

Section V – Collective Net Pension Liability

As stated previously, the NPL is equal to the TPL minus the FNP. That result as of June 30, 2020 is presented in the table below, along with additional required figures (\$ thousands). Note that the following tables are stated at the collective level and require adjustment to reflect individual employer’s information.

June 30, 2020	
Total Pension Liability	\$47,186,232
Fiduciary Net Position	<u>27,827,394</u>
Net Pension Liability	\$19,358,838
Ratio of Fiduciary Net Position to Total Pension Liability	58.97%
Covered payroll	\$6,287,441
Net Pension Liability as a percentage of covered payroll	307.90%

In addition to the results in the table above, the sensitivity of the NPL to changes in the discount rate must be disclosed. The following presents the NPL of PERS, calculated using the discount rate of 7.75 percent, as well as what the PERS NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.75 percent) or 1-percentage-point higher (8.75 percent) than the current rate (\$ thousands):

	1% Decrease (6.75%)	Current Discount Rate (7.75%)	1% Increase (8.75%)
System’s Net Pension Liability	\$25,057,637	\$19,358,838	\$14,655,039



Section V – Collective Net Pension Liability

The following table details the changes in the NPL from the beginning to the end of the measurement year.

CHANGES IN THE NET PENSION LIABILITY (\$ in Thousands)

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at June 30, 2019	<u>\$45,798,575</u>	<u>\$28,206,602</u>	<u>\$17,591,973</u>
Changes for the year:			
Service cost	712,354		712,354
Interest	3,433,801		3,433,801
Benefit changes	0		0
Difference between expected and actual experience	224,426		224,426
Change in Assumptions	0		0
Contributions - employer		1,171,805	(1,171,805)
Contributions - employee		594,711	(594,711)
Net investment income		856,935	(856,935)
Benefit payments, including refunds of employee contributions	(2,982,924)	(2,982,924)	0
Administrative expense		(19,757)	19,757
Other changes		<u>22</u>	<u>(22)</u>
Net changes	<u>1,387,657</u>	<u>(379,208)</u>	<u>1,766,865</u>
Balances at June 30, 2020	<u>\$47,186,232</u>	<u>\$27,827,394</u>	<u>\$19,358,838</u>



Section VI – Collective Pension Expense

As noted earlier, the collective Pension Expense (PE) consists of a number of different items. GASB 68 refers to the first as Service Cost which is the Normal Cost using the Entry Age Normal (EAN) actuarial funding method. The second item is interest on the beginning of year TPL and the cash flow during the year at the 7.75% rate of return in effect as of the previous Measurement Date.

The next three items refer to any change that occurred in the TPL under EAN due to benefit changes, actual experience or assumptions. Benefit changes, which are reflected immediately in PE can be positive, if there is a benefit improvement for existing PERS members, or negative if there is a benefit reduction. For the year ended June 30, 2020, there were no benefit changes to be recognized.

The next item to be recognized is the portion of current year changes in TPL due to Plan experience. The portion to recognize in the current year is determined by spreading the total change over the remaining service life of the entire PERS membership. For the year ended June 30, 2020, the remaining service life is 3.66.

The last item under changes in TPL is changes in actuarial assumptions. There were no changes in assumptions since the last Measurement Date. The change in TPL due to changes in actuarial assumptions is spread over the remaining service life of the entire PERS membership just like Plan experience in the prior paragraph.

Member contributions for the year and projected earnings on the FNP, again at the rate used to calculate the liabilities are subtracted from the amount determined thus far. One-fifth of current period differences between actual and projected earnings on the FNP are recognized in the pension expense.

The current year portions of previously determined experience, assumption and earnings amounts, recognized as deferred outflows and inflows (see Section VII) are included next. Finally, administrative expenses and other miscellaneous items are included.

The calculation of the Collective Pension Expense for the year ended June 30, 2020 is shown in the following table.



Section VI – Collective Pension Expense

Collective Pension Expense
For the Year Ended June 30, 2020
(\$ in Thousands)

Service Cost	\$712,354
Interest on the total pension liability	3,433,801
Current-period benefit changes	0
Expensed portion of current-period difference between expected and actual experience in the total pension liability	61,319
Expensed portion of current-period changes of assumptions	0
Member contributions	(594,711)
Projected earnings on plan investments	(2,138,111)
Expensed portion of current-period differences between actual and projected earnings on plan investments	256,235
Administrative expense	19,757
Other	(22)
Recognition of beginning deferred outflows of resources as pension expense	106,945
Recognition of beginning deferred inflows of resources as pension expense	<u>(18,936)</u>
Collective Pension Expense	<u>\$1,838,631</u>



Section VII – Collective Deferred Outflows/Inflows

Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce pension expense they are labeled deferred inflows. If they will increase pension expense they are labeled deferred outflows. As noted in the previous section, the amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive PERS members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period.

