



BOARD OF PUBLIC WORKS, CITY OF NASHUA, NH CONTRIBUTORY
RETIREMENT SYSTEM

GASB 67 AND GASB 68 DISCLOSURE

REPORTING AS OF JUNE 30, 2020





Table of Contents

Certification	1
Money-Weighted Rate of Return	2
Schedule of Investment Returns	3
Contributions Compared to ADEC and Payroll	4
Discount Rate Calculation.....	5
Target Allocation and Expected Rate of Return	6
Schedule of Changes in Net Pension Liability and Related Ratios.....	7
Schedule of Net Pension Liability	9
Disclosure Overview as of June 30, 2020	10
Changes in the Net Pension Liability	11
Components of the Pension Expense for the Fiscal Year Ended June 30, 2020.....	12
Pension Expense and Deferred Outflows and Inflows of Resources Related to Pensions.....	17
Sensitivity of the Net Pension Liability to Changes in the Discount Rate.....	21
Participant Breakdown as of July 1, 2018.....	21
Description of Significant Changes Prior to Year End.....	22
DROP Balances.....	22
Valuation Date and Roll Forward Process	22
Funding Policy.....	22
Assumption Selection	22
Description of Actuarial Methods	23
Description of Actuarial Assumptions	24
Summary of Plan Provisions	27

All the items listed below are required by GASB 67 and GASB 68 but are not included in this report:

- Statement of Changes in Fiduciary Net Position
- Statement of Fiduciary Net Position
- Investments That Represent 5% or More of the Plan’s Fiduciary Net Position
- Investment Policy
- Pension Board Composition
- Authority to Amend Plan

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Certification

This report presents the results of the June 30, 2020 GASB 67 and GASB 68 Disclosure for the Board of Public Works, City of Nashua, NH Contributory Retirement System (the Plan). The report is intended to satisfy the requirements of both GASB 67 and GASB 68. This report may not be appropriate for any other purpose.

The report has been performed in accordance with generally accepted actuarial principles and practices. It is intended to comply with the Actuarial Standards Board Standards of Practice.

I certify that the actuarial assumptions and methods that were selected by me and represent my best estimate of anticipated actuarial experience under the Plan.

In preparing this disclosure report, I have relied on employee data provided by the Plan Sponsor, and on asset and contribution information provided by the Plan Sponsor or Trustee. I have audited neither the employee data nor the financial information, although I have reviewed them for reasonableness.

The results in this disclosure report are based on the Plan as summarized in the Summary of Plan Provisions section of this report and the actuarial methods and assumptions detailed in the Description of Actuarial Methods and Procedures and Description of Actuarial Assumptions sections of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, 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 this report, an analysis of the potential range of such future measurements has not been performed.

I have no relationship with the employer or the Plan that would impair, or appear to impair, my objectivity in performing the work presented in this report. I am a member of the American Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.

Steve A. Lemanski, FSA, FCA, MAAA
Enrolled Actuary No. 20-05506

August 12, 2020



Money-Weighted Rate of Return June 30, 2020

Beg. Value 43,072,450 **Ending Value** 43,638,120

	Date	Employer Contributions	Employee Contributions	Benefit Payments	Admin. Expenses	Period Invested	Period Weight	Net External Cash Flows w/ Interest
Beg. of Yr.	7/1/2019					12	1.000	44,957,601
July	7/31/2019	64,823	64,823	(237,335)	(1,102)	11	0.917	(113,148)
August	8/31/2019	79,476	79,476	(299,432)	-	10	0.833	(145,585)
September	9/30/2019	64,304	64,304	(237,335)	-	9	0.750	(112,277)
October	10/31/2019	82,688	82,688	(236,288)	-	8	0.667	(72,966)
November	11/30/2019	64,438	64,438	(247,171)	-	7	0.583	(121,288)
December	12/31/2019	65,137	65,137	(255,703)	-	6	0.500	(128,144)
January	1/31/2020	83,506	83,506	(243,888)	-	5	0.417	(78,260)
February	2/29/2020	67,414	67,414	(243,888)	-	4	0.333	(110,628)
March	3/31/2020	66,514	66,514	(243,888)	-	3	0.250	(112,054)
April	4/30/2020	82,017	82,017	(253,952)	-	2	0.167	(90,562)
May	5/31/2020	66,199	66,199	(245,733)	-	1	0.083	(113,740)
June	6/30/2020	66,477	66,477	(253,783)	-	0	0.000	(120,829)
End of Yr.	6/30/2020	852,993	852,993	(2,998,396)	(1,102)			43,638,120

