

***RETIREMENT PLAN FOR CONTRACT  
EMPLOYEES OF LONG BEACH  
PUBLIC TRANSPORTATION COMPANY***

***Actuarial Valuation as of  
July 1, 2018***

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August 2018

**VENUTI & ASSOCIATES**

ACTUARIES AND BENEFITS CONSULTANTS

August 31, 2018

Pension Committee  
Retirement Plan for Contract Employees of  
Long Beach Public Transportation Company

Dear Pension Committee:

We are pleased to present our actuarial valuation report for the Retirement Plan for Contract Employees of Long Beach Public Transportation Company as of July 1, 2018. The information in this report provides the means by which we determine the funding requirements for the Plan. The actuarial report serves three main purposes:

- Determine the annual funding levels under the Plan's adopted funding policy and alternative funding levels.
- Determine how the required funding changed from the prior year using what is called an "experience analysis."
- Determine other information pertinent to understanding the Plan's funded status.

Compared to the prior year, the Plan's funding cost for the Plan Year commencing July 1, 2018 increased from 21.074% of pay to 21.816% of pay as follows:

- |                             |               |
|-----------------------------|---------------|
| • July 1, 2017 funding cost | 21.074%       |
| • Plan Experience           | <u>0.742%</u> |
| • July 1, 2018 funding cost | 21.816%       |

We look forward to discussing our report with you.

Very truly yours,



David W. Venuti  
President

**VENUTI & ASSOCIATES**

ACTUARIES AND BENEFITS CONSULTANTS

RETIREMENT PLAN FOR CONTRACT EMPLOYEES OF  
LONG BEACH PUBLIC TRANSPORTATION COMPANY  
JULY 1, 2018

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**SECTION 1: VALUATION RESULTS**

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**Summary Information**

The following presents some of the important results of the actuarial valuation and compares this information with the prior year.

	<u>July 1, 2018</u>	<u>July 1, 2017</u>	<u>Change</u>
Number of Participants			
Actives			
Vested	404	410	(6)
Non-Vested	<u>170</u>	<u>172</u>	<u>(2)</u>
Total	574	582	(8)
Inactive Vested	21	19	2
In Pay Status			
Retirees	47	48	(1)
Disabled	29	27	2
Beneficiaries	<u>17</u>	<u>16</u>	<u>1</u>
Total	93	91	2
Total Participants	688	692	(4)

**SECTION 1: VALUATION RESULTS**

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**Summary Information (continued)**

	<u>July 1, 2018</u>	<u>July 1, 2017</u>	<u>Change</u>
Normal Cost for all benefits for fiscal year	\$5,501,293	\$5,138,184	\$363,109
Contribution for the fiscal year under the Company's Funding policy (assuming it is paid uniformly throughout the year)			
Annual amount	\$6,783,538	\$6,416,647	\$366,891
Percent of covered compensation	21.816%	21.074%	0.742%
Expected employer non-PEPRA contributions <sup>(1)</sup>	\$3,088,638	\$3,249,575	(\$160,937) <sup>(2)</sup>
Expected employer PEPRA contributions <sup>(1)</sup>	\$1,052,967	\$694,407	\$358,560 <sup>(2)</sup>
Expected non-PEPRA employee contributions <sup>(1)</sup>	\$1,936,785	\$2,003,247	(\$66,462)
Expected PEPRA employee contributions <sup>(1)</sup>	\$705,148	\$469,418	\$235,730
Entry Age Normal Accrued Liability	\$87,017,394	\$81,803,970	\$5,213,424
Funded Percentage	64.38%	64.47%	(0.09%)
Market Value of Plan Assets	\$56,021,895	\$52,742,303	\$3,279,592
Frozen Initial Liability Remaining Unfunded	\$13,956,549	\$14,281,166	(\$324,617)

<sup>(1)</sup> 8.75% of compensation for 2018 for employees subject to PEPRA and 8.408% of compensation for employees not subject to PEPRA. 2018 Employer contribution is 13.066% for PEPRA employees and 13.408% for Non-PEPRA employees. The PEPRA employee contribution rate is half of the total normal cost accrual rate rounded to the nearest 0.25% and is equal to the Non-PEPRA employee contribution rate if higher. The Non-PEPRA employee contribution rate is the greater of: (1) minimum of 5% and total contribution rate minus 10%, and (2) (maximum of 0 and total contribution rate minus 15%) x .50 plus 5%.

<sup>(2)</sup> Total change in expected employer contributions from 2018 is an increase of \$197,623.

## SECTION 1: VALUATION RESULTS

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### Annual Funding

The Plan sponsor has adopted the frozen initial liability method as its actuarial cost method, with costs allocated as a level percentage of future compensation. This funding method is described below.

Each year the present value of future benefits is determined by projecting the expected benefit payments in all future years for current employees and participants in pay status as of the valuation date. This projection is done by applying the actuarial assumptions to the current plan population. The current value of those future expected benefit payments is calculated using the assumed discount rate to arrive at the present value of future benefits (PVFB).

A portion of the PVFB has already been funded through previous contributions and investment return, reduced by previous benefit payments and expenses. This represents the current value of assets held by the Plan.

The portion of the PVFB not currently covered by Plan assets must come from future employer and employee contributions (offset by future plan investment and operational expenses). The total plan contributions are determined through the combination of an actuarial cost method and a funding policy. The funding policy is to contribute each year the normal cost, plus an amount sufficient to amortize the unfunded liability as of July 1, 2007 over a period of 30 years.