The table below provides a summary of the collective deferred outflows and inflows (in thousands) as of June 30, 2020 (Measurement Date).

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$168,037	\$0
Changes of assumptions	108,294	0
Net difference between projected and actual earnings on plan investments	795,187	0
Employer contributions subsequent to the measurement date	<u>See note</u>	<u>0</u>
Total	<u>\$1,071,518</u>	<u>\$0</u>

Note: The deferred outflow of resources reported by an employer should include contributions made by the employer during its fiscal year that will be reflected in the net pension liability in the next measurement period.

Amortization periods for fiscal year 2021 are 3.66 for the average expected remaining service life of members and 5.0 years for investment gains/losses.

PERS will provide current year collective information. In order to properly report PE and deferred outflows/inflows of resources in future years, it will be necessary for employers to maintain schedules for amortizing deferred amounts.



Section VII – Collective Deferred Outflows/Inflows

Amounts reported as deferred outflows of resources related to pensions resulting from employer contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended June 30, 2021 (Reporting Date). Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense.

Collective Deferred Outflows and Inflows between Expected and Actual Experience (\$ in thousands)					
Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through 2020 (c)	Balances as of June 30, 2021 (Reporting Date)	
				Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2020	\$224,426	\$0	\$61,319	\$163,107	\$0
2019	0	0	0	0	0
2018	21,361	0	16,431	4,930	0
2017	0	172,476	172,476	0	0
Total				<u>\$168,037</u>	<u>\$0</u>

Collective Deferred Outflows and Inflows for Differences from Assumption Changes (\$ in thousands)					
Year	Assumption Losses (a)	Assumption Gains (b)	Amounts Recognized in Pension Expense through 2020 (c)	Balances as of June 30, 2021 (Reporting Date)	
				Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2020	\$0	\$0	\$0	\$0	\$0
2019	231,354	0	123,060	108,294	0
2018	0	0	0	0	0
2017	24,141	0	24,141	0	0
Total				<u>\$108,294</u>	<u>\$0</u>



Section VII – Collective Deferred Outflows/Inflows

Collective Deferred Outflows and Inflows for Differences in Investment Experience (\$ in thousands)					
Year	Investment Losses (a)	Investment Gains (b)	Amounts Recognized in Pension Expense through 2020 (c)	Balances as of June 30, 2021 (Reporting Date)	
				Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2020	\$1,281,176	\$0	\$256,235	\$1,024,941	\$0
2019	401,582	0	160,632	240,950	0
2018	0	373,999	224,400	0	149,599
2017	0	1,605,517	1,284,412	0	321,105
2016	1,764,388	0	1,764,388	0	0
Total				<u>\$1,265,891</u>	<u>\$470,704</u>
Net difference between projected and actual earnings on investments				\$795,187	



Section VII – Collective Deferred Outflows/Inflows

Amortization of Collective Deferrals (\$ in thousands)									
Fiscal Year End	Reporting Year End	2015 Investment Loss		2016 Investment Loss		2016 Experience Loss		2016 Assumption Changes Gain	
		Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
6/30/2019	6/30/2020	(\$226,115)	\$0	(\$352,878)	(\$352,876)	(\$57,034)	\$0	\$9,186	\$0
6/30/2020	6/30/2021	0	0	(352,876)	0	0	0	0	0
6/30/2021	6/30/2022	0	0	0	0	0	0	0	0
6/30/2022	6/30/2023	0	0	0	0	0	0	0	0
6/30/2023	6/30/2024	0	0	0	0	0	0	0	0
6/30/2024	6/30/2025	0	0	0	0	0	0	0	0
6/30/2025	6/30/2026	0	0	0	0	0	0	0	0

Amortization of Collective Deferrals (\$ in thousands)											
Fiscal Year End	Reporting Year End	2017 Investment Gain		2017 Experience Gain		2017 Assumption Changes Loss		2018 Investment Gain		2018 Experience loss	
		Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
6/30/2019	6/30/2020	\$321,103	\$642,208	\$51,180	\$18,936	(\$7,164)	(\$2,649)	\$74,800	\$224,399	(\$5,477)	(\$10,407)
6/30/2020	6/30/2021	321,103	321,105	18,936	0	(2,649)	0	74,800	149,599	(5,477)	(4,930)
6/30/2021	6/30/2022	321,105	0	0	0	0	0	74,800	74,799	(4,930)	0
6/30/2022	6/30/2023	0	0	0	0	0	0	74,799	0	0	0
6/30/2023	6/30/2024	0	0	0	0	0	0	0	0	0	0
6/30/2024	6/30/2025	0	0	0	0	0	0	0	0	0	0
6/30/2025	6/30/2026	0	0	0	0	0	0	0	0	0	0



