included to reflect unused sick leave accumulated at termination of employment.

Cost of Living Increases 1.0% per year in retirement beginning January 1, 2020. 13th checks were provided to members in pay status in lieu of a permanent cost-of-living increase in fiscal year 2017, 2018 and 2019.

Interest on Member ASA Balances 2.25% per year

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (Continued)

Mortality (Healthy) RP-2014 (with MP-2014 improvement removed) Total Data Set Mortality Tables projected on a fully generational basis using the future mortality improvement scale inherent in the mortality projection included in the Social Security Administration's 2014 Trustee Report.

Mortality (Disabled) RP-2014 (with MP-2014 improvement removed) Disability Mortality Tables projected on a fully generational basis using the future mortality improvement scale inherent in the mortality projection included in the Social Security Administration's 2014 Trustee Report.

Retirement Based on 2010-2014 experience. Rates shown below:

Age	Service						
	10-14	15-25	26	27	28	29	30+
50-54	-	4%	4%	4%	4%	4%	4%
55	-	5%	5%	5%	5%	5%	14%
56	-	5%	5%	5%	5%	14%	10%
57	-	5%	5%	5%	14%	10%	10%
58	-	5%	5%	14%	10%	10%	10%
59	-	5%	14%	10%	10%	10%	10%
60	-	12%	12%	12%	12%	12%	12%
61	-	16%	16%	16%	16%	16%	16%
62	-	22%	22%	22%	22%	22%	22%
63	-	19%	19%	19%	19%	19%	19%
64	-	24%	24%	24%	24%	24%	24%
65-74	30%	30%	30%	30%	30%	30%	30%
75	100%	100%	100%	100%	100%	100%	100%

Benefit Commencement Timing

Actives Members If eligible for a reduced early retirement benefit upon termination from employment, 33% commence immediately and 67% defer to earliest unreduced retirement age.

If eligible for an unreduced retirement benefit upon termination from employment, 100% commence immediately.

Terminated Vested Members 100% defer to earliest unreduced retirement age. If currently eligible for an unreduced retirement benefit, 100% commence immediately.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (Continued)

Termination

Based on 2010-2014 experience. Rates are dependent on the member's employer (State vs Political Subdivision), annual earnings, years of service, age, and gender.

Earnings < \$20,000

Age	State		Political Subdivision		
	Male	Female	Age	Male	Female
20-24	32%	34%	20-24	31%	36%
25-29	32%	33%	25-29	31%	34%
30-34	32%	30%	30-34	26%	25%
35-39	29%	30%	35-39	22%	18%
40-44	29%	24%	40-44	21%	15%
45-49	26%	24%	45-49	18%	12%
50-54	25%	22%	50-54	14%	11%
55-59	22%	20%	55-59	14%	11%
60+	22%	20%	60+	14%	11%

State (Male)

Earnings >= \$20,000

Age	Service										
	0	1	2	3	4	5	6	7	8	9	10+
20-24	23%	23%	23%	20%	20%	17%	17%	12%	12%	7%	7%
25-29	23%	23%	23%	19%	17%	17%	17%	12%	12%	7%	7%
30-34	22%	22%	19%	18%	16%	13%	13%	12%	7%	7%	7%
35-39	17%	17%	17%	17%	16%	10%	10%	9%	7%	6%	6%
40-44	17%	17%	14%	12%	12%	10%	9%	9%	7%	5%	5%
45-49	14%	14%	14%	10%	10%	10%	9%	7%	4%	4%	4%
50-54	14%	14%	9%	9%	9%	9%	9%	7%	4%	4%	4%
55-59	13%	13%	7%	7%	7%	7%	7%	7%	4%	4%	4%
60+	13%	13%	7%	7%	7%	7%	7%	7%	4%	4%	4%

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (Continued)

Termination (continued)