Money-Weighted Rate of Return	4.38%
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Schedule of Investment Returns Last 7 Fiscal Years

Year Ended June 30:	Annual Money-Weighted Rate of Return, Net of Investment Expense
2014	10.13%
2015	2.99%
2016	0.31%
2017	10.97%
2018	8.47%
2019	7.02%
2020	4.38%



Contributions Compared to ADEC and Payroll Schedule of Contributions Last 7 Fiscal Years

	2020	2019	2018	2017	2016
Actuarially determined employer contribution (ADEC)	\$ 852,993	\$ 832,686	\$ 823,768	\$ 795,263	\$ 794,440
Contributions in relation to the ADEC	852,993	832,686	823,768	795,263	794,440
Contribution deficiency (excess)	<u>\$ (0)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered payroll	\$ 9,630,921	\$ 9,350,409	\$ 9,033,764	\$ 8,770,645	\$ 8,701,590
Contributions as a % of covered payroll	8.86%	8.91%	9.12%	9.07%	9.13%

	2015	2014
Actuarially determined employer contribution (ADEC)	\$ 772,343	\$ 743,527
Contributions in relation to the ADEC	772,343	743,527
Contribution deficiency (excess)	<u>\$ -</u>	<u>\$ -</u>
Covered payroll	\$ 8,448,146	\$ 7,937,797
Contributions as a % of covered payroll	9.14%	9.37%



Discount Rate Calculation

The long-term expected rate of return on investments may be used to discount liabilities to the extent that the plan's fiduciary net position and future contributions are projected to be sufficient to cover expected benefit payments and administrative expenses for current plan members. Projections of the plan's fiduciary net position incorporate all cash flows for contributions from the employer and employee and administrative expenses. Professional judgment should be applied to the projections of contributions in circumstances where (a) contribution amounts are established by statute or contract or (b) a formal written policy exists. Consideration should also be given to the most recent five-year contribution history as key indicators of future contributions. It should not include cash flows for future plan members.

If the amount of the plan's fiduciary net position is projected to be greater than or equal to the benefit payments and administrative expenses made in that period, the actuarial present value of payments should be discounted using the long-term expected rate of return on those investments. A 20-year, high quality (AA/Aa or higher), tax-exempt municipal bond yield or index rate must be used to discount benefit payments for periods where the fiduciary net position is not projected to cover expected benefit payments and administrative expenses.

Plans that are projected to have sufficient fiduciary net position indefinitely will use the long-term expected return on investments to determine liabilities but will have to substantiate their projected solvency.

GASB permits alternative methods to evaluate the sufficiency of the plan's net fiduciary position. Based on the plan's current net pension liability and current contribution policy, the plan's projected fiduciary net position will be sufficient to cover projected benefit payments and administrative expenses indefinitely. Therefore, since the fund is not projected to run out of money, we have used the 7.00% interest rate assumption to discount plan liabilities.



Target Allocation and Expected Rate of Return Actuarial Valuation as of July 1, 2018

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*	Weighting
Intermediate Bond	40.00%	2.00%	0.80%
US Large Cap Equity	30.00%	6.50%	1.95%
US Small Cap Equity	10.00%	8.00%	0.80%
International Equity	20.00%	6.20%	1.24%
	100.00%		4.79%
Long-Term Inflation Expectation			2.60%
Long-Term Expected Nominal Return			7.39%

**Long-Term Real Returns are provided by RBC Wealth Management. The returns are arithmetic means.*

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 are developed. Best estimates of the real rates of return for each major asset class are included in the pension plan's target asset allocation.

The information above is based on arithmetic means. The investment return assumption was selected using the long term asset allocation shown above. An expected rate of return of 7.00% was used.

