The Town of Smithfield

Fire Department Pension Plan
Actuarial Valuation Report

Plan Year July 1, 2017 – June 30, 2018

September 2017

260 Franklin Street, Suite 500
Boston, MA 02110

September 29, 2017

Mr. Randy R. Rossi
Town Manager
Town of Smithfield
64 Farnum Pike
Smithfield, RI 02917

Dear Randy:

Conduent HR Consulting (Conduent) was retained to complete this actuarial valuation of the Town of Smithfield Fire Department Pension Plan. This report presents the results of the valuation for the plan year and the fiscal year ending June 30, 2018, including the recommended contribution.

Purpose of this Report

The plan sponsor may use this report to determine plan contributions. The report may also be used to prepare the plan's and the plan sponsor's audited financial statements.

Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Conduent recommends requesting an advance review of any statement, document, or filing based on information contained in this report. Conduent will accept no liability for any such statement made without prior review by Conduent.

Where presented, references to "funded ratio" and "unfunded accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities. As noted in the presentation of actuarial assumptions, the only difference between the actuarial and market values of plan assets presented in this report is that in the former the IPG contract is included at book value.

Future actuarial measurements may differ significantly from current measurements due 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 methodology used for these measurements, and changes in plan provisions or applicable law. Conduent performed no analysis of the potential range of such future differences, other than the required presentation of the sensitivity of the net pension liability under GASB accounting standards to possible changes in the discount rate, as an analysis of the potential range of such future differences is beyond the scope of this valuation.

Data Used

Conduent performed the valuation using participant and financial data supplied by the Town and John Hancock Life Insurance Company. Conduent did not audit the data, although they were reviewed for reasonableness and consistency with the prior year data. The accuracy of the results of the valuation is dependent on the accuracy of the data.

Actuarial Certification

The actuarial assumptions used to value the plan for funding purposes were selected on the basis of an experience study dated May 7, 2015, except for the mortality assumption, which was selected on the basis of an experience study for a plan covering municipal workers throughout Rhode Island. These assumptions are, individually and in the aggregate, reasonable and in combination represent our best estimate of anticipated experience under the plan.

The plan sponsor selected the assumptions used for the accounting results in the report with our advice. We believe that these assumptions are reasonable and comply with the requirements of GASB Statements Nos. 67 and 68. We prepared this report’s accounting exhibits in accordance with the requirements of these standards.

Based on the individually reasonable assumptions used in the preparation of this report, and on the data furnished us, we certify that projection of the costs under this plan has been made in accordance wtih generally accepted actuarial practice, and that our recommended contributions make adequate provision for the funding of future benefits.

We are members of the Society of Actuaries and of the American Academy of Actuaries. We meet the Qualification Standards of the Academy to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

David L. Driscoll

David L. Driscoll, FSA, EA, MAAA
Principal, Consulting Actuary

Jonathan E. Dobbs, ASA, EA, MAAA
Director, Retirement Consulting

DD/JED/jac

Table of Contents

Section 1 – Summary

This report presents the results of the actuarial valuation of the Town of Smithfield Fire Department Pension Plan for the plan year beginning July 1, 2017. In summary, the following is a comparison of the recommended contributions, expenses, assets, liabilities, and participant data for the plan year beginning July 1, 2017, and the prior plan year.

	2016 Plan Year	2017 Plan Year
Normal Cost	$ 396,171	$ 106,474
Accrual Rate	17.25%	4.81%
Valuation Payroll	$ 2,296,642	$ 2,213,596
Recommended Employer Contributions		
Recommended Employer Contribution	$ 1,481,677	$ 1,287,471
% of Valuation Payroll	64.51%	58.16%
Minimum Recommended Employer Contribution	$ 1,171,221	$ 916,634
% of Valuation Payroll	51.00%	41.41%
Actuarial Value of Assets	$ 20,150,193	$ 23,545,169
Unfunded Actuarial Accrued Liability	$ 9,129,787	$ 9,695,089
Present Value of Future Benefits	$ 34,600,584	$ 35,891,089
	June 30, 2016	**June 30, 2017**
GASB 67 and 68 Information		
Discount rate	6.16%	6.90%
Total pension liability	$ 41,247,109	$ 39,030,646
Fiduciary net position	$ 20,275,092	$ 23,789,372
Net pension liability	$ 20,972,017	$ 15,241,274
Pension expense	$ 1,325,229	$ 246,784

Section 1 – Summary (continued)

Recommended Contribution

The recommended contribution for the 2017 year has been developed using the Frozen Initial Liability Actuarial Cost Method, which develops contributions that are expected to remain approximately level as a percentage of covered pay assuming that actual experience is in line with expected experience. The net result of 2016 plan experience was a decrease in the normal cost rate, expressed as a percentage of compensation, from 17.25%.to 4.81%.

The plan is expected to be funded through Town and member contributions based on a negotiated percentage of pay per the collective bargaining agreement for the period July 1, 2016 to June 30, 2019. The agreement indicates that the negotiated percentage of payroll during the period is as follows:

Period	Town	Member
July 1, 2016 – June 30, 2017	22.6%	10%
July 1, 2017 – June 30, 2018	23.6%	10%
July 1, 2018 – June 30, 2019	24.6%	10%

The valuation indicates that such contributions will not be sufficient to fund the future benefit accruals and the existing unfunded liability.

Details regarding the recommended contribution are shown in Section 2.

Plan Assets

John Hancock furnished the financial data. The actuarial value of plan assets increased from $20,150,193 as of June 30, 2016 to $23,545,169 as of June 30, 2017.