Section VII – Collective Deferred Outflows/Inflows

Amortization of Collective Deferrals (\$ in thousands)											
Fiscal Year End	Reporting Year End	2019 Investment Loss		2019 Assumption Changes Loss		2020 Investment Loss		2020 Experience Loss		Total Deferrals	
		Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
6/30/2019	6/30/2020	(\$80,316)	(\$321,266)	(\$61,530)	(\$169,824)	\$0	\$0	\$0	\$0	(\$334,245)	\$28,521
6/30/2020	6/30/2021	(80,316)	(240,950)	(61,530)	(108,294)	(256,235)	(1,024,941)	(61,319)	(163,107)	(\$405,563)	(\$1,071,518)
6/30/2021	6/30/2022	(80,316)	(160,634)	(61,530)	(46,764)	(256,235)	(768,706)	(61,319)	(101,788)	(\$68,425)	(\$1,003,093)
6/30/2022	6/30/2023	(80,316)	(80,318)	(46,764)	0	(256,235)	(512,471)	(61,319)	(40,469)	(\$369,835)	(\$633,258)
6/30/2023	6/30/2024	(80,318)	0	0	0	(256,235)	(256,236)	(40,469)	0	(\$377,022)	(\$256,236)
6/30/2024	6/30/2025	0	0	0	0	(256,236)	0	0	0	(\$256,236)	\$0
6/30/2025	6/30/2026	0	0	0	0	0	0	0	0	\$0	\$0



Section VIII – Required Supplementary Information

There are several tables of Required Supplementary Information (RSI) that need to be included in the System's financial statements. They are provided in Schedule C. In addition, the following should be noted regarding the RSI.

Changes of assumptions.

- 2019
 - The expectation of retired life mortality was changed to the PubS.H-2010(B) Retiree Table with the following adjustments:
 - For males, 112% of male rates from ages 18 to 75 scaled down to 105% for ages 80 to 119.
 - For females, 85% of the female rates from ages 18 to 65 scaled up to 102% for ages 75 to 119.
 - Projection scale MP-2018 will be used to project future improvements in life expectancy generationally.
 - The expectation of disabled mortality was changed to PubT.H-2010 Disabled Retiree Table for disabled retirees with the following adjustments:
 - For males, 137% of male rates at all ages.
 - For females, 115% of female rates at all ages.
 - Projection scale MP-2018 will be used to project future improvements in life expectancy generationally.
 - The price inflation assumption was reduced from 3.00% to 2.75%.
 - The wage inflation assumption was reduced from 3.25% to 3.00%.
 - Withdrawal rates, pre-retirement mortality rates, and service retirement rates were also adjusted to more closely reflect actual experience.
 - The percentage of active member disabilities assumed to be in the line of duty was increased from 7% to 9%.
- 2017
 - The expectation of retired life mortality was changed to the RP-2014 Healthy Annuitant Blue Collar Mortality Table projected with Scale BB to 2022. Small adjustments were also made to the Mortality Table for disabled lives.
 - The wage inflation assumption was reduced from 3.75% to 3.25%.
 - Withdrawal rates, pre-retirement mortality rates, disability rates and service retirement rates were also adjusted to more closely reflect actual experience.
 - The percentage of active member disabilities assumed to be in the line of duty was increased from 6% to 7%.
- 2016
 - The assumed rate of interest credited to employee contributions was changed from 3.50% to 2.00%.



Section VIII – Required Supplementary Information

- 2015
 - The expectation of retired life mortality was changed to the RP-2014 Healthy Annuitant Blue Collar Table projected to 2016 using Scale BB rather than the RP-2000 Mortality Table, which was used prior to 2015.
 - The expectation of disabled mortality was changed to the RP-2014 Disabled Retiree Table, rather than the RP-2000 Disabled Mortality Table, which was used prior to 2015.
 - Withdrawal rates, pre-retirement mortality rates, disability rates and service retirement rates were also adjusted to more closely reflect actual experience.
 - Assumed rates of salary increase were adjusted to more closely reflect actual and anticipated experience.
 - The price inflation and investment rate of return assumptions were changed from 3.50% to 3.00% and 8.00% to 7.75%, respectively.

Changes in benefit provisions

- 2016
 - Effective July 1, 2016, the interest rate on employee contributions shall be calculated based on the money market rate as published by the Wall Street Journal on December 31 of each preceding year with a minimum rate of one percent and a maximum rate of five percent.