State (Female)		Service											
Earnings >= \$20,000		Age	0	1	2	3	4	5	6	7	8	9	10+
	20-24	23%	23%	23%	23%	17%	17%	13%	12%	11%	8%	8%	
	25-29	23%	23%	22%	21%	17%	17%	13%	12%	11%	8%	8%	
	30-34	21%	21%	21%	17%	15%	14%	12%	12%	11%	8%	8%	
	35-39	19%	19%	16%	16%	12%	12%	12%	12%	9%	8%	7%	
	40-44	18%	18%	16%	13%	12%	12%	9%	9%	8%	8%	6%	
	45-49	16%	16%	16%	13%	10%	10%	9%	9%	8%	8%	6%	
	50-54	16%	16%	15%	12%	10%	9%	9%	9%	6%	6%	6%	
	55-59	16%	16%	11%	11%	10%	9%	9%	9%	6%	6%	6%	
	60+	16%	16%	11%	11%	10%	9%	9%	9%	6%	6%	6%	

Political Subdivisions (Male)		Service											
Earnings >= \$20,000		Age	0	1	2	3	4	5	6	7	8	9	10+
	20-24	18%	18%	18%	18%	14%	12%	11%	11%	7%	7%	5%	
	25-29	18%	18%	18%	16%	14%	12%	11%	11%	7%	7%	5%	
	30-34	16%	16%	16%	15%	13%	11%	11%	11%	7%	7%	5%	
	35-39	15%	15%	12%	12%	12%	10%	9%	9%	7%	7%	5%	
	40-44	13%	13%	11%	11%	10%	10%	9%	9%	7%	7%	4%	
	45-49	11%	11%	11%	11%	9%	7%	7%	7%	7%	7%	4%	
	50-54	11%	11%	9%	9%	9%	7%	7%	6%	6%	4%	4%	
	55-59	11%	11%	7%	7%	7%	7%	7%	5%	5%	4%	4%	
	60+	8%	8%	7%	7%	7%	7%	7%	5%	5%	4%	4%	

Political Subdivisions (Female)		Service											
Earnings >= \$20,000		Age	0	1	2	3	4	5	6	7	8	9	10+
	20-24	22%	22%	19%	16%	14%	14%	11%	11%	9%	7%	7%	
	25-29	21%	21%	18%	16%	14%	14%	11%	11%	9%	7%	7%	
	30-34	16%	16%	16%	14%	14%	14%	11%	11%	9%	7%	7%	
	35-39	14%	14%	14%	12%	12%	12%	9%	9%	9%	7%	6%	
	40-44	13%	13%	12%	11%	10%	8%	8%	8%	8%	7%	4%	
	45-49	12%	12%	12%	10%	8%	8%	8%	7%	6%	6%	4%	
	50-54	11%	11%	10%	8%	8%	6%	6%	6%	6%	5%	4%	
	55-59	11%	11%	8%	8%	8%	6%	6%	6%	6%	4%	4%	
	60+	11%	11%	8%	8%	8%	6%	6%	6%	6%	4%	4%	

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (Continued)

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

<u>Age</u>	<u>Male</u>	<u>Female</u>
20	0.0067%	0.0050%
30	0.0208%	0.0158%
40	0.0646%	0.0496%
50	0.2005%	0.1556%
60	0.5815%	0.3751%
70	0.1000%	0.1000%
80	0.0000%	0.0000%

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

Spouse/Beneficiary 75% of male members and 60% of female members are assumed to be married and or to have a dependent beneficiary. Male members are assumed to be three (3) years older than their spouses and female members are assumed to be two (2) years younger than their spouses.

ASA Withdrawal

Prior to January 1, 2018:

- 40% of active members who decrement while vested are assumed to withdraw their ASA balance immediately upon decrement.
- 40% of vested inactive members are assumed to withdraw their ASA balance immediately on the valuation date.
- 100% of active members who decrement prior to vesting are assumed to withdraw their ASA balance immediately upon decrement.
- 100% of non-vested inactive members are assumed to withdraw their ASA balance immediately on the valuation date.