Details regarding plan assets are shown in Section 3, Statement of Fiduciary Net Position.

Plan Participants

The plan sponsor and John Hancock provided the data concerning plan participants as of the valuation date.

Valuation Date	July 1, 2016	July 1, 2017
Number of Participants		
Active	43	41
Terminated Vested	3	2
Disabled	5	6
Retirees and Beneficiaries	31	30
Total	82	79
Active Participant Demographics (averages)		
Attained Age	42.4	43.4
Hire Age	27.3	27.2
Participation Entry Age	27.3	27.2

A reconciliation of the plan participants and a summary of participant characteristics are included in Section 5 of this report.

Section 1 – Summary (continued)

Actuarial Assumptions and Methods

The economic and demographic assumptions used in this actuarial valuation are based upon a review of the existing portfolio and current economic conditions as well as the experience study that was performed in 2015 and published in May, 2015.

The discount rate assumption used for GASB 67 and 68 purposes has been changed from 6.16% to 6.90%.

The rest of the actuarial assumptions and methods are the same as those used in the prior actuarial valuation.

Section 6 contains a summary of the actuarial assumptions and methods used in this actuarial valuation.

Plan Provisions

The actuarial valuation results contained in this report are based on the plan provisions in effect on July 1, 2017. These plan provisions are the same as those used in the prior actuarial valuation.

A summary of the plan provisions is in Section 7.

Plan Experience

Plan experience in the 2016-2017 plan year was more favorable than that anticipated under the funding assumptions used in the valuation, which led to the development of an overall experience gain for the year.

The primary source of the gain was favorable investment experience. These gains were offset somewhat by fewer-than-expected deaths during the year and salary increases that were greater than anticipated. The plan experienced a rate of return on the actuarial value of assets of approximately 20.50%, compared to the assumed 8.50%. Thus, the value of the actuarial value of assets at July 1, 2017 is $2,364,469 greater than what was expected.

The following table quantifies the various sources of gains and losses.

Source (positive numbers indicate a gain, negative numbers a loss)	**Effect on Employer Liability**	**Effect on NC Rate**
Demographic		
• Inactive mortality	$ (115,519)	0.63%
• Active mortality	7,979	(0.04%)
• Retirement	162,029	(0.87%)
• Termination	40,929	(0.22%)
• Disability	(354,104)	1.91%
• Other (e.g., data changes)	252,005	(1.35%)
• Total	$ (6,681)	0.06%
Salary growth	(80,553)	0.43%
Investment growth	2,364,469	(12.93%)
Total experience gain/(loss)	$ 2,277,235	(12.44%)

Section 2 – Recommended Contribution

Development of the Unfunded Actuarial Accrued Liability	July 1, 2016	July 1, 2017
1. Unfunded Actuarial Accrued Liability at beginning of prior year	$ 8,686,072	$ 9,129,787
2. Normal Cost for the prior plan year	293,773	396,171
3. Interest on (1) and (2) to end of plan year	763,287	809,706
4. Employer Contributions for the prior plan year	(590,143)	(614,972)
5. Interest on Contributions to the end of plan year	(24,570)	(25,603)
6. Additional Unfunded Actuarial Accrued Liability at valuation date due to plan amendment	1,368	0
7. Additional Unfunded Actuarial Accrued Liability at valuation date due to assumption changes	0	0
8. Additional Unfunded Actuarial Accrued Liability at valuation date due to change in funding method	0	0
9. Unfunded Actuarial Liability at valuation date: Sum of (1) through (8), not less than zero	$ 9,129,787	$ 9,695,089

Development of the Normal Cost Under the Frozen Initial Liability Actuarial Cost Method	July 1, 2016	July 1, 2017
1. Present value of future benefits:		
a. Retired participants and beneficiaries	$ 14,292,922	$ 14,398,647
b. Non-contributing and terminated participants entitled to deferred vested pensions	141,388	11,884
c. Disabled participants	2,864,400	3,346,716
d. Contributing active participants	17,301,874	18,133,842
e. Total present value of future benefits	$ 34,600,584	$ 35,891,089
2. Present value of future employee contributions	$ 1,886,288	$ 1,757,824
3. Actuarial value of assets	$ 20,150,193	$ 23,545,169
4. Unfunded Actuarial Liability	$ 9,129,787	$ 9,695,089
5. Present value of future normal costs (1e) – (2) – (3) – (4)	$ 3,434,316	$ 893,007
6. Present value of future compensation	$ 19,905,978	$ 18,560,518
7. Normal cost accrual rate (5) ÷ (6)	17.25%	4.81%
8. Annual covered payroll	$ 2,296,642	$ 2,213,596
9. Normal cost (7) × (8)	$ 396,171	$ 106,474

Section 2 – Recommended Contribution (continued)

Recommended Employer Contribution	July 1, 2016	July 1, 2017
1. Normal cost	$ 396,171	$ 106,474
2. Expected expenses	$ 13,000	$ 14,000
3. 14-year (15 years for prior year) amortization of unfunded actuarial liability	$ 1,013,284	$ 1,115,538
4. Recommended employer contribution (1.) + (2.) + (3.)	$ 1,422,455	$ 1,236,012
5. Adjustment for interest to mid-year	$ 59,222	$ 51,459
6. Total recommended employer contribution: (4.) + (5.)	$ 1,481,677	$ 1,287,471

Minimum Recommended Employer Contribution	July 1, 2016	July 1, 2017
1. Normal cost	$ 396,171	$ 106,474
2. Expected expenses	$ 13,000	$ 14,000
3. Interest on unfunded actuarial liability, discounted to beginning of year	$ 715,237	$ 759,523
4. Minimum recommended employer contribution (1.) + (2.) + (3.)	$ 1,124,408	$ 879,997
5. Adjustment for interest to mid-year	$ 46,813	$ 36,637
6. Total minimum recommended employer contribution (4.) + (5.)	$ 1,171,221	$ 916,634