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contribution rates in the schedule of employer contributions are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported (June 30, 2018 valuation for the June 30, 2020 fiscal year end). The following actuarial methods and assumptions were used to determine the most recent contribution rate reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll, open
Remaining amortization period	30.9 years
Asset valuation method	5-year smoothed market
Price Inflation	3.00 percent
Salary increase	3.25 percent to 18.50 percent, including inflation
Investment rate of return	7.75 percent, net of pension plan investment expense, including inflation



Schedule A – Statement of Actuarial Assumptions and Methods

INTEREST RATE: 7.75% per annum, compounded annually (net of investment expense only). The expected return on assets consists of 2.75% price inflation and 5.00% real rate of return.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed rates of separation from active service are as follows:

Age	Annual Rates of					
	Withdrawal and Vesting*		Death**		Disability	
	Male	Female	Male	Female	Male	Female
20	26.50%	32.50%	0.0483%	0.0126%	0.010%	0.009%
25	18.50	18.50	0.0567	0.0189	0.012	0.011
30	11.75	12.00	0.0630	0.0259	0.017	0.014
35	8.50	8.75	0.0714	0.0350	0.036	0.017
40	6.75	7.00	0.0893	0.0483	0.110	0.070
45	6.25	6.00	0.1218	0.0665	0.230	0.140
50	6.25	6.00	0.1764	0.0917	0.290	0.220
55	6.25	6.00	0.2594	0.1274	0.500	0.380
60	6.25	6.00	0.3980	0.1757	0.530	0.410
65	6.25	6.00	0.6353	0.2429	0.200	0.150
70	6.25	6.00	1.1655	0.4739	0.200	0.150
74	6.25	6.00	1.8942	0.8092	0.200	0.150

Age	Annual Rates of Service Retirements			
	Male		Female	
	Under 25 Years of Service***	25 Years of Service and Over***	Under 25 Years of Service***	25 Years of Service and Over***
45		22.50%		18.00%
50		15.00		13.00
55		18.25		19.00
60	10.50%	19.50	13.25%	22.25
62	20.75	32.00	19.00	37.50
65	25.00	29.50	29.25	42.50
70	20.00	25.00	24.00	25.50
75	100.00	100.00	100.00	100.00

* For all ages, rates of 33.5% for 1st year of employment and 24.0% for 2nd year.

**Base Rates

*** For Tier 4 members, 30 years of service.



Schedule A – Statement of Actuarial Assumptions and Methods

SALARY INCREASES: Representative values of the assumed annual rates of salary increases are as follows:

Service	Merit & Seniority	Annual Rates of	
		Base (Economy)	Increase Next Year
0	15.25%	3.00%	18.25%
1	5.25	3.00	8.25
2	2.75	3.00	5.75
3	1.75	3.00	4.75
4	1.25	3.00	4.25
5-7	0.75	3.00	3.75
8-27	0.25	3.00	3.25
28 and Over	0.00	3.00	3.00

DEATH AFTER RETIREMENT: The mortality table, for post-retirement mortality, used in evaluating allowances to be paid is the PubS.H-2010(B) Retiree Table with the following adjustments:

- For males, 112% of male rates from ages 18 to 75 scaled down to 105% for ages 80 to 119.
- For females, 85% of the female rates from ages 18 to 65 scaled up to 102% for ages 75 to 119.
- Projection scale MP-2018 will be used to project future improvements in life expectancy generationally.

The PubT.H-2010 Disabled Retiree Table is used for disabled retirees with the following adjustments - 137% of male rates at all ages and 115% of female rates at all ages. Projection scale MP-2018 will be used to project future improvements in life expectancy generationally.

PAYROLL GROWTH: 3.00% per annum, compounded annually.

ADMINISTRATIVE EXPENSES: 0.25% of payroll.

TIMING OF DECREMENTS AND PAY INCREASES: Middle of Year.

ACTIVE MEMBER DISABILITY ASSUMPTION: 9% of active member disabilities are assumed to be in the line of duty and 91% of active member disabilities are assumed to not be in the line of duty.

ACTIVE MEMBER DEATH ASSUMPTION: 6% of active deaths are assumed to be in the line of duty and 94% of active member deaths are assumed to not be in the line of duty.

ACTIVE MEMBER WITHDRAWAL ASSUMPTION: 60% of vested participants who terminate before retirement elect to receive a deferred benefit upon attaining the eligibility requirements for retirement. They are assumed to commence their benefit at age 60 for Tiers 1, 2 and 3 and age 62 for Tier 4. The remaining 40% elect to withdraw their contributions.



Schedule A – Statement of Actuarial Assumptions and Methods

FINAL AVERAGE COMPENSATION: 0.25% load on the final average compensation produced by our valuation software.

MARRIAGE ASSUMPTION: 85% married with the husband three years older than his wife.

UNUSED SICK LEAVE: Assumed 0.50 years at retirement.

MILITARY SERVICE: Assumed that participants will have on average 0.25 years of military service at retirement.

MAXIMUM COVERED EARNINGS ASSUMPTION GROWTH: 3.00%

AGE-LIMITED DISABILITY DECREMENTS: Assumed to turn off at age 60.

DEFERRED VESTEDS: Deferred vested benefits are assumed to commence at age 60 for Tiers 1, 2 and 3 and at age 65 for Tier 4.

