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Indiana Public Retirement System

Excise, Gaming and Conservation Officers' Retirement Fund

Actuarial Valuation as of
June 30, 2018

www.CavMacConsulting.com

November 1, 2018

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

Dear Members of the Board:

At your request, we performed an actuarial valuation of the Excise, Gaming and Conservation Officers' Fund (EG&C) as of June 30, 2018, for the purpose of estimating the actuarial determined contribution rate for the calendar year 2020. The major findings of the valuation are contained in this report, which reflects the benefit and funding provisions in place on June 30, 2018. There was a change in the actuarial assumption from the prior year for the Cost-of-Living-Adjustment (COLA) to reflect future expectations after the passage of Senate Enrolled Act No. 373.

This is the first actuarial valuation report prepared by Cavanaugh Macdonald Consulting, LLC (CMC). As part of our transition work, we replicated the June 30, 2017 actuarial valuation. Results were well within acceptable limits, but as is typical in a takeover situation, there were some differences in the key valuation results. Based on our experience, these differences are neither unusual nor significant. In our replication, we matched the actuarial liability and the normal cost within 1%.

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

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

While the assumptions were generally developed by the prior actuary, we believe they are reasonable. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C. Specifically, we presented the existing assumptions with adjustments to the COLA assumption for the 2018 valuations to the Board on February 23, 2018, and the Board subsequently adopted their use. These assumptions are applicable to both the funding and Governmental Accounting Standards Board (GASB) Statement Number 67 valuation calculations, unless otherwise noted.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

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

The Comprehensive Annual Financial Report (CAFR) for INPRS contains several exhibits that disclose the actuarial position of the System. This report provides data and tables for use in the following sections of the CAFR:

Financial Section:
- Note 1 - Tables of Plan Membership
- Note 7 - Net Pension Liability and Actuarial Information - Defined Benefit Plans
- Schedule of Changes in Net Pension Liability and Plan Fiduciary Net Position
- Schedule of Contributions
- Schedule of Notes to Required Supplementary Information

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

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

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

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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

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

Sincerely,

Brent A. Banister

Patrice Beckham

Brent A. Banister Ph.D., FSA, EA, MAAA, FCA
Chief Actuary

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

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This report presents the results of the June 30, 2018 actuarial valuation of the Excise, Gaming and Conservation Officers' Retirement Fund (EG&C). The primary purposes of performing this actuarial valuation are to:

- Determine the employer contribution rate for the calendar year ending December 31, 2020 that will be sufficient to meet the funding policy set out by the Board to comply with Indiana statutes.
- Disclose asset and liability measurements as well as the current funded status of the plan on the valuation date.
- Compare actual and expected experience in the valuation during the plan year ending June 30, 2018.
- Analyze and report on trends in plan contributions, assets and liabilities over the past several years.

VALUATION RESULTS

This is the first actuarial valuation report prepared by Cavanaugh Macdonald Consulting, LLC (CMC). As part of our transition work, we replicated the June 30, 2017 actuarial valuation. For the most direct comparison of replication results, we compared measurements as of the date the census data was collected (June 30, 2016). Note that while these measures were used in the roll forward to obtain June 30, 2017 valuation results, these specific measures are not shown in any valuation report. Results were well within acceptable limits, but as is typical in a takeover situation, there were some differences in the key valuation results. Based on our experience, these differences are neither unusual nor significant. A summary of the key actuarial measurements in the replication results is shown in the following table:

	June 30, 2016 Census Results		
	CMC	PwC	CMC/PwC
Present Value of Future Benefits	$162,009,408	$162,848,325	99.5%
Actuarial Accrued Liability	136,174,701	137,141,426	99.3%
Normal Cost	3,089,786	3,070,912	100.6%

It should be noted that while the key liability numbers were a very close match, some items reported in the valuation, such as the Unfunded Actuarial Accrued Liability (UAAL), are derived from calculations of these fundamental measures and may vary proportionately more than the underlying liability measures.

Changes occurred as a result of Senate Enrolled Act No. 373, which changed the funding of future post-retirement benefit increases. Under the law, the Board may designate a portion of the employer contribution rate (up to 1%) to be directed into a sub-account of the trust fund. In certain cases, proceeds from lottery revenues could also be added, and it is expected that some of these funds may ultimately be directed to EG&C. As part of the biennial budget process, the Legislature will have the option to provide for benefit increases, either permanently or as a one-time additional check, that will be paid from the accumulated assets of the sub-account. As a consequence of this legislative change, the Board adopted a new assumption for future Cost-of-Living Adjustments (COLAs), effective with this valuation. This new assumption is based on an anticipated 0.4% permanent COLA being granted each January 1 from 2022 to 2033, followed by a 0.5% COLA from 2034 to 2038, and then 0.6% in 2039 and beyond. The prior assumption was that a 1.0% COLA would be granted each year. Further, the development of the actuarially determined contribution rate has been modified. Separate rates are developed for both the "base" (no COLA) benefit as well as a “surcharge” for the future COLA benefits. Under Board policy, the total employer contribution rate will be adjusted once the total funded ratio (the base and COLA benefits combined) reaches 105%. Further details are shown in the report.

The actuarial valuation results provide a “snapshot” view of the plan’s financial condition on June 30, 2018. The plan’s UAAL changed from of $18.1 million last year to $7.6 million this year and the funded ratio increased from 87% to 95%. Several factors contributed to this reduction in funded status. Most substantial was the passage of new legislation that changed the future COLA assumption. This change resulted in about $8 million being removed from the measured actuarial accrued liability. Actual contributions exceeded the actuarially determined contribution needed by about $2.4 million, while actuarial losses on asset and demographic experience of just under $2 million offset much of this.

A summary of the key results from the June 30, 2018 actuarial valuation compared to the June 30, 2017 valuation is shown in the following table. Further detail on the valuation results can be found in the following sections of this Executive Summary.

Valuation Results	June 30, 2017	June 30, 2018
Unfunded Actuarial Accrued Liability	$ 18,072,384	$ 7,614,932
Funded Ratio (Actuarial Assets)	87.33%	94.56%
Normal Cost	11.98%	11.22%
UAAL Amortization	5.35%	0.56%
Total Recommended Contribution	17.33%	11.78%
Estimated Member Contributions	(4.00%)	(4.00%)
Actuarially Determined Contribution Rate	13.33%	7.78%
Surcharge	0.00%	0.73%
Actuarially Determined Contribution Rate	13.33%	8.51%

Numerous components, which are examined in the following discussion, contributed to the change in the plan’s assets, liabilities, and actuarial determined contribution rate between June 30, 2017 and June 30, 2018.

ASSETS

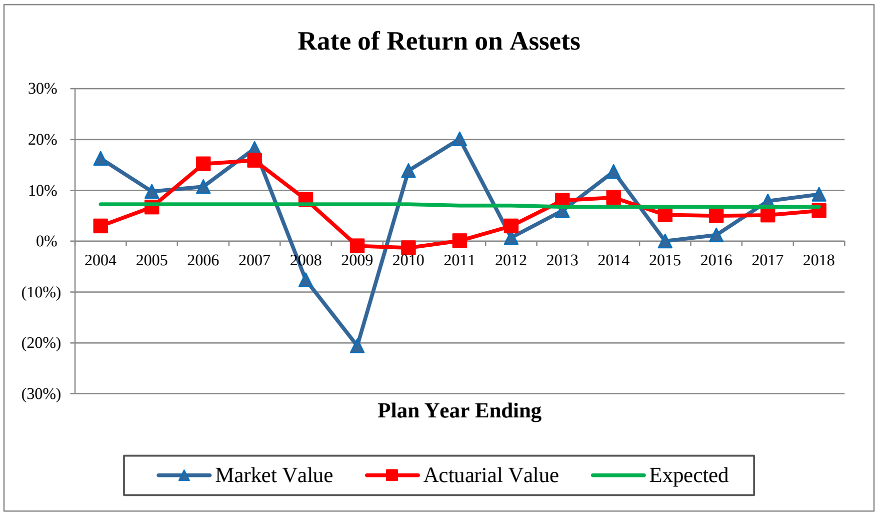
As of June 30, 2018, the plan had net assets of $131.5 million, when measured on a market value basis. This was an increase of $11.5 million from the prior year.

The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability and the actuarial required contribution rate. An asset valuation method, which smoothes the effect of market fluctuations, is applied to determine the value of assets used in the valuation. The resulting amount is called the actuarial value of assets. In this year’s valuation, the actuarial value of assets is $132.4 million, an increase of $7.9 million from the prior year.

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

		Market Value		Actuarial Value
Net Assets, June 30, 2017	$	120,016,301	$	124,530,420
- Employer and Member Contributions	+	7,356,953	+	7,356,953
- Benefit Payments and Refunds	-	6,934,957	-	6,934,957
- Net Investment Income	+	11,052,890	+	7,488,219
Net Assets, June 30, 2018	$	131,491,187	$	132,440,635
Rate of Return, Net of Expenses		9.2%		6.0%

The rate of return on the actuarial value of assets was 6.0%, which was lower than the 6.75% investment return assumption applicable for the year ended June 30, 2018. As a result, there was an experience loss on assets of $932,000. The investment return on the market value of assets for FY 2018 of 9.2% resulted in a change in the deferred investment experience from a net deferred investment loss of $4.5 million in last year's valuation to $0.9 million in the current valuation. See Table 1 and Table 2 of this report for detailed information on the market and actuarial value of assets.