The July 1, 2018 Actuarial Valuation directly calculated the July 1, 2018 Total Pension Liability (TPL). The July 1, 2018 TPL was increased by service cost and interest and decreased by benefit payments to estimate the TPL as of June 30, 2020.



Schedule of Changes in Net Pension Liability and Related Ratios Last 7 Fiscal Years

	2020	2019	2018	2017	2016
Total pension liability					
Service cost	\$ 1,159,613	\$ 1,159,714	\$ 1,125,936	\$ 1,102,415	\$ 1,070,306
Interest	3,438,385	3,413,621	3,302,509	3,317,923	3,201,701
Changes of benefit terms	-	-	-	-	-
Differences between expected and actual experience	-	(794,224)	-	(262,266)	-
Changes of assumptions	-	(466,050)	-	24,291	-
Benefit payments, including refunds of member contributions	(2,998,396)	(2,921,280)	(2,830,049)	(2,752,954)	(2,650,932)
Net change in total pension liability	1,599,602	391,781	1,598,396	1,429,409	1,621,075
Total pension liability - beginning	49,434,021	49,042,240	47,443,844	46,014,435	44,393,360
Total pension liability - ending: (a)	<u>\$ 51,033,623</u>	<u>\$ 49,434,021</u>	<u>\$ 49,042,240</u>	<u>\$ 47,443,844</u>	<u>\$ 46,014,435</u>
Plan fiduciary net position					
Contributions - employer	\$ 852,993	\$ 832,686	\$ 823,768	\$ 795,263	\$ 794,440
Contributions - member	852,993	832,686	823,768	795,263	794,440
Net investment income	1,859,182	2,871,652	3,290,484	3,956,902	115,127
Benefit payments, including refunds of member contributions	(2,998,396)	(2,921,280)	(2,830,049)	(2,752,954)	(2,650,932)
Administrative expenses	(1,102)	(2,580)	(2,569)	(2,905)	(2,903)
Other	-	-	-	-	-
Net change in plan fiduciary net position	565,670	1,613,164	2,105,402	2,791,569	(949,828)
Plan fiduciary net position - beginning	43,072,450	41,459,286	39,353,884	36,562,315	37,512,143
Plan fiduciary net position - ending: (b)	<u>43,638,120</u>	<u>43,072,450</u>	<u>41,459,286</u>	<u>39,353,884</u>	<u>36,562,315</u>
Net pension liability - ending: (a) - (b)	<u>\$ 7,395,503</u>	<u>\$ 6,361,571</u>	<u>\$ 7,582,954</u>	<u>\$ 8,089,960</u>	<u>\$ 9,452,120</u>
Plan fiduciary net position as a % of total pension liability	85.51%	87.13%	84.54%	82.95%	79.46%
Covered payroll	\$ 9,630,921	\$ 9,350,409	\$ 9,033,764	\$ 8,770,645	\$ 8,701,590
Net pension liability as a % of covered payroll	76.79%	68.04%	83.94%	92.24%	108.63%



	2015	2014
Total pension liability		
Service cost	\$ 833,083	\$ 801,041
Interest	3,165,454	3,056,600
Changes of benefit terms	-	-
Differences between expected and actual experience	84,012	-
Changes of assumptions	(1,231,934)	-
Benefit payments, including refunds of member contributions	(2,526,991)	(2,254,280)
Net change in total pension liability	323,624	1,603,361
Total pension liability - beginning	44,069,736	42,466,375
Total pension liability - ending: (a)	<u>\$ 44,393,360</u>	<u>\$ 44,069,736</u>
Plan fiduciary net position		
Contributions - employer	\$ 772,343	\$ 743,527
Contributions - member	772,343	742,704
Net investment income	1,104,870	3,478,296
Benefit payments, including refunds of member contributions	(2,526,991)	(2,254,280)
Administrative expenses	(2,359)	(14,809)
Other	-	-
Net change in plan fiduciary net position	120,206	2,695,438
Plan fiduciary net position - beginning	37,391,937	34,696,499
Plan fiduciary net position - ending: (b)	<u>37,512,143</u>	<u>37,391,937</u>
Net pension liability - ending: (a) - (b)	<u>\$ 6,881,217</u>	<u>\$ 6,677,799</u>
Plan fiduciary net position as a % of total pension liability	84.50%	84.85%
Covered payroll	\$ 8,448,146	\$ 7,937,797
Net pension liability as a % of covered payroll	81.45%	84.13%