ASSUMED INTEREST RATE ON EMPLOYEE CONTRIBUTIONS: 2.00%.

ASSET VALUATION METHOD: Market value of assets.

VALUATION METHOD: The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future interest earnings rate (currently 7.75%). The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of PERS are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.



Schedule A – Statement of Actuarial Assumptions and Methods

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for pension benefits to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.

The unfunded actuarial accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions and member contributions from the present value of expected benefits to be paid from the PERS. The accrued liability contribution amortizes the balance of the unfunded actuarial accrued liability over a period of years from the valuation date.



Schedule B – Summary of Main Benefit and Contribution Provisions

The following summary presents the main benefit and contribution provisions of the System in effect June 30, 2020, as interpreted in preparing the actuarial valuation.

DEFINITIONS

Average Compensation

Average annual covered earnings of an employee during the four highest years of service. To determine your four highest years, PERS considers these scenarios:

- Four highest fiscal years of earned compensation;
- Four highest calendar years of earned compensation;
- Combination of four highest fiscal and calendar years of earned compensation that do not overlap; or
- Final 48 months of earned compensation prior to termination of employment.

Covered Earnings

Gross salary not in excess of the maximum amount on which contributions were required.

Fiscal Year

Year commencing on July 1 and ending June 30.

Credited Service

Service while a contributing member plus additional service as described below.

Unused Sick and Vacation Leave

Service credit is provided at no charge to members for unused sick and vacation time that has accrued at the time of retirement. A payment of up to 240 hours of leave may be used in the Average Compensation definition.

Additional Service

Additional service credit may be granted for service prior to February 1, 1953, active duty military service, out-of-state service, professional leave and non-covered and retroactive service



Schedule B – Summary of Main Benefit and Contribution Provisions

The maximum covered earnings for employers and employees over the years are as follows:

EMPLOYER AND EMPLOYEE RATES OF CONTRIBUTION AND MAXIMUM COVERED EARNINGS

Fiscal Date From	Fiscal Date To	Employer Rate	Maximum Covered Earnings	Employee Rate	Maximum Covered Earnings
2/1/53	6/30/58	2.50%	\$6,000	4.00%	\$4,800*
7/1/58	6/30/60	2.50	9,000	4.00	7,800*
7/1/60	6/30/66	2.50	15,000	4.00	13,800*
7/1/66	6/30/68	3.00	15,000	4.50	13,800*
7/1/68	3/31/71	4.50	15,000	4.50	15,000
4/1/71	6/30/73	4.50	35,000	4.50	35,000
7/1/73	6/30/76	5.85	35,000	5.00	35,000
7/1/76	6/30/77	7.00	35,000	5.00	35,000
7/1/77	6/30/78	7.50	35,000	5.50	35,000
7/1/78	6/30/80	8.00	35,000	5.50	35,000
7/1/80	6/30/81	8.00	53,000	5.50	53,000
7/1/81	12/31/83	8.75	53,000	6.00	53,000
1/1/84	6/30/88	8.75	63,000	6.00	63,000
7/1/88	6/30/89	8.75	75,600	6.00	75,600
7/1/89	12/31/89	8.75	75,600	6.50	75,600
1/1/90	6/30/91	9.75	75,600	6.50	75,600
7/1/91	6/30/92	9.75	75,600	7.25	75,600
7/1/92	6/30/02	9.75	125,000	7.25	125,000
7/1/02	6/30/05	9.75	150,000	7.25	150,000
7/1/05	6/30/06	10.75	150,000	7.25	150,000
7/1/06	6/30/07	11.30	150,000	7.25	150,000
7/1/07	6/30/08	11.85	150,000	7.25	150,000
7/1/08	6/30/09	11.85	230,000	7.25	230,000
7/1/09	6/30/10	12.00	245,000	7.25	245,000
7/1/10	6/30/11	12.00	245,000	9.00	245,000
7/1/11	12/31/11	12.00	245,000	9.00	245,000
1/1/12	6/30/12	12.93	245,000	9.00	245,000
7/1/12	6/30/13	14.26	250,000	9.00	250,000
7/1/13	6/30/14	15.75	255,000	9.00	255,000
7/1/14	6/30/15	15.75	260,000	9.00	260,000
7/1/15	6/30/17	15.75	265,000	9.00	265,000
7/1/17	6/30/18	15.75	270,000	9.00	270,000
7/1/18	6/30/19	15.75	275,000	9.00	275,000
7/1/19	6/30/20	17.40	280,000	9.00	280,000

*From February 1, 1953 through June 30, 1968 the first \$100 in monthly earnings or \$1,200 in annual earnings were not covered earnings for the employee.