As of July 1, 2007, the Plan's actuary determined what the Plan's assets would have been if (1) the Plan benefits had always been the same as they were then, (2) the Plan's actuarial

assumptions had always been met, and (3) contributions had always been an amount sufficient to fund the Plan benefits as a level percent of compensation from each employee's Plan entry date. This amount is known as the entry age normal accrued liability, and it was established as the frozen initial liability. The difference between the frozen initial liability as of July 1, 2007 and the Plan assets as of July 1, 2007 was established as the unfunded liability as of July 1, 2007. The funding policy adopted was to amortize this unfunded liability over a period of 30 years. Changes in assumptions or the terms of the Plan are amortized over a period of 30 years beginning at the effective date of the change.

To reflect expected future asset returns the interest rate assumption was lowered from 8.00% to 7.50% effective July 1, 2007.

Based on a reassessment of future returns, effective July 1, 2016 the interest rate assumption was again lowered from 7.50% to 7.00% which lead to \$3,194,510 in additional liability

Effective July 1, 2017 the interest rate assumption was further lowered from 7.00% to 6.50% which lead to \$3,651,179 in additional liability.

**SECTION 1: VALUATION RESULTS**

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**Annual Funding (continued)**

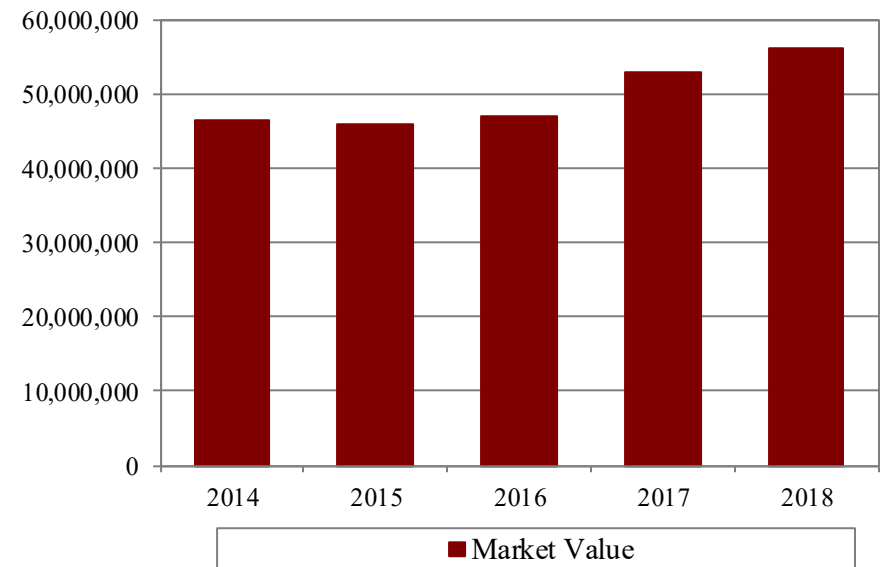
**Assets**

**Assets at June 30, 2018**

Equity Mutual Funds	\$ 38,607,474
Bond Mutual Funds	7,397,975
Corporate Bonds	8,057,529
Government Bonds	1,277,874
Cash	474,667
Contributions Receivable	244,039
Asset Transfer Payable	<u>(37,663)</u>

**Assets at Market Value**                      **\$ 56,021,895**

**Asset Values (June 30)**



**SECTION 1: VALUATION RESULTS**

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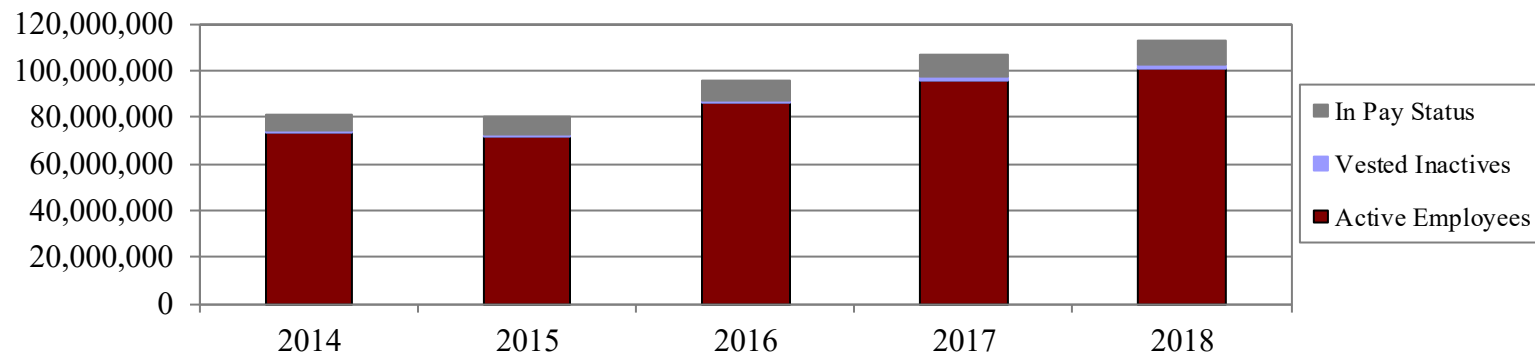
**Annual Funding (continued)**

**Present Value of Future Benefits**

In Pay Status <sup>(1)</sup>	\$10,108,906
Vested Inactives	1,688,656
Active Employees	<u>100,721,277</u>

**Present Value of Future Benefits<sup>(2)</sup>** **\$112,518,839**

**Historical Present Value of Future Benefits as of July 1**



<sup>(1)</sup>Retirees, disabled retirees and beneficiaries currently receiving payments.

<sup>(2)</sup>Increased \$5.6M from 2017 due to plan experience.



