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# *Indiana Public Retirement System*

Judges' Retirement System

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 Judges' Retirement System ("JRS") and has been prepared to present the current funded status of the Plan, contribution requirements for fiscal year 2019 (July 1, 2018 through June 30, 2019), and certain financial statement disclosure information. The valuation was performed using census data for plan members as of June 30, 2016, adjusted for certain activity during fiscal year 2017 as applicable, as provided by INPRS and summarized in Section IV, asset information as of June 30, 2017 provided by INPRS, the actuarial assumptions and methods approved by the Board and summarized in Section V, and the plan provisions effective June 30, 2017 and summarized in Section VI.

#### **Contribution Rate**

JRS is a State appropriated fund. All employer contributions are made by the State of Indiana. The estimated actuarially determined contribution for fiscal 2019 is \$15.1 million, compared to \$15.1 million for fiscal 2018. Based on the results of the June 30, 2016 valuation, the Board has requested appropriations from the State of \$15.1 million for fiscal 2018 and \$16.0 million for fiscal 2019 for the 2018-2019 two-year budget cycle.

Members of JRS contribute 6% of their compensation during their first 22 years of membership. If a JRS member terminates employment with less than 8 years of service, the accumulated contributions with interest can be withdrawn as a lump sum or the member may direct the JRS to make a direct rollover of the distribution amount. When a member becomes vested, the member's account balance may not be refunded and is instead combined with the employer contributions in order to fund the member's future retirement annuity benefit.

#### **Funded Status**

The funded status of JRS is measured by the funded ratio, which is the ratio of the assets available for benefits to a benefit liability measure for JRS. 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 JRS AAL funded ratio increased from 93.7% at June 30, 2016 to 93.9% at June 30, 2017. The increase is expected as experience gains and losses and other changes affecting the liability valuation were small and largely offsetting.

#### **Investment Experience**

For the fiscal year ending June 30, 2017, the INPRS actual time-weighted return net of fees was 7.9%. Based on the value of assets allocated to JRS as of the prior valuation date and contribution and benefit payment activity during the year, the allocation of returns to JRS represent a return of approximately 8.0% on market value and 5.2% 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.

#### **Cost-of-Living Adjustment**

Benefits for retired members increase automatically based on the annual pay increase granted for the position the member held at the time of retirement. The annual cost-of-living assumption for the valuation is 2.5%, which is the same as the salary increase assumption for active members. There was a 2.0% salary/cost-of-living increase effective July 1, 2017.

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## SECTION I - EXECUTIVE SUMMARY

### **HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)**

#### **Changes in Actuarial Assumptions**

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

#### **Changes in Plan Provisions**

It is our understanding that there were no changes to the Plan that impacted the pension benefits during the fiscal year.

#### **Changes in Actuarial Methods**

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

#### **Actuarial Audit**

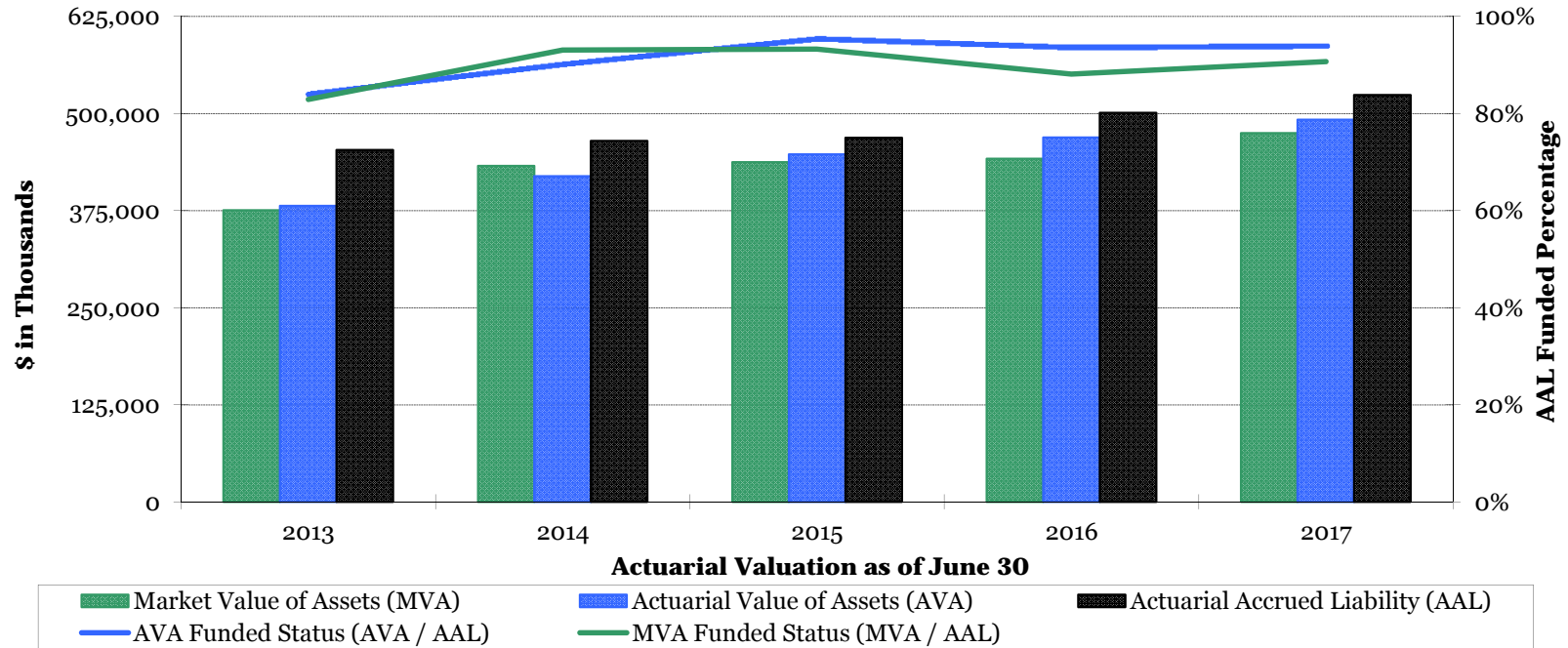
Since the prior actuarial valuation, a comprehensive review of our valuation procedures was performed by a third-party actuarial consulting firm, Nyhart. The results and recommendations from their review, as documented in their report dated March 7, 2017, have been reflected in this valuation and consist 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



<b>Actuarial Valuation as of June 30:</b>	<b>2013 <sup>1</sup></b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Actuarial Accrued Liability (AAL)	\$453,109.9	\$464,854.6	\$468,944.8	\$501,125.7	\$523,735.0
Actuarial Value of Assets (AVA)	\$381,239.9	\$419,567.9	\$447,514.3	\$469,377.5	\$492,013.4
Market Value of Assets (MVA)	\$375,752.6	\$432,729.7	\$437,352.5	\$441,790.1	\$475,054.6
Unfunded Liability (AAL - AVA)	\$71,870.0	\$45,286.7	\$21,430.4	\$31,748.2	\$31,721.6
AVA Funded Status (AVA / AAL)	84.1%	90.3%	95.4%	93.7%	93.9%
MVA Funded Status (MVA / AAL)	82.9%	93.1%	93.3%	88.2%	90.7%

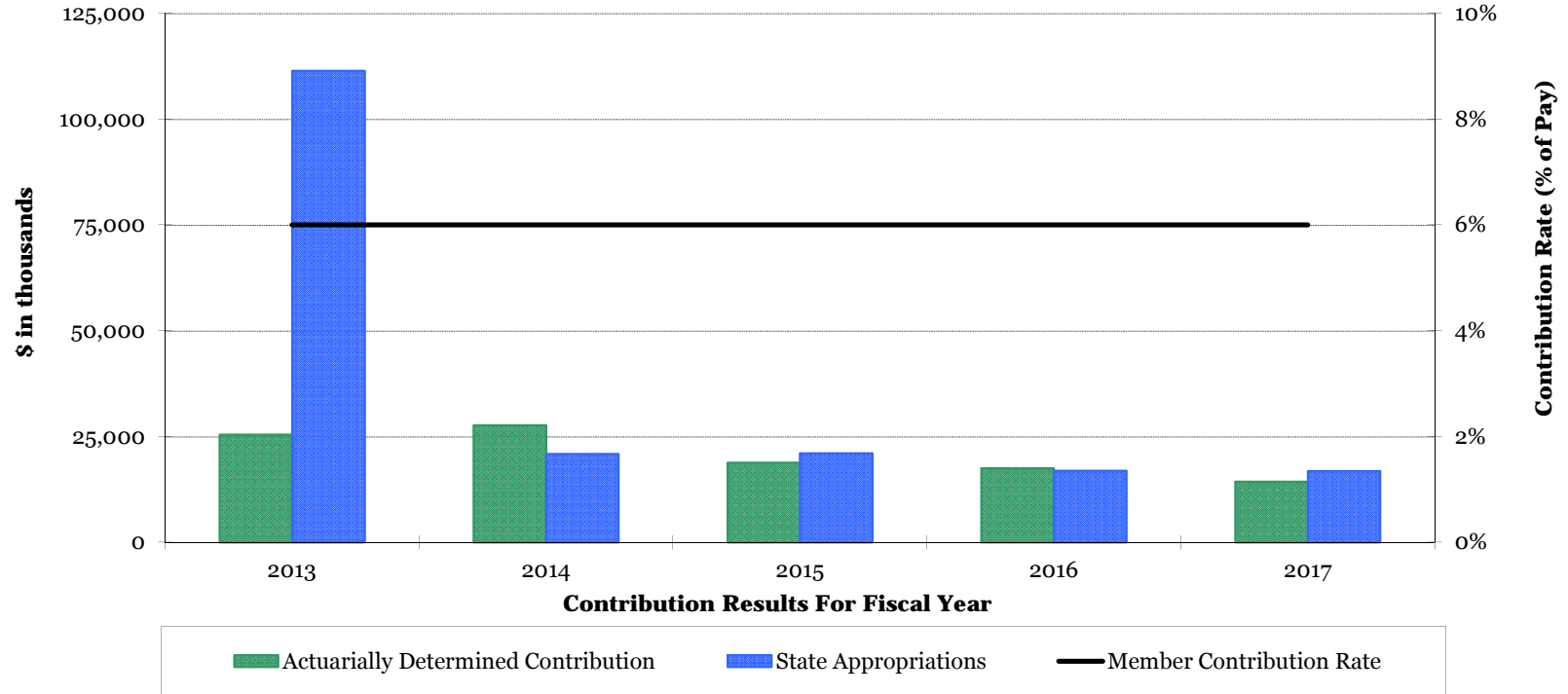
<sup>1</sup> Includes \$90.2 million of additional contributions due to 2012 HB 1376 during fiscal 2013.