Schedule B – Summary of Main Benefit and Contribution Provisions

BENEFITS

Superannuation Retirement

Condition for Retirement

A retirement allowance is paid upon the request of any member who retires and has attained age 60 and completed at least eight years (4 years if hired prior to July 1, 2011) of membership service.

A retirement allowance may also be paid upon the completion of 25 years of creditable service for members hired prior to July 1, 2011 or upon the completion of 30 years of creditable service for members hired on or after July 1, 2011.

Amount of Allowance

The annual retirement allowance payable to a member who retires is equal to:

1. A member's annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his or her retirement, plus
2. For a member hired prior to July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 25 years of creditable service plus 2-1/2% for each year of creditable service over 25 years.
3. For a member hired on or after July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 30 years of creditable service plus 2-1/2% for each year of creditable service over 30 years. There will be an actuarial reduction for each year of creditable service below 30 or for each year of age below age 65, whichever is less.

For members hired prior to July 1, 2011, the minimum allowance is \$120 for each year of creditable service.

Early Retirement

Condition for Retirement

For members hired on or after July 1, 2011, an actuarially reduced retirement allowance is paid upon the request of any member who retires with less than 30 years of creditable service.

Amount of Allowance

The annual actuarially reduced retirement allowance is equal to the benefit in the section above reduced for each year of creditable service below 30 or for each year in age below age 65, whichever is less.



Schedule B – Summary of Main Benefit and Contribution Provisions

Deferred Vested

Condition for Termination

Any member who withdraws from service prior to his or her attainment of age 60 and who has completed at least eight years (4 years if hired prior to July 1, 2007) of membership service is entitled to receive, in lieu of a refund of his or her accumulated contributions, a retirement allowance.

Amount of Allowance

The annual retirement allowance payable to a member who terminates as a deferred vested payable at age 60 is equal to:

1. A member's annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his or her retirement, plus
2. For a member hired prior to July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 25 years of creditable service plus 2-1/2% for each year of creditable service over 25 years.
3. For a member hired on or after July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 30 years of creditable service plus 2-1/2% for each year of creditable service over 30 years. There will be an actuarial reduction for each year of creditable service below 30 or for each year of age below age 65, whichever is less.

For members hired prior to July 1, 2011, the minimum allowance is \$120 for each year of creditable service.

Disability Retirement

Condition for Retirement

A retirement allowance is paid to a member who is totally and permanently disabled, as determined by the Board of Trustees, and has accumulated eight or more years* of membership service.

* four years for those who entered the system before July 1, 2007



Schedule B – Summary of Main Benefit and Contribution Provisions

Amount of Allowance

For those who were active members prior to July 1, 1992, and did not elect the benefit structure outlined below, the annual disability retirement allowance payable is equal to a superannuation retirement allowance if the member has attained age 60, otherwise it is equal to a superannuation retirement allowance calculated as follows:

1. A member's annuity equal to the actuarial equivalent of his or her accumulated contributions at the time of retirement, plus
2. An employer's annuity equal to the amount that would have been payable had the member continued in service to age 60.

For those who become active members after June 30, 1992, and for those who were active members prior to July 1, 1992, who so elected, the following benefits are payable:

1. A temporary allowance equal to the greater of (a) 40% of average compensation plus 10% for each dependent child up to a maximum of 2, or (b) the member's accrued allowance. This temporary allowance is paid for a period of time based on the member's age at disability, as follows:

<u>Age at Disability</u>	<u>Duration</u>
60 and earlier	to age 65
61	to age 66
62	to age 66
63	to age 67
64	to age 67
65	to age 68
66	to age 68
67	to age 69
68	to age 70
69 and later	one year

For members hired prior to July 1, 2011, the minimum allowance is \$120 per year of creditable service.

2. A deferred allowance commencing when the temporary allowance ceases equal to the greater of (a) the allowance the member would have received based on service to the termination age of the temporary allowance, but not more than 40% of average compensation, or (b) the member's accrued allowance.



Schedule B – Summary of Main Benefit and Contribution Provisions

For members hired prior to July 1, 2011, the minimum allowance is \$120 per year of creditable service.

Effective July 1, 2004, a temporary benefit can be paid out of a member's accumulated contribution balance while the member is awaiting a determination for eligibility for disability benefits. Future disability payments, if any, would be offset by advanced payments made from the member's accumulated contributions.

Accidental Disability Retirement

Condition for Retirement

A retirement allowance is paid to a member who is totally and permanently disabled in the line of performance of duty.

Amount of Allowance

The annual accidental disability retirement allowance is equal to the allowance payable on disability retirement but not less than 50% of average compensation. There is no minimum benefit.

Accidental Death Benefit

Condition for Benefit

A retirement allowance is paid to a spouse and/or dependent children upon the death of an active member in the line of performance of duty.

Amount of Allowance

The annual retirement allowance is equal to 50% of average compensation payable to the spouse and 25% of average compensation payable to one dependent child or 50% to two or more children until age 19 (23 if a full time student). There is no minimum benefit.

