Vermont Municipal Employees' Retirement System

Governmental Accounting Standards Board (GASB) Statement No. 67 Accounting Valuation Report as of June 30, 2019

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November 8, 2019

Board of Trustees
Vermont Municipal Employees' Retirement System
Montpelier, Vermont 05609

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board (GASB) Statement No. 67 Accounting Valuation as of June 30, 2019, for the Vermont Municipal Employees' Retirement System, a cost-sharing multiple-employer defined benefit pension plan. It contains the actuarial information that will need to be disclosed in order to comply with GASB 67.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist the Board and the member units in preparing their financial reports. The financial information on which our calculations were based was provided by the Office of the State Treasurer. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. We have not been retained to perform an analysis of the potential range of financial measurements, except where otherwise noted.

The actuarial calculations were directed under the supervision of Kathleen Riley and Matthew Strom. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate.

This valuation was prepared based on the actuarial assumptions and methods used in the June 30, 2018, actuarial valuation of the System. In our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the System and are appropriate for purposes of the valuation.

We look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

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SECTION 1

VALUATION SUMMARY

SECTION 2

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Important Information About Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** The valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Vermont Municipal Employees' Retirement System. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Sections of this report may include actuarial results that are not rounded, but that does not imply precision.
- If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The System should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards Board Statement No. 67 as of June 30, 2019. This report, based on unaudited financial information as of June 30, 2019, provided by the Office of the State Treasurer and the Vermont Municipal Employees' Retirement System Actuarial Report as of June 30, 2018, dated October 19, 2018, reflects:

- The benefit provisions of the Pension Plan, as administered by the Board; and
- The characteristics of covered active members, inactive members, and retired members and beneficiaries as of June 30, 2018, provided by the Office of the State Treasurer.

The assumptions are the same as shown in the Vermont Municipal Employees' Retirement System Actuarial Valuation Report as of June 30, 2018.

Valuation Highlights

The following key findings were the result of this actuarial valuation:

- The Net Pension Liability (NPL) is equal to the difference between the Total Pension Liability (TPL) and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) on a market value basis. The NPL increased from $140.7 million as of June 30, 2018, to $173.5 million as of June 30, 2019, and the Plan's Fiduciary Net Position as a percent of the TPL decreased from 82.60% to 80.35%.
- The NPL measured as of June 30, 2019, was determined based upon the results of the actuarial valuation as of June 30, 2018, adjusted forward using standard actuarial techniques. The NPL measured as of June 30, 2018, was determined based on the results of the actuarial valuation as of June 30, 2017, updated to reflect changes in the member contribution rates effective July 1, 2019 – July 1, 2022.
- The discount rate used to determine the TPL and NPL as of June 30, 2019, and June 30, 2018, was 7.50%.

EXHIBIT 1

Net Pension Liability

The components of the net pension liability of the Vermont Municipal Employees' Retirement System are as follows:

	June 30, 2019	June 30, 2018
Total pension liability	$882,957,638	$808,524,797
Plan fiduciary net position	709,465,831	667,848,905
System's net pension liability	173,491,807	140,675,892
Plan fiduciary net position as a percentage of the total pension liability*	80.35%	82.60%

* *These funded percentages are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions.*

Actuarial assumptions. The total pension liability as of June 30, 2019 was determined by rolling forward the total pension liability as of June 30, 2018, to June 30, 2019, using the following actuarial assumptions:

Investment rate of return	7.50%, net of pension plan investment expenses, including inflation
Inflation	2.50%
Salary increases	5.00% per year
Cost of Living Adjustment	1.15% for Group A members and 1.30% for Groups C, B and D members. The January 1, 2019 and January 1, 2020 COLAs are 1.30% and 0.80%, respectively, for all groups.
Mortality	
Pre-Retirement:	Groups A/B/C – 98% of RP-2006 blended 60% Blue Collar Employee, 40% Healthy Employee with generational projection using scale SSA-2017 Group D – RP-2006 Blue Collar Employee Table with generational projection using scale SSA-2017
Healthy Post-retirement:	Groups A/B/C – 98% of RP-2006 blended 60% Blue Collar Annuitant, 40% Healthy Annuitant with generational projection using scale SSA-2017 Group D – RP-2006 Blue Collar Annuitant Table with generational projection using scale SSA-2017
Disabled Post-retirement:	RP-2006 Disabled Mortality Table with generational projection using scale SSA-2017