SECTION I - EXECUTIVE SUMMARY

**HISTORICAL SUMMARY (CONTINUED)**

**JRS Fund – 5 Year History of Contributions**



<b><u>Contribution Results For Fiscal Year:</u></b>	<b><u>2013</u></b> <sup>1</sup>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>
Actuarially Determined Contribution <sup>2</sup>	\$25,458.5	\$27,647.7	\$18,864.5	\$17,485.3	\$14,334.9
State Appropriations	\$111,417.6	\$20,894.7	\$21,020.0	\$16,946.3	\$16,823.6
ADC % Contributed	437.6%	75.6%	111.4%	96.9%	117.4%
Member Contribution Rate <sup>3</sup>	6.0%	6.0%	6.0%	6.0%	6.0%

<sup>1</sup> Includes a contribution of \$90.2 million made to the Plan pursuant to 2012 HB 1376.

<sup>2</sup> The ADC amount is based on the ADC Rate in effect during the fiscal year, multiplied by actual payroll for the fiscal year.

<sup>3</sup> Members contribute 6% of pay to the Fund during their first 22 years of service.

SECTION I - EXECUTIVE SUMMARY

**HISTORICAL SUMMARY (CONTINUED)**

**Summary of Valuation Results**<sup>1</sup>

<b>Valuation Date</b>	<b>June 30, 2013</b>	<b>June 30, 2014</b>	<b>June 30, 2015</b>	<b>June 30, 2016</b>	<b>June 30, 2017</b>
Development of Actuarially Determined Contribution Amount:					
1. Anticipated Payroll	\$ 46,966,598	\$ 47,882,728	\$ 49,650,973	\$ 52,974,805	\$ 55,850,310
2. Normal Cost (Beginning of Year)					
a. Amount	\$ 15,301,638	\$ 15,283,088	\$ 13,869,891	\$ 14,762,102	\$ 14,885,621
b. Percentage of Payroll	32.58%	31.91%	27.93%	27.87%	26.65%
3. Unfunded Actuarial Accrued Liability Annual Amortizations					
a. Amount	\$ 5,656,065	\$ 3,786,771	\$ 2,103,399	\$ 3,067,354	\$ 3,163,160
b. Percentage of Payroll	12.04%	7.91%	4.24%	5.79%	5.66%
4. Expected Employee Contributions <sup>2</sup>					
a. Amount	\$ 2,721,671	\$ 2,774,759	\$ 2,972,246	\$ 3,085,367	\$ 3,326,150
b. Percentage of Payroll	5.79%	5.79%	5.99%	5.82%	5.95%
5. Actuarially Determined Contribution Rate: (2)(b) + (3)(b) - (4)(b)	38.83%	34.03%	26.18%	27.84%	26.36%
6. Estimated Actuarially Determined Contribution Amount					
a. Fiscal Year Beginning	July 1, 2014	July 1, 2015	July 1, 2016	July 1, 2017	July 1, 2018
b. Salary scale	4.00%	4.00%	2.50%	2.50%	2.50%
c. Anticipated Payroll: (1) x [1 + (6)(b)]	\$ 48,845,262	\$ 49,798,038	\$ 50,892,247	\$ 54,299,175	\$ 57,246,568
d. Amount: (5) x (6)(c) <sup>3</sup>	<b>\$ 18,966,615</b>	<b>\$ 16,946,272</b>	<b>\$ 13,323,590</b>	<b>\$ 15,116,890</b>	<b>\$ 15,090,195</b>
<b>Fiscal Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
State Appropriations <sup>4</sup>	<b>\$ 21,020,000</b>	<b>\$ 16,946,000</b>	<b>\$ 16,823,600</b>	<b>\$ 15,117,000</b>	<b>\$ 16,030,000</b>

<sup>1</sup> The contribution amounts shown were developed on a funding basis only and do not reflect accounting requirements.

<sup>2</sup> Only members with less than 22 years of service contribute to the plan. Anticipated payroll for active members with less than 22 years of service as of June 30, 2017 is \$55,435,832.

<sup>3</sup> Since the fiscal year to which contributions apply begins one year after the valuation date, the Actuarially Determined Contribution Amount is estimated by assuming payroll will increase by 2.5% per year and then applying the Actuarially Determined Contribution Rate computed at the valuation date. The actual Actuarially Determined Contribution Amount is determined after the fact, once covered payroll for the fiscal year is known.

<sup>4</sup> JRS is a State appropriated fund. Employer contribution amounts are expected to be paid by the State of Indiana.

SECTION I - EXECUTIVE SUMMARY

**HISTORICAL SUMMARY (CONTINUED)**

**Summary of Valuation Results (Continued)**<sup>1</sup>

	<u>June 30, 2013</u>	<u>June 30, 2014</u>	<u>June 30, 2015</u>	<u>June 30, 2016</u>	<u>June 30, 2017</u>
Census Information					
Active					
Number	365	365	368	394	402
Average Age	54.6	54.6	54.7	54.2	54.6
Average Years of Service	8.8	8.8	8.8	8.4	9.1
Anticipated Payroll of Actives <sup>2</sup>	\$ 46,966,598	\$ 47,882,728	\$ 49,650,973	\$ 52,974,805	\$ 55,850,310
Inactive - Vested					
Number	67	67	78	65	67
Average Age	61.7	61.7	62.4	61.9	62.4
Average Years of Service	18.5	18.5	19.4	19.0	19.6
Inactive - Non-Vested <sup>3</sup>					
Number	32	32	32	41	39
Retiree/Beneficiary/Disabled					
Number	321	321	326	351	350
Average Age	75.2	75.2	75.7	75.5	75.7
Annual Benefits Payable <sup>4</sup>	\$ 18,474,014	\$ 18,474,014	\$ 18,577,771	\$ 20,959,643	\$ 21,465,258

<sup>1</sup> 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.

<sup>2</sup> Figures shown are the anticipated pay for the one-year period following the valuation date.

<sup>3</sup> As of June 30, 2016, inactive non-vested members entitled to a refund of their member contributions had balances totaling \$853,337.