Beginning January 1, 2018:

- 100% of active members are assumed to withdraw their ASA balance immediately upon decrement.
- 100% of inactive members are assumed to withdraw their ASA balance immediately.

ASA Annuitization

Prior to January 1, 2018:

- 60% of active members who decrement while vested are assumed to annuitize their ASA balance at their assumed retirement age.
- 60% of vested inactive members are assumed to annuitize their ASA balance at their assumed retirement age.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (Continued)

Data Assumptions

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

Actives and inactives with a date of death who have not received a distribution of their ASA or commenced a pension annuity are included in the valuation as follows (provided by INPRS):

- For non-vested members, the ASA Balance is included in the valuation.
- For vested members, the ASA Balance is included in the valuation if one or more of the following is true:
 - Date of death is more than 3 years before the valuation date
 - Age of the member is greater than or equal to 65 with less than 10 years of creditable service
 - Age of the member is less than or equal to 65 with less than 15 years of creditable service
- If none of the items listed above are met, the ASA Balance and estimated pension annuity are included in the valuation.

Changes in Assumptions

For active and inactive vested members, a salary load of \$400 was added to approximate the impact on average monthly earnings of unused sick leave accumulated at termination of employment.

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

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 (gain or loss bases established prior to June 30, 2016 were amortized over 30 years and will continue to be amortized over 30 -year period). However, when the plan is at or above 100% funded (based on Actuarial Value of Assets), the past amortization bases are considered fully amortized and a single amortization base equal to the surplus is amortized over a 30-year period with level payments each year. 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 (actives and inactive). Gains and losses occurring from investment experience different than assumed are amortized into expense over a 5-year period. The effect of plan changes on the plan liability are fully recognized in expense in the year in which they occur.

Member census data as of June 30, 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

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

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods (Continued)

3. Method for Allocation of Actuarial Accrued Liability and Normal Cost

The Actuarial Accrued Liability ("AAL") for members with multiple current and/or historical employers is allocated pro rata to each respective employer based on the service the member accrued at each employer. In the event service at each employer is not included in the data, the AAL is allocated evenly amongst all respective employers.

The Normal Cost for members with multiple current employers is allocated to each respective employer based on the salary the member earned at each employer. In the event salary at each employer is not included in the data, the Normal Cost is allocated evenly amongst all respective current employers.

4. Anticipated Payroll

The combined State and Political Subdivision Anticipated Payroll for the fiscal year beginning July 1, 2017 is equal to the actual payroll during the year ending June 30, 2017 (excluding payroll for employers that completed a full withdrawal, partial withdrawal, or transferred coverage to 1977 Fund), increased with one year of salary scale, plus the current payroll as of June 30, 2017 for members employed at new participating political subdivisions and new covered members employed at political subdivisions that enlarged their employee coverage. The Anticipated Payroll does not include amounts for members who have reached the age at which retirement is assumed to occur immediately.

5. Employer Contribution Rates

Based on the assumptions and methods previously described, an actuarially determined contribution rate is computed for each employer. The Board considers this information, but has ultimate authority in setting the employer contribution rates, including any process used to migrate the employers toward a single Composite Rate.

6. 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

PERF Hybrid Plan

The benefit provisions for PERF are set forth in IC 5-10.2 and 5-10.3. 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 employees of the State of Indiana and all full time employees of Political Subdivisions which have adopted the plan become members of PERF upon date of hire.