Schedule of Net Pension Liability Last 8 Fiscal Years

	2020	2019	2018	2017	2016
Total pension liability	\$ 51,033,623	\$ 49,434,021	\$ 49,042,240	\$ 47,443,844	\$ 46,014,435
Plan fiduciary net position	43,638,120	43,072,450	41,459,286	39,353,884	36,562,315
Net pension liability (asset)	\$ 7,395,503	\$ 6,361,571	\$ 7,582,954	\$ 8,089,960	\$ 9,452,120
Plan fiduciary net position as a % of total pension liability	85.51%	87.13%	84.54%	82.95%	79.46%
Covered payroll	\$ 9,630,921	\$ 9,350,409	\$ 9,033,764	\$ 8,770,645	\$ 8,701,590
Net pension liability as a % of covered payroll	76.79%	68.04%	83.94%	92.24%	108.63%

	2015	2014	2013
Total pension liability	\$ 44,393,360	\$ 44,069,736	\$ 42,466,375
Plan fiduciary net position	37,512,143	37,391,937	34,696,499
Net pension liability (asset)	\$ 6,881,217	\$ 6,677,799	\$ 7,769,876
Plan fiduciary net position as a % of total pension liability	84.50%	84.85%	81.70%
Covered payroll	\$ 8,448,146	\$ 7,937,797	\$ 7,839,056
Net pension liability as a % of covered payroll	81.45%	84.13%	99.12%



Disclosure Overview as of June 30, 2020

	Plan's Funded Status			Deferred Outflows/(Inflows) of Resources			Recognized in Net Pension Liability	Recognized in Total Pension Expense
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability	Experience (Gains)/ Losses	Assumption Changes	Investment (Gains)/ Losses		
Balances -- prior year disclosure	(49,434,021)	43,072,450	(6,361,571)	(811,142)	(810,350)	(381,875)	(6,361,571)	
Changes in net pension liability:								
Service cost	(1,159,613)		(1,159,613)					1,159,613
Interest	(3,438,385)		(3,438,385)					3,438,385
Net investment income		1,859,182	1,859,182					(1,859,182)
Contributions - employer		852,993	852,993				852,993	
Contributions - member		852,993	852,993					(852,993)
Benefit payments, including refunds of member contributions	2,998,396	(2,998,396)	-					
Administrative expense		(1,102)	(1,102)					1,102
Other		-	-					-
Recognized in total pension expense								
Differences between expected and actual experience				132,700			(132,700)	(132,700)
Changes of assumptions					221,703		(221,703)	(221,703)
Differences between projected and actual earnings on pension plan						(348,205)	348,205	348,205
Deferred outflows/inflows of resources								
Differences between expected and actual experience	-		-	-			-	
Changes of assumptions	-		-				-	
Differences between projected and actual earnings on pension plan						1,111,383	(1,111,383)	(1,111,383)
Total pension expense							(769,344)	769,344
Balances -- end of year	(51,033,623)	43,638,120	(7,395,503)	(678,442)	(588,647)	381,303	(7,395,503)	



Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances as of June 30, 2019	\$ 49,434,021	\$ 43,072,450	\$ 6,361,571
Changes for the year:			
Service cost	1,159,613		1,159,613
Interest	3,438,385		3,438,385
Differences between expected and actual experience	-		-
Contributions - employer		852,993	(852,993)
Contributions - member		852,993	(852,993)
Net investment income		1,859,182	(1,859,182)
Benefit payments, including refunds of member contributions	(2,998,396)	(2,998,396)	-
Administrative expense		(1,102)	1,102
Other		-	-
Net changes	<u>1,599,602</u>	<u>565,670</u>	<u>1,033,932</u>
Balances at June 30, 2020	<u>\$ 51,033,623</u>	<u>\$ 43,638,120</u>	<u>\$ 7,395,503</u>