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

SECTION I - EXECUTIVE SUMMARY

**HISTORICAL SUMMARY (CONTINUED)**

**Summary of Valuation Results (Continued)**

	<u>June 30, 2013</u>	<u>June 30, 2014</u>	<u>June 30, 2015</u>	<u>June 30, 2016</u>	<u>June 30, 2017</u>
<b>Actuarial Accrued Liability</b>					
Member Contribution Balance	\$ 29,060,096	\$ 32,060,323	\$ 32,382,776	\$ 34,804,229	\$ 36,384,785
Retiree/Beneficiary/Disabled	224,131,485	216,043,506	210,020,169	244,483,335	245,177,613
Active and Inactive	<u>199,918,312</u>	<u>216,750,744</u>	<u>226,541,806</u>	<u>221,838,149</u>	<u>242,172,652</u>
Total	\$ 453,109,893	\$ 464,854,573	\$ 468,944,751	\$ 501,125,713	\$ 523,735,050
<b>Actuarial Value of Assets (AVA)</b>					
Member Contribution Balance	\$ 29,060,096	\$ 32,060,323	\$ 32,382,776	\$ 34,804,229	\$ 36,384,785
Retiree/Beneficiary/Disabled	224,131,485	216,043,506	210,020,169	244,483,335	245,177,613
Active and Inactive	<u>128,048,344</u>	<u>171,464,084</u>	<u>205,111,360</u>	<u>190,089,980</u>	<u>210,451,023</u>
Total	\$ 381,239,925	\$ 419,567,913	\$ 447,514,305	\$ 469,377,544	\$ 492,013,421
<b>Market Value of Assets (MVA)</b>					
Member Contribution Balance	\$ 29,060,096	\$ 32,060,323	\$ 32,382,776	\$ 34,804,229	\$ 36,384,785
Retiree/Beneficiary/Disabled	224,131,485	216,043,506	210,020,169	244,483,335	245,177,613
Active and Inactive	<u>122,560,981</u>	<u>184,625,900</u>	<u>194,949,553</u>	<u>162,502,580</u>	<u>193,492,158</u>
Total	\$ 375,752,562	\$ 432,729,729	\$ 437,352,498	\$ 441,790,144	\$ 475,054,556
<b>Unfunded Actuarial Accrued Liability: AAL - AVA <sup>1</sup></b>					
Member Contribution Balance	\$ -	\$ -	\$ -	\$ -	\$ -
Retiree/Beneficiary/Disabled	-	-	-	-	-
Active and Inactive	<u>71,869,968</u>	<u>45,286,660</u>	<u>21,430,446</u>	<u>31,748,169</u>	<u>31,721,629</u>
Total	\$ 71,869,968	\$ 45,286,660	\$ 21,430,446	\$ 31,748,169	\$ 31,721,629
<b>Funded Percentage <sup>1</sup></b>					
Member Contribution Balance	100.0%	100.0%	100.0%	100.0%	100.0%
Retiree/Beneficiary/Disabled	100.0%	100.0%	100.0%	100.0%	100.0%
Active and Inactive	<u>64.1%</u>	<u>79.1%</u>	<u>90.5%</u>	<u>85.7%</u>	<u>86.9%</u>
Total	84.1%	90.3%	95.4%	93.7%	93.9%
<b>Summary of Assumptions</b>					
Valuation Interest Rate	6.75%	6.75%	6.75%	6.75%	6.75%
Salary Scale	4.0%	4.0%	2.5%	2.5%	2.5%
Cost-of-Living Assumption	4.0%	4.0%	2.5%	2.5%	2.5%

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

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## SECTION II - FUNDING

### **FUNDING**

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SECTION II - FUNDING

**A. Development of Funded Status**

	<b>June 30, 2016</b>	<b>June 30, 2017</b>
1. Actuarial Accrued Liability		
a. Member Contribution Account	\$ 34,804,229	\$ 36,384,785
b. Retirees, Beneficiaries, and Disableds	244,483,335	245,177,613
c. Actives and Inactives	221,838,149	242,172,652
d. Total: (1)(a) + (1)(b) + (1)(c)	\$ 501,125,713	\$ 523,735,050
2. Actuarial Value of Assets <sup>1</sup>		
a. Member Contribution Account	\$ 34,804,229	\$ 36,384,785
b. Retirees, Beneficiaries, and Disableds	244,483,335	245,177,613
c. Actives and Inactives	190,089,980	210,451,023
d. Total: (2)(a) + (2)(b) + (2)(c)	\$ 469,377,544	\$ 492,013,421
3. Unfunded Actuarial Accrued Liability <sup>1</sup>		
a. Member Contribution Account: (1)(a) - (2)(a)	\$ -	\$ -
b. Retirees, Beneficiaries, and Disableds: (1)(b) - (2)(b)	-	-
c. Actives and Inactives: (1)(c) - (2)(c)	31,748,169	31,721,629
d. Total: (1)(d) - (2)(d)	\$ 31,748,169	\$ 31,721,629
4. Funded Percentage <sup>1</sup>		
a. Member Contribution Account: (2)(a) / (1)(a)	100.0%	100.0%
b. Retirees, Beneficiaries, and Disableds: (2)(b) / (1)(b)	100.0%	100.0%
c. Actives and Inactives: (2)(c) / (1)(c)	85.7%	86.9%
d. Total: (2)(d) / (1)(d)	93.7%	93.9%

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

SECTION II - FUNDING

**B. Unfunded Actuarial Accrued Liability Reconciliation**

1. June 30, 2016 Unfunded Actuarial Accrued Liability	\$	31,748,169
2. Normal Cost		14,762,102
3. Actuarially Determined Contributions (Employer and Member)		17,829,456
4. Interest of 6.75% on (1) + (2) - (3)		1,935,955
5. Expected June 30, 2017 Unfunded Actuarial Accrued Liability (1) + (2) - (3) + (4)	\$	30,616,770
6. Actuarial Value of Assets Experience (Gain)/Loss		
a. Investment Experience	\$	8,052,484
b. Contribution and Payroll Experience		(2,628,171)
7. Actuarial Accrued Liability Experience (Gain)/Loss		
a. Actuarial Accrued Liability Experience	\$	(870,224)
b. Additional Liability Due to Actuarial Audit Changes <sup>1</sup>		175,546
c. Additional Liability Due to Salary / Cost-of-Living Adjustments <sup>2</sup>		(2,236,300)
d. Additional Liability Due to Changes in Actuarial Assumptions <sup>3</sup>		(1,388,476)
e. Additional Liability Due to Changes in Plan Provisions		-
8. Total Experience (Gain)/Loss - New Amortization Base (6)(a) + (6)(b) + (7)(a) + (7)(b) + (7)(c) + (7)(d) + (7)(e)	\$	1,104,859
9. Actual June 30, 2017 Unfunded Actuarial Accrued Liability (5) + (8)	\$	31,721,629

<sup>1</sup> 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 refining the mortality rates used in the valuation to properly reflect the RP-2014 (with MP-2014 improvement removed) White Collar Mortality tables.

<sup>2</sup> Salary/Cost-of-Living Adjustment (COLA) of 2.0% was effective as of July 1, 2017, rather than the assumed increase of 2.5%.

<sup>3</sup> 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) White Collar Mortality tables.

SECTION II - FUNDING

**C. Actuarial Accrued Liability Reconciliation**

1. June 30, 2016 Actuarial Accrued Liability	\$	501,125,713		
2. Normal Cost		14,762,102		
3. Actual Benefit Payments <sup>1</sup>		22,099,240		
4. Service Purchases (Employer and Member) <sup>2</sup>		183,169		
5. Interest of 6.75% on (1) + (2) - (3)/2 + (4)/2		34,082,760		
6. Expected June 30, 2017 Actuarial Accrued Liability (1) + (2) - (3) + (4) + (5)	\$	528,054,504		
		Dollar Change in Liability	Percent Change in Liability	
7. (Gain)/Loss Components				
a. Actuarial Accrued Liability Experience	\$	(870,224)		(0.1%)
b. Actuarial Audit Changes <sup>3</sup>		175,546		0.0%
c. Salary/Cost-of-Living Adjustment <sup>4</sup>		(2,236,300)		(0.4%)
d. Changes in Actuarial Assumptions <sup>5</sup>		(1,388,476)		(0.3%)
e. Changes in Plan Provisions		-		0.0%
f. Total: (7)(a) + (7)(b) + (7)(c) + (7)(d) + (7)(e)	\$	(4,319,454)		(0.8%)
8. Actual June 30, 2017 Actuarial Accrued Liability: (6) + (7)(f)	<b>\$</b>	<b>523,735,050</b>		

<sup>1</sup> Includes refunds of accumulated member contributions and net interfund transfers.

<sup>2</sup> Includes \$0 of employer service purchases and \$183,169 of member service purchases.

<sup>3</sup> 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 refining the mortality rates used in the valuation to properly reflect the RP-2014 (with MP-2014 improvement removed) White Collar Mortality tables.

<sup>4</sup> Salary/Cost-of-Living Adjustment (COLA) of 2.0% was effective as of July 1, 2017, rather than the assumed increase of 2.5%.

<sup>5</sup> 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) White Collar Mortality tables.



SECTION II - FUNDING

**D. Reconciliation of Market Value of Assets**

	<b>June 30, 2016</b>	<b>June 30, 2017</b>
1. Market Value of Assets, Prior June 30	\$ 437,352,498	\$ 441,790,144
2. Receipts		
a. Employer Contributions	\$ 16,946,301	\$ 16,823,600
b. Member Contributions <sup>1</sup>	3,239,092	3,467,843
c. Investment Income and Dividends Net of Fees	5,262,149	35,150,717
d. Security Lending Income Net of Fees	60,276	45,161
e. Member Reassignments	-	-
f. Miscellaneous Income	-	-
g. Total Receipts: (2)(a) + (2)(b) + (2)(c) + (2)(d) + (2)(e) + (2)(f)	\$ 25,507,818	\$ 55,487,321
3. Disbursements		
a. Benefits Paid During the Year	\$ 20,910,726	\$ 22,054,921
b. Refund of Contributions and Interest	11,019	44,319
c. Administrative Expenses	148,427	123,669
d. Member Reassignments	-	-
e. Miscellaneous Disbursements	-	-
f. Total Disbursements: (3)(a) + (3)(b) + (3)(c) + (3)(d) + (3)(e)	\$ 21,070,172	\$ 22,222,909
4. Market Value of Assets, Current June 30: (1) + (2)(g) - (3)(f)	<b>\$ 441,790,144</b>	<b>\$ 475,054,556</b>
5. Market Value of Assets Approximate Annual Rate of Return <sup>2</sup>	1.2%	8.0%

<sup>1</sup> Includes \$161,550 of member service purchases during fiscal year 2016 and \$183,169 of member service purchases during fiscal year 2017.