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of June 30, 2019, is summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
Global Equity	29.00%	6.90%
US Equity – Large Cap	4.00%	5.94%
US Equity – Small/Mid Cap	3.00%	6.72%
Non-US Equity – Large Cap	5.00%	6.81%
Non-US Equity – Small Cap	2.00%	7.31%
Emerging Markets Debt	4.00%	4.26%
Core Bond	14.00%	1.79%
Non-Core Bonds	6.00%	3.22%
Short Quality Credit	5.00%	1.81%
Private Credit	5.00%	6.00%
US TIPS	3.00%	1.45%
Core Real Estate	5.00%	4.26%
Non-Core Real Estate	3.00%	5.76%
Private Equity	10.00%	10.81%
Infrastructure/Farmland	2.00%	4.89%
	100.00%	

Discount rate: The discount rate used to measure the total pension liability was 7.50%. In accordance with paragraph 43 of GASB 67, professional judgement was applied to determine that the System's projected fiduciary net position exceeds projected benefit payments for current active and inactive members for all years. Our analysis was based on the expectation that employers will continue to contribute at rates set by the Board, which exceed the actuarially determined contribution rate. The actuarially determined contribution rate is comprised of an employer normal cost payment and a payment to reduce the actuarial shortfall to zero by June 30, 2038. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

* *Calculated as the Nominal Rates of Return minus the Rate of Inflation, as provided by the Vermont State Treasurer's Office*

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 7.50%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.50%) or 1-percentage-point higher (8.50%) than the current rate:

	1% Decrease (6.50%)	**Current Discount (7.50%)**	**1% Increase (8.50%)**
Net pension liability as of June 30, 2019	$284,500,410	$173,491,807	$81,597,179

EXHIBIT 2

Schedule of Changes in the Net Pension Liability – Last Ten Years

	Year End June 30,									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Total pension liability										
Service cost	$30,744,435	$28,434,045	$27,245,986	$25,264,340	$24,366,167	$22,519,428				
Interest	61,617,803	56,503,328	54,779,918	49,744,271	46,058,159	42,139,031				
Differences between expected and actual experience	17,467,646	14,172,418	-3,749,037	1,088,020	3,046,272	0	(Historical information prior to implementation of GASB 67/68 is not required)			
Changes of assumptions	0	0	14,481,136	12,203,982	19,192,039	0				
Changes of benefit terms	0	193,575	0	0	0	0				
Benefit payments, including refunds of employee contributions	-35,397,043	-31,444,463	-27,803,390	-25,588,884	-23,315,175	-20,601,380				
Net change in total pension liability	$74,432,841	$67,858,903	$64,954,613	$62,711,729	$69,347,462	$44,057,079				
Total pension liability – beginning	808,524,797	740,665,894	675,711,281	612,999,552	543,652,090	499,595,011				
Total pension liability – ending (a)	$882,957,638	$808,524,797	$740,665,894	$675,711,281	$612,999,552	$543,652,090				
Plan fiduciary net position										
Contributions – employer	$19,202,981	$17,519,690	$16,481,881	$15,235,742	$14,136,067	$12,805,737				
Contributions – employee	19,777,956	19,166,537	25,210,413	15,226,948	13,587,975	13,233,728				
Net investment income	38,740,356	43,889,050	59,486,928	6,776,933	-2,358,518	64,346,116				
Benefit payments, including refunds of employee contributions	-35,397,043	-31,444,463	-27,803,390	-25,588,884	-23,315,175	-20,601,380	(Historical information prior to implementation of GASB 67/68 is not required)			
Administrative expenses	-1,158,070	-928,741	-874,707	-755,013	-950,625	-588,022				
Other	450,746	136,490	-5,897	215,646	278,541	2,142,868				
Net change in fiduciary net position	$41,616,926	$48,338,563	$72,495,228	$11,111,372	$1,378,265	$71,339,047				
Plan fiduciary net position – beginning	667,848,905	619,510,342	547,015,114	535,903,742	534,525,477	463,186,430				
Plan fiduciary net position – ending (b)	$709,465,831	$667,848,905	$619,510,342	$547,015,114	$535,903,742	$534,525,477				
Net pension liability – ending: (a)-(b)	$173,491,807	$140,675,892	$121,155,552	$128,696,167	$77,095,810	$9,126,613				
Plan's fiduciary net position as a percentage of the total pension liability	80.35%	82.60%	83.64%	80.95%	87.42%	98.32%	(Historical information prior to implementation of GASB 67/68 is not required)			
Covered Payroll	$289,838,838	$274,813,707	$256,730,055	$249,810,907	$230,969,202	$220,371,643				
Net pension liability as a percentage of covered-employee payroll	59.86%	51.19%	47.19%	51.52%	33.38%	4.14%				