Employee Contributions	July 1, 2016	July 1, 2017
Estimated employee contributions	$ 209,893	$ 202,328

Section 3 – Statement of Fiduciary Net Position

Reconciliation of Actuarial Value of Assets		IPG Contract	S&P 500 Stock Index Fund 1A	Diversified Stock Fund 1K	Total
1.	Assets as of July 1, 2016				
	a. Fund assets as of July 1, 2016	$ 804,242	$ 10,154,240	$ 9,115,942	$ 20,074,424
	b. Receivables (employer)	0	26,742	26,742	53,484
	c. Receivables (employee)	0	11,143	11,142	22,285
	d. Actuarial Value of assets	$ 804,242	$ 10,192,125	$ 9,153,826	$ 20,150,193
2.	Income				
	a. Employer Contributions	$ 0	$ 278,100	$ 278,099	$ 556,199
	b. Employee Contributions	0	123,024	123,025	246,049
	c. Investment Return	66,309	1,781,892	2,285,185	4,133,386
	d. Transfers	1,300,000	(650,000)	(650,000)	0
	e. Total	$ 1,366,309	$ 1,533,016	$ 2,036,309	$ 4,935,634
3.	Expenses				
	a. Benefit Payments	$ 1,528,475	$ 0	$ 0	$ 1,528,475
	b. Administrative Expense	13,497	0	0	13,497
	c. Investment Expense	0	21,407	62,057	83,464
	d. Total	$ 1,541,972	$ 21,407	$ 62,057	$ 1,625,436
4.	Assets as of June 30, 2017				
	a. Fund assets (1d. + 2e. - 3d.)	$ 628,579	$ 11,703,734	$ 11,128,078	$ 23,460,391
	b. Receivables (employer)	0	29,386	29,387	58,773
	c. Receivables (employee)	0	13,002	13,003	26,005
	d. Actuarial Value of assets	$ 628,579	$ 11,746,122	$ 11,170,468	$ 23,545,169

Determination of Market Value of Assets

		IPG Contract Book Value	Market Value Adjustment for IPG	IPG Contract Market Value	Separate Stock Funds	Total Market Value
		(a)	(b)	(c) = (a) x [1 + (b)]	(d)	(c) + (d)
1.	Assets as of July 1, 2016	$ 804,242	15.53%	$ 929,141	$19,345,951	$ 20,275,092
2.	Assets as of July 1, 2017	$ 628,579	38.85%	$ 872,782	$22,916,590	$ 23,789,372

Section 3 – Statement of Fiduciary Net Position (continued)

Statement of Changes in Fiduciary Net Position	2017
Additions	
Contributions	
Employer	$ 614,972
Member	272,054
Total contributions	$ 887,026
Net investment income	4,169,226
Other	0
Total additions	$ 5,056,252
Deductions	
Benefit payments	$ 1,528,475
Administrative expense	13,497
Other	0
Total deductions	$ 1,541,972
Net increase in net position	$ 3,514,280
Net position restricted for pensions	
Beginning of the year	$ 20,275,092
End of the year	$ 23,789,372

Section 4 – GASB 67 and 68 Information

Summary of Significant Accounting Policies

Method used to value investments

Investments are reported at fair value.

Actuarial cost method

Entry age normal, with individual normal costs developed as a level percentage of pay.

Plan Description

Plan administration

The Town of Smithfield, Rhode Island administers the Town of Smithfield Fire Department Pension Plan (Plan), a single-employer defined benefit pension plan that provides pensions for members of the Fire Department. The plan was closed to new entrants as of December 31, 2010.

Plan membership

At June 30, 2017, pension plan membership consisted of the following:

Membership Status	Count	Total Expected Future Working Lifetime	Average Expected Future Working Lifetime
Inactive plan members or beneficiaries currently receiving	36	0	
Inactive plan members entitled to but not yet receiving	2	0	
Active plan members	41	358	
Total	79	358	4.53

As of June 30, 2016, the average expected future working lifetime was 5.01 years.

Benefits provided

Please see Section 7 of the report for a summary of plan provisions.

Contributions

The plan is expected to be funded through Town and member contributions based on a negotiated percentage of pay per the collective bargaining agreement for the period July 1, 2016 to June 30, 2019. The agreement indicates that the negotiated percentage of payroll during the period is as follows:

Period	Town	Member
July 1, 2016 – June 30, 2017	22.6%	10%
July 1, 2017 – June 30, 2018	23.6%	10%
July 1, 2018 – June 30, 2019	24.6%	10%

An actuarially determined contribution is developed using the Frozen Initial Liability Actuarial Cost Method, which develops contributions that are expected to remain approximately level as a percentage of covered pay assuming that actual experience is in line with expected experience. For the year ended June 30, 2017, the Town contributed $614,972 to the plan.

Section 4 – GASB 67 and 68 Information (continued)

Investments

Rate of return

For the year ended June 30, 2017, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 20.94%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Receivables

Employer and employee contributions made for the month of June that are actually paid in July are counted as receivables for purposes of this valuation.