Components of the Pension Expense for the Fiscal Year Ended June 30, 2020

Description	Amount
Service cost	\$ 1,159,613
Interest on the total pension liability	3,438,385
Differences between expected and actual experience	(132,700)
Changes of assumptions	(221,703)
Member contributions	(852,993)
Projected earnings on pension plan investments	(2,970,565)
Differences between projected and actual earnings on plan investments	348,205
Pension plan administrative expense	1,102
Other changes in fiduciary net position	-
Total pension expense	\$ 769,344



Increase (Decrease) in Pension Expense from the Recognition of the Effects of Differences Between Expected and Actual Experience

Year	Differences between Expected and Actual Experience	Recognition Period (Years)									
			2020	2021	2022	2023	2024	2025	2026	2027	
2015	\$ 84,012	7.6	\$ 11,054	\$ 11,054	\$ 6,634						
2016	-	7.6	-	-	-	\$ -					
2017	(262,266)	7.2	(36,426)	(36,426)	(36,426)	(36,426)	\$ (7,284)				
2018	-	7.2	-	-	-	-	-	\$ -			
2019	(794,224)	7.4	(107,328)	(107,328)	(107,328)	(107,328)	(107,328)	(107,328)	\$ (42,928)		
2020	-	7.4	-	-	-	-	-	-	-	-	\$ -
Net increase (decrease) in pension expense			<u>\$ (132,700)</u>	<u>\$ (132,700)</u>	<u>\$ (137,120)</u>	<u>\$ (143,754)</u>	<u>\$ (114,612)</u>	<u>\$ (107,328)</u>	<u>\$ (42,928)</u>	<u>\$ -</u>	



Increase (Decrease) in Pension Expense from the Recognition of the Effects of Changes of Assumptions

Year	Changes of Assumptions	Recognition Period (Years)	2020	2021	2022	2023	2024	2025	2026	2027
2015	\$ (1,231,934)	7.6	\$ (162,097)	\$ (162,097)	\$ (97,255)					
2016	-	7.6	-	-	-	\$ -				
2017	24,291	7.2	3,374	3,374	3,374	3,374	\$ 673			
2018	-	7.2	-	-	-	-	-	\$ -		
2019	(466,050)	7.4	(62,980)	(62,980)	(62,980)	(62,980)	(62,980)	(62,980)	\$ (25,190)	
2020	-	7.4	-	-	-	-	-	-	-	\$ -
Net increase (decrease) in pension expense			<u>\$ (221,703)</u>	<u>\$ (221,703)</u>	<u>\$ (156,861)</u>	<u>\$ (59,606)</u>	<u>\$ (62,307)</u>	<u>\$ (62,980)</u>	<u>\$ (25,190)</u>	<u>\$ -</u>



Increase (Decrease) in Pension Expense from the Recognition of Differences between Projected and Actual Earnings on Pension Plan Investments

Year	Differences between Projected and Actual Earnings on Pension Plan Investments		Recognition Period (Years)				
	Investments	Recognition Period (Years)	2020	2021	2022	2023	2024
2016	\$ 2,566,575	5	\$ 513,315				
2017	(1,347,638)	5	(269,528)	\$ (269,526)			
2018	(576,488)	5	(115,298)	(115,298)	\$ (115,296)		
2019	(12,805)	5	(2,561)	(2,561)	(2,561)	\$ (2,561)	
2020	1,111,383	5	<u>222,277</u>	<u>222,277</u>	<u>222,277</u>	<u>222,277</u>	\$ <u>222,275</u>
Net increase (decrease) in pension expense			<u>\$ 348,205</u>	<u>\$ (165,108)</u>	<u>\$ 104,420</u>	<u>\$ 219,716</u>	<u>\$ 222,275</u>