Eligibility for Defined Pension Benefits

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

- b. Early Retirement Age 50 with 15 or more years of vesting service

- c. Late Retirement Subject to continued employment after normal retirement

- d. Disability Retirement 5 or more years of vesting service and qualified for Social Security disability benefits or federal Civil Service disability benefits

- e. Termination 10 or more years of vesting service and no longer active (i.e. vested inactive)

- f. Pre-Retirement Death 15 or more years of vesting service if death occurs in service. If death occurs after separating from service, age 50 with 15 or more years of vesting service

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

PERF Hybrid Plan (Continued)

Amount of Benefits

- a. Normal Retirement The normal retirement benefit is a pension payable for life with 60 months guaranteed and is equal to 1.1% of average monthly earnings¹ multiplied by years of creditable service earned. The minimum monthly benefit is \$180.
- b. Early Retirement The early retirement benefit is the accrued retirement benefit determined as of the early retirement date and payable commencing at the normal retirement date. A member may elect to have the benefit commence prior to normal retirement provided the benefit is reduced by 1/10% for each of the first 60 months and by 5/12% for each of the next 120 months that the benefit commencement date precedes the normal retirement date. The minimum monthly benefit is \$180.
- 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. The minimum monthly benefit is \$180.
- d. Disability Retirement The disability retirement benefit is the accrued retirement benefit determined as of the disability date and payable commencing the month following disability date without reduction for early commencement. The minimum monthly benefit is \$180.
- e. Termination The termination benefit is the accrued retirement benefit determined as of the termination date and payable commencing at age 65. If the member has 15 or more years of creditable service, then the member may elect to receive a reduced early retirement benefit prior to age 65. The minimum monthly benefit is \$180.
- f. Pre-Retirement Death The spouse or dependent beneficiary is entitled to receive the monthly life benefit under the assumption that the member retired on the later of age 50 or the date before the date of death and elected the joint and full survivor option. The minimum monthly benefit is \$180.

¹ Average monthly earnings is the monthly average of earnings during 20 quarters (in groups of 4 consecutive contribution quarters) preceding retirement that produce the highest such average. Earnings include basic salary, the member's 3% mandatory contribution paid by the employer, the member's salary reduction agreement under Section 125, 430(b), or 457 of the Internal Revenue Code, and up to \$2,000 of additional compensation received from the employer in anticipation of the member's termination or retirement.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

PERF Hybrid Plan (Continued)

Member Contributions

Each member is required to contribute to an Annuity Savings Account at the rate of 3% of pay (unless the employer has opted to make the contribution for the employee). These contributions are kept on deposit and credited with interest based on the investment elections of each member until such time as they are withdrawn or annuitized by the member.

The Annuity Savings Account benefit is in addition to the annuity benefits provided by employer contributions.

Optional Forms of Payment

- a. 5-Year Guaranteed Beneficiary Benefit (Option 10) Member will receive a monthly benefit for the rest of their life. If the member dies before receiving benefits for 5 years, the beneficiary will receive that monthly benefit for the remainder of those 5 years or a lump sum distribution equal to the present value of those payments. After 5 years, there are no payments available to the beneficiary.
- b. Benefit with No Guarantee (Option 20) Member will receive a monthly benefit for life, but there are no monthly payments to anyone after death. However, the balance of the Annuity Savings Account will be distributed to the beneficiary or estate if it is larger than the payments previously made to the member.
- c. Joint with Full Survivor Benefits (Option 30) Member will be paid a monthly benefit for life. After death, the same monthly benefit will be paid to the beneficiary for their lifetime.
- d. Joint with Two-Thirds Survivor Benefits (Option 40) Member will be paid a monthly benefit for life. After death, two-thirds (2/3) of the benefit will be paid to the beneficiary for their lifetime.
- e. Joint with One-Half Survivor Benefits (Option 50) Member will be paid a monthly benefit for life. After death, one-half (1/2) of the benefit will be paid to the beneficiary for their lifetime.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

PERF Hybrid Plan (Continued)

Optional Forms of Payment (Continued)

- f. Integration with Social Security (Option 61) A member who retires between ages 50 and 62 may integrate the PERF monthly pension benefit with the member's estimated Social Security benefits. This does not affect the amount of the benefit received from the Social Security Administration.