Net Pension Liability

The components of the net pension liability at June 30, 2017, were as follows:

Components of Net Pension Liability	
Total pension liability	$ 39,030,646
Plan fiduciary net position	(23,789,372)
Net pension liability	$ 15,241,274
Plan fiduciary net position as a percentage of the total pension liability	60.95%

Pension Expense as of June 30, 2017

Pension Expense	Fiscal Year Ending June 30, 2017
Service Cost	$ 926,180
Interest Cost on Total Pension Liability	2,551,501
Differences between Expected and Actual Experience	(49,557)
Change of Benefit Terms	0
Changes of Assumptions	(1,050,212)
Contributions-Member	(272,054)
Projected Earnings on Plan Investments	(1,696,115)
Differences between Projected and Actual Earnings	(176,456)
Administrative Expenses	13,497
Other	0
Total Pension Expense	$ 246,784

The difference between projected and actual investment earnings is recognized over five years, in accordance with the provisions of GASB 68. Differences due to assumption changes and experience are amortized over the expected future working lifetime of all participants as of the beginning of the measurement period, which is 5.01 years.

Section 4 – GASB 67 and 68 Information (continued)

Actuarial assumptions

The total pension liability was determined by an actuarial valuation as of June 30, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial Assumptions	
Inflation	3.00%
Salary increases	4.00%
Investment rate of return	8.50%, net of pension plan investment expenses. This is based on an average inflation rate of 3.00% and a real rate of return of 5.50%.

The mortality assumption is as follows: for male annuitants and non-annuitants, 115% of RP-2000 Combined Healthy for Males with White Collar adjustments, projected generationally with Scale AA from 2000, and for female annuitants and non-annuitants, 95% of RP-2000 Combined Healthy for Females with White Collar adjustments, projected generationally with Scale AA from 2000.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic rates of return for each major asset class included in the pension plan's target asset allocation as of June 30, 2017 are summarized in the following table (note that the rates shown below include the inflation component):

Asset Class	Long-Term Expected Rate of Return
Domestic equity	12.2%
International equity	10.5%
Fixed income	5.7%
Real estate	9.9%
Cash	4.1%

Discount rate

The discount rate used to measure the total pension liability was 6.90%. The projection of cash flows used to determine the discount rate assumed that Town contributions will continue to follow the pattern of contributions observed over the last five years. During that period, the Town contributed 38.2% of the cumulative recommended contribution level. Accordingly, the fiduciary net position was projected assuming that 38.2% of future recommended contribution levels will be contributed. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members until the year 2062. A municipal bond rate of 3.13% was used in the development of the blended GASB discount rate after that point. The 3.13% rate is based on the S&P Municipal Bond 20 Year High Grade Rate Index. Based on the long-term rate of return of 8.50% and the municipal bond rate of 3.13%, the blended GASB discount rate is 6.90%.

Section 4 – GASB 67 and 68 Information (continued)

Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability, calculated using the discount rate of 6.90%, as well as what the Town's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.90%) or 1-percentage-point higher (7.90%) than the current rate:

	1% Decrease (5.90%)	Current Discount Rate (6.90%)	1% Increase (7.90%)
Net Pension Liability	$21,148,171	$ 15,241,274	$10,496,984

Section 4 – GASB 67 and 68 Information (continued)

Schedules of Required Supplementary Information

Schedule of Changes in Town’s Net Pension Liability and Related Ratios

		2017
Total pension liability		
Service cost	$	926,180
Interest		2,551,501
Changes of benefit terms		0
Changes of assumptions		(4,239,961)
Differences between expected and actual experience		74,292
Benefit payments		(1,528,475)
Net change in total pension liability	$	(2,216,463)
Total pension liability-beginning	$	41,247,109
Total pension liability-ending (a)	$	39,030,646
Plan fiduciary net pension		
Contributions-employer	$	614,972
Contributions-employee		272,054
Net investment income		4,169,226
Benefit payments, including refunds of employee contributions		(1,528,475)
Administrative expense		(13,497)
Other		0
Net change in plan fiduciary net position	$	3,514,280
Plan fiduciary net position-beginning	$	20,275,092
Plan fiduciary net position-ending (b)	$	23,789,372
Net pension liability-ending (a) - (b)	$	15,241,274
Plan fiduciary net position as a percentage of the total pension liability		60.95%
Covered-employee payroll	$	2,213,596
Net pension liability as a percentage of covered-employee payroll		688.53%

Notes to Schedule:

Changes of assumptions

In 2017, amounts reported as changes of assumptions resulted from the change in discount rate from 6.16% to 6.90%.

Section 4 – GASB 67 and 68 Information (continued)

Schedules of Required Supplementary Information (continued)

Schedule of Town Contributions

	2017
Actuarially determined contribution	$ 1,481,677
Contributions related to the actuarially determined contribution	614,972
Contribution deficiency (excess)	$ 866,705

Notes to Schedule:

Valuation date

Actuarially determined contribution rates are calculated as of July 1, in the fiscal year in which contributions are reported. That is, the contribution calculated as of July 1, 2017 will be made during the fiscal year ended June 30, 2018.

Methods and assumptions used to determine contribution rates:

Actuarial cost method

Frozen Initial Liability

Amortization method

Level dollar

Amortization period

20 years beginning in 2011

Asset valuation method

The book value of the IPG assets and the market value of all other assets.

Inflation

3.00% per annum.

Salary increases

4.00% per annum.

Investment rate of return

8.50%, net of pension plan investment expenses. This is based on an average inflation rate of 3.00% and a real rate of return of 5.50%.

Retirement age

25% assumed to retire upon the attainment of 20 years of service and the remainder at 25 years.

Mortality

For male annuitants and non-annuitants, 115% of RP-2000 Combined Healthy for Males with White Collar adjustments, projected generationally with Scale AA from 2000, and for female annuitants and non-annuitants, 95% of RP-2000 Combined Healthy for Females with White Collar adjustments, projected generationally with Scale AA from 2000.