**SECTION 1: VALUATION RESULTS**

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**Frozen Initial Accrued Liability Remaining Unfunded at July 1, 2018**

1. Frozen Initial Liability remaining unfunded July 1, 2017	\$14,281,166
2. Normal Cost as of July 1, 2017	5,138,184
3. Interest on (1) and (2) to June 30, 2018 at 6.5%	1,262,258
4. Employer contributions for the 2017/2018 Plan year	4,054,711
5. Interest on (4) to June 30, 2018 at 6.5%	129,704
6. Employee contributions for the 2017/2018 Plan year	2,461,892
7. Interest on (6) to June 30, 2018 at 6.5%	78,752
8. Increase due to assumption changes	0
9. Total FIL remaining unfunded as of July 1, 2018, = (1) + (2) + (3) – (4) – (5) – (6) – (7), not less than \$0 + (8)	\$13,956,549

**SECTION 1: VALUATION RESULTS**

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**Determination of Total Normal Cost**

1. Present Value of Future Benefits	
A. Active Participants	\$100,721,277
B. Terminated participants with Deferred Vested Benefits	1,688,656
C. In Pay Status	<u>10,108,906</u>
D. Total	\$112,518,839
2. Plan Assets	56,021,895
3. Frozen initial accrued liability remaining unfunded	13,956,549
4. Present value of future normal costs = (1) - (2) - (3)	42,540,395
5. Present value of future salaries	258,250,674
6. Normal cost accrual rate = (4) / (5)	16.47%
7. Valuation compensation	31,093,861
8. Preliminary normal cost = (6) x (7)	5,121,159
9. Administrative Expenses	380,134
10. Total normal cost = (8) + (9)	\$5,501,293
11. Total normal cost accrual rate = (10) / (7)	17.69%

**SECTION 1: VALUATION RESULTS**

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**Determination of Contribution**

Funding Policy

We understand that it is the Company's policy to fund the normal cost plus an amount sufficient to amortize the unfunded accrued liability over 30 years from July 1, 2007. Contributions under the alternative 20-year and 10-year amortization of the July 1, 2007 unfunded accrued liability are shown as well. The contribution is made uniformly throughout the year.

	<u>Funding Policy</u>	<u>20 Year Eff. July 1, 2007</u>	<u>10 Year Eff. July 1, 2007</u>
1 Total normal cost for Plan year	\$5,501,293	\$5,501,293	\$5,501,293
2 Amortization of unfunded accrued liability:			
A. Initial unfunded remaining	2,177,685	2,177,685	2,177,685
B. Amortization period remaining (in years)	19	9	0
C. Amortization amount	190,483	307,203	0
D. Additional unfunded from assumption change	5,156,590	5,156,590	5,156,590
E. Amortization period	25	25	25
F. Amortization amount	396,944	396,944	396,944
G. Additional unfunded from interest rate change	3,054,088	3,054,088	3,054,088
H. Amortization period	28	28	28
I. Amortization amount	224,979	224,979	224,979
J. Additional unfunded from interest rate change	3,568,186	3,568,186	3,568,186
K. Amortization period	29	29	29
L. Amortization amount	259,571	259,571	259,571
3 Interest required for monthly contributions	210,268	214,002	204,175
4 Total annual contribution payable monthly = (1) + (2C) + (2F) + (2I) + (2L) + (3)	6,783,538	6,903,992	6,586,962
5 Contribution as a percentage of compensation	21.816%	22.204%	21.184%

The contributions shown are the total required to meet the Company's Funding Policy.

## **SECTION 1: VALUATION RESULTS**

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### **Actuarial Experience**

A plan's actuarial liability is simply an estimate of the amount of funds required to pay benefits as they come due in the future. This estimate is based on assumptions about future events that impact the plan's funded status; events such as investment earnings on plan assets, how long retirees live, and the probability of an active member remaining in covered employment, among others. Each year the plan's funded status changes due to actual experience different from that anticipated by the actuarial assumptions. This difference is referred to as "actuarial experience."

There are two types of actuarial experience. "Actuarial gains" are generated when experience is more favorable than expected. Actuarial gains serve to improve the funded status of the plan. "Actuarial losses" occur when experience is less favorable than expected. Actuarial losses serve to lessen the funded status of the plan.

Actuarial experience is measured by performing an experience analysis. This analysis is important for two reasons. First, it tells the Plan Sponsor how and why the funded status changed from the prior year. Second, it allows the actuary to monitor whether the assumptions continue to be appropriate for valuing plan liabilities. Differences in actual experience compared to assumed are expected. However, a recurring trend of gains or losses from a particular assumption could indicate that the assumption should be modified.

The Plan's funding cost as a percentage of compensation for the July 1, 2018 Plan Year is 21.816% compared to 21.074% for the prior year. Plan experience increased the funding cost by 0.742%.

## **SECTION 2: COMMENTS AND CERTIFICATION**

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### **Certification**

This is to certify that our valuation of the Plan as of July 1, 2018 has been performed in accordance with generally accepted actuarial principles and practices. In preparing this report, we have relied on financial information contained in unaudited financial statements and on participant census information supplied by the Plan sponsor. We did not audit the participant census information. However, we reviewed the data for reasonableness and internal consistency and found no reason to doubt its substantial accuracy.

To the best of our knowledge, the information supplied in this report is complete and accurate. Each prescribed assumption was applied in accordance with applicable law and regulations. In our opinion, each other assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, offer our best estimate of anticipated experience under the plan.