Note: Covered-employee payroll reflects actual compensation amounts from the prior Plan year.

Notes to Exhibit 2:

Changes in Assumptions:	There have been no changes in actuarial assumptions since the last measurement date.
Changes in Plan Provisions:	There have been no changes in plan provisions since the last measurement date.

EXHIBIT 3

Schedule of Contributions – Last Ten Years

	Year End June 30,									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined contribution	$17,263,214	$15,066,601	$12,895,672	$15,235,742	$11,956,121	$11,638,928	(Historical information prior to implementation of GASB 67/68 is not required)			
Contributions in relation to the actuarially determined contribution	19,202,981	17,519,690	16,481,881	15,235,742	14,136,067	12,805,737				
Contribution deficiency (excess)	-$1,939,767	-$2,453,089	-$3,586,209	$0	-$2,179,946	-$1,166,809				
Covered-employee payroll	$289,838,838	$274,813,707	$256,730,055	$249,810,907	$230,969,202	$220,371,643				
Contributions as a percentage of covered-employee payroll	6.63%	6.38%	6.42%	6.10%	6.12%	5.81%				

Notes: Actuarially determined contributions for a given fiscal year are based on results from the June 30 actuarial valuation two years prior.

Notes to Exhibit 3:

Methods and assumptions used to establish the actuarially determined contribution for the year ending June 30, 2019:

Valuation date	Actuarially determined contribution for the year ending June 30, 2019 is based on results from the June 30, 2018 actuarial valuation, and was calculated as of June 30, with appropriate interest to the middle of the fiscal year.
Actuarial cost method	Projected benefit cost method. Normal contribution rates for each Group are equal to rates from the prior year, adjusted for increases or decreases in rates due to assumption changes or plan provision changes.
Amortization method	An actuarial shortfall is determined as the present value of the future employer contributions (equal to PVB, minus AVA, minus present value of future member contributions) minus the present value of future employer normal contributions. Amortization payments calculated to fully fund unfunded actuarial accrued liability with annual increases of 5% over a closed period.
Remaining amortization period	20 years as of July 1, 2018 The amortization of unfunded actuarial accrued liability (UAAL) within the actuarially determined contribution rate calculation is based on the level percentage of pay required to amortize the UAAL over the 30-year closed period that began July 1, 2008.

Notes to Exhibit 3 (continued):

Asset valuation method	A smoothing method is used, under which the value of assets for actuarial purposes equals market value less a five-year phase-in of the differences between actual and assumed investment return. The value of assets for actuarial purposes may not differ from market value of assets by more than 20%.
Actuarial assumptions:	
Investment rate of return	7.50%
Inflation rate	2.50% per year
Projected salary increases	5.00% per year
Mortality	Pre-Retirement: Groups A/B/C – 98% of RP-2006 tables, blended 60% Blue Collar Employee, 40% Healthy Employee with generational projection using Scale SSA-2017 Group D – 100% of RP-2006 Blue Collar Employee with generational projection using Scale SSA-2017 Healthy Post-retirement: Groups A/B/C – 98% of RP-2006 tables, blended 60% Blue Collar Annuitant, 40% Healthy Annuitant with generational projection using Scale SSA-2017 Group D – 100% of RP-2006 Healthy Annuitant with generational projection using Scale SSA-2017 Disabled Post-retirement: All Groups – RP-2006 Disabled Mortality Table with generational projection using Scale SSA-2017
Other assumptions:	Same as those used in the June 30, 2018 actuarial funding valuation.