Other information

Please see Section 7 of the report.

Schedule of Investment Returns

	2016	2017
Annual money-weighted rate of return, net of investment expenses	2.36%	20.94%

Section 4 – GASB 67 and 68 Information (continued)

Table 1 – Projection of Fiduciary Net Position (000's omitted)

Fiscal Year Ending 6/30	Beginning Fiduciary Net Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Net Position
2018	$ 23,789	$ 219	$ 492	$ 1,825	$ 14	$ 1,958	$ 24,620
2019	24,620	215	530	1,922	14	2,007	25,437
2020	25,437	220	575	1,972	15	2,062	26,307
2021	26,307	227	627	2,013	15	2,129	27,261
2022	27,261	226	685	2,103	16	2,209	28,261
2023	28,261	225	753	2,190	16	2,301	29,334
2024	29,334	212	834	2,341	17	2,400	30,422
2025	30,422	211	933	2,421	17	2,507	31,636
2026	31,636	212	1,060	2,498	18	2,623	33,014
2027	33,014	206	1,225	2,606	18	2,750	34,571
2028	34,571	189	1,454	2,778	19	2,888	36,304
2029	36,304	149	1,798	3,091	19	3,036	38,177
2030	38,177	142	2,422	3,187	20	3,218	40,752
2031	40,752	107	4,038	3,456	21	3,492	44,913
2032	44,913	60	12	3,790	21	3,662	44,836
2033	44,836	39	9	3,977	22	3,647	44,530
2034	44,530	26	9	4,112	23	3,614	44,045
2035	44,045	14	9	4,237	23	3,567	43,375
2036	43,375	7	10	4,331	24	3,506	42,543
2037	42,543	-	461	4,428	25	3,450	42,002
2038	42,002	-	478	4,478	25	3,403	41,379
2039	41,379	-	496	4,524	26	3,348	40,673
2040	40,673	-	515	4,567	27	3,287	39,882
2041	39,882	-	535	4,609	28	3,219	38,999
2042	38,999	-	555	4,644	29	3,144	38,025

Section 4 – GASB 67 and 68 Information (continued)

Table 1 – Projection of Fiduciary Net Position (000's omitted)

Fiscal Year Ending 6/30	Beginning Fiduciary Net Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Net Position
2043	38,025	-	576	4,675	29	3,060	36,958
2044	36,958	-	598	4,700	30	2,969	35,795
2045	35,795	-	621	4,721	31	2,871	34,535
2046	34,535	-	645	4,802	32	2,761	33,107
2047	33,107	-	670	4,743	33	2,643	31,644
2048	31,644	-	696	4,743	34	2,520	30,083
2049	30,083	-	722	4,735	35	2,389	28,424
2050	28,424	-	750	4,719	36	2,249	26,669
2051	26,669	-	779	4,694	37	2,102	24,819
2052	24,819	-	809	4,660	38	1,948	22,878
2053	22,878	-	840	4,616	39	1,786	20,849
2054	20,849	-	873	4,562	41	1,617	18,736
2055	18,736	-	907	4,498	42	1,441	16,544
2056	16,544	-	942	4,425	43	1,259	14,278
2057	14,278	-	979	4,343	44	1,072	11,941
2058	11,941	-	1,017	4,253	46	878	9,538
2059	9,538	-	1,057	4,153	47	680	7,075
2060	7,075	-	1,098	4,045	49	477	4,557
2061	4,557	-	1,139	3,929	46	269	1,991
2062	1,991	-	1,173	3,806	20	662	-
2063	-	-	1,184	3,676	-	2,492	-
2064	-	-	1,114	3,541	-	2,426	-
2065	-	-	1,045	3,401	-	2,356	-
2066	-	-	977	3,257	-	2,280	-
2067	-	-	909	3,108	-	2,199	-

Section 4 – GASB 67 and 68 Information (continued)

Table 1 – Projection of Fiduciary Net Position (000's omitted)

Fiscal Year Ending 6/30	Beginning Fiduciary Net Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Net Position
2068	-	-	842	2,956	-	2,114	-
2069	-	-	777	2,801	-	2,024	-
2070	-	-	714	2,644	-	1,930	-
2071	-	-	652	2,484	-	1,832	-
2072	-	-	593	2,323	-	1,731	-
2073	-	-	535	2,162	-	1,627	-
2074	-	-	481	2,002	-	1,521	-
2075	-	-	429	1,842	-	1,413	-

Section 4 – GASB 67 and 68 Information (continued)

Table 2 – Actuarial Present Values of Projected Benefit Payments (000's omitted)