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

LIABILITIES

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

The unfunded actuarial accrued liability, including expected future COLAs, is shown as of June 30, 2018 in the following table:

	Market Value	Actuarial Value
Actuarial Accrued Liability	$ 140,055,567	$ 140,055,567
Value of Assets	131,491,187	132,440,635
Unfunded Actuarial Accrued Liability	$ 8,564,380	$ 7,614,932
Funded Ratio	93.89%	94.56%

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

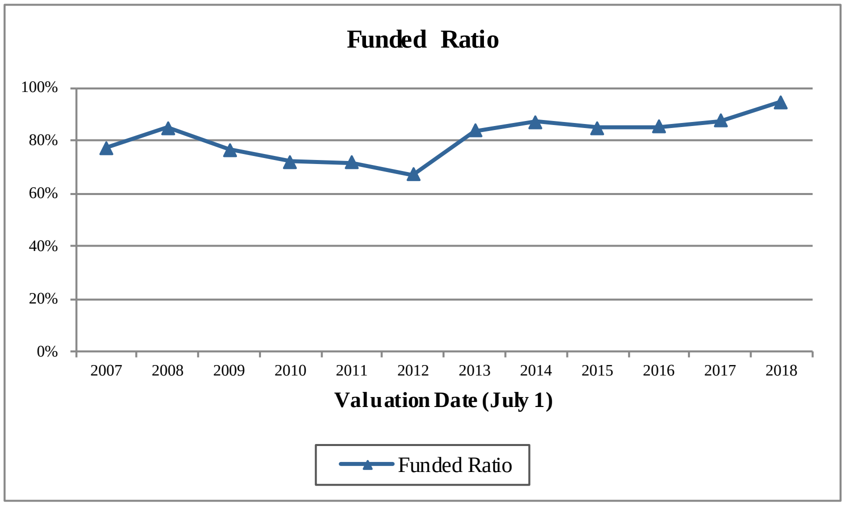
The net change in the total UAAL from June 30, 2017 to June 30, 2018 was a decrease of nearly $10.5 million. The most significant factor in this change was the change in the COLA assumption reflecting the new COLA funding legislation. The components of the change in the base UAAL are quantified in Table 5 of this report. See Table 6 and Table 7 of this report for a breakdown of the components of experience gains/losses for greater detail.

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

	6/30/2014	6/30/2015	6/30/2016	6/30/2017	6/30/2018
Funded Ratio	87.0%	84.9%	85.3%	87.3%	94.6%
UAAL (in millions)	$16.0	$20.0	$20.4	$18.1	$7.6

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

As the following graph shows, the EG&C Plan has generally been making progress towards a fully funded level, especially since 2012.



ACTUARIALLY DETERMINED CONTRIBUTION RATE

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

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

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

The UAAL contribution rate is determined by calculating the amortization payment on the UAAL as a level dollar amount over 20 years for each new amortization base. Because the COLA portion of the benefits are funded through the surcharge, this portion of the benefit only considers the base benefit without any COLA. Whenever the Plan exceeds 100% funded on a combined (base benefits plus future assumed COLAs), all prior amortization bases are eliminated and the negative UAAL (or "surplus") is used to reduce the normal cost over a rolling 30-year period.

In additional to the components above that are designed to fund the guaranteed base benefit, the Board is responsible for determining the surcharge to fund future COLAs and/or 13th checks. Because there are five plans that must, by law, provide the same COLA or 13th check each year, the funding strategy needs to consider the overall funding needs as well as the specific plan. The long-term assumption is that a COLA of 0.4% will be granted starting in 2022, 0.5% starting in 2034, and then 0.6% in 2039 and beyond. Considering the biennial budgeting cycle in Indiana, the near-term goal is to accumulate funds by June 30, 2021 to fund the two COLAs in the following biennium (January, 2022 and January, 2023). Because the surcharge will begin being collected January 1, 2019, this allows 2½ years to collect the needed funds. Under this approach, the calculated surcharge rate for EG&C will be 0.73%. The Board may wish to consider a surcharge of 1.0% in anticipation of the longer term. See Table 10 for further details.

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

See Table 11 of this report for the detailed development of the contribution rates which are summarized in the following table:

Contribution Rate	June 30, 2017	June 30, 2018
Normal Cost	11.98%	11.22%
UAAL Amortization	5.35%	0.56%
Total Recommended Contribution	17.33%	11.78%
Estimated Member Contributions	(4.00%)	(4.00%)
Actuarially Determined Contribution Amount	13.33%	7.78%
Surcharge	0.00%	0.73%
Actuarially Determined Contribution Rate	13.33%	8.51%

The actuarial required contribution, determined this year based on the snapshot of the plan taken on the valuation date of June 30, 2018, will change each year as the deferred investment experience is recognized and other experience (both investment and demographic) impacts the plan. Therefore, it is expected to change each year.

SUMMARY OF PRINCIPAL RESULTS

		June 30, 2016		June 30, 2017		June 30, 2018
MEMBERSHIP						
Active Members		421		440		430
Active Members in DROP[1]						13
Retired Members and Beneficiaries		216		220		231
Disabled Members		4		3		3
Inactive Members		128		126		146
Total Members		769		789		823
Projected Annual Salaries in Following Year	$	26,163,688	$	28,113,707	$	30,121,351
Annual Retirement Payments for Retired Members, Disabled Members and Beneficiaries	$	5,661,184	$	5,912,079	$	6,245,912
ASSETS AND LIABILITIES						
Net Assets						
Market Value of Assets (MVA)	$	111,329,476	$	120,016,301	$	131,491,187
Actuarial Value of Assets (AVA)		118,515,692		124,530,420		132,440,635
Actuarial Accrued Liability (AAL)		138,965,050		142,602,804		140,055,567
Unfunded Actuarial Accrued Liability (UAAL):						
AAL - AVA	$	20,449,358	$	18,072,384	$	7,614,932
Funded Ratios						
AVA / AAL		85.28%		87.33%		94.56%
MVA / AAL		80.11%		84.16%		93.89%
CONTRIBUTIONS						
Normal Cost Rate		13.57%		11.98%		11.22%
UAAL Rate		6.40%		5.35%		0.56%
Total Recommended Contribution Rate		19.97%		17.33%		11.78%
Expected Employee Contribution Rate		(4.00%)		(4.00%)		(4.00%)
Actuarially Determined Contribution Rate		15.97%		13.33%		7.78%
Surcharge		0.00%		0.00%		0.73%
Total Contribution Rate		15.97%		13.33%		8.51%

[1] The prior actuary included active members in DROP in the active members count for 2016 and 2017.

Note: Liability and funded ratio results for 2018 include both the base plan benefit and the supplemental benefit.

This report presents the actuarial valuation results of the Excise, Gaming and Conservation Officers' Retirement Fund as of June 30, 2018. This valuation was prepared at the request of the Indiana Public Retirement System.

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

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

This report includes several appendices:

- Appendix A — Schedules of valuation data classified by various categories of members.
- Appendix B — A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2018.
- Appendix C — A summary of the actuarial methods and assumptions used to estimate liabilities and determine contribution rates.
- Appendix D — A glossary of actuarial terms.

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2018. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the plan, which are generally in excess of assets. The actuarial process then leads to a method of determining the contributions needed by members and the employer in the future to balance the plan assets and liabilities.

Market Value of Assets

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

Table 1 summarizes the changes in the market value of assets for the last two years. Table 13 (in the GASB section) provides detail regarding the allocation of investments in the trust.

Actuarial Value of Assets

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

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

TABLE 1

DEVELOPMENT OF MARKET VALUE OF ASSETS

	June 30, 2017	June 30, 2018
1. Market Value of Assets, Beginning of Year	$ 111,329,476	$ 120,016,301
2. Receipts		
a. Member (Includes Purchased Service)[1]	$ 1,101,958	$ 1,172,194
b. Employer	5,691,313	6,174,724
c. Miscellaneous	0	10,035
d. Total	$ 6,793,271	$ 7,356,953
3. Expenditures		
a. Benefit Payments	$ 6,709,530	$ 6,820,189
b. Refund of Contributions	116,786	114,768
c. Member Reassignments	25,694	0
d. Administrative Expense	123,665	136,045
e. Miscellaneous	0	0
f. Total	$ 6,975,675	$ 7,071,002
4. Investment Return		
a. Investment Income	$ 8,857,863	$ 11,171,967
b. Securities Lending Income	11,366	16,968
c. Total Investment Return	$ 8,869,229	$ 11,188,935
5. Market Value of Assets, End of Year: (1) + (2d) - (3f) + (4c)	$ 120,016,301	$ 131,491,187
6. Estimated Rate of Return, Net of Expenses[2]	7.86%	9.19%

[1] Includes member service purchases of $9,091 in fiscal year 2017 and $1,555 in fiscal year 2018.
[2] Based on individual fund experience. Assumes cash flows occur at mid-year.

TABLE 2

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

						For the Year Ending June 30, 2018
1. Market Value as of June 30, 2017					$	120,016,301
2. Receipts					$	7,356,953
3. Expenditures, Net of Administrative Expenses					$	(6,934,957)
4. Expected Return on Assets [1]					$	8,115,343
5. Expected Market Value as of June 30, 2018: (1) + (2) + (3) + (4)					$	128,553,640
6. Actual Market Value as of June 30, 2018					$	131,491,187
7. Year End 2018 Asset Gain/(Loss): (6) - (5)					$	2,937,547
8. Deferred Investment Gains and Losses						
	Year Ended June 30:		Gain/(Loss)	Factor		Deferred Amount
	a. 2015	$	(7,685,759)	20%	$	(1,537,152)
	b. 2016		(6,255,044)	40%		(2,502,018)
	c. 2017		1,232,806	60%		739,684
	d. 2018		2,937,547	80%		2,350,038
	e. Total				$	(949,448)
9. Initial Actuarial Value as of June 30, 2018: (6) - (8e)					$	132,440,635
10. Constraining Values						
a. 80% of Market Value: (6) x 0.8					$	105,192,950
b. 120% of Market Value: (6) x 1.2					$	157,789,424
11. Actuarial Value as of June 30, 2018					$	132,440,635
12. Actuarial Rate of Return, Net of Expenses [2]						6.00%
13. Actuarial Value of Assets as a Percent of Market Value: (11) / (6)						100.7%

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

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the Excise, Gaming and Conservation Officers' Retirement Fund as of the valuation date, June 30, 2018. In this section, the discussion will focus on the commitments (future benefit payments) of the plan, which are referred to as its liabilities.

The liability calculations for the June 30, 2018 Excise, Gaming and Conservation Officers' Retirement Fund valuation are based on census data collected as of June 30, 2017. Standard actuarial techniques are used to adjust these results from June 30, 2017 to June 30, 2018. While these roll-forward techniques are based on all actuarial assumptions being met during the intervening year, there will, of course, be many of the assumptions that will not be met exactly. In general, this does not materially affect the resulting calculations or conclusions in this report. Should there be a year in which significant events occur that would affect the results, we adjustments in the roll-forward methods would be made to appropriately reflect the events.

All liabilities reflect the benefit provisions and actuarial assumptions in place as of June 30, 2018.

Actuarial Accrued Liability

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

(1) that which is attributable to the past and

(2) that which is attributable to the future.