EXHIBIT I

Actuarial Assumptions* and Actuarial Cost Method

Rationale for Assumptions:	The information and analysis used in selecting each assumption (except for economic assumptions and mortality tables) that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Study dated July 27, 2015 (as prepared by Buck Consultants). Economic assumptions, including inflation, investment return, and assumed cost-of-living adjustment increases were studied and adopted by the Board on July 13, 2017. Mortality table assumptions were studied and adopted by the Board on September 25, 2017. The next Actuarial Experience study will be performed in 2020 for the June 30, 2020 valuation.
Roll-forward Techniques:	The results as of June 30, 2019, are based on the results of the Vermont Municipal Employees' Retirement System Actuarial Report as of June 30, 2018, adjusted forward, using standard actuarial techniques.
Inflation:	2.50%.
Investment Return:	7.50%. The investment return assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes, as well as the Plan's target asset allocation.
Salary Increases:	5.00% per year.
Cost-of-Living Adjustments:	Assumed to occur on January 1 following one year of retirement at the rate of 1.15% per annum for Group A members and 1.30% per annum for Groups B, C and D members (beginning at Normal Retirement eligibility age for members who elect reduced early retirement, at age 62 for members of Groups A, B, and D who receive a disability retirement benefit, and at age 55 for members of Group C who receive a disability retirement benefit). The January 1, 2019 and January 1, 2020 COLAs are 1.30% and 0.80%, respectively, for all groups.

* *Same assumptions used in the June 30, 2019, Actuarial Valuation and Review.*

Mortality Rates:

Death in Active Service:	Groups A/B/C:	98% of RP-2006 tables, blended 60% Blue Collar Employee, 40% Healthy Employee with generational projection using Scale SSA-2017
	Group D:	100% of RP-2006 Blue Collar Employee with generational projection using Scale SSA-2017
Healthy Post-retirement:	Groups A/B/C:	98% of RP-2006 tables, blended 60% Blue Collar Annuitant, 40% Healthy Annuitant with generational projection using Scale SSA-2017
	Group D:	100% of RP-2006 Healthy Annuitant with generational projection using Scale SSA-2017

Disabled Post-retirement: All Groups – RP-2006 Disabled Mortality Table with generational projection using Scale SSA-2017

The tables with the generational projection to the ages of participants as of the measurement date reasonably reflect the mortality experience of the Plan as of the measurement date.

The mortality rates were based on historical and current demographic data, adjusted to reflect health characteristics of the various industries and estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual amount of deaths by benefit amount and the projected amount based on the prior assumption over the five-year period ending June 30, 2016. The mortality tables were then adjusted to future years using a generational projection with Scale SSA-2017 to reflect future mortality improvement.

Withdrawal from Service before Retirement:

Representative values of the assumed annual rates of withdrawal are as follows:

	Rate (%)		
	Male	Female	
Service	All Ages	Ages 25-34	Other Ages
0	22.5%	45.0%	30.0%
1	16.2	33.0	22.0
2	13.5	27.0	18.0
3	12.2	22.5	15.0
4	10.8	18.0	12.0
5	9.0	15.0	10.0
6	8.1	13.5	9.0
7	7.2	12.0	8.0
8	7.2	9.0	6.0
9	6.3	9.0	6.0
10+	3.6	7.5	5.0

Disability Incidence:

Representative values of the assumed annual rates of disability incidence are as follows:

	Rate (%)[1]	
Age	Male	Female
25	0.0100%	0.0050%
30	0.0130	0.0065
35	0.0170	0.0085
40	0.0300	0.0150
45	0.0500	0.0250
50	0.0900	0.0450
55	0.1800	0.0900
60	0.3150	0.1575
65	0.3150	0.1575

[1] Disability rates stop after age 55 with 5 or more years of service for Group B, C and D members and after age 55 with 35 or more years of service for Group A members.

Retirement Rates:

Retirement Group A					
Age	**Male**	**Female**	**Age**	**Male**	**Female**
55	3.0%	4.9%	63	21.0%	22.5%
56	7.5	7.7	64	21.0	25.0
57	5.0	7.0	65	56.0	25.0
58	5.0	4.9	66	15.0	20.0
59	7.2	7.0	67	20.0	30.0
60	7.2	4.9	68	20.0	20.0
61	12.0	10.5	69	20.0	20.0
62	28.0	10.5	70	100.0	100.0