Fiscal Year Ending 6/30	Beginning Fiduciary Net Position	Benefit Payments	Benefit Payments: Funded Portion	Benefit Payments: Unfunded Portion	Present Value of Benefit Payments: Funded Portion at 8.50%	Present Value of Benefit Payments: Unfunded Portion at 3.13%	Present Value of Benefit Payments: Using a Single Discount Rate of 6.90%
2018	$ 23,789	$ 1,825	$ 1,825	$ -	$ 1,752	$ -	$ 1,765
2019	24,620	1,922	1,922	-	1,700	-	1,739
2020	25,437	1,972	1,972	-	1,609	-	1,669
2021	26,307	2,013	2,013	-	1,513	-	1,594
2022	27,261	2,103	2,103	-	1,457	-	1,558
2023	28,261	2,190	2,190	-	1,398	-	1,517
2024	29,334	2,341	2,341	-	1,377	-	1,517
2025	30,422	2,421	2,421	-	1,313	-	1,468
2026	31,636	2,498	2,498	-	1,249	-	1,417
2027	33,014	2,606	2,606	-	1,201	-	1,383
2028	34,571	2,778	2,778	-	1,180	-	1,379
2029	36,304	3,091	3,091	-	1,210	-	1,435
2030	38,177	3,187	3,187	-	1,149	-	1,384
2031	40,752	3,456	3,456	-	1,149	-	1,404
2032	44,913	3,790	3,790	-	1,161	-	1,440
2033	44,836	3,977	3,977	-	1,123	-	1,414
2034	44,530	4,112	4,112	-	1,070	-	1,368
2035	44,045	4,237	4,237	-	1,016	-	1,318
2036	43,375	4,331	4,331	-	957	-	1,260
2037	42,543	4,428	4,428	-	902	-	1,205
2038	42,002	4,478	4,478	-	841	-	1,140
2039	41,379	4,524	4,524	-	783	-	1,078
2040	40,673	4,567	4,567	-	728	-	1,018
2041	39,882	4,609	4,609	-	678	-	961

Section 4 – GASB 67 and 68 Information (continued)

Table 2 – Actuarial Present Values of Projected Benefit Payments (000's omitted)

Fiscal Year Ending 6/30	Beginning Fiduciary Net Position	Benefit Payments	Benefit Payments		Present Value of Benefit Payments		
			Funded Portion	Unfunded Portion	Funded Portion at 8.50%	Unfunded Portion at 3.13%	Using a Single Discount Rate of 6.90%
2042	38,999	4,644	4,644	-	629	-	906
2043	38,025	4,675	4,675	-	584	-	853
2044	36,958	4,700	4,700	-	541	-	802
2045	35,795	4,721	4,721	-	501	-	754
2046	34,535	4,802	4,802	-	470	-	717
2047	33,107	4,743	4,743	-	427	-	662
2048	31,644	4,743	4,743	-	394	-	620
2049	30,083	4,735	4,735	-	362	-	579
2050	28,424	4,719	4,719	-	333	-	540
2051	26,669	4,694	4,694	-	305	-	502
2052	24,819	4,660	4,660	-	279	-	466
2053	22,878	4,616	4,616	-	255	-	432
2054	20,849	4,562	4,562	-	232	-	399
2055	18,736	4,498	4,498	-	211	-	368
2056	16,544	4,425	4,425	-	191	-	339
2057	14,278	4,343	4,343	-	173	-	311
2058	11,941	4,253	4,253	-	156	-	285
2059	9,538	4,153	4,153	-	141	-	260
2060	7,075	4,045	4,045	-	126	-	237
2061	4,557	3,929	3,929	-	113	-	216
2062	1,991	3,806	-	3,806	-	966	195
2063	-	3,676	-	3,676	-	904	177
2064	-	3,541	-	3,541	-	845	159
2065	-	3,401	-	3,401	-	787	143

Section 4 – GASB 67 and 68 Information (continued)

Table 2 – Actuarial Present Values of Projected Benefit Payments (000's omitted)

Fiscal Year Ending 6/30	Beginning Fiduciary Net Position	Benefit Payments	Benefit Payments		Present Value of Benefit Payments		
			Funded Portion	Unfunded Portion	Funded Portion at 8.50%	Unfunded Portion at 3.13%	Using a Single Discount Rate of 6.90%
2066	-	3,257	-	3,257	-	730	128
2067	-	3,108	-	3,108	-	676	114
2068	-	2,956	-	2,956	-	623	102
2069	-	2,801	-	2,801	-	573	90
2070	-	2,644	-	2,644	-	524	80
2071	-	2,484	-	2,484	-	478	70
2072	-	2,323	-	2,323	-	433	61
2073	-	2,162	-	2,162	-	391	53
2074	-	2,002	-	2,002	-	351	46
2075	-	1,842	-	1,842	-	313	40

Section 5 – Plan Participant Data

Reconciliation of Participant Data

	Actives	Terminated Vesteds	Retirees and Beneficiaries	Disabled Participants	Total
Participants as of July 1, 2016	43	3	31	5	82
New entrants	0	0	0	0	0
Rehires	0	0	0	0	0
Vested terminations	0	0	0	0	0
Non-vested terminations	0	0	0	0	0
Lump sum distributions	(1)	(1)	0	0	(2)
Retirements	(1)	0	0	1	0
Deaths	0	0	(1)	0	(1)
New beneficiaries	0	0	0	0	0
New alternate payees per QDRO	0	0	0	0	0
Benefits expired	0	0	0	0	0
Data corrections	0	0	0	0	0
Participants as of July 1, 2017	41	2	30	6	79

Inactive Participant Statistics – Average Annual Benefits

	July 1, 2016	July 1, 2017
Terminated Vested Participants[1]	$ 11,295	N/A
Retirees	44,894	46,262
Beneficiaries	12,585	14,118
Disabled Participants	40,613	41,193

[1] Stated average for 2016 is for one participant entitled to annuity benefits in the future. There are two others in 2016 and in 2017 that are entitled only to a refund of employee contributions.

Section 6 – Actuarial Assumptions and Methods

Actuarial Assumptions

Interest rate for funding

8.50% per annum.

Interest rate for accounting

6.90% per year, compounded annually. Projected benefit payments that are expected to be paid from available plan assets are discounted at the valuation interest rate of 8.50%. After the point where plan assets are not available to pay benefits, projected benefit payments are discounted at the municipal bond rate. The valuation rate for accounting purposes is the effective rate resulting from this process.

Municipal bond rate

3.13%. This rate is based on the S&P Municipal Bond 20 Year High Grade Rate Index.