<sup>2</sup> Based on individual fund experience. Net of expenses and assuming cash flows occur at mid-year.

SECTION II - FUNDING

**E. Reconciliation of Actuarial Value of Assets**

1.	Market Value of Assets, June 30, 2016		\$ 441,790,144
2.	Market Value of Assets, June 30, 2017		475,054,556
3.	Expected Earnings/Expenses		
a.	Expected Investment Earnings at 6.75% on June 30, 2016 Market Value		29,820,835
b.	Receipts with Expected Investment Earnings at 6.75% <sup>1</sup>		20,976,279
c.	Disbursements with Expected Investment Earnings at 6.75% <sup>1</sup>		22,845,089
4.	Expected Assets, June 30, 2017: (1) + (3)(a) + (3)(b) - (3)(c)	\$	469,742,169
5.	2016-2017 Gain/(Loss): (2) - (4)		5,312,387
6.	Smoothing of Gain/(Loss)		
	<u>Year</u>	<u>Gain/(Loss)</u>	<u>% Unrecognized</u>
a.	2016-2017	\$ 5,312,387	80%
b.	2015-2016	\$ (24,322,444)	60%
c.	2014-2015	\$ (29,640,414)	40%
d.	2013-2014	\$ 26,204,285	20%
7.	Preliminary Actuarial Value of Assets, June 30, 2017: (2) - (6)(a) - (6)(b) - (6)(c) - (6)(d)	\$	492,013,421
8.	Corridor		
a.	120% of Market Value: 1.2 x (2)		570,065,467
b.	80% of Market Value: 0.8 x (2)		380,043,645
9.	Actuarial Value of Assets, June 30, 2017: (7), but not greater than (8)(a) or less than (8)(b)	<b>\$</b>	<b>492,013,421</b>
10.	Actuarial Value of Assets as a Percent of Market Value: (9) / (2)		103.6%
11.	Actuarial Value of Assets Approximate Annual Rate of Investment Return <sup>2</sup>		5.2%

<sup>1</sup> Assumes cash flows occur at mid-year.

<sup>2</sup> Net of expenses and assuming cash flows occur at mid-year.

SECTION II - FUNDING

**F. Contributions**

	<b>June 30, 2016</b>	<b>June 30, 2017</b>
<b>Development of Actuarially Determined Contribution:</b>		
1. Anticipated Payroll	\$ 52,974,805	\$ 55,850,310
2. Normal Cost (Beginning of Year)		
a. Amount	\$ 14,762,102	\$ 14,885,621
b. Percentage of Payroll	27.87%	26.65%
3. Unfunded Actuarial Accrued Liability (UAAL) Annual Amortizations		
a. Amount	\$ 3,067,354	\$ 3,163,160
b. Percentage of Payroll	5.79%	5.66%
4. Expected Employee Contributions <sup>1</sup>		
a. Amount	\$ 3,085,367	\$ 3,326,150
b. Percentage of Payroll	5.82%	5.95%
5. Actuarially Determined Contribution Rate: (2)(b) + (3)(b) - (4)(b)	<b>27.84%</b>	<b>26.36%</b>
6. Estimated Actuarially Determined Contribution Amount		
a. Fiscal Year Beginning	July 1, 2017	July 1, 2018
b. Anticipated Payroll: (1) x [1+2.5%]	\$ 54,299,175	\$ 57,246,568
c. Amount: (5) x (6)(b) <sup>2</sup>	<b>\$ 15,116,890</b>	<b>\$ 15,090,195</b>
<b>7. Approved Funding Amount: <sup>3</sup></b>	<b>\$ 15,117,000</b>	<b>\$ 16,030,000</b>
<b>Expected Percentage of Actuarially Determined Contribution Contributed: (7) / (6)(c)</b>	100.00%	106.23%

<sup>1</sup> Only members with less than 22 years of service contribute to the plan. Anticipated payroll for active members with less than 22 years of service as of June 30, 2017 is \$55,435,832.

<sup>2</sup> Since the fiscal year to which contributions apply begins one year after the valuation date, the Actuarially Determined Contribution Amount is estimated by assuming payroll will increase by 2.5% per year and then applying the Actuarially Determined Contribution Rate computed at the valuation date. The actual Actuarially Determined Contribution Amount is determined after the fact, once covered payroll for the fiscal year is known.

<sup>3</sup> JRS is a State appropriated fund. Employer contribution amounts are expected to be paid by the State of Indiana.

SECTION II - FUNDING

**G. Unfunded Actuarial Accrued Liability Amortization Schedule**<sup>1</sup>

	Date Base Established	Reason	Remaining Unfunded	Remaining Period	Amortization Amount
1.	6/30/2009	Actuarial Experience	\$ 34,562,078	19	\$ 3,074,056
2.	6/30/2010	Actuarial Experience and Changes in Actuarial Assumptions	13,710,762	23	1,115,211
3.	6/30/2011	Actuarial Experience and Changes in Actuarial Assumptions	13,041,451	24	1,041,905
4.	6/30/2012	Actuarial Experience and Changes in Actuarial Assumptions	11,946,379	25	938,777
5.	6/30/2013	Actuarial Experience and Changes in Actuarial Assumptions	(6,639,781)	26	(513,883)
6.	6/30/2014	Actuarial Experience	(24,494,873)	27	(1,869,295)
7.	6/30/2015	Actuarial Experience and Changes in Actuarial Assumptions	(22,347,137)	28	(1,683,372)
8.	6/30/2016	Actuarial Experience and Changes in Actuarial Methods	10,837,891	19	963,955
9.	6/30/2017	Actuarial Experience and Changes in Actuarial Assumptions	<u>1,104,859</u>	20	<u>95,806</u>
	Total		\$ 31,721,629	13.2	\$ 3,163,160 <sup>2</sup>

<sup>1</sup> Valuation results prior to June 30, 2010 were calculated by the prior actuary.

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

SECTION II - FUNDING

**H. Approximate Annual Rate of Return for Year Ending June 30, 2017<sup>1</sup>**

	<u>Market Value of Assets</u>	<u>Actuarial Value of Assets</u>
1. Balance, beginning of year	\$ 441,790,144	\$ 469,377,544
2. Balance, end of year	475,054,556	492,013,421
3. Total increase: (2) - (1)	33,264,412	22,635,877
4. Contributions	20,291,443	20,291,443
5. Benefit payments <sup>2</sup>	22,099,240	22,099,240
6. Net additions: (4) - (5)	(1,807,797)	(1,807,797)
7. Net investment increase: (3) - (6)	35,072,209	24,443,674
8. Average assets: [(1) + (2) - (7)] / 2	440,886,246	468,473,646
9. Approximate rate of return: (7) / (8)	8.0%	5.2%

**I. 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<sup>4</sup></u>	<u>Actuarial Basis<sup>1</sup></u>	
2008	(7.6%)	8.3%	7.25%
2009	(20.6%)	(1.0%)	7.25%
2010	13.9%	(1.7%)	7.25%
2011	20.1%	(0.6%)	7.0%
2012	0.7%	2.6%	7.0%
2013	6.0%	8.0%	6.75%
2014	13.7%	8.6%	6.75%
2015	0.0%	5.5%	6.75%
2016	1.2%	5.1% <sup>3</sup>	6.75%
2017	7.9%	5.2%	6.75%

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

<sup>2</sup> Includes refunds of accumulated member contributions and net interfund transfers.

<sup>3</sup> Net of the impact of changing from four-year to a five-year smoothing.

<sup>4</sup> INPRS actual time-weighted rate of return net of fees for 2012-2017. PERF Consolidated Defined Benefit time-weighted rate of return reported as gross of fees for 2008-2011.

SECTION II - FUNDING

**J. 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) are shown below and on the following page at interest rates from 5.75% to 8.00%, in 0.25% increments.