Interest on the Total Pension Liability Recognized in Expense

	Amount for Period	Portion of Period	Interest Rate	Interest on the Total Pension Liability
Beginning total pension liability	\$ 49,434,021	100%	7.00%	\$ 3,460,381
Service cost	1,159,613	100	7.00	81,173
Benefit payments, including refunds of member contributions	(2,998,396)	50	7.00	<u>(103,169)</u>
Total interest on the pension liability				\$ 3,438,385

Projected Earnings on Pension Plan Investments Recognized in Expense

	Amount for Period	Portion of Period	Projected Rate of Return	Projected Earnings
Beginning plan fiduciary net position	\$ 43,072,450	100%	7.00%	\$ 3,015,072
Contributions - employer	852,993	50	7.00	29,350
Contributions - member	852,993	50	7.00	29,350
Benefit payments, including refunds of member contributions	(2,998,396)	50	7.00	(103,169)
Administrative expense and other	(1,102)	50	7.00	<u>(38)</u>
Total projected earnings				\$ 2,970,565



Pension Expense and Deferred Outflows and Inflows of Resources Related to Pensions

For the fiscal year ended June 30, 2020, the recognized pension expense is \$769,344. As of June 30, 2020, deferred outflows and inflows of resources related to pensions are reported as follows:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 17,688	\$ (696,130)
Changes of assumptions	10,795	(599,442)
Net difference between projected and actual earnings on pension plan investments	381,303	
Total	<u>\$ 409,786</u>	<u>\$ (1,295,572)</u>

Amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in the pension expense as follows:

Year Ended June 30:	
2021	\$ (519,511)
2022	(189,561)
2023	16,356
2024	45,356
2025	(170,308)
Thereafter	(68,118)



Deferred Outflows and Inflows of Resources from Differences between Expected and Actual Experience

Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through June 30, 2020 (c)	Balances at June 30, 2020	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ 84,012		\$ 66,324	\$ 17,688	
2017		\$ (262,266)	(145,704)		\$ (116,562)
2019		(794,224)	(214,656)		(579,568)
				<u>\$ 17,688</u>	<u>\$ (696,130)</u>



Deferred Outflows and Inflows of Resources from Changes of Assumptions

Year	Increases in the Total Pension Liability (a)	Decreases in the Total Pension Liability (b)	Amounts Recognized in Pension Expense through June 30, 2020 (c)	Balances at June 30, 2020	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015		\$ (1,231,934)	\$ (972,582)		\$ (259,352)
2017	\$ 24,291		13,496	\$ 10,795	
2019		(466,050)	(125,960)	<u> </u>	<u>(340,090)</u>
				<u>\$ 10,795</u>	<u>\$ (599,442)</u>



Deferred Outflows and Inflows of Resources from Differences between Projected and Actual Earnings on Pension Plan Investments

Year	Investment Earnings Less Than Projected (a)	Investment Earnings Greater Than Projected (b)	Amounts Recognized in Pension Expense through June 30, 2020 (c)	Balances at June 30, 2020	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2017		\$ (1,347,638)	\$ (1,078,112)		\$ (269,526)
2018		(576,488)	(345,894)		(230,594)
2019		(12,805)	(5,122)		(7,683)
2020	\$ 1,111,383		222,277	\$ 889,106	
				<u>\$ 889,106</u>	<u>\$ (507,803)</u>



Sensitivity of the Net Pension Liability to Changes in the Discount Rate

	Current Discount Rate (7.00%)	1% Decrease (6.00%)	1% Increase (8.00%)
Net pension liability as of June 30, 2020	\$ 7,395,503	\$ 12,756,039	\$ 2,806,116

Participant Breakdown as of July 1, 2018

	Participant Count
Inactive plan members or beneficiaries currently receiving benefits	107
Inactive plan members entitled to but not yet receiving benefits	4
Active plan members	162
Total members	273



Description of Significant Changes Prior to Year End

There were no significant plan changes since the last published valuation.

DROP Balances

Currently, there is no Deferred Retirement Option Plan (DROP). Therefore, the DROP balances are \$0.

Valuation Date and Roll Forward Process

The Plan Sponsor uses the July 1, 2018 Actuarial Valuation to calculate the ADEC for the fiscal year ending 2020.