We understand that the actuarial assumptions are selected by the Plan sponsor, Long Beach Public Transportation Company. During the last ten plan years, historical rates of return have averaged 4.62% while rates of return averaged 5.30% during the last five plan years. Effective July 1, 2017 the investment return assumption was lowered from 7.00% per annum to 6.50% per annum to better reflect past experience as well as future expected returns. Funding under alternative interest rate assumptions is shown starting on page 24 of this report.

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 nature of this assignment, we did not perform an analysis of the potential range of such measurements.

**SECTION 2: COMMENTS AND CERTIFICATION**

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**Certification (continued)**

This report has been prepared exclusively for the Retirement Plan for Contract Employees of Long Beach Public Transportation Company for the purposes stated herein.

To the best of our knowledge, the information supplied in this report is complete and accurate.

We, Nancy Teague Lee and David W. Venuti, are members of the American Academy of Actuaries and meet the Qualifications of the American Academy of Actuaries to render the actuarial opinions contained herein.



A.C.A., M.A.A.A

Nancy Teague Lee  
Consulting Actuary  
Enrolled Actuary No. 17-07500



F.C.A., M.A.A.A

David W. Venuti  
President and Actuary  
Enrolled Actuary No. 17-03959

**SECTION 3**

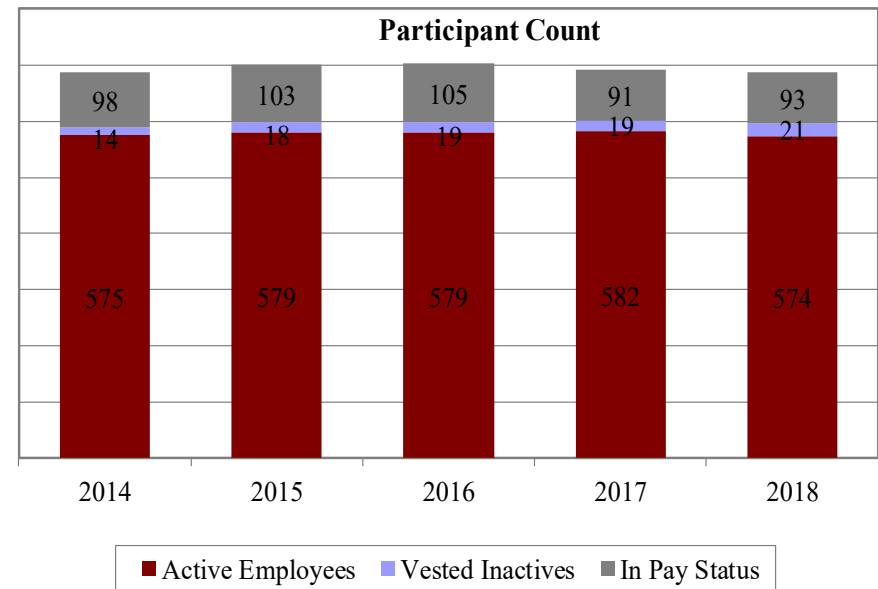
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**Supplemental Information**

**SECTION 3: SUPPLEMENTAL INFORMATION**

**Participant Reconciliation**

Active at June 30, 2017	582
Non-Vested Termination	(3)
Vested Termination	(9)
Retired Monthly	(2)
New Active	51
Lump Sum Distribution	(15)
Return of Employee Contributions	(27)
Transferred to Salaried Plan	(1)
Transferred from Salaried Plan	0
Disabled Retirement	(2)
Died	<u>0</u>
Active at June 30, 2018	574
Vested Inactive at June 30, 2017	19
Vested Terminations	9
Re-Entered Covered Employment	0
Retired Monthly	(2)
Disabled Retirement	0
Died	0
Lump Sum Distribution	<u>(5)</u>
Vested Inactive at June 30, 2018	21
In Pay Status at June 30, 2017	91
New Retiree	4
New Beneficiary	1
Data Correction	0
Died / Expired	(5)
New Occupational Disabled	<u>2</u>
In Pay Status at June 30, 2018	93





RETIREMENT PLAN FOR CONTRACT EMPLOYEES OF  
LONG BEACH PUBLIC TRANSPORTATION COMPANY  
JULY 1, 2018

**SECTION 3: SUPPLEMENTAL INFORMATION**

**Active Participant Data**

Years of Credited Service																						
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		Over 40		Total	
Attained		Avg.		Avg.		Avg.		Avg.		Avg.		Avg.		Avg.		Avg.		Avg.		Avg.		Avg.
Age	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.
Under 25	15	34,980	15	38,487	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	36,733
25 to 29	15	35,137	16	43,889	14	55,838	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	44,689
30 to 34	5	35,094	18	42,789	9	44,132	11	55,758	1	57,025	0	0	0	0	0	0	0	0	0	0	44	45,755
35 to 39	4	38,116	16	41,930	11	55,667	21	54,716	6	46,362	0	0	0	0	0	0	0	0	0	0	58	49,360
40 to 44	6	37,977	12	41,274	7	67,585	15	62,468	22	59,179	7	65,922	0	0	0	0	0	0	0	0	69	56,473
45 to 49	5	36,887	12	42,274	12	59,783	22	62,123	26	64,785	12	57,855	5	60,794	0	0	0	0	0	0	94	58,069
50 to 54	3	33,010	13	42,586	8	61,321	13	61,755	27	63,607	14	55,703	15	66,526	7	63,968	0	0	0	0	100	58,889
55 to 59	2	33,010	7	43,309	13	66,720	10	59,351	16	66,197	14	54,998	8	58,352	5	67,266	5	62,251	0	0	80	59,670
60 to 64	0	0	6	40,390	5	60,943	12	65,642	7	53,667	7	70,100	5	60,681	1	63,016	5	58,628	1	90,231	49	60,223
65 to 69	0	0	0	0	0	0	3	64,802	1	32,203	1	64,775	0	0	0	0	0	0	0	0	5	58,277
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	55	35,582	115	41,933	79	58,790	107	60,229	106	61,377	55	59,291	33	62,790	13	65,163	10	60,439	1	90,231	574	54,441