	1.00% Decrease: (5.75%)	0.75% Decrease: (6.0%)	0.50% Decrease: (6.25%)	0.25% Decrease: (6.5%)	Current Assumption: (6.75%)
<b><u>Funded Status</u></b>					
Actuarial Accrued Liability	\$ 584,082,036	\$ 567,962,313	\$ 552,557,480	\$ 537,827,521	\$ 523,735,050
Actuarial Value of Assets	<u>492,013,421</u>	<u>492,013,421</u>	<u>492,013,421</u>	<u>492,013,421</u>	<u>492,013,421</u>
Unfunded Actuarial Accrued Liability	\$ 92,068,615	\$ 75,948,892	\$ 60,544,059	\$ 45,814,100	\$ 31,721,629
Funded Ratio	84.2%	86.6%	89.0%	91.5%	93.9%
<b><u>Actuarially Determined Contribution Rate</u></b>					
Normal Cost Percentage	32.61%	30.98%	29.45%	28.01%	26.65%
UAAL Amortization Percentage	14.10%	11.95%	9.84%	7.74%	5.66%
Expected Employee Contribution Percentage	<u>5.95%</u>	<u>5.95%</u>	<u>5.95%</u>	<u>5.95%</u>	<u>5.95%</u>
Actuarially Determined Contribution Rate	40.76%	36.98%	33.34%	29.80%	26.36%

SECTION II - FUNDING

**J. Interest Rate Sensitivity (Continued)**

	0.25% Increase: (7.0%)	0.50% Increase: (7.25%)	0.75% Increase: (7.5%)	1.00% Increase: (7.75%)	1.25% Increase: (8.0%)
<b><u>Funded Status</u></b>					
Actuarial Accrued Liability	\$ 510,245,118	\$ 497,325,029	\$ 484,944,175	\$ 473,073,887	\$ 461,687,292
Actuarial Value of Assets	<u>492,013,421</u>	<u>492,013,421</u>	<u>492,013,421</u>	<u>492,013,421</u>	<u>492,013,421</u>
Unfunded Actuarial Accrued Liability	\$ 18,231,697	\$ 5,311,608	\$ (7,069,246)	\$ (18,939,534)	\$ (30,326,129)
Funded Ratio	96.4%	98.9%	101.5%	104.0%	106.6%
<b><u>Actuarially Determined Contribution Rate</u></b>					
Normal Cost Percentage	25.38%	24.18%	23.05%	21.98%	20.98%
UAAL Amortization Percentage	3.61%	1.57%	(1.00%)	(2.73%)	(4.47%)
Expected Employee Contribution Percentage	<u>5.95%</u>	<u>5.95%</u>	<u>5.95%</u>	<u>5.95%</u>	<u>5.95%</u>
Actuarially Determined Contribution Rate	23.04%	19.80%	16.10%	13.30%	10.56%

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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	\$	3,185
	b. Receivables		
	i. Contributions and Miscellaneous Receivables	\$	62,582
	ii. Investments Receivable		3,059,649
	iii. Foreign Exchange Contract Receivable		132,384,478
	iv. Interest and Dividends		1,245,317
	v. Due From Other Funds		778
	vi. Total Receivables	\$	136,752,804
	c. Total Investments		
	i. Short-Term Investments	\$	-
	ii. Pooled Repurchase Agreements		33,886
	iii. Pooled Short-Term Investments		22,360,802
	iv. Pooled Fixed Income		155,246,060
	v. Pooled Equity		113,135,130
	vi. Pooled Alternative Investments		190,260,466
	vii. Pooled Derivatives		(58,223)
	viii. Pooled Investments at Contract Value		-
	ix. Securities Lending Collateral		5,190,259
	x. Total Investments	\$	486,168,380
	d. Net Capital Assets		1,542
	e. Other Assets		-
	f. Total Assets: (1)(a) + (1)(b)(vi) + (1)(c)(x) + (1)(d) + (1)(e)	\$	622,925,911
2.	Liabilities		
	a. Administrative Payable	\$	5,819
	b. Retirement Benefits Payable		-
	c. Investments Payable		4,820,973
	d. Foreign Exchange Contracts Payable		132,858,200
	e. Securities Lending Obligations		5,190,259
	f. Securities Sold Under Agreement to Repurchase		4,987,117
	g. Due To Other Funds		8,987
	h. Due to Other Governments		-
	i. Total Liabilities: (2)(a) + (2)(b) + (2)(c) + (2)(d) + (2)(e) + (2)(f) + (2)(g) + (2)(h)	\$	147,871,355
3.	Fiduciary Net Position Restricted for Pensions: (1)(f) - (2)(j)	<b>\$</b>	<b>475,054,556</b>

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	\$	441,790,144
2. Additions		
a. Contributions		
i. Member Contributions	\$	3,284,674
ii. Employer Contributions		16,823,600
iii. Service Purchases (Employer and Member) <sup>1</sup>		183,169
iv. Non-Employer Contributing Entity Contributions		-
v. Total Contributions	\$	20,291,443
b. Investment Income/(Loss)		
i. Net Appreciation/(Depreciation) <sup>2,3</sup>	\$	31,943,456
ii. Net Interest and Dividend Income		6,456,497
iii. Securities Lending Income		56,113
iv. Other Net Investment Income		65,350
v. Investment Management Expenses		(3,199,438)
vi. Direct Investment Expenses		(115,148)
vii. Securities Lending Expenses		(10,952)
viii. Total Investment Income/(Loss)	\$	35,195,878
c. Other Additions		
i. Member Reassignments	\$	-
ii. Miscellaneous Receipts		-
iii. Total Other Additions	\$	-
d. Total Revenue (Additions): (2)(a)(v) + (2)(b)(viii) + (2)(c)(iii)	\$	55,487,321
3. Deductions		
a. Pension and Disability Benefits	\$	22,054,921
b. Death, Survivor, and Funeral Benefits		-
c. Distributions of Contributions and Interest		44,319
d. Member Reassignments		-
e. Administrative Expenses		123,669
f. Total Expenses (Deductions): (3)(a) + (3)(b) + (3)(c) + (3)(d) + (3)(e)	\$	22,222,909
4. Net Increase (Decrease) in Fiduciary Net Position: (2)(d) - (3)(f)	\$	33,264,412
5. Fiduciary Net Position as of June 30, 2017: (1) + (4)	<b>\$</b>	<b>475,054,556</b>

<sup>1</sup> Includes \$0 of employer service purchases and \$183,169 of member service purchases.

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

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

SECTION III - ACCOUNTING

**EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68**

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

1.	Total Pension Liability		
	a. Total Pension Liability - Beginning of year	\$	501,125,713
	b. Service Cost <sup>1</sup>		14,762,102
	c. Interest Cost <sup>2</sup>		34,082,760
	d. Experience (Gains)/Losses		(3,106,524)
	e. Assumption Changes		(1,212,930)
	f. Plan Amendments		-
	g. Benefit Payments <sup>3</sup>		(22,099,240)
	h. Member Reassignments <sup>4</sup>		-
	i. Service Purchases (Employer and Member) <sup>5</sup>		183,169
	j. Total Pension Liability - End of year	\$	523,735,050
2.	Plan Fiduciary Net Position		
	a. Plan Fiduciary Net Position - Beginning of year	\$	441,790,144
	b. Employer Contributions <sup>5</sup>		16,823,600
	c. Member Contribution <sup>5</sup>		3,467,843
	d. Non-Employer Contributing Entity Contributions		-
	e. Investment Return		
	i. Expected Investment Return <sup>6</sup>	\$	29,759,822
	ii. Investment Gain/(Loss)		5,436,056
	iii. Net Investment Return		35,195,878
	f. Benefit Payments <sup>3</sup>		(22,099,240)
	g. Member Reassignments <sup>4</sup>		-
	h. Administrative Expenses		(123,669)
	i. Plan Fiduciary Net Position - End of Year	\$	475,054,556
3.	Net Pension Liability		
	a. Net Pension Liability: (1)(j) - (2)(i)	\$	<b>48,680,494</b>
	b. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability : (2)(i) / (1)(j)		90.7%

<sup>1</sup> As of the beginning of the year.

<sup>2</sup> Includes interest of 6.75% on the beginning-of-year service cost.

<sup>3</sup> Includes refunds of accumulated member contributions.

<sup>4</sup> Includes net interfund transfers.

<sup>5</sup> Includes \$0 of employer service purchases and \$183,169 of member service purchases.

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

SECTION III - ACCOUNTING

**EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68**

**D. Deferred Inflows and Outflows of Resources under GASB #68 for the Year Ended June 30, 2017 <sup>1</sup>**

Fiscal Year Established	Reason	Remaining Balance At Beginning of Year	Remaining Period <sup>2</sup>	Annual Recognition	Remaining Balance At End of Year
1. Liability Experience					
a. Inflows					
2017	Experience Gain	\$ 3,106,524	3.50	\$ 887,579	\$ 2,218,945
b. Outflows					
2015	Experience Loss	\$ (3,433,974)	1.38	\$ (2,488,388)	\$ (945,586)
2016	Experience Loss	\$ (5,158,854)	2.55	\$ (2,023,081)	\$ (3,135,773)
2. Assumption Changes					
a. Inflows					
2015	Assumption Change Gain	\$ 13,034,592	1.38	\$ 9,445,357	\$ 3,589,235
2017	Assumption Change Gain	\$ 1,212,930	3.50	\$ 346,552	\$ 866,378
b. Outflows					
None					
3. Investment Experience <sup>3</sup>					
a. Inflows					
2014	Investment Gain	\$ 9,329,454	2.00	\$ 4,664,726	\$ 4,664,728
2017	Investment Gain	\$ 5,436,056	5.00	\$ 1,087,212	\$ 4,348,844
b. Outflows					
2015	Investment Loss	\$ (19,582,158)	3.00	\$ (6,527,387)	\$ (13,054,771)
2016	Investment Loss	\$ (19,339,213)	4.00	\$ (4,834,804)	\$ (14,504,409)
4. Total Deferred Inflows / Outflows: (1) + (2) + (3)					
a. Inflows					
	Total	<b>\$ 32,119,556</b>		<b>\$ 16,431,426</b>	<b>\$ 15,688,130</b>
b. Outflows					
	Total	<b>\$ (47,514,199)</b>		<b>\$ (15,873,660)</b>	<b>\$ (31,640,539)</b>

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> Net of investment expenses.