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

Table 3 contains the calculation of actuarial accrued liability for the Plan under the Entry Age Normal actuarial cost. This amount is split between the base benefit and the COLA benefit. Once permanent COLAs have been granted, the obligation for future payments will also be included.

TABLE 3

ACTUARIAL ACCRUED LIABILITY

As of June 30, 2018	Base Plan	Supplemental Plan *Granted*	Supplemental Plan *Future*	Total
1. Actuarial Accrued Liability				
a. Member Contribution Balances	$ 10,714,703	$ 0	$ 0	$ 10,714,703
b. Active & Inactive Members	57,352,556	0	3,238,113	60,590,669
c. In-pay Members	66,651,937	0	2,098,258	68,750,195
d. Total	$ 134,719,196	$ 0	$ 5,336,371	$ 140,055,567
2. Actuarial Value of Assets	$ 132,440,635	$ 0	$ 0	$ 132,440,635
3. Unfunded Actuarial Accrued Liability: (1d) - (2)	$ 2,278,561	$ 0	$ 5,336,371	$ 7,614,932
4. Funded Ratio: (2) / (1d)	98.3%	N/A	0.0%	94.6%

TABLE 4

SOLVENCY TEST

	Actuarial Accrued Liabilities (AAL)					Portion of AAL Covered by Assets			
Actuarial Valuation as of June 30	Active Member Contributions	Retirees and Beneficiaries	Active Member (Employer Financed Portion)	Total Actuarial Accrued Liabilities	Actuarial Value of Assets	Active Member Contributions	Retirees and Beneficiaries	Active Member (Employer Financed Portion)	Total Actuarial Accrued Liabilities
2018	$10,715	$68,750	$60,591	$140,056	$132,441	100.0%	100.0%	87.4%	94.6%
2017	9,737	69,217	63,649	142,603	124,531	100.0	100.0	71.6	87.3
2016	9,085	67,424	62,456	138,965	118,515	100.0	100.0	67.3	85.3
2015	8,456	61,503	62,837	132,796	112,765	100.0	100.0	68.1	84.9
2014	8,042	54,626	60,933	123,601	107,563	100.0	100.0	73.7	87.0
2013	7,494	56,028	54,575	118,097	98,608	100.0	100.0	64.3	83.5
2012	6,532	53,929	52,822	113,283	76,007	100.0	100.0	29.4	67.1
2011	6,271	46,695	48,568	101,534	72,599	100.0	100.0	40.4	71.5
2010	6,220	36,044	55,598	97,862	70,327	100.0	100.0	50.5	71.9
2009	5,274	35,039	48,983	89,296	68,170	100.0	100.0	56.9	76.3

Note: Dollar amounts are in thousands of dollars.

TABLE 5

RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY

	For Plan Year Ending June 30, 2018	
1. Unfunded Actuarial Accrued Liability as of June 30, 2017	$	18,072,384
2. Normal Cost		3,369,314
3. Actuarially Determined Contribution		(4,873,153)
4. Interest		1,118,377
5. Expected Unfunded Actuarial Accrued Liability as of June 30, 2018	$	17,686,922
6. Actuarial Value of Asset Changes		
a. Investment Experience (Gain)/Loss	$	931,827
b. Contributions Above the Actuarially Determined Contribution	$	(2,401,552)
7. Actuarial Accrued Liability Changes		
a. Actuarial Accrued Liability Experience (Gain)/Loss	$	493,305
b. Additional Liability Due to Benefit Changes		0
c. Additional Liability Due to Assumption Changes		(13,351,812)
d. Additional Liability Due to Actuarial Firm Change		(1,080,129)
8. Total Experience (Gain)/Loss	$	(15,408,361)
9. Unfunded Actuarial Accrued Liability as of June 30, 2018: (5) + (8)	$	2,278,561

Note: For this purpose, COLAs are excluded from consideration as of June 30, 2018.

TABLE 6

ACTUARIAL GAIN/(LOSS)

Liabilities		
1. Actuarial Accrued Liability as of June 30, 2017	$	142,602,804
2. Normal Cost for Plan Year Ending June 30, 2018		3,369,314
3. Benefit Payments During Plan Year		(6,934,957)
4. Service Purchases (employee and employer)		1,555
5. Interest at 6.75%		9,619,116
6. Change Due to Benefit Changes		0
7. Change Due to Assumption Changes		(13,351,812)
8. Change Due to Actuarial Firm Change		(1,080,129)
9. Expected Actuarial Accrued Liability as of June 30, 2018	$	134,225,891
10. Actuarial Accrued Liability as of June 30, 2018	$	134,719,196
Assets		
11. Actuarial Value of Assets as of June 30, 2017	$	124,530,420
12. Receipts During Plan Year		7,356,953
13. Expenditures, Excluding Expenses, During Plan Year		(6,934,957)
14. Interest at 6.75%		8,420,046
15. Expected Actuarial Value of Assets as of June 30, 2018	$	133,372,462
16. Actuarial Value of Assets as of June 30, 2018	$	132,440,635
Experience Gain / (Loss)		
17. Liability Actuarial Experience Gain/(Loss): (9) - (10)	$	(493,305)
18. Asset Actuarial Experience Gain/(Loss): (16) - (15)	$	(931,827)
19. Total Actuarial Experience Gain/(Loss): (17) + (18)	$	(1,425,132)

TABLE 7

EXPERIENCE GAIN/(LOSS) ANALYSIS BY SOURCE

Liability Sources		Gain/(Loss)
Retirement	$	17,000
Termination		27,000
Disability		405,000
Mortality		(174,000)
Salary		(602,000)
New Entrants/Rehires		(165,000)
Miscellaneous/COLA		(1,000)
Total Liability Experience Gain/(Loss)	$	(493,000)
as a % of AAL		(0.4%)
Asset Experience Gain/(Loss)	$	(932,000)
Total Actuarial Experience Gain/(Loss)	$	(1,425,000)

TABLE 8

PROJECTED BENEFIT PAYMENTS

Plan Year Ending June 30	Benefit Amount
2019	$ 8,023,130
2020	8,228,044
2021	8,175,599
2022	8,268,411
2023	8,668,223
2024	9,062,986
2025	9,467,147
2026	9,846,221
2027	10,205,845
2028	10,585,811
2029	10,962,516
2030	11,321,543
2031	11,673,710
2032	12,033,545
2033	12,428,907
2034	12,810,000
2035	13,174,951
2036	13,499,893
2037	13,776,759
2038	14,033,168
2039	14,245,338
2040	14,418,580
2041	14,563,722
2042	14,704,243
2043	14,795,077
2044	14,845,379
2045	14,843,379
2046	14,788,949
2047	14,700,241
2048	14,552,594

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

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

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

Description of Contribution Rate Components

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

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

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The contribution rate based on the June 30, 2018 actuarial will be used to calculate the actuarially determined employer contribution rate to the Excise, Gaming and Conservation Officers' Retirement Fund for the 2020 calendar year.

Contribution Rate Summary

In Table 9 the amortization payment related to the unfunded actuarial accrued liability/(surplus), as of June 30, 2018, is developed. The surcharge needed to fund the assumed COLAs is developed in Table 10. Table 11 develops the actuarial required contribution rate for the Plan. The contribution rates shown in this report are based on the actuarial assumptions and cost methods described in Appendix C. Additionally, in Table 12 the contribution amounts under alternative discount rates are provided to illustrate the sensitivity of the contribution requirements relative to the selection of the investment return assumption.

TABLE 9

SCHEDULE OF AMORTIZATION BASES

Amortization Bases	Original Amount [1]	June 30, 2018 Remaining Payments	Date of Last Payment	Outstanding Balance as of June 30, 2018	Annual Contribution
2009 UAAL Base	12,159,924	19	7/1/2037	10,298,574	915,986
2010 UAAL Base	3,839,282	22	7/1/2040	3,407,056	282,586
2011 UAAL Base	1,009,127	23	7/1/2041	913,166	74,276
2012 UAAL Base	5,037,093	24	7/1/2042	4,640,647	370,750
2013 UAAL Base	(1,646,934)	25	7/1/2043	(1,542,590)	(121,221)
2014 UAAL Base	(3,141,667)	26	7/1/2044	(2,987,794)	(231,239)
2015 UAAL Base	4,288,938	27	7/1/2045	4,136,640	315,683
2016 UAAL Base	782,014	18	7/1/2036	741,487	67,811
2017 UAAL Base	(1,969,636)	19	7/1/2037	(1,920,264)	(170,794)
2018 UAAL Base	(15,408,361)	20	7/1/2038	(15,408,361)	(1,336,113)
Total				$ 2,278,561	$ 167,725

1. Total UAAL Amortization Payments	$ 167,725
2. Projected Payroll for FY 2019	$ 30,121,351
3. UAAL Amortization Payment Rate	0.56%
4. Remaining Amortization Period in Years (Weighted)[2]	29.6

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

TABLE 10

DEVELOPMENT OF SURCHARGE RATE

Projected COLAs in Next Biennium Beginning July 1, 2021

First Anticipated COLA		
1. Date of COLA commencement		January 1, 2022
2. Rate of COLA		0.4%
3. Value as of July 1, 2021 of COLA	$	308,366
Second Anticipated COLA		
4. Date of COLA commencement		January 1, 2023
5. Rate of COLA		0.4%
6. Value as of July 1, 2021 of COLA		302,122
7. Total COLA Funding Requirement as of July 1, 2021: (3) + (6)	$	610,488

Funding Sources for Projected COLAs

8. Assets as of June 30, 2018 Available for Future COLAs	$	0
9. Expected Earnings through July 1, 2021		0
10. Projected Available Assets at July 1, 2021	$	0
11. Required Additional Funding for Anticipated COLAs: (7) - (10)		610,488

Surcharge Rate

12. Projected Payroll from 1/1/19 to 6/30/19	$	15,060,676
13. Projected Payroll from 7/1/19 to 6/30/20		30,874,385
14. Projected Payroll from 7/1/20 to 6/30/21		31,646,244
15. Value of (12), (13), and (14) as of July 1, 2021	$	84,237,161
16. Surcharge Rate: (11) /(15)		0.73%