Retirement Group B					
Age	**Male**	**Female**	**Age**	**Male**	**Female**
55	4.9%	4.9%	63	24.0%	14.0%
56	4.9	4.9	64	18.0	14.0
57	4.9	8.4	65	48.0	28.0
58	4.9	8.4	66	30.0	18.0
59	4.9	4.9	67	30.0	14.0
60	4.9	8.4	68	30.0	14.0
61	14.0	10.5	69	30.0	14.0
62	36.0	17.5	70	100.0	100.0

Retirement Rates (continued):

Retirement Group C					
Age	Male	Female	Age	Male	Female
55	30.0%	0.0%	63	10.0%	20.0%
56	10.0	5.0	64	20.0	20.0
57	5.0	5.0	65	35.0	35.0
58	20.0	25.0	66	35.0	35.0
59	20.0	5.0	67	35.0	35.0
60	10.0	5.0	68	35.0	35.0
61	10.0	5.0	69	35.0	35.0
62	40.0	5.0	70	100.0	100.0

Retirement Group D					
Age	<20 Years of Service	20+ Years of Service	Age	<20 Years of Service	20+ Years of Service
50	0.0%	40.0%	58	10.0%	10.0%
51	0.0	35.0	59	10.0	10.0
52	0.0	30.0	60	15.0	15.0
53	0.0	25.0	61	10.0	10.0
54	0.0	20.0	62	25.0	25.0
55	15.0	15.0	63	25.0	25.0
56	10.0	10.0	64	25.0	25.0
57	10.0	10.0	65	100.0	100.0

Rates shown are for participants with 5 or more years of service (unless otherwise indicated). For participants with less than 5 years of service, 0% is assumed.

The retirement rates were based on historical and current demographic data, adjusted to reflect conditions of the various industries, and estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of retirements by age and the projected number based on the prior assumption over the four-year period ending June 30, 2014.

Inactive Members as Reported by the System:	Valuation liability equals 200% of accumulated contributions.
Deferred Members as Reported by the System:	Assumed to retire at their Normal Retirement Age with a deferred vested benefit.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married:	85% of male members and 50% of female members are assumed to be married.
Age of Spouse:	Females three years younger than males.
Benefit Elections:	Non-Group D: All members are assumed to elect the single life annuity. Group D: Single members are assumed to elect the single life annuity. Married members are assumed to elect the 70% joint & survivor option.
Actuarial Cost Method:	Entry Age Actuarial Cost Method. Entry Age is the age at date of employment or, if date is unknown, current age minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary, with Normal Cost determined using the plan of benefits applicable to each participant.
Changes Actuarial Assumptions:	There have been no changes in actuarial assumptions since the last valuation.

EXHIBIT II
Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Effective Date:	July 1, 1975.	
Creditable Service:	Service as a member plus purchased service.	
Membership:	Full time employees of participating municipalities. Municipality elects coverage under Groups A, B, C or D provisions.	
Average Final Compensation (AFC):	Group A:	Average annual compensation during highest 5 consecutive years.
	Groups B/C:	Average annual compensation during highest 3 consecutive years.
	Group D:	Average annual compensation during highest 2 consecutive years.
Normal Retirement – Eligibility:	Group A:	Earlier of age 65 with 5 years of service or age 55 with 35 years of service.
	Group B:	Earlier of age 62 with 5 years of service or age 55 with 30 years of service.
	Groups C/D:	Age 55 with 5 years of service.
Normal Retirement – Amount:	Group A:	1.4% of AFC times service.
	Group B:	1.7% of AFC times service as a Group B member plus percentage earned as a Group A member times AFC.
	Group C:	2.5% of AFC times service as a Group C member plus percentage earned as a Group A or B member times AFC.
	Group D:	2.5% of AFC times service as a Group D member plus percentage earned as a Group A, B or C member times AFC.
	Maximum benefit is 60% of AFC for Groups A and B and 50% of AFC for Groups C and D. The above amounts include the portion of the allowance provided by member contributions.	