SECTION III - ACCOUNTING

**EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68**

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

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

Year Ending June 30:

2017	\$	557,766
2018	\$	(3,755,552)
2019	\$	(10,153,537)
2020	\$	(3,130,528)
2021	\$	1,087,208
2022	\$	-
Thereafter	\$	-

SECTION III - ACCOUNTING

**EMPLOYER FINANCIAL STATEMENTS UNDER GASB #68**

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

1. Service Cost		
a. Total Service Cost <sup>1</sup>	\$	14,762,102
b. Member Contribution <sup>2</sup>		(3,284,674)
c. Administrative Expenses		<u>123,669</u>
d. Net Employer Service Cost: (1)(a) + (1)(b) + (1)(c)		11,601,097
2. Interest Cost <sup>3</sup>		34,082,760
3. Expected Return on Assets <sup>4</sup>		(29,759,822)
4. Plan Amendments		-
5. Recognition of Deferred (Inflows) / Outflows of Resources Related to:		
a. Liability Experience (Gains) / Losses		3,623,890
b. Assumption Change (Gains) / Losses		(9,791,909)
c. Investment (Gains) / Losses		<u>5,610,253</u>
d. Total: (5)(a) + (5)(b) + (5)(c)		(557,766)
6. Preliminary Pension Expense: (1)(d) + (2) + (3) + (4) + (5)(d)	\$	15,366,269
7. Employer Service Purchases		-
8. Total Pension Expense: (6) + (7)	<b>\$</b>	<b>15,366,269</b>

<sup>1</sup> As of the beginning of the year.

<sup>2</sup> Does not include \$183,169 of member service purchases.

<sup>3</sup> Includes interest of 6.75% on the beginning-of-year service cost.

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

SECTION III - ACCOUNTING

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

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

- 1 JRS is a single-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% per year beginning July 1, 2018. Actual salary increase of 3.1% on July 1, 2016 and 2.0% on July 1, 2017 are reflected in the liability valuation at June 30, 2017.
  - Cost-of-Living Increases 2.5% per year in deferral and retirement beginning July 1, 2018. Actual cost-of-living increase of 3.1% on July 1, 2016 and 2.0% on July 1, 2017 are reflected in the liability valuation at June 30, 2017.
  - Mortality Assumption (Healthy) RP-2014 (with MP-2014 improvement removed) White Collar mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.
  - Mortality Assumption (Disabled) RP-2014 (with MP-2014 improvement removed) Disability mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.
  - Experience Study The most recent comprehensive experience study was completed in April 2015 and was based on member experience between June 30, 2010 and June 30, 2014. The demographic assumptions were updated as needed for the June 30, 2015 actuarial valuation based on the results of the study.
  - Discount Rate The discount rate used to measure the total pension liability as of June 30, 2017, is 6.75% and is equal to the long-term expected return on plan investments, net of administrative expenses. The INPRS Board of Trustees has established a funding policy of requesting appropriations from the State in an amount equal to the actuarially determined contribution rate computed by the actuary using the assumptions and methods selected by the Board for the annual actuarial valuations, multiplied by a projection of covered member payroll. 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 and the State complies in its contributions to the plan, which has been the case for the past several years, the appropriations will be sufficient to fully fund the plan within 20 to 30 years. We note that appropriations are requested on a 2-year budget cycle, such that the amount requested for the second year of each cycle may end up being more or less than the actuarially determined amount for that year, depending on whether the plan experiences gains or losses in the first year of the budget cycle. However, any excess or shortfall in contributions received during the second year of the cycle gets reflected in the actuarially determined contribution calculation for the following 2-year cycle, ensuring that the plan is fully funded within the period required by the Board's funding policy. As a result, a detailed projection of plan assets and cash flows was not prepared to prove 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	\$ 109,027,480	\$ 48,680,494	\$ (1,980,669)

3. Classes of Plan Members Covered:<sup>1</sup>

- Retired Members, Beneficiaries and Disabled Members Receiving Benefits:	350
- Terminated Vested Plan Members Entitled to but Not Yet Receiving Benefits:	67
- Terminated Non-Vested Plan Members Entitled to a Distribution of Contributions:	39
- Active Plan Members:	<u>402</u>
- Total Membership:	858

4. Money-Weighted Rate of Return:

The money-weighted rate of return equals investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. For the fiscal year ending June 30, 2017, the money-weighted return on the plan assets is 8.0%.

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

- Total Pension Liability	\$ 523,735,050
- Plan Fiduciary Net Position	<u>475,054,556</u>
- Net Pension Liability	\$ 48,680,494
- Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	90.7%

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



SECTION III - ACCOUNTING

**REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68**

**G. Schedule of Changes in the Total Pension Liability and Plan Fiduciary Net Position under GASB #67 and #68<sup>1</sup>**

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	\$ 437,854,459	\$ 453,109,893	\$ 464,854,573	\$ 468,944,751	\$ 501,125,713
b. Service Cost <sup>2</sup>	16,084,589	15,301,638	15,283,088	13,869,891	14,762,102
c. Interest Cost <sup>3</sup>	30,047,576	30,992,602	31,753,468	31,889,331	34,082,760
d. Experience (Gains)/Losses	(13,602,915)	(16,025,822)	8,410,750	7,181,935	(3,106,524)
e. Assumption Changes	185,587	-	(31,925,306)	-	(1,212,930)
f. Plan Amendments	-	-	-	-	-
g. Benefit Payments <sup>4</sup>	(17,579,537)	(18,527,788)	(19,431,822)	(20,921,745)	(22,099,240)
h. Member Reassignments <sup>5</sup>	120,134	4,050	-	-	-
i. Service Purchases (Employer and Member)	-	-	-	161,550	183,169
j. Total Pension Liability - End of Year	<u>\$ 453,109,893</u>	<u>\$ 464,854,573</u>	<u>\$ 468,944,751</u>	<u>\$ 501,125,713</u>	<u>\$ 523,735,050</u>
2. Plan Fiduciary Net Position					
a. Plan Fiduciary Net Position - Beginning of Year	\$ 262,325,682	\$ 375,752,562	\$ 432,729,729	\$ 437,352,498	\$ 441,790,144
b. Employer Contributions	111,417,613	20,894,700	21,020,000	16,946,301	16,823,600
c. Employee Contributions	2,631,374	2,855,956	3,292,222	3,239,092	3,467,843
d. Non-Employer Contributing Entity Contributions	-	-	-	-	-
e. Net Investment Return	16,963,156	51,896,235	(93,406)	5,322,425	35,195,878
f. Benefit Payments <sup>4</sup>	(17,579,537)	(18,527,788)	(19,431,822)	(20,921,745)	(22,099,240)
g. Member Reassignments <sup>5</sup>	120,134	4,050	-	-	-
h. Administrative Expenses	(125,860)	(145,986)	(164,225)	(148,427)	(123,669)
i. Plan Fiduciary Net Position - End of Year	<u>\$ 375,752,562</u>	<u>\$ 432,729,729</u>	<u>\$ 437,352,498</u>	<u>\$ 441,790,144</u>	<u>\$ 475,054,556</u>

<sup>1</sup> 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.

<sup>2</sup> As of the beginning of the year.

<sup>3</sup> Includes interest of 6.75% on the beginning-of-year service cost.

<sup>4</sup> Includes refunds of accumulated member contributions.

<sup>5</sup> Includes net interfund transfers.

SECTION III - ACCOUNTING

**REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68**

**H. Schedule of Net Pension Liability and Related Ratios under GASB #67 and #68<sup>1</sup>**

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 <sup>2</sup>	7.  Net Pension Liability as a Percentage of Covered Payroll (4) / (6)
6/30/2013	\$ 453,109,893	\$ 375,752,562	\$ 77,357,331	82.9%	\$ 47,594,849	162.5%
6/30/2014	\$ 464,854,573	\$ 432,729,729	\$ 32,124,844	93.1%	\$ 46,041,085	69.8%
6/30/2015	\$ 468,944,751	\$ 437,352,498	\$ 31,592,253	93.3%	\$ 48,582,165	65.0%
6/30/2016	\$ 501,125,713	\$ 441,790,144	\$ 59,335,569	88.2%	\$ 51,381,964	115.5%
6/30/2017	\$ 523,735,050	\$ 475,054,556	\$ 48,680,494	90.7%	\$ 54,755,206	88.9%

<sup>1</sup> 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.