Average Age: 45.62 years

Average Credited Service: 12.20 years

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Vested Inactive Data**

Accrued Benefit	Number
Under \$100	1
100 to 199	1
200 to 299	4
300 to 399	2
400 to 499	2
500 to 599	0
600 to 699	0
700 to 799	1
800 to 899	3
900 to 999	2
1,000 to 1,099	0
1,100 to 1,199	0
1,200 to 1,299	0
1,300 to 1,399	1
1,400 to 1,499	0
1,500 to 1,599	0
1,600 to 1,699	0
1,700 or more	4
Total	21

Age	Number
Under 30	1
30 to 34	1
35 to 39	3
40 to 44	2
45 to 49	0
50 to 54	6
55 to 59	3
60 to 64	2
65 or over	3
Total	21

Average Age      51.35 years

Average Accrued Benefit      \$939.90

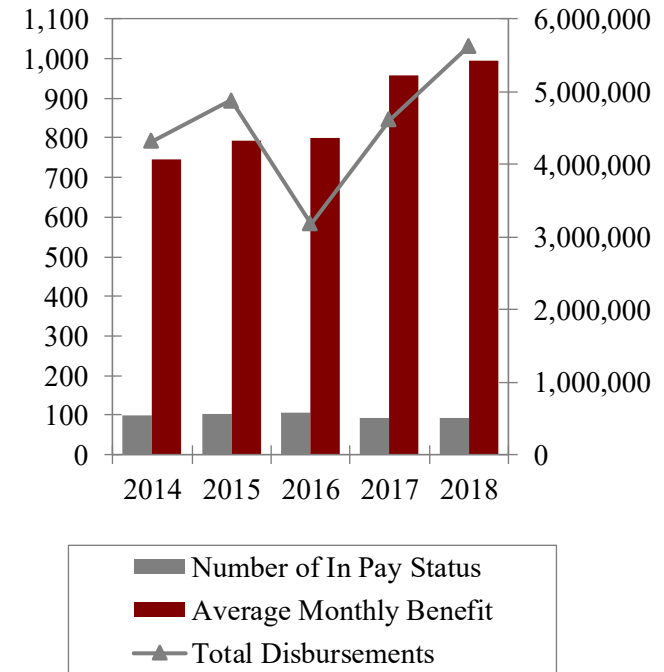
**SECTION 3: SUPPLEMENTAL INFORMATION**

**Retiree Data**

Monthly Benefit <sup>(1)</sup>	Number
Under \$100	0
100 to 199	3
200 to 299	4
300 to 399	5
400 to 499	3
500 to 599	4
600 to 699	14
700 to 799	3
800 to 899	5
900 to 999	4
1,000 to 1,099	2
1,100 to 1,199	4
1,200 to 1,299	3
1,300 to 1,399	4
1,400 to 1,499	3
1,500 to 1,599	2
1,600 to 1,699	3
1,700 or over	10
Total	76

Age <sup>(1)</sup>	Number
Under 55	3
55 to 59	15
60 to 64	14
65 to 69	17
70 to 74	13
75 to 79	5
80 to 84	5
85 to 89	2
90 or over	2
Total	76

Average Age: 67.81 years  
New Retirees: 60.36 years



Average Benefit \$993.82  
New Retirees: \$1,391.56

**d**  
<sup>(1)</sup> Data excludes 17 beneficiaries who are included in the plan's liabilities.

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Asset Information**

Market Value of Assets at July 1, 2017		\$52,742,303
Employer Contributions		\$4,054,711
Employee Contributions		\$2,461,892
Net Investment Income		
Interest	\$354,645	
Dividends	2,000,616	
Unrealized Gain (Loss)	(497,224)	
Realized Gain (Loss)	<u>949,040</u>	
Net Investment Income		\$2,807,077
Benefit Payments		(\$5,626,291)
Direct Administrative Costs		(139,754)
Other Administrative Costs		(240,380)
Asset Transfer to Salaried Plan		<u>(37,663)</u>
Market Value of Assets at June 30, 2018		<b>\$56,021,895</b>

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Present Value of Accumulated Plan Benefits<sup>(1)</sup>**

**Reconciliation of Actuarial Present Value  
of Accumulated Plan Benefits**

Actuarial Present Value of Accumulated Plan Benefits at June 30, 2017	\$59,739,638
Benefits Accumulated and Actuarial Experience During the Year	\$6,839,378
Increase for interest	3,703,101
Benefits Paid	(5,626,291)
Change in assumptions	<u>0</u>
Net Increase/(Decrease)	<u>4,916,188</u>
Actuarial Present Value of Accumulated Plan Benefits at June 30, 2018	\$64,655,826

**Actuarial Present Value of Vested and  
Non-Vested Accumulated Plan Benefits**

Vested Benefits	
Participants Currently Receiving Benefits	\$10,108,906
Other participants	<u>52,728,954</u>
Vested Benefits	\$62,837,860
Non-Vested Benefits	<u>1,817,966</u>
Actuarial Present Value of Accumulated Plan Benefits at June 30, 2018	\$64,655,826

<sup>(1)</sup> Value of benefits earned by current participants based on pay and service through the valuation date. Approximation of amount due to participants if the plan terminated as of July 1, 2018 and settled all obligations at 6.50%.