Early Retirement – Eligibility:	Groups A/B:	Age 55 with 5 years of service.
	Group C:	None.
	Group D:	Age 50 with 20 years of service.
Early Retirement – Amount:	Normal retirement allowance based on service and AFC at early retirement, reduced by 6% for each year commencement precedes Normal Retirement Age for Group A and B members; payable without reduction to Group D members.	
Vesting:	All groups – 5 years of service. Allowance beginning at normal retirement age based on AFC and service at termination. The AFC is to be adjusted annually by one-half of the percentage change in the Consumer Price Index, subject to the limits on "Post-Retirement Adjustments" described below.	
Disability Retirement – Eligibility:	All groups – 5 years of service and disability as determined by Retirement Board.	
Disability Retirement – Amount:	All groups – Immediate allowance based on AFC and service to date of disability. Children's benefit of 10% of AFC payable to up to three minor children (or children up to age 23 if enrolled in full-time studies) of a disabled Group D member.	
Death Benefit – Eligibility:	All groups – Death after 5 years of service.	
Death Benefit – Amount:	Groups A/B/C:	Reduced early retirement allowance under 100% survivor option commencing immediately or, if greater, survivor's benefit under disability allowance computed as of date of death.
	Group D:	70% of the unreduced accrued benefit, plus children's benefit.
Post-Retirement Adjustments:	Group A:	Allowances in pay status for at least one year increased on each January 1 by one-half of the percentage increase in Consumer Price Index, but not more than 2%. If receiving an Early Retirement benefit, no increases until after reaching attaining Normal Retirement eligibility. If receiving a Disability Retirement benefit, no increases until after attaining age 62.
	Groups B/C/D:	Allowances in payment for at least one year increased on each January 1 by one-half of the percentage increase in Consumer Price Index, but not more than 3%. If receiving an Early Retirement benefit, no increases until after reaching attaining Normal Retirement eligibility. If receiving a Disability Retirement benefit, no increases until after attaining age 62 (age 55 for Group C).

Retirement Stipend:	$25 per month payable at the option of the Retirement Board.	
Optional Benefit and Death after Retirement:	Groups A/B/C:	A lifetime allowance or actuarially equivalent 50% or 100% joint and survivor allowance with refund of contribution guarantee.
	Group D:	A lifetime allowance or 70% contingent annuitant option with no reduction.
Refund of Contributions:	Upon termination, if the member so elects, or if no other benefit is payable, the member's accumulated contributions with interest are refunded.	
Member Contribution Rates:	Group A	2.625% effective July 1, 2018; 2.750% effective July 1, 2019; 3.000% effective July 1, 2020; 3.250% effective July 1, 2021 and thereafter.
	Group B	5.000% effective July 1, 2018; 5.125% effective July 1, 2019; 5.375% effective July 1, 2020; 5.625% effective July 1, 2021 and thereafter.
	Group C	10.125% effective July 1, 2018; 10.250% effective July 1, 2019; 10.500% effective July 1, 2020; 10.750% effective July 1, 2021 and thereafter.
	Group D	11.475% effective July 1, 2018; 11.600% effective July 1, 2019; 11.850% effective July 1, 2020; 12.100% effective July 1, 2021 and thereafter.
Employer Contribution Rates:	Group A	4.125% effective July 1, 2018; 4.250% effective July 1, 2019; 4.500% effective July 1, 2020; 4.750% effective July 1, 2021 and thereafter.
	Group B	5.625% effective July 1, 2018; 5.750% effective July 1, 2019; 6.000% effective July 1, 2020; 6.250% effective July 1, 2021 and thereafter.
	Group C	7.375% effective July 1, 2018; 7.500% effective July 1, 2019; 7.750% effective July 1, 2020; 8.000% effective July 1, 2021 and thereafter.
	Group D	9.975% effective July 1, 2018; 10.100% effective July 1, 2019; 10.350% effective July 1, 2020; 10.600% effective July 1, 2021 and thereafter.
Changes in Plan Provisions:	There have been no changes in plan provisions since the last valuation.	

Appendix A
Glossary

Definitions of certain terms *as they are used in Statements 67/68;* the terms may have different meanings in other contexts.

Active employees:	Individuals employed at the end of the reporting or measurement period, as applicable.
Actual contributions:	Cash contributions recognized as additions to a pension plan's fiduciary net position.
Actuarial present value of projected benefit payments:	Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.
Actuarial valuation:	The determination, as of a point in time (the actuarial valuation date), of the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.
Actuarial valuation date:	The date as of which an actuarial valuation is performed.
Actuarially determined contribution:	A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.
Ad hoc cost-of-living adjustments (ad hoc COLAs):	Cost-of-living adjustments that require a decision to grant by the authority responsible for making such decisions.
Ad hoc postemployment benefit changes:	Postemployment benefit changes that require a decision to grant by the authority responsible for making such decisions.
Agent employer:	An employer whose employees are provided with pensions through an agent multiple-employer defined benefit pension plan.