TABLE 11

ACTUARIAL REQUIRED CONTRIBUTION RATE

	Base Plan	Supplemental Plan	Total
1. Projected Payroll for FY 2019	$ 30,121,351		
2. Normal Cost Rate	11.22%	0.57%	11.79%
3. Amortization of UAAL as of June 30, 2018			
a. Dollar Amount	$ 167,725		
b. Percent of Projected Pay	0.56%		0.56%
4. Expected Employee Contribution Rate	(4.00%)		(4.00%)
5. Preliminary Actuarially Determined Contribution (ADC) Rate: (2) + (3b) + (4)	7.78%		
6. Supplemental Plan Surcharge Rate		0.73%	0.73%
7. ADC Rate Subject to Legal Constraints	7.78%	0.73%	8.51%
8. Board Policy Contribution Rate	20.02%	0.73%	20.75%
9. Estimated ADC Amount	$ 2,343,441	$ 219,886	$ 2,563,327
10. Actuarially Determined Contribution Rate:			
July 1, 2018 - December 31, 2018	13.33%		
January 1, 2019 - June 30, 2019	8.51%		
Average	10.92%		
11. Approved Funding Rate	20.75%		
12. Expected Percentage of ADC Contributed	190.02%		

TABLE 12

INVESTMENT RETURN SENSITIVITY

	1.00% Decrease: (5.75%)	0.75% Decrease: (6.00%)	0.50% Decrease: (6.25%)	0.25% Decrease: (6.50%)	Current Assumption: (6.75%)
Funded Status					
Actuarial Accrued Liability	$158,322,213	$153,408,743	$148,736,049	$144,289,520	$140,055,567
Actuarial Value of Assets	132,440,635	132,440,635	132,440,635	132,440,635	132,440,635
Unfunded Actuarial Accrued Liability	$25,881,578	$20,968,108	$16,295,414	$11,848,885	$7,614,932
Funded Ratio	83.7%	86.3%	89.0%	91.8%	94.6%
Actuarially Determined Contribution Amount					
Normal Cost	$4,459,134	$4,207,331	$3,972,972	$3,754,710	$3,551,307
UAAL Amortization	2,059,059	1,693,426	1,333,647	979,419	630,457
Member Contributions	(1,204,854)	(1,204,854)	(1,204,854)	(1,204,854)	(1,204,854)
Actuarially Determined Contribution Amount	$5,313,339	$4,695,903	$4,101,765	$3,529,275	$2,976,910
Actuarially Determined Contribution Rate	17.64%	15.59%	13.62%	11.72%	9.88%

	0.25% Increase: (7.00%)	0.50% Increase: (7.25%)	0.75% Increase: (7.50%)	1.00% Increase: (7.75%)	1.25% Increase: (8.00%)
Funded Status					
Actuarial Accrued Liability	$136,021,542	$132,175,669	$128,506,977	$125,005,236	$121,660,903
Actuarial Value of Assets	132,440,635	132,440,635	132,440,635	132,440,635	132,440,635
Unfunded Actuarial Accrued Liability	$3,580,907	($264,966)	($3,933,658)	($7,435,399)	($10,779,732)
Funded Ratio	97.4%	100.2%	103.1%	105.9%	108.9%
Actuarially Determined Contribution Amount					
Normal Cost	$3,361,635	$3,184,652	$3,019,409	$2,865,030	$2,720,713
UAAL Amortization	286,499	(52,712)	(387,410)	(717,814)	(1,044,132)
Member Contributions	(1,204,854)	(1,204,854)	(1,204,854)	(1,204,854)	(1,204,854)
Actuarially Determined Contribution Amount	$2,443,280	$1,927,086	$1,427,145	$942,362	$471,727
Actuarially Determined Contribution Rate	8.11%	6.40%	4.74%	3.13%	1.57%

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

GASB NO. 67 AND GASB NO. 68

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

The sections that follow provide the results of the required actuarial calculations set out in GASB 67 and GASB 68 for note disclosure and Required Supplementary Information (RSI). Some of this information was provided by the INPRS for use in this report.

The discount rate used for these disclosures is the assumed return on assets of 6.75%. We have verified that the current assets in conjunction with future contributions made on behalf of current members (including all contributions to fund any past service liability) will be sufficient to make the anticipated benefit payments to be provided to the current members.

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

TABLE 13

STATEMENT OF FIDUCIARY NET POSITION

			June 30, 2018
1. Assets			
a. Cash		$	40,000
b. Receivables			
i.	Contributions and Miscellaneous Receivables	$	0
ii.	Investments Receivable		978,988
iii.	Foreign Exchange Contracts Receivable		38,168,391
iv.	Interest and Dividends		344,543
v.	Receivables Due From Other Funds		0
vi.	Total Receivables	$	39,491,922
c. Investments			
i.	Short-Term Investments	$	0
ii.	Pooled Repurchase Agreements		16,767
iii.	Pooled Short-Term Investments		5,876,282
iv.	Pooled Fixed Income		44,748,321
v.	Pooled Equity		29,529,574
vi.	Pooled Alternative Investments		53,385,278
vii.	Pooled Derivatives		106,075
viii.	Pooled Investments		0
ix.	Securities Lending Collateral		1,422,004
x.	Total Investments	$	135,084,301
d. Net Capital Assets			0
e. Other Assets			0
f. Total Assets: a + b(vi) + c(x) + d + e		$	174,616,223
2. Liabilities			
a. Administrative Payable		$	4,508
b. Retirement Benefits Payable			0
c. Investments Payable			2,206,110
d. Foreign Exchange Contracts Payable			38,083,369
e. Securities Lending Obligations			1,422,004
f. Securities Sold Under Agreement to Repurchase			1,379,366
g. Due To Other Funds			29,679
h. Due to Other Governments			0
i. Total Liabilities: a + b + c + d + e + f + g + h		$	43,125,036
3. Fiduciary Net Position Restricted for Pensions: (1)(f) - (2)(i)		**$**	**131,491,187**

TABLE 14

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

		For Fiscal Year Ending June 30, 2018		
1. Fiduciary Net Position as of June 30, 2017			**$**	**120,016,301**
2. Additions				
a. Contributions				
	i.	Member Contributions		1,170,639
	ii.	Employer Contributions		6,174,724
	iii.	Service Purchases (Employer and Member) [1]		1,555
	iv.	Non-Employer Contributing Entity Contributions		0
	v.	Total Contributions	$	7,346,918
b. Investment Income/(Loss)				
	i.	Net Appreciation/(Depreciation)	$	10,238,380
	ii.	Net Interest and Dividend Income		1,776,111
	iii.	Securities Lending Income		20,711
	iv.	Other Net Investment Income		7,000
	v.	Investment Management Expenses		(808,700)
	vi.	Direct Investment Expenses		(40,824)
	vii.	Securities Lending Expenses		(3,743)
	viii.	Total Investment Income/(Loss)	$	11,188,935
c. Other Additions				
	i.	Member Reassignments		0
	ii.	Miscellaneous Receipts		10,035
	iii.	Total Other Additions	$	10,035
d. Total Revenue (Additions): a(v) + b(viii) + c(iii)			$	18,545,888
3. Deductions				
a. Pension, Survivor and Disability Benefits			$	6,820,189
b. Death and Funeral Benefits				0
c. Distributions of Contributions and Interest				114,768
d. Administrative Expenses				136,045
e. Member Reassignments				0
f. Miscellaneous Expenses				0
g. Total Expenses (Deductions)			$	7,071,002
4. Net Increase (Decrease) in Fiduciary Net Position: (2)(d) - (3)(g)			**$**	**11,474,886**
5. Fiduciary Net Position as of June 30, 2018: (1) + (4)			**$**	**131,491,187**

[1] Service purchases paid by employer of $0 and employee of $1,555.

TABLE 15

SCHEDULE OF CHANGES IN NET PENSION LIABILITY

For Fiscal Year Ending June 30, 2018

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
1. Balance at June 30, 2017	$ 142,602,804	$ 120,016,301	$ 22,586,503
2. Changes for the Year:			
Service Cost (SC) [1]	3,369,314		3,369,314
Interest Cost	9,619,116		9,619,116
Experience (Gains)/Losses	(586,824)		(586,824)
Assumption Changes	(8,015,441)		(8,015,441)
Plan Amendments	0		0
Benefit Payments [2]	(6,934,957)	(6,934,957)	0
Service Purchases			
Employer Contributions	0	0	0
Employee Contributions	1,555	1,555	0
Member Reassignments	0	0	0
Employer Contributions		6,174,724	(6,174,724)
Non-employer Contributions		0	0
Employee Contributions		1,170,639	(1,170,639)
Net Investment Income		11,188,935	(11,188,935)
Administrative Expenses		(136,045)	136,045
Other		10,035	(10,035)
Net Changes	$ (2,547,237)	$ 11,474,886	$ (14,022,123)
3. Balance at June 30, 2018	$ 140,055,567	$ 131,491,187	$ 8,564,380

[1] Service cost provided as of beginning of year. Interest to end of year is included in the interest cost.
[2] Includes refund of member contributions of $114,768.