<sup>2</sup> 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<sup>1</sup>**

1. Year Ending	2. Actuarially Determined Contribution <sup>2</sup>	3. Actual Employer Contributions <sup>3</sup>	4. Contribution Excess / (Deficiency) (3) - (2)	5. Actual Covered Employee Payroll <sup>4</sup>	6. Contributions as a Percentage of Covered Payroll (3) / (5)
6/30/2013	\$ 25,458,485	\$ 111,417,613 <sup>5</sup>	\$ 85,959,128	\$ 47,594,849	234.1%
6/30/2014	\$ 27,647,672	\$ 20,894,700	\$ (6,752,972)	\$ 46,041,085	45.4%
6/30/2015	\$ 18,864,455	\$ 21,020,000	\$ 2,155,545	\$ 48,582,165	43.3%
6/30/2016	\$ 17,485,282	\$ 16,946,301	\$ (538,981)	\$ 51,381,964	33.0%
6/30/2017	\$ 14,334,913	\$ 16,823,600	\$ 2,488,687	\$ 54,755,206	30.7%

<sup>1</sup> 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.

<sup>2</sup> The actuarially determined contribution amounts are based on the actuarially determined contribution rates developed in the actuarial valuation completed one year prior to the beginning of the fiscal year, multiplied by actual payroll during the fiscal year.

<sup>3</sup> Excludes employer service purchases.

<sup>4</sup> Pensionable pay as provided by INPRS.

<sup>5</sup> Includes a contribution of \$90,187,160 made to the Plan pursuant to 2012 HB 1376.

SECTION III - ACCOUNTING

**REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB #67 AND #68**

**J. Schedule of Money-Weighted Returns under GASB #67 and #68<sup>1</sup>**

1. Year Ending	2. Money-Weighted Rate of Return
6/30/2013	5.2%
6/30/2014	13.7%
6/30/2015	(0.1%)
6/30/2016	1.2%
6/30/2017	8.0%

<sup>1</sup> 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.

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SECTION IV - CENSUS DATA

**CENSUS DATA**

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SECTION IV - CENSUS DATA

**A. Reconciliation of Participant Data**<sup>1</sup>

	<u>Actives</u>	<u>Inactive Non-Vested With Member Contribution Balance</u>	<u>Inactive Vested</u>	<u>Disabled</u>	<u>Retired</u>	<u>Beneficiary</u>	<u>Total</u>
Total as of June 30, 2015	394	41	65	3	249	99	851
Data Adjustments for Activity During Fiscal Year 2016	-	-	-	-	-	-	-
Adjusted Total as of June 30, 2015	394	41	65	3	249	99	851
New Entrants	20	-	-	-	-	-	20
Rehires	2	(2)	-	-	-	-	-
Non-Vested Terminations	(3)	3	-	-	-	-	-
Vested Terminations	(7)	-	7	-	-	-	-
Retirements	(3)	-	(5)	-	8	-	-
Disablements	(1)	-	-	1	-	-	-
Death with Beneficiary	-	-	-	(1)	(5)	6	-
Death without Beneficiary	-	(1)	-	(1)	(5)	(4)	(11)
Refunds	-	(2)	-	-	-	-	(2)
Data Adjustments	-	-	-	-	-	-	-
Total as of June 30, 2016	402	39	67	2	247	101	858
Data Adjustments for Activity During Fiscal Year 2017	-	-	-	-	-	-	-
Adjusted Total as of June 30, 2016	402	39	67	2	247	101	858

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

SECTION IV - CENSUS DATA

**B. Census Information as of June 30, 2016**<sup>1</sup>

	<u>Male</u>	<u>Female</u>	<u>Total</u>
1. Active			
a. Number	275	127	402
b. Average Age	55.4	53.0	54.6
c. Average Years of Service	9.7	7.8	9.1
d. Anticipated Payroll of Actives <sup>2</sup>	\$ 38,692,065	\$ 17,158,245	\$ 55,850,310
2. Inactive - Vested			
a. Number	47	20	67
b. Average Age	63.9	58.9	62.4
c. Average Years of Service	20.7	16.9	19.6
3. Inactive - Non-Vested <sup>3</sup>			
a. Number	28	11	39
4. Retiree/Beneficiary/Disabled			
a. Number	224	126	350
b. Average Age	74.0	78.8	75.7
c. Annual Benefits Payable <sup>4</sup>	\$ 16,866,357	\$ 4,598,901	\$ 21,465,258

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

<sup>2</sup> Figures shown are the anticipated pay for the one-year period following the valuation date.

<sup>3</sup> As of June 30, 2016, inactive non-vested members entitled to a refund of their member contributions had balances totaling \$853,337.

<sup>4</sup> Figures shown reflect the 3.1% cost-of-living increase effective July 1, 2016, but do not reflect the 2.0% cost-of-living increase effective July 1, 2017.

SECTION IV - CENSUS DATA

**C. Schedule of Active Member Valuation Data**<sup>1,2</sup>

1. Valuation Date	2. Active Members	3. Anticipated Payroll (\$ in Thousands) <sup>3</sup>	4. Average Pay <sup>3</sup> (3) / (2)	5. Annual Percent Increase
6/30/2008	267	33,729	126,327	9.7%
6/30/2009	288	36,196	125,680	(0.5%)
6/30/2010	291	36,722	126,192	0.4%
6/30/2011	363	45,764	126,072	(0.1%)
6/30/2012	361	45,138	125,037	(0.8%)
6/30/2013	365	46,967	128,676	2.9%
6/30/2014	365	47,883	131,186	2.0%
6/30/2015	368	49,651	134,921	2.8%
6/30/2016	394	52,975	134,454	(0.3%)
6/30/2017	402	55,850	138,931	3.3%

<sup>1</sup> Valuation results prior to June 30, 2010 were calculated by the prior actuary.

<sup>2</sup> 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.

<sup>3</sup> 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**<sup>1,2</sup>

1.	2.	3.	4.	5.	6.	7.	8.	9.
Valuation Date	Added Number	Annual Allowances (\$ in Thousands) <sup>4</sup>	Removed Number	Annual Allowances (\$ in Thousands) <sup>4</sup>	End of Year <sup>3</sup> Number	Annual Allowances (\$ in Thousands) <sup>4</sup>	% Change in Annual Allowances <sup>4</sup>	Average Annual Allowances <sup>4</sup>
6/30/2008	23	1,257	26	991	276	14,754	6.1%	53,455
6/30/2009	74	3,744	57	1,835	293	15,230	3.2%	51,978
6/30/2010	11	627	6	339	298	15,390	1.1%	51,644
6/30/2011	21	1,452	9	200	310	16,787	9.1%	54,152
6/30/2012	7	444	6	194	311	17,028	1.4%	54,751
6/30/2013	24	1,798	14	442	321	18,474	8.5%	57,551
6/30/2014	-	-	-	-	321	18,474	0.0%	57,551
6/30/2015	10	494	5	195	326	18,578	0.6%	56,987
6/30/2016	34	2,520	9	340	351	20,959	12.8%	59,714
6/30/2017	9	696	10	509	350	21,465	2.4%	61,329

<sup>1</sup> Valuation results prior to June 30, 2010 were calculated by the prior actuary.

<sup>2</sup> 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.

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

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

SECTION IV - CENSUS DATA

**E. Distribution of Active Members by Age and Service**<sup>1</sup>

<b>Attained</b>	Distribution of Active Members by Age and Service as of June 30, 2016 <sup>1</sup>								
<b>Age</b>	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									
25-29									
30-34	4								4
35-39	16								16
40-44	47	3							50
45-49	54	10	3						67
50-54	34	12	6	2					54
55-59	45	14	21	6					86
60-64	39	13	16	6	1				75
65-69	11	9	15	6					41
70&Up	4	3	2						9
Total	254	64	63	20	1				402

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

SECTION IV - CENSUS DATA

**F. Distribution of Inactive Vested Members by Age and Service**<sup>1</sup>

<b>Attained</b>	Distribution of Inactive Vested Members by Age and Service as of June 30, 2016 <sup>1</sup>						
<b>Age</b>	Under 10 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	Over 30 years	Total
<25							
25-29							
30-34							
35-39							
40-44							
45-49		1	1				2
50-54		2	1	1			4
55-59	2	5	1	7			15
60-64		4	3	19			26
65-69				14			14
70&Up			1	4		1	6
Total	2	12	7	45		1	67

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

SECTION IV - CENSUS DATA

**G. Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired<sup>1</sup>**

<b>Attained Age</b>	Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired as of June 30, 2016 <sup>1</sup>						
	Under 10 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	Over 30 years	Total
<40							
40-44							
45-49							
50-54							
55-59	2						2
60-64	14						14
65-69	78	1	1			1	81
70-74	58	25	2				85
75-79	15	12	14			1	42
80-84	6	4	36	5	1		52
85-89	1	2	10	7	7	2	29
90&Up		2	3	6	13	21	45
Total	174	46	66	18	21	25	350

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

SECTION IV - CENSUS DATA

**H. Schedule of Benefit Recipients by Type of Benefit Option<sup>1</sup>**

1977 System					
Number of Benefit Recipients by Benefit Option as of June 30, 2016					
Amount of Monthly Benefit	Retiree Single Life Annuity	Retiree 50% Joint and Survivor Annuity	Survivors	Disabled	Total
\$ 1 - 500	-	-	-	-	-
501 - 1,000	-	-	-	-	-
1,001 - 1,500	-	-	27	-	27
1,501 - 2,000	-	-	11	-	11
2,001 - 3,000	-	8	28	-	36
over 3,000	1	134	23	-	158
Total	1	142	89	-	232

1985 System					
Number of Benefit Recipients by Benefit Option as of June 30, 2016					
Amount of Monthly Benefit	Retiree Single Life Annuity	Retiree 50% Joint and Survivor Annuity	Survivors	Disabled	Total
\$ 1 - 500	-	-	-	-	-
501 - 1,000	-	-	-	-	-
1,001 - 1,500	-	-	2	-	2
1,501 - 2,000	-	-	-	-	-
2,001 - 3,000	-	3	8	-	11
over 3,000	2	99	2	2	105
Total	2	102	12	2	118

<sup>1</sup> The valuation results as of June 30, 2017 were calculated using June 30, 2016 census data, adjusted for certain activity during fiscal year 2017. Monthly benefits reflect the 3.1% cost-of-living increase effective July 1, 2016, but do not reflect the 2.0% cost-of-living increase effective July 1, 2017.