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Summary of Plan Provisions**

**Plan Type:** Public Pension Plan.

**Plan Effective Date:** June 30, 1979.

**Plan Year:** July 1 – June 30.

**Participation:** All full-time employees are eligible on their date of employment.

**Average Monthly Final Earnings:** 60 month average of compensation out of the last 10 calendar years of employment.

**Adjusted Monthly Final Earnings (AMFE):** Average Monthly Final Earnings less \$500 if average is at least \$500. AMFE is \$0 if Average Monthly Final Earnings is less than \$500.

**Normal Retirement Age:** Age 64 with 10 Years of Service.

**Monthly Normal Retirement Benefit:** Years of Service (not to exceed 40 years) times the sum of 1.23% of the first \$500 of Average Monthly Final Earnings plus 1.70% of AMFE. Participants retiring on or after age 54 with 10 Years of Service are entitled to a 15% increase in their benefit.

**Years of Service:** One year of service is granted for each 12 months of consecutive service in which an employee works at least one hour in each month.

**Normal Form of Benefit:** Lifetime payments to retiree.

**Early Retirement Age:** Age 54 with 10 Years of Service.

**Early Retirement Benefit:** Accrued benefit reduced 5.0% for each year preceding age 64 (prorated for partial years). The benefit is increased 15% for employees eligible for retirement at termination.

**Late Retirement Benefit:** A participant retiring after Normal Retirement Age is entitled to a benefit based on years of service as of retirement and final average pay based on salary as of the Normal Retirement Age.

**Vesting:** 5 Years of Service.

**Break-in-Service:** 12 consecutive month period during which an employee does not work at least one hour.

**Permanent Break-in-Service:** 5 consecutive 1-year breaks-in-service.

**Disability Retirement Eligibility:** Disabled while an active employee with 10 Years of Service.

**Monthly Occupational Disability Benefit:** Years of Service (at least 5 years) at time of disability times the sum of 1.16% of the first \$500 of Average Monthly Final Earnings plus 1.60% of AMFE. Benefit is payable immediately.

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Summary of Plan Provisions (continued)**

**Monthly Total and Permanent Disability Benefit:** Monthly Normal Retirement Benefit based on AMFE and Years of Service as of date of disability. Benefit is payable immediately without reduction for early commencement.

**Monthly Pre-Retirement Death Eligibility:** Vested or eligible for Early or Normal Retirement and married.

**Pre-Retirement Death Benefit:** Surviving spouse will receive an annuity equal to 50% of the amount the participant would have received under the 50% joint and survivor form of payment if he/she had terminated on the day before death and survived to early retirement age.

**Post-Retirement Death Benefit:** Survivor benefit, if any, based on the form of payment in effect at time of death. In addition, the beneficiary is entitled to receive the excess of total employee contributions over the total amount of payments received by the retiree.

**Optional Forms of Benefit Payment:** 50%, 75%, or 100% joint and survivor annuity, period certain installment payments, annuity purchase or lump sum. The lump sum option is not available for participants who were hired on or after July 1, 2012.

**Return of Employee Contributions:** Non-vested participants are entitled to a return of their contributions upon termination from the plan.

**Plan Provisions Excluded from Measurement:** None.

**Changes Since Prior Valuation:** None.

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Actuarial Method and Assumptions**

**Actuarial Cost Method:** Frozen Initial Liability.

**Actuarial Assumptions:**

**Interest Discount Rate:** 6.50% compounded annually.

**Investment Yield:** 6.50% compounded annually.

**Administrative Expenses:** Actual administrative expenses for the prior year are added to normal cost as of the beginning of the year. For 2018, the administrative expense assumption is \$380,134.

**Employee Contribution  
Interest Credit:** 5.00% compounded annually.

**Salary Increases:** 3.00% per year.

**Lump Sums:** 4.50% interest; 2018 Applicable Mortality Table

**Mortality:** For funding:

Healthy: IRS 2007 Current Liability Combined table.

Disabled: IRS 2007 Current Liability Combined table.



**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Actuarial Method and Assumptions (continued)**

**Termination Before Retirement:** Sample rates are shown below:

<u>Age</u>	<u>Turnover Rate</u>
20	7.94%
25	7.72
30	7.22
35	6.28
40	5.15
45	3.98
50	2.56
55	0.94

**Disability:** Sample rates are shown below:

<u>Age</u>	<u>Disability Rate</u>
20	0.05%
25	0.09
30	0.13
35	0.17
40	0.21
45	0.84
50	1.47
55	2.63
60	3.79

**Retirement:** All active participants, inactive vested participants and future inactive vested participants are assumed to retire at age 64 after completion of 10 years of service.

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Actuarial Method and Assumptions (continued)**

**Marital Status:** 80% of non-retired participants are married. Female spouse is assumed to be three years younger than male spouse.

**Form of Payment:** 80% of active participants hired prior to July 1, 2012 are assumed to elect the lump sum option. The remaining 20% of active participants hired prior to July 1, 2012 and all actives hired on or after July 1, 2012 are assumed to elect the single life annuity. Vested Terminated participants are assumed to elect the single life annuity.

**Unknown Data:** Participants with unreported data, such as missing birthdates, are assumed to have the same characteristics as similar participants. If not specified, participants are assumed to be male.