Salary increases

4.00% per annum.

Mortality

For male participants, 115% of RP-2000 Combined Healthy for Males with White Collar adjustments, projected generationally with Scale AA from 2000, and for female participants, 95% of RP-2000 Combined Healthy for Females with White Collar adjustments, projected generationally with Scale AA from 2000.

Withdrawal

50% of Sarason Table T-1

Disability

200% of United Auto Workers 1955 Table. All disablements assumed to be duty-related.

Loading for expenses

Prior year’s administrative expenses increased by 4%, rounded to the nearest thousand.

Retirement age

25% assumed to retire upon the attainment of 20 years of service and the remainder at 25 years.

Asset valuation method

For purposes of determining the recommended contribution level, the actuarial value of assets consists of the book value of the IPG assets and the market value of all other assets.

For accounting purposes, the fair value of assets is used.

Form of payment

Joint and 67.5% survivor annuity.

Married participants

90% of males and 75% of females are married, with males four years older than their female spouse.

Changes from prior valuation

The interest rate for accounting was changed from 6.16% to 6.90%.

Section 6 – Actuarial Assumptions and Methods (continued)

Actuarial Cost Method

For purposes of determining the recommended contribution level, the Frozen Initial Liability cost method is used.

The Entry Age Normal method, with normal cost defined as a level percentage of pay, is required to be used for GASB accounting purposes.

Normal Cost

At each valuation date the excess of the Actuarial Present Value of Projected Benefits of eligible employees over the sum of the Actuarial Value of Assets plus the Unfunded Actuarial Accrued Liability, is allocated on a level basis over the compensation of active employees between the valuation date and the assumed date they leave active employment. This allocation by year is performed for the group as a whole, not as a sum of individual allocations. The Initial Actuarial Accrued Liability is determined using the Entry Age Normal Actuarial Cost Method. The portion of the Actuarial Present Value allocated to a valuation year is called the Normal Cost.

Unfunded Actuarial Accrued Liability

The Unfunded Actuarial Accrued Liability at plan inception, and each subsequent increase or decrease in the Unfunded Actuarial Accrued Liability, is determined using the Entry Age Normal Actuarial Cost Method.

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated as a level percent of compensation between date of hire and assumed date they cease active employment. The portion of this Actuarial Present Value not provided for at the valuation date by the Actuarial Present Value of Future Entry Age Normal Cost is called the Accrued Liability.

Section 7 – Summary of Plan Provisions

Eligibility

Plan participation commences on the first day of the month following the date the employee is hired. Employees hired after January 1, 2011 will not be eligible to participate in this plan.

Final Average Salary

Average annual salary for the three consecutive years producing the highest such average in the last ten years preceding Normal Retirement Date. Includes base pay only.

Normal Retirement

Eligibility

The first day of the month coincident with or next following the earlier of the attainment of age 65 or completion of 20 years of service.

Benefit

(a) plus (b), but not more than (c), where:

- (a) 2.5% of Final Average Salary multiplied by service up to 20 years
- (b) 2.0% of Final Average Salary multiplied by service in excess of 20 years
- (c) 75% of Final Average Salary

Late Retirement

Eligibility

Continued employment beyond normal retirement date.

Benefit

Accrued benefit at late retirement date.

Disability Benefit

Eligibility

Completion of seven years of service, if the total and permanent disability is not due to occupational causes. If the participant becomes totally and permanently disabled due to occupational causes, no age or service requirement applies.

Benefit

If disability is not due to occupational causes, the benefit is 50% of Final Average Salary. Benefit is adjusted to the accrued benefit once the Normal Retirement Date is reached.

If disability is due to occupational causes, the benefit is 66-2/3% of Final Average Salary. Benefit is not adjusted at Normal Retirement Date.

Pre-Retirement Spouse's Benefit

Eligibility

Death occurs while employee is still in the service of the employer.

Benefit

40% of Final Average Salary to the surviving spouse plus 10% of Final Average Salary for any dependent children under age 18, with a maximum of 50% of Final Average Salary. If no spouse, 15% of Final Average Salary for each dependent child under age 18 with maximum of 45% of Final Average Salary.

Section 7 – Summary of Plan Provisions (continued)

Lump Sum Death Benefit

Active or disabled employees: greater of

(a) accumulated contributions or

(b) 400 times years of service (minimum 2,000, maximum 8,000)

Retired employees who were active or disabled immediately prior to retirement: greater of

(a) excess of accumulated contributions over benefits received, or

(b) 400 times years of service (minimum 2,000, maximum 8,000), reduced 25% per year retired, but not less than 2,000.

Terminated vested employees (Pre- and post-retirement): accumulated contributions in excess of benefits received.

Vesting

100% vested upon the completion of ten years of service.

Employee Contributions

10% of annual base earnings, not including overtime pay.

Employee contributions for all participants are credited with interest at the rate of 5.50% per year.

Normal Form of Payment

Contingent annuitant form, which provides continuation to surviving spouses at 67½% of the original annuity amount. This benefit is fully subsidized, so there is no reduction to the initial amount to reflect this coverage. Applies to Disability as well as Retirement benefits.

Cost-of-Living Adjustments

Employees retiring or becoming disabled after July 1, 1988 shall receive an increase of 3% in their benefit on each anniversary date of retirement. Pre-retirement survivor beneficiaries are eligible for these increases also.