SECTION IV - CENSUS DATA

**I. Schedule of Average Benefit Payments as of June 30, 2016**<sup>1,2</sup>

1977 Plan							
	<10	10-14	15-19	20-24	25-29	30+	Total
Average Monthly Defined Benefit <sup>3</sup>	\$ 1,940	\$ 3,823	\$ 4,900	\$ 5,557	\$ 6,772	\$ 6,861	\$ 4,851
Average Final Average Salary	\$ 95,985	\$ 117,268	\$ 110,217	\$ 117,972	\$ 112,485	\$ 122,819	\$ 114,300
Number of Benefit Recipients	43	40	33	58	33	25	232

1985 Plan							
	<10	10-14	15-19	20-24	25-29	30+	Total
Average Monthly Defined Benefit <sup>3</sup>	\$ 2,837	\$ 4,995	\$ 6,172	\$ 6,924	\$ 7,066	\$ 5,874	\$ 5,680
Average Final Average Salary	\$ 113,141	\$ 118,706	\$ 128,297	\$ 131,896	\$ 118,952	\$ 145,363	\$ 124,724
Number of Benefit Recipients	9	41	39	23	4	2	118

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

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

<sup>3</sup> Figures shown reflect the 3.1% cost-of-living increase effective July 1, 2016, but do not reflect the 2.0% cost-of-living increase effective July 1, 2017.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

**ACTUARIAL ASSUMPTIONS AND METHODS**

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C. Actuarial Methods	42

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

**A. Actuarial Assumptions**

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

Interest Rate / Investment Return

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

Interest on Member Balances                      3.5% per year

Future Salary Increases                      2.5% per year beginning July 1, 2018. Actual salary increases of 3.1% on July 1, 2016 and 2.0% on July 1, 2017 are reflected in the liability valuation at June 30, 2017.

Inflation    2.25% per year

Cost of Living Increases                      2.5% per year in deferral and retirement beginning July 1, 2018. Actual cost-of-living increase of 3.1% on July 1, 2016 and 2.0% on July 1, 2017 are reflected in the liability valuation at June 30, 2017.

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

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

Disability    1964 OASDI Table. Illustrative rates shown below:

Age	Rate
20	0.060%
25	0.085%
30	0.110%
35	0.147%
40	0.220%
45	0.360%
50	0.606%
55	1.009%
60	1.627%
65+	0.000%



**SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS**

**A. Actuarial Assumptions (Continued)**

Termination 3% per year for all members prior to retirement eligibility.

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

<u>Age</u>	<u>Service &lt; 22</u>	<u>Service &gt;= 22</u>
55-61	N/A	70%
62	25%	70%
63	15%	70%
64	10%	70%
65	50%	70%
66-74	30%	70%
75+	100%	100%

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

Spouse/Beneficiary 90% of members are assumed to be married 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.

Data Assumptions Spouse gender is assumed to be the opposite gender of the member.

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

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SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

**B. Actuarial 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 every fifth year. 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.

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## 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 method 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 inactives). 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

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

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## SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

### **C. Actuarial Methods (Continued)**

3. State Appropriations

Based on the assumptions and methods previously described, an actuarially determined contribution amount is computed. The Board considers this information when requesting funds from the State.

4. Anticipated Payroll

The Anticipated Payroll of \$55,850,310 for the fiscal year beginning July 1, 2017 is equal to the actual payroll during the year ending June 30, 2017, increased with one year of salary scale.

5. Changes in Actuarial Methods

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

SECTION VI - SUMMARY OF PLAN PROVISIONS

**SUMMARY OF PLAN PROVISIONS**

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Summary of Plan Provisions

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SECTION VI - SUMMARY OF PLAN PROVISIONS

**Summary of Plan Provisions (Continued)**

Amount of Benefits

- a. Normal Retirement      The normal retirement benefit is a monthly annuity payable for life with a 50% continuation (or \$12,000 annually, if greater) to a surviving spouse or surviving dependent children. The benefit is equal to a percentage of earnings<sup>1</sup> in accordance with the following table:

<u>Years of Service</u>	<u>Percentage</u>
7 or less	0%
8	24%
9	27%
10	30%
11	33%
12	50%
13	51%
14	52%
15	53%
16	54%
17	55%
18	56%
19	57%
20	58%
21	59%
22 or more	60%

An additional percentage shall be calculated by prorating between applicable percentages, based on the number of months in a partial year of service.

<sup>1</sup> Earnings is the annual salary being paid for the office which the participant held at the time of separation from service effective January 1, 2010.

SECTION VI - SUMMARY OF PLAN PROVISIONS

**Summary of Plan Provisions (Continued)**

Amount of Benefits (continued)

- 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 participant may elect to have the benefit commence prior to age 65 provided the benefit is reduced by 0.1% for each month that the benefit commencement date precedes age 65.
  
- 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.
  
- d. Disability Retirement      The disability retirement benefit is payable for the duration of the disability commencing the month following disability date. The amount of monthly benefit shall be equal to a percentage of: (1) for the 1977 JRS System - the salary paid for the office the member held at the time of separation; (2) for the 1985 System - salary paid to the member at the time of separation. The percentages are in accordance with the following table:

<u>Years of Service</u>	<u>Percentage</u>
12 or less	50%
13	51%
14	52%
15	53%
16	54%
17	55%
18	56%
19	57%
20	58%
21	59%
22 or more	60%

An additional percentage shall be calculated by prorating between applicable percentages, based on the number of months in a partial year of service.



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SECTION VI - SUMMARY OF PLAN PROVISIONS

**Summary of Plan Provisions (Continued)**

Amount of Benefits (continued)

- e. Termination                      The termination benefit is the accrued retirement benefit determined as of the termination date and payable commencing as of the normal retirement date. The participant may elect to receive a reduced early retirement benefit.
  
- f. Death Benefit                      If death occurs (a) while receiving benefits, (b) while in service as a judge with 8 or more years of service, or (c) while permanently disabled, the spouse or family of dependent children shall be eligible for a benefit equal to the greater of \$12,000 (effective July 1, 1977) annually or 50% of the benefit the participant was receiving or was entitled to receive at the time of death.

Spousal benefits are payable as a lifetime monthly pension.

- g. Post-Retirement Benefit Increases                      Participant benefits in the Judges 1977 Retirement, Disability, and Death System increase in the same ratio as the salary being paid for the office a participant held at the time of separation from service increases. Effective January 1, 2010, the Judges 1985 Retirement, Disability, and Death System will also have benefits increase in the same manner, on a prospective basis only.

Member Contributions

Each participant contributes 6% of his total salary until completion of 22 years of service. Beginning in 2013, the employee contributions are picked up by the employer as pre-tax money which are also included in annual salary

Forms of Payment

- a. Single Life Annuity                      Member will receive a monthly benefit for life, but there are no monthly payments to anyone after death.
  
- b. Joint with One-Half Survivor Benefits                      Member will be paid a monthly benefit for life. After death, one-half (1/2) of the benefit will be paid to the spouse for their lifetime or the dependent until age 18 unless disabled. If the dependent child was named the beneficiary, once they are no longer entitled to the benefit, the spouse would receive the benefit for life.

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SECTION VI - SUMMARY OF PLAN PROVISIONS

**Summary of Plan Provisions (Continued)**

Withdrawal from Fund	If member's employment is terminated prior to eligibility for a retirement annuity, the member may withdraw their contributions from the Fund.
Cost-of-Living Adjustments	Benefits for retired members (does not include disabled members or surviving spouses) increase automatically based on the annual pay increase granted for the position the member held at the time of retirement. The annual cost-of-living assumption for the valuation is 2.5%, which is the same as the salary increase assumption for active members.
Changes in Provisions	It is our understanding that there were no changes to the Plan that impacted the pension benefits during the fiscal year.

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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.

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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.

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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.