**Asset Valuation Method:** Market value.

**Changes Since Prior Valuation:** None.

**SECTION 3: SUPPLEMENTAL INFORMATION**

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**Six-Year Plan Overview**

	<b>Plan Year Beginning July 1</b>					
	<b><u>2018</u></b>	<b><u>2017</u></b>	<b><u>2016</u></b>	<b><u>2015</u></b>	<b><u>2014</u></b>	<b><u>2013</u></b>
Funding Policy Contribution						
Percentage of Covered Compensation	21.816%	21.074%	19.950%	17.578%	15.950%	17.569%
Annual Amount Paid Monthly	\$6,783,538	\$6,416,647	\$5,942,475	\$4,451,105	\$4,349,099	\$4,338,432
Covered Compensation	31,093,861	30,447,872	29,787,114	25,321,405	27,266,377	24,693,232
Market Value of Assets	56,021,895	52,742,303	47,050,624	45,790,263	46,310,416	41,325,305
Present Value of Vested Benefits	62,837,860	57,905,585	52,907,531	46,801,598	46,917,684	42,198,031
Present Value of Accumulated Benefits	64,655,826	59,739,638	54,834,795	48,486,224	45,352,425	43,804,109
Number of Active Participants	574	582	579	579	575	574
Number of Vested Terminees	21	19	19	18	14	19
Number of Retirees	93	91	105	103	98	101

Amounts are based on total employer plus employee contributions.

**SECTION 3: SUPPLEMENTAL INFORMATION**

**Determination of 2018 Total Normal Cost  
Estimated Impact of Interest Rate Assumption Change<sup>(1)</sup>**

	<b>Current 6.50% Interest</b>	<b>6.00% Interest</b>	<b>5.50% Interest</b>	<b>5.00% Interest</b>
1 Present Value of Future Benefits				
A. Active Participants	100,721,277	107,617,759	115,327,920	123,981,652
B. Terminated participants with Deferred Vested Benefits	1,688,656	1,795,239	1,912,482	2,041,787
C. In Pay Status	<u>10,108,906</u>	<u>10,519,028</u>	<u>10,960,532</u>	<u>11,436,700</u>
D. Total	112,518,839	119,932,026	128,200,934	137,460,139
2 Plan Assets	56,021,895	56,021,895	56,021,895	56,021,895
3 Frozen initial accrued liability remaining unfunded	13,956,549	18,006,650	22,350,685	27,014,136
4 Present value of future normal costs = (1) - (2) - (3)	42,540,395	45,903,481	49,828,354	54,424,108
5 Present value of future salaries	258,250,674	266,175,370	274,617,725	283,625,621
6 Normal cost accrual rate = (4) / (5)	16.47%	17.25%	18.14%	19.19%
7 Valuation compensation	31,093,861	31,093,861	31,093,861	31,093,861
8 Preliminary normal cost = (6) x (7)	5,121,159	5,363,691	5,640,426	5,966,912
9 Administrative Expenses	380,134	380,134	380,134	380,134
10 Total normal cost = (8) + (9)	5,501,293	5,743,825	6,020,560	6,347,046
11 Total normal cost accrual rate = (10) / (7)	17.69%	18.47%	19.36%	20.41%

<sup>(1)</sup> 2018 cost determined based on 7/1/2018 assumption changes

**SECTION 3: SUPPLEMENTAL INFORMATION**

**Determination of 2018 Contribution Under Funding Policy  
Estimated Impact of Interest Rate Assumption Change With 30 Year Amortization**

	<b>Current</b>			
	<b><u>6.50% Interest</u></b>	<b><u>6.00% Interest</u></b>	<b><u>5.50% Interest</u></b>	<b><u>5.00% Interest</u></b>
1 Total normal cost for Plan year	5,501,293	5,743,825	6,020,560	6,347,046
2 Amortization of unfunded accrued liability:				
A. Initial unfunded remaining	2,177,685	2,177,685	2,177,685	2,177,685
B. Amortization period remaining (in years)	19	19	19	19
C. Amortization amount	190,483	184,119	177,827	171,612
D. Assumption changes at July 1, 2013	5,156,590	5,156,590	5,156,590	5,156,590
E. Amortization period	25	25	25	25
F. Amortization amount	396,944	380,550	364,380	348,450
G. Assumption change at July 1, 2016	3,054,088	3,054,088	3,054,088	3,054,088
H. Amortization period	28	28	28	28
I. Amortization amount	224,979	214,917	204,998	195,236
J. Assumption change at July 1, 2017	3,568,186	3,568,186	3,568,186	3,568,186
K. Amortization period	29	29	29	29
L. Amortization amount	259,571	247,685	235,969	224,441
M. Assumption change at July 1, 2018	N/A	4,050,101	8,394,136	13,057,587
N. Amortization period	N/A	30	30	30
O. Amortization amount	N/A	277,581	547,452	808,966
3 Interest required for monthly contributions	210,268	208,380	204,878	199,925
4 Total annual contribution payable monthly = (1) + (2C) + (2F) + (2I) + (2L) + (2O) + (3)	6,783,538	6,979,476	7,208,612	7,486,710
A. Employer Non-PEPRA Employee Contribution	3,088,638	3,161,245	3,245,988	3,348,992
B. Employer PEPRA Employee Contribution	1,052,967	1,063,444	1,082,543	1,114,376
C. Non-PEPRA Employee Contribution	1,936,785	2,009,345	2,094,345	2,197,311
D. PEPRA Employee Contribution	705,148	745,442	785,736	826,031
5 Contribution as a percentage of payroll	21.816%	22.446%	23.183%	24.078%
A. Employer Non-PEPRA Employee Contribution	13.408%	13.723%	14.091%	14.539%
B. Employer PEPRA Employee Contribution	13.066%	13.196%	13.433%	13.828%
C. Non-PEPRA Employee Contribution	8.408%	8.723%	9.092%	9.539%
D. PEPRA Employee Contribution	8.750%	9.250%	9.750%	10.250%