Section 8 – Deferred Outflows/Inflows

Table 1: Amortization of Differences between Expected and Actual Liability Experience

Measurement Date 6/30	2015	2016	2017	2018	2019	Outflows	Inflows	Total
Amount Established	$ (95,975)	$ (233,333)	$ 74,292					
Recognition Period	5.40	5.01	5.01					
Amount Recognized in FY:								
2015	$ (17,780)	$ -	$ -	$ -	$ -	$ -	$ (17,780)	$ (17,780)
2016	(17,780)	(46,606)	-	-	-	-	(64,386)	(64,386)
2017	(17,780)	(46,606)	14,829	-	-	14,829	(64,386)	(49,557)
2018	(17,780)	(46,606)	14,829	-	-	14,829	(64,386)	(49,557)
2019	(17,780)	(46,606)	14,829	-	-	14,829	(64,386)	(49,557)
2020	(7,075)	(46,606)	14,829	-	-	14,829	(53,681)	(38,852)
2021	-	(303)	14,829	-	-	14,829	(303)	14,526
2022	-	-	147	-	-	147	-	147
2023	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-

Measurement Date 6/30	2015	2016	2017	2018	2019	Outflows	Inflows	Total
Deferred Balance at 6/30:								
2015	$ (78,195)	$ -	$ -	$ -	$ -	$ -	$ (78,195)	$ (78,195)
2016	(60,415)	(186,727)	-	-	-	-	(247,142)	(247,142)
2017	(42,635)	(140,121)	59,463	-	-	59,463	(182,756)	(123,293)
2018	(24,855)	(93,515)	44,634	-	-	44,634	(118,370)	(73,736)
2019	(7,075)	(46,909)	29,805	-	-	29,805	(53,984)	(24,179)
2020	-	(303)	14,976	-	-	14,976	(303)	14,673
2021	-	-	147	-	-	147	-	147
2022	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-

Section 8 – Deferred Outflows/Inflows (continued)

Table 2: Amortization of Changes in Assumptions

Measurement Date 6/30	2015	2016	2017	2018	2019	Outflows	Inflows	Total
Amount Established	$ (5,398,258)	$ 3,986,007	$ (4,239,961)					
Recognition Period	5.40	5.01	5.01					
Amount Recognized in FY:								
2015	$ (1,000,084)	$ -	$ -	$ -	$ -	$ -	$ (1,000,084)	$ (1,000,084)
2016	(1,000,084)	796,172	-	-	-	796,172	(1,000,084)	(203,912)
2017	(1,000,084)	796,172	(846,300)	-	-	796,172	(1,846,384)	(1,050,212)
2018	(1,000,084)	796,172	(846,300)	-	-	796,172	(1,846,384)	(1,050,212)
2019	(1,000,084)	796,172	(846,300)	-	-	796,172	(1,846,384)	(1,050,212)
2020	(397,838)	796,172	(846,300)	-	-	796,172	(1,244,138)	(447,966)
2021	-	5,147	(846,300)	-	-	5,147	(846,300)	(841,153)
2022	-	-	(8,461)	-	-	-	(8,461)	(8,461)
2023	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-

Measurement Date 6/30	2015	2016	2017	2018	2019	Outflows	Inflows	Total
Deferred Balance at 6/30:								
2015	$ (4,398,174)	$ -	$ -	$ -	$ -	$ -	$ (4,398,174)	$ (4,398,174)
2016	(3,398,090)	3,189,835	-	-	-	3,189,835	(3,398,090)	(208,255)
2017	(2,398,006)	2,393,663	(3,393,661)	-	-	2,393,663	(5,791,667)	(3,398,004)
2018	(1,397,922)	1,597,491	(2,547,361)	-	-	1,597,491	(3,945,283)	(2,347,792)
2019	(397,838)	801,319	(1,701,061)	-	-	801,319	(2,098,899)	(1,297,580)
2020	-	5,147	(854,761)	-	-	5,147	(854,761)	(849,614)
2021	-	-	(8,461)	-	-	-	(8,461)	(8,461)
2022	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-

Section 8 – Deferred Outflows/Inflows (continued)

Table 3: Amortization of Differences between Projected and Actual Earnings

Measurement Date 6/30	2015	2016	2017	2018	2019	Outflows	Inflows	Total
Amount Established	$ 358,604	$ 1,232,225	$ (2,473,111)					
Recognition Period	5.00	5.00	5.00					
Amount Recognized in FY:								
2015	$ 71,721	$ -	$ -	$ -	$ -	$ 71,721	$ -	$ 71,721
2016	71,721	246,445	-	-	-	318,166	-	318,166
2017	71,721	246,445	(494,622)	-	-	318,166	(494,622)	(176,456)
2018	71,721	246,445	(494,622)	-	-	318,166	(494,622)	(176,456)
2019	71,720	246,445	(494,622)	-	-	318,165	(494,622)	(176,457)
2020	-	246,445	(494,622)	-	-	246,445	(494,622)	(248,177)
2021	-	-	(494,623)	-	-	-	(494,623)	(494,623)
2022	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-

Measurement Date 6/30	2015	2016	2017	2018	2019	Outflows	Inflows	Total
Deferred Balance at 6/30:								
2015	$ 286,883	$ -	$ -	$ -	$ -	$ 286,883	$ -	$ 286,883
2016	215,162	985,780	-	-	-	1,200,942	-	1,200,942
2017	143,441	739,335	(1,978,489)	-	-	882,776	(1,978,489)	(1,095,713)
2018	71,720	492,890	(1,483,867)	-	-	564,610	(1,483,867)	(919,257)
2019	-	246,445	(989,245)	-	-	246,445	(989,245)	(742,800)
2020	-	0	(494,623)	-	-	0	(494,623)	(494,623)
2021	-	-	(0)	-	-	-	(0)	(0)
2022	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-