Before age 62, the member's benefits will equal the sum of the member's Social Security estimate, multiplied by actuarial factors, and the member's early retirement benefit. This will result in the member receiving a larger monthly benefit payment before age 62. After age 62, the member's benefit will equal the difference between the member's Social Security estimate, multiplied by actuarial factors, and the member's pre-62 monthly pension benefit. Depending upon the member's estimated Social Security disbursement, benefit payments may be greatly reduced or terminated at age 62.

- g. 5-Year Guaranteed Beneficiary Benefit with ASA Cash Refund (Option 71) In order to select this option, the member must choose to combine at least a portion of their ASA with their lifetime monthly pension benefit. If selected, the member will receive a monthly benefit for the rest of their life. If the member dies before receiving payments for 5 years, the beneficiary will receive the pension portion of their monthly benefit for the remainder of those 5 years or a lump sum equal to the present value of those remaining payments. Also, upon death (whether death occurs before or after receiving 5 years of benefits), the beneficiary may receive any remaining balance of the Annuity Savings Account.

Annuity Savings Account ("ASA") Payment Forms

- a. Leave ASA Invested with PERF Members may choose to leave their ASA invested with PERF. According to IRS regulations, the member must begin distribution at age 70 1/2. Until the member elects to receive funds, they will remain invested according to member direction.
- b. Increase Lifetime Pension Benefit If vested in an employer-funded defined benefit, members may annuitize their ASA balance to increase their monthly retirement benefit. Members may choose from the same annuity payments options available on the employer-funded benefit.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

PERF Hybrid Plan (Continued)

Annuity Savings Account ("ASA") Payment Forms (continued)

- c. Withdraw Entire ASA The member withdraws their entire ASA by means of either a direct rollover, complete withdrawal, or partial rollover to a qualified plan for the Taxable Portion of their ASA and, if it applicable, one of these choices for the 1986 Tax Basis Portion.

- d. Withdraw 1986 Tax Basis Portion of ASA and Combine Taxable Portion with Pension Benefit The member withdraws the non-taxable (1986 Tax Basis) portion of their ASA in the form of a direct rollover, a complete distribution, or a partial rollover to a qualified plan, and then receives the balance of the account as a part of their monthly payment.

It is anticipated that beginning January 1, 2018, ASA annuitization will be accomodated through a third part annuity provider.

Cost-of-Living Adjustments The employer-funded monthly pension benefits for members in pay status are increased periodically to preserve purchasing power that is diminished due to inflation. Such increases are not guaranteed by Statute and have historically been provided on an "ad hoc" basis.

A "13th check" was paid to each member in pay status during fiscal year 2017, 2018 and 2019. The amount of the 13th check varied based on the years of creditable service the member had earned prior to retirement.

Changes in Provisions Per INPRS, ASA annuitizations will be accommodated through a third party annuity provider beginning January 1, 2018, compared to the previous anticipated start date of April 1, 2017.

SECTION VI - SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions (Continued)

ASA-Only Plan (continued)

Optional Forms of Payment (continued)

- c. Monthly Annuity Members may annuitize their ASA balance with INPRS if the following eligibility criteria are met:
 - (i) Retirement The member is at least age 62, has at least 5 years of service, and the ASA balance is at least \$15,000.
 - (ii) Disability The member is eligible for Social Security disability benefits and the ASA balance is at least \$15,000.
 - (iii) Death The member's surviving spouse/beneficiary is at least age 62 and the ASA balance is at least \$15,000.

Available annuity payment options are as shown in the PERF Hybrin Plan provisions. It is anticipated that beginning January 1, 2018, ASA annuitization will be accomodated through a third part annuity provider.

Changes in Provisions

Per INPRS, ASA annuitizations will be accommodated through a third party annuity provider beginning January 1, 2018, compared to the previous anticipated start date of April 1, 2017.

SECTION VII - DEFINITIONS OF TECHNICAL TERMS

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.