TABLE 16

DEFERRED OUTFLOWS OF RESOURCES

	June 30, 2017	Remaining Period	Recognition	June 30, 2018
1. Liability Experience				
June 30, 2018 Loss	$ 0	5.95	$ 0	$ 0
June 30, 2017 Loss	100,687	5.26	19,143	81,544
June 30, 2016 Loss	319,041	4.24	75,246	243,795
June 30, 2015 Loss	473,030	3.81	124,156	348,874
June 30, 2014 Loss	0	4.68	0	0
2. Assumption Changes				
June 30, 2018 Loss	$ 0	5.95	$ 0	$ 0
June 30, 2017 Loss	0	5.26	0	0
June 30, 2016 Loss	0	4.24	0	0
June 30, 2015 Loss	1,493,301	3.81	391,944	1,101,357
June 30, 2014 Loss	0	4.68	0	0
3. Investment Experience				
June 30, 2018 Loss	$ 0	5.00	$ 0	$ 0
June 30, 2017 Loss	0	4.00	0	0
June 30, 2016 Loss	3,670,149	3.00	1,223,384	2,446,765
June 30, 2015 Loss	3,335,991	2.00	1,667,997	1,667,994
June 30, 2014 Loss	0	1.00	0	0
Total Outflows: (1)+(2)+(3)	**$ 9,392,199**		**$ 3,501,870**	**$ 5,890,329**

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

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

TABLE 17

DEFERRED INFLOWS OF RESOURCES

	June 30, 2017	Remaining Period	Recognition	June 30, 2018
1. Liability Experience				
June 30, 2018 Gain	$ 586,824	5.95	$ 98,626	$ 488,198
June 30, 2017 Gain	0	5.26	0	0
June 30, 2016 Gain	0	4.24	0	0
June 30, 2015 Gain	0	3.81	0	0
June 30, 2014 Gain	231,638	4.68	49,497	182,141
2. Assumption Changes				
June 30, 2018 Gain	$ 8,015,441	5.95	$ 1,347,133	$ 6,668,308
June 30, 2017 Gain	2,166,503	5.26	411,883	1,754,620
June 30, 2016 Gain	0	4.24	0	0
June 30, 2015 Gain	0	3.81	0	0
June 30, 2014 Gain	0	4.68	0	0
3. Investment Experience				
June 30, 2018 Gain	$ 3,078,184	5.00	$ 615,637	$ 2,462,547
June 30, 2017 Gain	1,085,177	4.00	271,295	813,882
June 30, 2016 Gain	0	3.00	0	0
June 30, 2015 Gain	0	2.00	0	0
June 30, 2014 Gain	1,197,178	1.00	1,197,178	0
Total Inflows: (1)+(2)+(3)	**$ 16,360,945**		**$ 3,991,249**	**$ 12,369,696**

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

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

TABLE 18

DEFERRED INFLOWS / OUTFLOWS TO BE RECOGNIZED IN PENSION EXPENSE

Fiscal Year Ending June 30	Deferred Outflows	Deferred Inflows	Net Deferred Outflows/(Inflows)
Current Year:			
2018	$ 3,501,870	$ 3,991,249	$ (489,379)
Future Years:			
2019	$ 3,501,867	$ 2,794,071	$ 707,796
2020	1,833,870	2,794,071	(960,201)
2021	512,420	2,794,068	(2,281,648)
2022	37,200	2,506,928	(2,469,728)
2023	4,972	1,480,558	(1,475,586)
Thereafter	0	0	0

TABLE 19
PENSION EXPENSE UNDER GASB NO. 68

		For Fiscal Year Ending June 30, 2018	
1. Service Cost, beginning of year		$	3,369,314
2. Interest Cost, including interest on service cost			9,619,116
3. Member Contributions [1]			(1,170,639)
4. Administrative Expenses			136,045
5. Expected Return on Assets [2]			(8,110,751)
6. Plan Amendments			0
7. Recognition of Deferred Inflows / Outflows of Resources Related to:			
a. Liability Experience (Gains) / Losses	70,422		
b. Assumption Change (Gains) / Losses	(1,367,072)		
c. Investment Experience (Gains) / Losses	807,271		
d. Total: (7a)+(7b)+(7c)			(489,379)
8. Miscellaneous (Income) / Expense			(10,035)
9. Total Collective Pension Expense: (1)+(2)+(3)+(4)+(5)+(6)+(7d)+(8)			3,343,671
10. Employer Service Purchases			0
Pension Expense / (Income): (9) + (10)		**$**	**3,343,671**

[1] Excludes member paid service purchases of $1,555.
[2] Cash flows assumed to occur mid-year.

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

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

Actuarial Assumptions and Inputs

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

Type of Plan	The Excise, Gaming and Conservation Officers' Fund is a single-employer plan for GASB accounting purposes.
Measurement Date	June 30, 2018
Valuation Date	
Assets:	June 30, 2018
Liabilities:	June 30, 2017 – The TPL as of June 30, 2018 was determined based on an actuarial valuation prepared as of June 30, 2017 rolled forward one year to June 30, 2018, using the following key actuarial assumptions and other inputs, such as benefit accruals and actual benefit payments during that time period.
Inflation	2.25%
Future Salary Increases	2.50%
Cost-of-Living Increases	As of June 30, 2018: In lieu of a COLA on January 1, 2019, members in pay were provided a 13th check on October 1, 2018. It is assumed a 13th check would continue for the 2020 and 2021 fiscal years. Thereafter, the following COLAs, compounded annually, were assumed: 0.4% beginning on January 1, 2022 0.5% beginning on January 1, 2034 0.6% beginning on January 1, 2039 As of June 30, 2017: 1.0% compounded annually, beginning January 1, 2020. In lieu of a COLA, members in pay were provided a 13th check on October 1, 2017 and October 1, 2018, which is reflected in the valuation.

Mortality Assumption (Healthy)	RP-2014 (with MP-2014 improvement removed) Blue Collar mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.
Mortality Assumption (Disabled)	RP-2014 (with MP-2014 improvement removed) Disability mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.
Experience Study	The most recent comprehensive experience study was completed in April 2015 and was based on member experience between June 30, 2010 and June 30, 2014. The demographic assumptions were updated as needed for the June 30, 2015 actuarial valuation based on the results of the study.
Discount Rate	6.75% The discount rate is equal to the expected long-term rate of return on plan investments, net of investment expense and including price inflation. There was no change in the discount rate from the prior measurement date. The INPRS Board of Trustees has established a funding policy of setting the employer contribution rate equal to the greater of 20.75% (the current contribution rate) or a rate equal to the actuarially determined contribution rate, which is based on the assumptions and methods selected by the Board for the annual actuarial valuations and projected covered member payroll. The June 30, 2018 actuarial valuation assumes a long-term rate of return on assets of 6.75%, a 20-year level dollar closed method for amortizing the future layers of unfunded actuarial accrued liability (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.

Discount Rate Sensitivity

	1% Decrease 5.75%	Current Rate 6.75%	1% Increase 7.75%
Net Pension Liability	$26,831,026	$8,564,380	($6,485,951)

Classes of Plan Members Covered

The June 30, 2018 valuation was performed using census data provided by INPRS as of June 30, 2017. Standard actuarial techniques were used to roll forward the total pension liability computed as of June 30, 2017 to the June 30, 2018 measurement date using actual benefit payments during that period of time.

Number as of June 30, 2017	
1. Currently Receiving Benefits:	
Retired Members, Disabled Members, and Beneficiaries	234
2. Inactive Members Entitled To But Not Yet Receiving Benefits	5
3. Inactive Non-vested Members Entitled to a Refund of Member Contributions	141
4. Active Members	443
Total Covered Plan Members: (1)+(2)+(3)+(4)	823

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, 2018, the money-weighted return on the plan assets is 9.3%.

Components of Net Pension Liability

As of June 30, 2018		
Total Pension Liability	$	140,055,567
Fiduciary Net Position		131,491,187
Net Pension Liability	$	8,564,380
Ratio of Fiduciary Net Position to Total Pension Liability		93.89%

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

SCHEDULE OF CHANGES IN THE TOTAL PENSION LIABILITY AND PLAN FIDUCIARY NET POSITION

Fiscal Year Ending June 30	2013	2014	2015	2016	2017	2018
Total Pension Liability						
Total Pension Liability - beginning	$113,282,644	$118,097,227	$123,600,704	$132,795,504	$138,965,050	$142,602,804
Service Cost (SC), beginning-of-year	3,810,650	3,841,382	3,904,932	3,011,127	3,550,386	3,369,314
Interest Cost, including interest on SC	7,740,113	8,030,425	8,383,598	8,955,451	9,388,843	9,619,116
Experience (Gains)/Losses	(1,845,309)	(429,626)	845,498	469,533	119,830	(586,824)
Assumption Changes	(40,954)	0	2,669,133	0	(2,578,386)	(8,015,441)
Plan Amendments	0	0	0	0	0	0
Actual Benefit Payments	(4,835,348)	(5,938,704)	(6,608,361)	(6,266,565)	(6,826,316)	(6,934,957)
Member Reassignments	(14,569)	0	0	0	(25,694)	0
Service Purchases	0	0	0	0	9,091	1,555
Net Change in Total Pension Liability	4,814,583	5,503,477	9,194,800	6,169,546	3,637,754	(2,547,237)
(a) Total Pension Liability - ending	$118,097,227	$123,600,704	$132,795,504	$138,965,050	$142,602,804	$140,055,567
Plan Fiduciary Net Position						
Plan Fiduciary Net Position – beginning	$76,543,260	$97,018,792	$110,656,502	$110,037,215	$111,329,476	$120,016,301
Contributions – employer	19,740,031	5,358,617	5,215,010	5,366,551	5,691,313	6,174,724
Contributions – non-employer	0	0	0	0	0	0
Contributions – member	1,005,564	1,019,371	1,003,661	1,015,896	1,101,958	1,172,194
Net investment income	4,700,988	13,338,780	(71,559)	1,314,506	8,869,229	11,188,935
Actual benefit payments	(4,835,348)	(5,938,704)	(6,608,361)	(6,245,234)	(6,826,316)	(6,934,957)
Net member reassignments	(14,569)	0	0	(21,331)	(25,694)	0
Administrative expense	(121,134)	(140,354)	(158,038)	(138,127)	(123,665)	(136,045)
Other	0	0	0	0	0	10,035
Net change in Plan Fiduciary Net Position	20,475,532	13,637,710	(619,287)	1,292,261	8,686,825	11,474,886
(b) Plan Fiduciary Net Position - ending	$97,018,792	$110,656,502	$110,037,215	$111,329,476	$120,016,301	$131,491,187
Net Pension Liability - ending, (a) - (b)	$21,078,435	$12,944,202	$22,758,289	$27,635,574	$22,586,503	$8,564,380

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

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

SCHEDULE OF THE NET PENSION LIABILITY

Fiscal Year Ending June 30	2013	2014	2015	2016	2017	2018
Total Pension Liability	$118,097,227	$123,600,704	$132,795,504	$138,965,050	$142,602,804	$140,055,567
Plan Fiduciary Net Position	97,018,792	110,656,502	110,037,215	111,329,476	120,016,301	131,491,187
Net Pension Liability	$21,078,435	$12,944,202	$22,758,289	$27,635,574	$22,586,503	$8,564,380
Ratio of Plan Fiduciary Net Position to Total Pension Liability	82.15%	89.53%	82.86%	80.11%	84.16%	93.89%
Covered-employee payroll [1]	$24,675,000	$25,824,626	$25,132,559	$25,525,549	$27,428,006	$29,386,684
Net Pension Liability as a percentage of covered-employee payroll	85.42%	50.12%	90.55%	108.27%	82.35%	29.14%

[1] As provided by INPRS.