Ordinary Death Benefit

Condition for Benefit

Upon the death of a member who has completed at least eight years* of membership service, a benefit is payable, in lieu of a refund of the member's accumulated contributions, to his or her spouse, if said spouse has been married to the member for not less than one year.

*four years for those who entered the system before July 1, 2007.



Schedule B – Summary of Main Benefit and Contribution Provisions

Amount of Allowance

The annual retirement allowance payable to the lawful spouse of a vested member who dies is equal to the greater of (i) the allowance that would have been payable had the member retired and elected Option 2, reduced by an actuarially determined factor based on the number of years the member lacked in qualifying for unreduced retirement benefits, or (ii) a lifetime benefit equal to 20% of the deceased member's average compensation, but not less than \$50 per month.

In addition, a benefit is payable to dependent children until age 19 (23 if a full time student). The benefit is equal to the greater of 10% of average compensation or \$50 per month for each dependent child up to 3.

Return of Contributions

Upon the withdrawal of a member without a retirement benefit, his or her contributions are returned to him or her, together with accumulated regular interest thereon.

Upon the death of a member before retirement, his or her contributions, together with the full accumulated regular interest thereon, are paid to his or her designated beneficiary, if any, otherwise, to his or her estate provided no other survivor benefits are payable.

Effective July 1, 2016, the interest rate on employee contributions shall be calculated based on the money market rate as published by the Wall Street Journal on December 31 of each preceding year with a minimum rate of one percent and a maximum rate of five percent.

Normal Form of Benefit

The normal form of benefit (modified cash refund) is an allowance payable during the life of the member with the provision that upon his or her death the excess of his or her total contributions at the time of retirement over the total retirement annuity paid to him or her will be paid to his or her designated beneficiary.

Optional Benefits

A member upon retirement may elect to receive his or her allowance in one of the following forms which are computed to be actuarially equivalent to the applicable retirement allowance.

Option 1. Reduced allowance with the provision that if the pensioner dies before he receives the value of the member's annuity as it was at the time of retirement, the balance shall be paid to his or her beneficiary.



Schedule B – Summary of Main Benefit and Contribution Provisions

Option 2. Upon his or her death, his or her reduced retirement allowance shall be continued throughout the life of, and paid to, his or her beneficiary.

Option 3. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary and the other 50% of his or her reduced retirement allowance to some other designated beneficiary.

Option 4. Upon his or her death, 75% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4A. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4B. A reduced retirement allowance shall be continued throughout the life of the pensioner, but with the further guarantee of payment to the pensioner or his or her beneficiary for a specified number of years certain.

Option 4C. A member may elect any option with the added provision that the member shall receive, so far as possible, the same total amount annually (considering both PERS and Social Security benefits) before and after the earliest age at which the member becomes eligible for a Social Security benefit. This option was only available to those who retired prior to July 1, 2004.

A member who elects Option 2, Option 4, or Option 4A at retirement may revert to the normal form of benefit if the designated beneficiary predeceases the retired member or if the retired member divorces the designated beneficiary. A member who elects the normal form of benefit or Option 1 at retirement may select Option 2, Option 4, or Option 4A to provide beneficiary protection to a new spouse if married after retirement.

A member hired prior to July 1, 2011 and who has at least 28 years of creditable service* or a member hired on or after July 1, 2011 who has at least 33 years of creditable service can select a partial lump-sum option at retirement. Under this option, the retiree has the option of taking a partial lump-sum distribution equal to 12, 24, or 36 times the base maximum monthly benefit. With each lump-sum amount, the base maximum monthly benefit will be actuarially reduced.



Schedule B – Summary of Main Benefit and Contribution Provisions

A member selecting the partial lump-sum option may also select any of the regular options except Option 1, the prorated single-life annuity, and Option 4-C, the Social Security leveling provision. The benefit is then calculated using the new reduced maximum benefit as a starting point in applying the appropriate option factors for the reduction.

* or at least age 63 with four years of membership service for those who entered the system before July 1, 2007.

Post-Retirement Adjustments In Allowances

The allowances of retired members are adjusted annually by an amount equal to (a) 3% of the annual retirement allowance for each full fiscal year of retirement prior to the year in which the member reaches age 55*, plus (b) 3% compounded for each year thereafter beginning with the fiscal year in which the member turns age 55*.

*Age 60 for members hired on or after July 1, 2011

A prorated portion of the annual adjustment will be paid to the member, beneficiary, or estate of any member or beneficiary who is receiving the annual adjustment in a lump sum, but whose benefits are terminated between July 1 and December 1.