The July 1, 2018 Actuarial Valuation directly calculated the July 1, 2018 Total Pension Liability (TPL). The July 1, 2018 TPL was increased by service cost and interest and decreased by benefit payments to estimate the TPL as of June 30, 2020. The TPL as of June 30, 2020 was also adjusted to reflect any material plan changes after the valuation, if applicable.

Funding Policy

The Plan Sponsor contributes a fixed 9.15% of covered payroll each year. Based on the July 1, 2018 Actuarial Valuation, this was equivalent to a contribution calculated under the Entry Age Normal Cost Method with a 19-year amortization of unfunded liability.

Assumption Selection

The selections of all assumptions used in determining the total pension liability were made in conformity with Actuarial Standards of Practice issued by the Actuarial Standards Board.

The actuarial assumptions used in the valuation were based on the results of a limited scope experience study for the period July 1, 2005 through June 30, 2014 completed in conjunction with the July 1, 2014 Actuarial Valuation, as well as the results of a limited scope review of the mortality and investment return assumptions completed in conjunction with the July 1, 2016 and July 1, 2018 Actuarial Valuations.



Description of Actuarial Methods

Asset Valuation Method

The Actuarial Value of assets used in the development of plan contribution phases in asset gains and losses. Asset gains and losses are recognized over a five-year period at 20% per year. The Actuarial Value is adjusted, if necessary, so that the Actuarial Value of assets remains within the range of 80% to 120% of the Market Value of assets. This method was first implemented effective July 1, 2006. The method was reset as of July 1, 2013 such that actuarial value equaled market value as of that date. Gains and losses after July 1, 2013 are recognized over a five-year period.

Actuarial Cost Method

Changes in Actuarial Cost Method as of July 1, 2018: None.

Description of Current Actuarial Cost Method:

Basic cost method: Entry Age Actuarial Cost Method (level percentage of salary) as described in Approval 86 of Rev. Proc. 2000-40. This method was first used in the July 1, 2006 valuation.

Under this method, the contribution to the plan is calculated as the sum of the normal cost plus the amortization payment for the unfunded actuarial accrued liability (UAAL). Expected employee contributions are deducted from the total normal cost to determine the employer normal cost.

The total normal cost is the sum of the individual normal costs for all active participants.

A participant's normal cost is the amount, calculated as a level percentage of the participant's pay, that is sufficient to pay for the participant's total expected benefit payments under the plan.

The actuarial accrued liability for active participants is equal to the present value of expected future benefit payments for these participants, less the present value of expected future normal cost payments to be made on their behalf.

The actuarial accrued liability for inactive participants is the present value of their expected future benefit payments under the plan.

The UAAL is equal to the total actuarial accrued liability for the plan less the actuarial value of plan assets. The UAAL is amortized over a period not greater than 30 years such that the contribution will equal the expected employee contributions (9.15% of pay).



Description of Actuarial Assumptions

The following actuarial assumptions were used in the July 1, 2018 actuarial valuation:

Mortality

Non-Disabled: RP-2014 Adjusted to 2006 Blue Collar Mortality Table projected to valuation date with Scale MP-2018.

Disabled: RP-2014 Adjusted to 2006 Blue Collar Mortality Table projected to valuation date with Scale MP-2018, setback 10 years.

Prior: Non-Disabled:RP-2014 Adjusted to 2006 Blue Collar Mortality Table, projected to valuation date with Scale MP-2016.

Disabled:RP-2014 Adjusted to 2006 Blue Collar Mortality Table, projected to valuation date with Scale MP-2016, setback 10 years.

Mortality Improvement

Non-Disabled and Disabled: Projected to date of decrement using Scale MP-2018 (generational mortality).

Prior: Non-Disabled and Disabled:Projected to date of decrement using Scale MP-2016 (generational mortality).

We have selected this mortality assumption because it is based on the latest published pension mortality study released by the Society of Actuaries. The group composition of the Plan is consistent with the collar adjustment selected. The mortality assumption was updated to better reflect actual experience. The change in the mortality assumption decreased liabilities by about 0.9%.

Investment Earnings

7.00% per annum compounded annually, net of investment expenses.