**SECTION 3: SUPPLEMENTAL INFORMATION**

**Determination of 2018 Contribution Under Funding Policy  
Estimated Impact of Interest Rate Assumption Change With 20 Year Amortization<sup>(1)</sup>**

	<b>Current</b>			
	<b><u>6.50% Interest</u></b>	<b><u>6.00% Interest</u></b>	<b><u>5.50% Interest</u></b>	<b><u>5.00% Interest</u></b>
1 Total normal cost for Plan year	5,501,293	5,743,825	6,020,560	6,347,046
2 Amortization of unfunded accrued liability:				
A. Initial unfunded remaining	2,177,685	2,177,685	2,177,685	2,177,685
B. Amortization period remaining (in years)	9	9	9	9
C. Amortization amount	307,203	302,045	296,907	291,789
D. Assumption changes at July 1, 2013	5,156,590	5,156,590	5,156,590	5,156,590
E. Amortization period	15	15	15	15
F. Amortization amount	514,946	500,884	486,946	473,141
G. Assumption change at July 1, 2016	3,054,088	3,054,088	3,054,088	3,054,088
H. Amortization period	18	18	18	18
I. Amortization amount	274,881	266,099	257,412	248,824
J. Assumption change at July 1, 2017	3,568,186	3,568,186	3,568,186	3,568,186
K. Amortization period	19	19	19	19
L. Amortization amount	312,110	301,683	291,374	281,190
M. Assumption change at July 1, 2018	N/A	4,050,101	8,394,136	13,057,587
N. Amortization period	N/A	20	20	20
O. Amortization amount	N/A	333,119	665,797	997,881
3 Interest required for monthly contributions	221,054	220,175	217,571	213,362
4 Total annual contribution payable monthly = (1) + (2C) + (2F) + (2I) + (2L) + (2O) + (3)	7,131,487	7,667,830	8,236,567	8,853,233
A. Employer Non-PEPRA Employee Contribution	3,217,412	3,416,179	3,626,748	3,855,020
B. Employer PEPRA Employee Contribution	1,125,578	1,195,125	1,268,783	1,348,727
C. Non-PEPRA Employee Contribution	2,065,781	2,264,343	2,475,114	2,703,621
D. PEPRA Employee Contribution	722,716	792,183	865,922	945,865
5 Contribution as a percentage of payroll	22.935%	24.660%	26.489%	28.473%
A. Employer Non-PEPRA Employee Contribution	13.967%	14.830%	15.744%	16.736%
B. Employer PEPRA Employee Contribution	13.967%	14.830%	15.744%	16.736%
C. Non-PEPRA Employee Contribution	8.968%	9.830%	10.745%	11.737%
D. PEPRA Employee Contribution	8.968%	9.830%	10.745%	11.737%

**SECTION 3: SUPPLEMENTAL INFORMATION**

**Determination of 2018 Contribution Under Funding Policy  
Estimated Impact of Interest Rate Assumption Change With 10 Year Amortization**

	<b>Current</b>			
	<b><u>6.50% Interest</u></b>	<b><u>6.00% Interest</u></b>	<b><u>5.50% Interest</u></b>	<b><u>5.00% Interest</u></b>
1 Total normal cost for Plan year	5,501,293	5,743,825	6,020,560	6,347,046
2 Amortization of unfunded accrued liability:				
A. Initial unfunded remaining	2,177,685	2,177,685	2,177,685	2,177,685
B. Amortization period remaining (in years)	0	0	0	0
C. Amortization amount	0	0	0	0
D. Assumption changes at July 1, 2013	5,156,590	5,156,590	5,156,590	5,156,590
E. Amortization period	5	5	5	5
F. Amortization amount	1,165,121	1,154,864	1,144,599	1,134,326
G. Assumption change at July 1, 2016	3,054,088	3,054,088	3,054,088	3,054,088
H. Amortization period	8	8	8	8
I. Amortization amount	470,981	463,979	456,996	450,032
J. Assumption change at July 1, 2017	3,568,186	3,568,186	3,568,186	3,568,186
K. Amortization period	9	9	9	9
L. Amortization amount	503,359	494,908	486,489	478,103
M. Assumption change at July 1, 2018	N/A	4,050,101	8,394,136	13,057,587
N. Amortization period	N/A	10	10	10
O. Amortization amount	N/A	519,131	1,055,575	1,610,493
3 Interest required for monthly contributions	244,415	247,641	248,643	247,445
4 Total annual contribution payable monthly = (1) + (2C) + (2F) + (2I) + (2L) + (2O) + (3)	7,885,169	8,624,348	9,412,862	10,267,445
A. Employer Non-PEPRA Employee Contribution	3,496,563	3,770,528	4,062,586	4,378,900
B. Employer PEPRA Employee Contribution	1,223,251	1,319,070	1,421,256	1,531,985
C. Non-PEPRA Employee Contribution	2,344,966	2,618,622	2,910,706	3,227,437
D. PEPRA Employee Contribution	820,389	916,128	1,018,314	1,129,123
5 Contribution as a percentage of payroll	25.359%	27.736%	30.272%	33.021%
A. Employer Non-PEPRA Employee Contribution	15.179%	16.368%	17.636%	19.010%
B. Employer PEPRA Employee Contribution	15.179%	16.368%	17.636%	19.010%
C. Non-PEPRA Employee Contribution	10.180%	11.368%	12.636%	14.011%
D. PEPRA Employee Contribution	10.180%	11.368%	12.636%	14.011%