Schedule C – Required Supplementary Information

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY (\$ in Thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	\$681,778	\$673,626	\$734,545	\$754,552	\$702,559	\$696,445	\$712,354			
Interest	2,754,573	2,867,679	3,032,131	3,154,382	3,239,471	3,330,054	3,433,801			
Benefit changes	0	0	0	0	0	0	0			
Difference between expected and actual experience	257,464	325,351	413,494	(172,476)	21,361	0	224,426			
Changes of assumptions	0	1,821,236	(66,606)	24,141	0	231,354	0			
Benefit payments	(2,099,843)	(2,219,240)	(2,367,709)	(2,477,914)	(2,609,415)	(2,747,397)	(2,878,073)			
Refunds of contributions	(121,532)	(119,356)	(112,926)	(113,707)	(124,306)	(108,042)	(104,851)			
Net change in total pension liability	<u>1,472,440</u>	<u>3,349,296</u>	<u>1,632,929</u>	<u>1,168,978</u>	<u>1,229,670</u>	<u>1,402,414</u>	<u>1,387,657</u>			
Total pension liability - beginning	<u>35,542,848</u>	<u>37,015,288</u>	<u>40,364,584</u>	<u>41,997,513</u>	<u>43,166,491</u>	<u>44,396,161</u>	<u>45,798,575</u>			
Total pension liability - ending (a)	<u>\$37,015,288</u>	<u>\$40,364,584</u>	<u>\$41,997,513</u>	<u>\$43,166,491</u>	<u>\$44,396,161</u>	<u>\$45,798,575</u>	<u>\$47,186,232</u>			
Plan net position										
Contributions - employer	\$969,674	\$996,478	\$1,021,261	\$1,019,084	\$1,018,163	\$1,038,108	\$1,171,805			
Contributions - member	549,528	557,909	572,574	570,066	570,807	580,941	594,711			
Net investment income	3,905,728	827,666	130,900	3,436,144	2,385,913	1,701,321	856,935			
Benefit payments	(2,099,843)	(2,219,240)	(2,367,709)	(2,477,914)	(2,609,415)	(2,747,397)	(2,878,073)			
Administrative expense	(12,837)	(13,523)	(15,166)	(17,056)	(16,264)	(16,905)	(19,757)			
Refunds of contributions	(121,532)	(119,356)	(112,926)	(113,707)	(124,306)	(108,042)	(104,851)			
Other	(510)	(497)	(474)	(8,536)	(4,805)	(4,614)	22			
Net change in plan net position	<u>3,190,208</u>	<u>29,437</u>	<u>(771,540)</u>	<u>2,408,081</u>	<u>1,220,093</u>	<u>443,412</u>	<u>(379,208)</u>			
Plan net position - beginning	<u>21,686,911</u>	<u>24,877,119</u>	<u>24,906,556</u>	<u>24,135,016</u>	<u>26,543,097</u>	<u>27,763,190</u>	<u>28,206,602</u>			
Plan net position - ending (b)	<u>\$24,877,119</u>	<u>\$24,906,556</u>	<u>\$24,135,016</u>	<u>\$26,543,097</u>	<u>\$27,763,190</u>	<u>\$28,206,602</u>	<u>\$27,827,394</u>			
Net pension liability - ending (a) - (b)	<u>\$12,138,169</u>	<u>\$15,458,028</u>	<u>\$17,862,497</u>	<u>\$16,623,394</u>	<u>\$16,632,971</u>	<u>\$17,591,973</u>	<u>\$19,358,838</u>			



Schedule C – Required Supplementary Information

SCHEDULE OF THE NET PENSION LIABILITY (\$ in Thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	\$37,015,288	\$40,364,584	\$41,997,513	\$43,166,491	\$44,396,161	\$45,798,575	\$47,186,232			
Plan net position	24,877,119	24,906,556	24,135,016	26,543,097	27,763,190	28,206,602	27,827,394			
Net pension liability	<u>\$12,138,169</u>	<u>\$15,458,028</u>	<u>\$17,862,497</u>	<u>\$16,623,394</u>	<u>\$16,632,971</u>	<u>\$17,591,973</u>	<u>\$19,358,838</u>			
Ratio of plan net position to total pension liability	67.21%	61.70%	57.47%	61.49%	62.54%	61.59%	58.97%			
Covered payroll	\$5,834,687	\$5,904,827	\$6,022,533	\$6,038,229	\$5,999,231	\$6,144,916	\$6,287,441			
Net pension liability as a percentage of covered payroll	208.03%	261.79%	296.59%	275.30%	277.25%	286.29%	307.90%			

Employers apply their proportionate share percentage to amounts.



Schedule C – Required Supplementary Information

SCHEDULE OF EMPLOYER CONTRIBUTIONS (Template)

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Contractually required employer contribution										
Contributions in relation to statutorily required contributions	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Annual contribution deficiency (excess)	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
Covered-employee payroll										
Actual contributions as a percentage of covered-employee payroll										
Proportionate share percentage										