Salary Increases

Inflation of 3% per year plus merit increases shown below:

Age Value:

Age	Rate	Age	Rate
< = 25	2.0%	36	0.9%
26	1.9%	37	0.8%
27	1.8%	38	0.7%
28	1.7%	39	0.6%
29	1.6%	40 – 45	0.5%
30	1.5%	46	0.4%
31	1.4%	47	0.3%
32	1.3%	48	0.2%
33	1.2%	49	0.1%
34	1.1%	> = 50	0.0%
35	1.0%		



Pre-Retirement Terminations for All Causes Except Mortality

Age	Unisex
15 - 29	3.0%
30 - 39	2.5%
40 - 49	2.0%
50 - 59	1.8%
> = 60	1.5%

Disability

Disability Rates:

Age	Male and Female
20	0.03%
25	0.04
30	0.06
35	0.10
40	0.16
45	0.26
50	0.45
55	0.85
60	1.20

Retirement Age

Rates vary by age and service. Sample rates are as follows:

Age	Service				
	10	15	20	25	30
50	0%	0%	0%	30%	10%
55	0%	0%	0%	30%	10%
60	5%	5%	5%	30%	10%
65	15%	15%	15%	30%	10%
70	15%	15%	15%	30%	10%
75	100%	100%	100%	100%	100%

The actuarial assumption in regards to rate of compensation increases, retirement rates and rates of termination shown above are based on the results of a limited scope experience study completed in conjunction with the July 1, 2014 Actuarial Valuation for the period July 1, 2005 through June 30, 2014.

Pre-Retirement Survivors Benefit

Costed explicitly.

Pre-Retirement Accidental Death Benefit

Costed explicitly.

Return of Member Contributions With Interest

Costed explicitly.



Interest on Member Contributions

4% per annum compounded annually.

Vested Benefit

Costed Explicitly.

Administrative Expenses

\$3,000 per year.

The estimate is based on actual expenses paid from the trust in the prior year.

Percent Married

85% active plan participants are assumed to be married. The husband is assumed to be 3 years older than the wife.



Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. To the extent that this summary does not accurately reflect the plan provisions, then the results of this disclosure may not be accurate.

Plan identification

Single-employer pension plan

Effective Date

July 15, 1947 (Amended effective July 1, 1997).

Eligibility

Membership is compulsory for all employees hired by the Board of Public Works.

Service

Continuous employment (including military service or leave of absence if the employee returns to work within one year).

Compensation

Base yearly wage for services.

Final Compensation

Compensation earned during the last full year of service.

Retirement Qualifications

Service Retirement: 10 years of credited service and attainment of age 60, or 25 (30 if hired after July 1, 2010) years of continuous service with the Board of Public Works.

Early Retirement: 10 years of credited service and attainment of age 50.

Disability Retirement: On established total and permanent disability after 10 years of credited service.

Retirement Benefits

A pension for life determined as follows:

Service Retirement: 65% of Final Compensation reduced proportionately for credited service less than 25 (30 if hired after July 1, 2010).

Disability Retirement: If age 60 or older with minimum of 10 years of credited service, 65% (60% if under age 60) of Final Compensation reduced proportionately for credited service less than 25 (30 if hired after July 1, 2010).

Early Retirement: Same as service retirement but reduction of 0.555% for each month between age 60 and the member's early retirement date.



Death Benefits

Pre-Retirement Spouse Benefit: If you have **10** or more years of service, **50%** of the benefit to which the member would have been entitled had the member retired on the date of death at a time when Accidental Death Benefits are not payable.

Post-Retirement Optional Benefits

Retiring member may elect an actuarially reduced benefit.

Post-Retirement: Beneficiary of retired member shall receive a \$3,000 Death Benefit upon the death of the retired member.

Accidental

65% of Final Compensation to spouse until death or remarriage or dependent children to age 18 or dependent parent for life.

Member Contributions

9.15% of Compensation.

Contributions are returnable with interest on termination or death before retirement.

Vesting

100% after 10 years of service. Employee contributions must be left in plan for deferred vested benefit to be payable.

Health Care Stipend

None.