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

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

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ending June 30	2013	2014	2015	2016	2017	2018
Actuarially Determined Contribution [1]	$4,794,353	$5,340,533	$4,820,425	$4,077,706	$4,033,288	$4,393,309
Actual employer contributions	$19,740,031	$5,358,617	$5,215,010	$5,366,551	$5,691,313	$6,174,724
Annual contribution (deficiency) / excess	$14,945,678	$18,084	$394,585	$1,288,845	$1,658,025	$1,781,415
Covered-employee payroll [2]	$24,675,000	$25,824,626	$25,132,559	$25,525,549	$27,428,006	$29,386,684
Actual contributions as a percentage of covered-employee payroll	80.00%	20.75%	20.75%	21.02%	20.75%	21.01%

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

[2] As provided by INPRS.

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

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

SCHEDULE OF MONEY-WEIGHTED RETURNS

For Fiscal Year Ending June 30	Money-Weighted Return
2018	9.3%
2017	8.0%
2016	1.2%
2015	(0.1%)
2014	13.7%
2013	5.5%

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

Appendix **Page**

MEMBER DATA RECONCILIATION
For June 30, 2017 Data used in the June 30, 2018 Valuation

	Active Members	Active in DROP	Inactive Vested	Inactive Nonvested	Disabled	Retired	Beneficiary	Total
1. As of June 30, 2016	**426**	**14**	**6**	**120**	**3**	**177**	**43**	**789**
2. Data Adjustments								
New Participants	32	0	0	0	0	0	0	32
Rehires	1	0	0	(1)	0	0	0	0
DROP	(2)	2	0	0	0	0	0	0
Terminations:								
Not Vested	(14)	0	0	14	0	0	0	0
Deferred Vested	(1)	0	1	0	0	0	0	0
Retirements	(8)	(3)	(2)	0	0	13	0	0
Refund/Benefits Ended	(4)	0	0	(6)	0	0	0	(10)
Deaths:								
With Beneficiary	0	0	0	0	0	(4)	4	0
Without Beneficiary	0	0	0	0	0	(1)	(1)	(2)
Data Corrections	0	0	0	14	0	0	0	14
Net Change	4	(1)	(1)	21	0	8	3	34
3. As of June 30, 2017	**430**	**13**	**5**	**141**	**3**	**185**	**46**	**823**

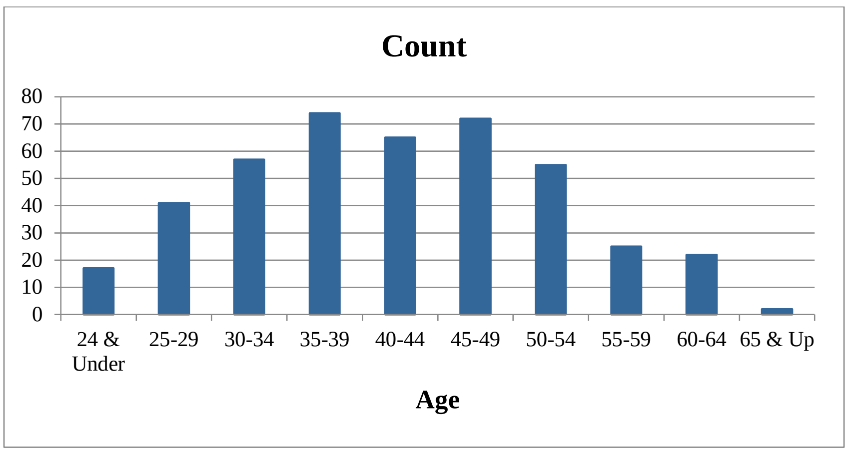
SUMMARY OF MEMBERSHIP DATA

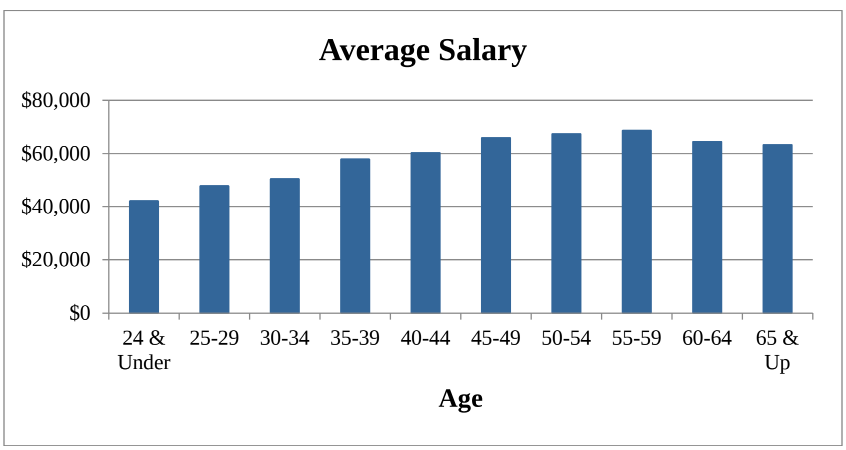
Valuation Date	June 30, 2017	June 30, 2018	% Change
Date of Membership Data [1]	July 1, 2016	July 1, 2017	
ACTIVE MEMBERS			
Number of Members			
Active	426	430	0.9%
Active in DROP	14	13	(7.1%)
Total	440	443	0.7%
Annual Membership Data Salary [2]	$ 24,473,229	$ 25,447,767	4.0%
Anticipated Payroll for Next Fiscal Year	$ 28,113,707	$ 30,121,351	7.1%
Active Member Averages			
Age	41.9	41.7	(0.5%)
Service	10.9	10.4	(4.4%)
Annual Membership Data Salary	$ 57,449	$ 59,181	3.0%
INACTIVE MEMBERS			
Number of Members			
Inactive Vested	6	5	(16.7%)
Inactive Non-Vested	120	141	17.5%
Total	126	146	15.9%
Inactive Vested Member Averages			
Age	48.2	46.6	(3.3%)
Service	19.9	16.8	(15.4%)
RETIREES, DISABLEDS, AND BENEFICIARIES			
Number of Members			
Retired	177	185	4.5%
Disabled	3	3	0.0%
Beneficiaries	43	46	7.0%
Total	223	234	4.9%
Annual Benefits			
Retired	$ N/A	$ 5,748,826	N/A
Disabled	N/A	48,610	N/A
Beneficiaries	N/A	448,476	N/A
Total	$ 5,912,079	$ 6,245,912	5.6%

[1] The valuation results were calculated using the prior year's census data and were adjusted for certain activity during fiscal year.
[2] Annualized for actives with less than a year of service. Actives with no salary provided are defaulted to the average salary.

ACTIVE MEMBERS [1]
As of June 30, 2017 for the June 30, 2018 Valuation

	Count of Members			FY 2017 Annual Membership Data Salary		
Age	Male	Female	Total	Male	Female	Total
24 & Under	17	0	17	$ 714,758	$ 0	$ 714,758
25-29	37	4	41	1,758,011	196,006	1,954,017
30-34	53	4	57	2,682,460	189,931	2,872,391
35-39	59	15	74	3,441,346	836,837	4,278,183
40-44	55	10	65	3,310,889	606,090	3,916,979
45-49	66	6	72	4,375,288	371,650	4,746,938
50-54	53	2	55	3,562,074	143,282	3,705,356
55-59	24	1	25	1,653,873	61,208	1,715,081
60-64	22	0	22	1,417,615	0	1,417,615
65 & Up	2	0	2	126,449	0	126,449
Total	388	42	430	$ 23,042,763	$ 2,405,004	$ 25,447,767





[1] Actives with no salary provided are defaulted to the average salary.

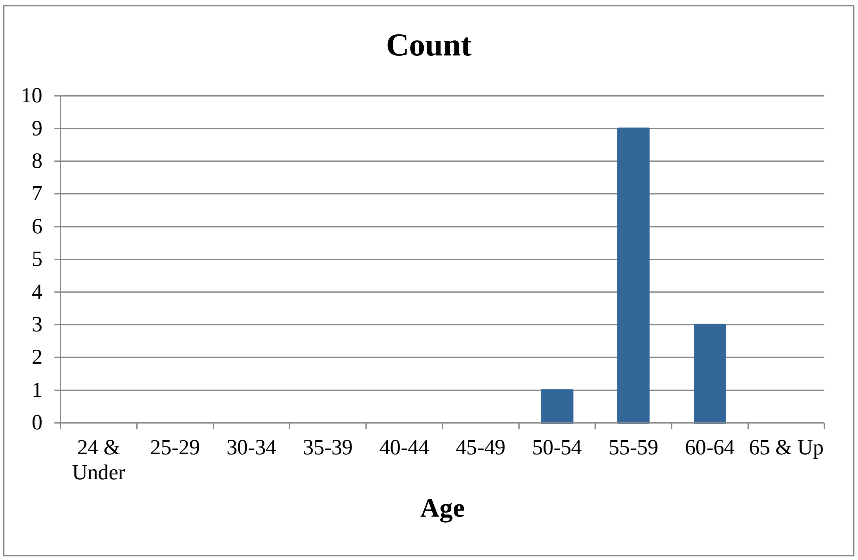
AGE AND SERVICE DISTRIBUTION
As of June 30, 2017 for the June 30, 2018 Valuation

Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
24 & Under	Number	17	0	0	0	0	0	0	0	17
	Total Salary	$ 714,758	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 714,758
	Average Sal.	$ 42,045	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 42,045
25-29	Number	31	10	0	0	0	0	0	0	41
	Total Salary	$ 1,467,873	$ 486,144	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 1,954,017
	Average Sal.	$ 47,351	$ 48,614	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 47,659
30-34	Number	17	22	18	0	0	0	0	0	57
	Total Salary	$ 757,723	$ 1,083,504	$ 1,031,163	$ 0	$ 0	$ 0	$ 0	$ 0	$ 2,872,391
	Average Sal.	$ 44,572	$ 49,250	$ 57,287	$ 0	$ 0	$ 0	$ 0	$ 0	$ 50,393
35-39	Number	6	18	50	0	0	0	0	0	74
	Total Salary	$ 296,591	$ 931,896	$ 3,049,696	$ 0	$ 0	$ 0	$ 0	$ 0	$ 4,278,183
	Average Sal.	$ 49,432	$ 51,772	$ 60,994	$ 0	$ 0	$ 0	$ 0	$ 0	$ 57,813
40-44	Number	5	16	26	15	3	0	0	0	65
	Total Salary	$ 243,179	$ 900,325	$ 1,563,404	$ 1,022,530	$ 187,541	$ 0	$ 0	$ 0	$ 3,916,979
	Average Sal.	$ 48,636	$ 56,270	$ 60,131	$ 68,169	$ 62,514	$ 0	$ 0	$ 0	$ 60,261
45-49	Number	8	11	19	10	23	1	0	0	72
	Total Salary	$ 517,290	$ 686,393	$ 1,194,847	$ 654,495	$ 1,625,911	$ 68,001	$ 0	$ 0	$ 4,746,938
	Average Sal.	$ 64,661	$ 62,399	$ 62,887	$ 65,450	$ 70,692	$ 68,001	$ 0	$ 0	$ 65,930
50-54	Number	12	7	11	3	10	10	2	0	55
	Total Salary	$ 769,234	$ 448,159	$ 719,162	$ 190,717	$ 701,533	$ 729,735	$ 146,817	$ 0	$ 3,705,356
	Average Sal.	$ 64,103	$ 64,023	$ 65,378	$ 63,572	$ 70,153	$ 72,974	$ 73,409	$ 0	$ 67,370
55-59	Number	8	8	3	0	1	1	3	1	25
	Total Salary	$ 508,220	$ 540,564	$ 185,220	$ 0	$ 72,930	$ 85,681	$ 231,518	$ 90,948	$ 1,715,081
	Average Sal.	$ 63,527	$ 67,570	$ 61,740	$ 0	$ 72,930	$ 85,681	$ 77,173	$ 90,948	$ 68,603
60-64	Number	2	11	7	0	1	0	0	1	22
	Total Salary	$ 134,959	$ 694,287	$ 448,731	$ 0	$ 63,743	$ 0	$ 0	$ 75,895	$ 1,417,615
	Average Sal.	$ 67,479	$ 63,117	$ 64,104	$ 0	$ 63,743	$ 0	$ 0	$ 75,895	$ 64,437
65 & Up	Number	0	1	1	0	0	0	0	0	2
	Total Salary	$ 0	$ 65,241	$ 61,208	$ 0	$ 0	$ 0	$ 0	$ 0	$ 126,449
	Average Sal.	$ 0	$ 65,241	$ 61,208	$ 0	$ 0	$ 0	$ 0	$ 0	$ 63,224
Total	Number	106	104	135	28	38	12	5	2	430
	Total Salary	$ 5,409,827	$ 5,836,512	$ 8,253,431	$ 1,867,742	$ 2,651,658	$ 883,417	$ 378,335	$ 166,843	$ 25,447,766
	Average Sal.	$ 51,036	$ 56,120	$ 61,137	$ 66,705	$ 69,780	$ 73,618	$ 75,667	$ 83,421	$ 59,181

[1] Actives with no salary provided are defaulted to the average salary.

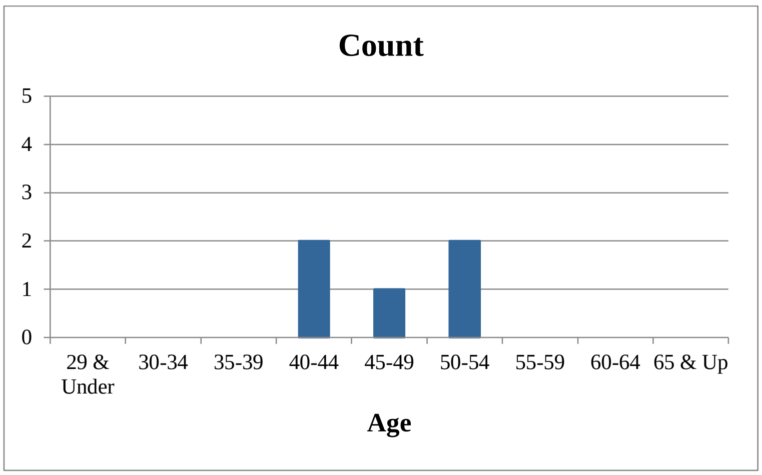
ACTIVE MEMBERS IN DROP
As of June 30, 2017 for the June 30, 2018 Valuation

	Count of Members		
Age	Male	Female	Total
24 & Under	0	0	0
25-29	0	0	0
30-34	0	0	0
35-39	0	0	0
40-44	0	0	0
45-49	0	0	0
50-54	1	0	1
55-59	8	1	9
60-64	3	0	3
65 & Up	0	0	0
Total	12	1	13



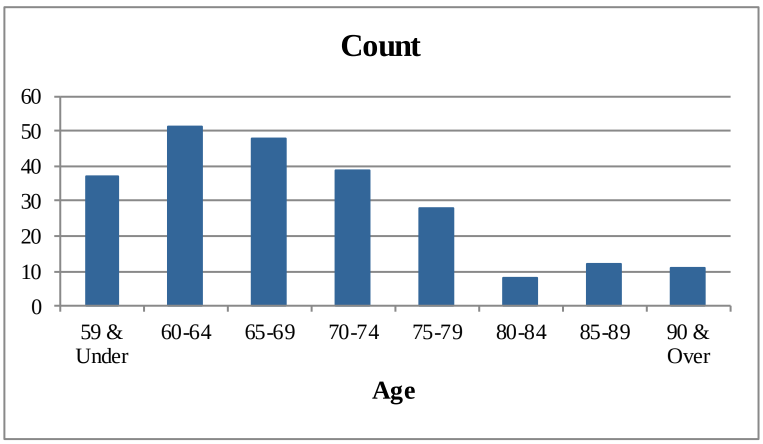
INACTIVE VESTED MEMBERS
As of June 30, 2017 for the June 30, 2018 Valuation

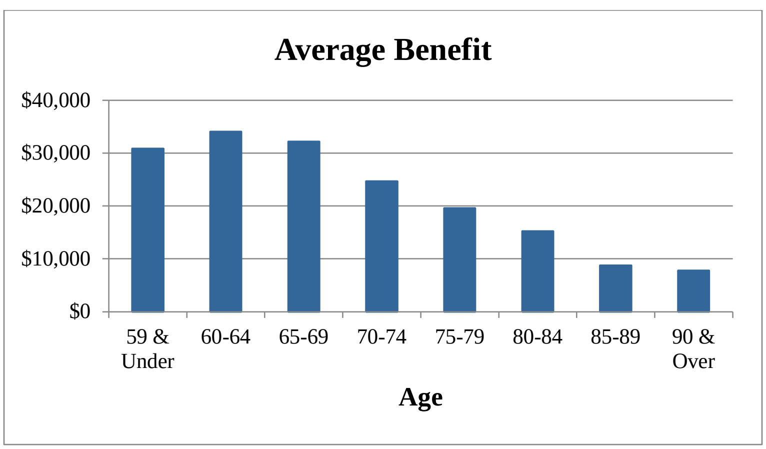
	Count of Members		
Age	Male	Female	Total
29 & Under	0	0	0
30-34	0	0	0
35-39	0	0	0
40-44	2	0	2
45-49	1	0	1
50-54	2	0	2
55-59	0	0	0
60-64	0	0	0
65 & Up	0	0	0
Total	5	0	5



MEMBERS AND BENEFICIARIES RECEIVING BENEFITS
As of June 30, 2017 for the June 30, 2018 Valuation

	Count of Members			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
59 & Under	35	2	37	$ 1,107,303	$ 34,918	$ 1,142,221
60-64	44	7	51	1,594,015	141,493	1,735,508
65-69	40	8	48	1,414,041	129,670	1,543,711
70-74	32	7	39	878,916	84,487	963,403
75-79	19	9	28	443,440	104,729	548,169
80-84	5	3	8	94,232	27,840	122,072
85-89	3	9	12	53,817	51,129	104,946
90 & Over	2	9	11	22,080	63,802	85,882
Total	180	54	234	$ 5,607,844	$ 638,068	$ 6,245,912





MEMBERS AND BENEFICIARIES RECEIVING BENEFITS
As of June 30, 2017 for the June 30, 2018 Valuation

Schedule of Average Benefit Payments

	Years of Credited Service						
For the Year Ended June 30, 2018	< 10	10 - 14	15 - 19	20 - 24	25 - 29	30 +	Total
Average Monthly Defined Benefit	851.00	$1,421	$561	$1,020	$2,162	$2,814	$2,224
Average Final Average Salary	$51,086	$67,123	$29,132	$39,323	$52,606	$56,496	$52,758
Number of Benefit Recipients	2	4	20	20	73	115	234

Schedule of Benefit Recipients by Type of Benefit Option

	Number of Recipients by Benefit Option			
Amount of Monthly Benefit (in dollars)	Joint with 50% Survivor Benefits	Survivors	Disability	Total Benefit Recipients
1 - 500	2	11	1	14
501 - 1,000	11	21	0	32
1,001 - 1,500	19	12	1	32
1,501 - 2,000	10	2	0	12
2,001 - 2,500	36	0	1	37
2,501 - 3,000	45	0	0	45
Over 3,000	62	0	0	62
Total	185	46	3	234

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

MEMBERS AND BENEFICIARIES RECEIVING BENEFITS
As of June 30, 2017 for the June 30, 2018 Valuation

	Added to Rolls		Removed from Rolls		Rolls - End of Year				
	Number	Annual Benefits	Number	Annual Benefits	Number	Total Annual Benefits	Percent Change In Total Annual Benefits[1,2]	Average Annual Benefit	Percent Change In Average Annual Benefit
2018 [3]	13	$404	2	$23	234	6,246	5.6%	26,692	0.7%
2017 [3]	8	314	5	60	223	5,912	4.4	26,512	3.0
2016 [3]	14	506	1	4	220	5,661	8.7	25,733	2.2
2015 [3]	15	556	1	5	207	5,210	11.7	25,170	4.1
2014 [3]	0	0	0	0	193	4,666	0.0	24,177	0.0
2013	8	253	2	9	193	4,666	4.8	24,177	1.5
2012	14	495	3	14	187	4,452	11.9	23,810	5.3
2011	22	902	3	23	176	3,978	26.9	22,602	13.2
2010	6	136	6	49	157	3,134	2.6	19,962	2.6
2009	59	748	39	258	157	3,056	21.3	19,465	5.9

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

Definitions

Fiscal year	Twelve month period ending June 30.
Participation	All Indiana State Excise Police Officers, all Indiana State Conservation Enforcement officers, all Indiana Gaming Agents, and all Indiana Gaming Control Officers must become members as a condition of employment.
Member contributions	Each member is required to contribute at the rate of 4% of pay. These contributions are kept on deposit and credited with interest until such time as they are refunded or used to provide benefits at retirement.
Average monthly earnings	Average monthly earnings is the monthly average of earnings calculated based on any five years of salary within the 10 years preceding retirement that produce the highest such average.

Eligibility for Benefits

Deferred vested	15 or more years of creditable service and no longer active.
Disability retirement	As determined by a disability medical panel.
Early retirement	Age 45 with 15 or more years of creditable service.
Normal retirement	Earliest of: - Age 65 (mandatory retirement) - 10 or more years of creditable service for members hired on or after age 50 - Age 55 with sum of age and creditable service equal to 85 or more - Age 50 with 25 or more years of creditable service
Pre-retirement death	15 or more years of creditable service.

Monthly Benefits Payable

Normal retirement	The normal retirement benefit is a monthly annuity payable in a Joint and 50% Surviving Beneficiary form and is equal to 25% of average monthly earnings, plus 1-2/3% of average monthly earnings for years of creditable service more than 10 years. The normal retirement benefit may not exceed 75% of the average annual salary.

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 1/4% for each month that the benefit commencement date precedes age 60. The early retirement benefit may not exceed 75% of the average annual salary.
Deferred retirement	If termination is prior to earning 15 years of service, the member shall be entitled to a lump sum refund of employee contributions plus accumulated interest. If termination is after earning 15 years of service, the termination benefit is the accrued retirement benefit determined as of the termination date and payable commencing as of the normal retirement date. The member may elect to receive a reduced early retirement benefit beginning at age 45.
Disability	If disability occurs in the line of duty, the disability retirement benefit is the member's monthly salary multiplied by the degree of impairment and is payable commencing the month following disability date without reduction for early commencement. The benefit shall not be less than 20% of the member's salary if the member has more than 5 years of service, or 10% if 5 or less years of service. If disability does not occur in the line of duty, the disability retirement benefit is equal to 50% of the member's monthly salary multiplied by the degree of impairment and is payable commencing the month following disability date without reduction for early commencement. The benefit shall not be less than 10% of the member's salary if the member has more than 5 years of service, or 5% if 5 or less years of service.
Pre-retirement death	If death is prior to earning 15 years of service, the member's beneficiary or estate shall receive employee contributions plus accumulated interest. If death is after earning 15 years of service, the spouse or dependent beneficiary is entitled to receive the monthly survivor annuity under the assumption that the member retired on the day before the date of death.

Deferred retirement option plan ("DROP")	Effective July 1, 2008, a DROP is established for all plan participants.

An employee may make a DROP election as provided in this chapter only if, immediately upon termination, he/she is eligible to receive an unreduced annual retirement allowance under the provisions of the EG&C Fund on his/her entry date into the DROP.

The DROP retirement benefit will be based on average annual salary and years of creditable service on the date the member enters the DROP. Average annual salary is based on the 5 highest years of annual salary in the 10 years immediately preceding the member's retirement date.

Any member who chooses the DROP shall agree to the following:

- The member shall execute an irrevocable election to retire on the DROP retirement date and shall remain in active service until that date.
- While in the DROP, the member shall continue to make contributions to the EG&C Fund under the provisions of that fund.
- The member shall elect a DROP retirement date not less than 12 months and not more than 36 months after the member's DROP entry date.
- The member may not remain in the DROP after the date the member reaches any mandatory retirement age as set forth in the EG&C Fund.
- The member may make an election to enter the DROP only once in the member's lifetime.
- A member who retires on his/her DROP retirement date may elect to receive an annual retirement allowance.
- Computed as if the member had never entered the DROP; or
- Consisting of the DROP frozen benefit, plus an additional amount paid as the member elects, determined by multiplying the DROP frozen benefit by the number of months the member was in DROP.

No cost of living increase is applied to a DROP frozen benefit while the participant is in the DROP. After the participant's DROP retirement date, cost of living increases determined under the EG&C Fund apply to the participant's annual retirement allowance.

Cost-of-Living-Adjustments	The monthly annuity benefits for members in pay status are increased periodically to preserve purchasing power that is diminished due to inflation. Such increases are not guaranteed by Statute and will only be provided by legislative action. Legislation passed in the 2018 legislative session creates a funding mechanism to provide for future benefit increases or 13th checks. The INPRS Board has the authority to have employers contribute up to 1% of member pay into the fund. Increases or payments are made upon passed legislation subject to the availability of funds to provide the benefit.
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 or parent for their lifetime or the dependent until age 18. If the spouse's age is more than 5 years younger than the member, the benefit is actuarially adjusted.

Changes in Plan Provisions since the Prior Year

Legislation passed in the 2018 legislative session creates a funding mechanism to provide for future benefit increases or 13th checks. The INPRS Board has the authority to have employers contribute up to 1% of member pay into the fund. Increases or payments are made upon passed legislation subject to the availability of funds to provide the benefit.

ACTUARIAL METHODS

1. **Actuarial Cost Method**

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

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

   For funding, gains and losses occurring from census experience different than assumed, assumption changes, and benefit changes are amortized over a 20-year period with level payments each year. A new gain or loss base is established each year based on the additional gain or loss during that year and that base is amortized over a new 20-year period (gain or loss bases established prior to June 30, 2016 were amortized over 30 years and will continue to be amortized over 30 -year period). However, when the plan is at or above 100% funded (based on Actuarial Value of Assets), the past amortization bases are considered fully amortized and a single amortization base equal to the surplus is amortized over a 30-year period with level payments each year. The purpose of the method is to give a smooth progression of the costs from year to year and, at the same time, provide for an orderly funding of the unfunded liabilities.

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

   Member census data as of June 30, 2017 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30, 2017 and June 30, 2018. The valuation results from June 30, 2017 were rolled-forward to June 30, 2018 to reflect benefit accruals during the year less benefits paid.

2. **COLA Surcharge**

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

3. **Asset Valuation Method**

   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.

4. Anticipated Payroll

The Anticipated Payroll for the fiscal year beginning July 1, 2018 is equal to the actual payroll during the year ending June 30, 2018, increased with one year of salary scale.

5. Employer Contribution Rate

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

Changes in Actuarial Methods since the Prior Year

None.

ACTUARIAL ASSUMPTIONS

Valuation Date	June 30, 2018

Economic Assumptions

1. Investment return	6.75% per year, compounded annually (net of administrative and investment expenses)
2. Inflation	2.25% per year
3. Salary increase	2.50% per year
4. Interest on member balances	3.50% per year
5. Cost-of-Living Adjustment (COLA)	In lieu of a COLA on January 1, 2019, members in pay were provided a 13th check on October 1, 2018. It is assumed a 13th check would continue for the 2020 and 2021 fiscal years. Thereafter, the following COLAs, compounded annually, were assumed: 0.4% beginning on January 1, 2022 0.5% beginning on January 1, 2034 0.6% beginning on January 1, 2039

Demographic Assumptions

1. Mortality	The mortality assumption includes an appropriate level of conservatism that reflects expected future mortality improvement.
a. Healthy mortality	RP-2014 (with MP-2014 improvement removed) Blue Collar mortality tables, with future mortality improvement projected generationally using future mortality improvement inherent in the Social Security Administration's 2014 Trustee report.
b. Disabled mortality	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.

2. Disability

Age	Sample Rates
20	0.0900%
25	0.1275%
30	0.1650%
35	0.2205%
40	0.3300%
45	0.5400%
50	0.9090%
55	1.5135%
60	2.4405%
65+	0.0000%

Active members who become disabled are assumed to receive 20% of their salary if they have less than 5 years of service and 40% of their salary if they have 5 or more years of service.

3. Retirement

Age	Rate
<=44	0%
45	3%
46-49	2%
50	3%
51-59	15%
60-64	40%
65+	100%

Inactive vested members are assumed to commence their retirement benefit at their earliest eligible retirement date (age 45, or current age if greater).

4. Termination

Years of Service	Rate
0-1	10%
2	9%
3	8%
4	7%
5	6%
6	5%
7	4%
8	3%
9	2%
10+	1%

Other Assumptions

1. Form of payment	Members are assumed to elect either a single life annuity or a 50% joint survivor benefit based on the marriage assumptions below.
2. Marital status	
a. Percent married	90% of members are assumed to be married or to have a dependent beneficiary.
b. Spouse's age	Males are assumed to be three (3) years older than females.
3. Pay increase timing	Beginning of (fiscal) year. Payroll amounts stated in the valuation data are amounts projected to be paid during the current year.
4. Decrement timing	Decrements are assumed to occur at the beginning of the year.
5. Active members in DROP	Members who are participating in the DROP are assumed to receive an annuity benefit commencing at the end of their DROP period as well as a lump sum payment equal to the number of years they were in the DROP times their annual annuity benefit. The annuity benefit is estimated based on salary and service at the time the member entered the DROP.

Changes in Assumptions since the Prior Year

The COLA assumption was changed due to passage of Senate Enrolled Act No. 373. In lieu of a 1% COLA occurring beginning on January 1, 2020, we now assume that the COLA will be replaced by a 13th check for 2020 and 2021. The COLA assumption thereafter, would be 0.4% beginning on January 1, 2022, changing to 0.5% beginning on January 1, 2034, and ultimately 0.6% beginning on January 1, 2039.

Data Adjustments

Active and retired member data is reported as of June 30. Member census data as of June 30, 2017 was used in the valuation and adjusted. Standard actuarial roll-forward techniques were then used to project the liability computed as of June 30, 2017 to the June 30, 2018 valuation date. The normal cost rate is assumed to remain unchanged between June 30, 2017 and June 30, 2018.

The member total payroll and the asset information for this valuation were furnished as of June 30, 2018. Total payroll in FYE 2019 is assumed to increase by the salary growth assumption over the total payroll observed for FYE 2018. We did not audit the information provided, but we did review it thoroughly for reasonableness and compared it with the prior year's submission for consistency.

Other Technical Valuation Procedures

Salary increases are assumed to apply to annual amounts.

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

No actuarial liability is included for participants who terminated without being vested prior to the valuation date, except those due a refund of contributions.

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