Agent multiple-employer defined benefit pension plan (agent pension plan): A multiple-employer defined benefit pension plan in which pension plan assets are pooled for investment purposes but separate accounts are maintained for each individual employer so that each employer's share of the pooled assets is legally available to pay the benefits of only its employees.

Allocated insurance contract: A contract with an insurance company under which related payments to the insurance company are currently used to purchase immediate or deferred annuities for individual employees. Also may be referred to as an annuity contract.

Automatic cost-of-living adjustments (automatic COLAs): Cost-of-living adjustments that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).

Automatic postemployment benefit changes: Postemployment benefit changes that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).

Closed period: A specific number of years that is counted from one date and declines to zero with the passage of time. For example, if the recognition period initially is five years on a closed basis, four years remain after the first year, three years after the second year, and so forth.

Collective deferred outflows of resources and deferred inflows of resources related to pensions: Deferred outflows of resources and deferred inflows of resources related to pensions arising from certain changes in the collective net pension liability.

Collective net pension liability: The net pension liability for benefits provided through (1) a cost-sharing pension plan or (2) a single-employer or agent pension plan in circumstances in which there is a special funding situation.

Collective pension expense:	Pension expense arising from certain changes in the collective net pension liability.
Contributions:	Additions to a pension plan's fiduciary net position for amounts from employers, nonemployer contributing entities (for example, state government contributions to a local government pension plan), or employees. Contributions can result from cash receipts by the pension plan or from recognition by the pension plan of a receivable from one of these sources.
Cost-of-living adjustments:	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-sharing employer:	An employer whose employees are provided with pensions through a cost-sharing multiple-employer defined benefit pension plan.
Cost-sharing multiple-employer defined benefit pension plan (cost-sharing pension plan):	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-employee payroll:	The payroll of employees that are provided with pensions through the pension plan.
Deferred retirement option program (DROP):	A program that permits an employee to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The employee continues to provide service to the employer and is paid for that service by the employer after the DROP entry date; however, the pensions that would have been paid to the employee (if the employee had retired and not entered the DROP) are credited to an individual employee account within the defined benefit pension plan until the end of the DROP period.
Defined benefit pension plans:	Pension plans that are used to provide defined benefit pensions.

Defined benefit pensions:	Pensions for which the income or other benefits that the employee will receive at or after separation from employment are defined by the benefit terms. The pensions may be stated as a specified dollar amount or as an amount that is calculated based on one or more factors such as age, years of service, and compensation. (A pension that does not meet the criteria of a defined contribution pension is classified as a defined benefit pension for purposes of Statements 67/68.)
Defined contribution pension plans:	Pension plans that are used to provide defined contribution pensions.
Defined contribution pensions:	Pensions having terms that (1) provide an individual account for each employee; (2) define the contributions that an employer is required to make (or the credits that it is required to provide) to an active employee's account for periods in which that employee renders service; and (3) provide that the pensions an employee will receive will depend only on the contributions (or credits) to the employee's account, actual earnings on investments of those contributions (or credits), and the effects of forfeitures of contributions (or credits) made for other employees, as well as pension plan administrative costs, that are allocated to the employee's account.
Discount rate:	The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following: 1. The actuarial present value of benefit payments projected to be made in future periods in which (a) the amount of the pension plan's fiduciary net position is projected (under the requirements of Statements 67/68) to be greater than the benefit payments that are projected to be made in that period and (b) pension plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on pension plan investments. 2. The actuarial present value of projected benefit payments not included in (1), calculated using the municipal bond rate.

Entry age actuarial cost method:	A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the *normal cost.* The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the *actuarial accrued liability*.
Inactive employees:	Terminated individuals that have accumulated benefits but are not yet receiving them, and retirees or their beneficiaries currently receiving benefits.
Measurement period:	The period between the prior and the current measurement dates.
Multiple-employer defined benefit pension plan:	A defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Net pension liability:	The liability of employers and nonemployer contributing entities to employees for benefits provided through a defined benefit pension plan.
Nonemployer contributing entities:	Entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of Statements 67/68, employees are not considered nonemployer contributing entities.
Other postemployment benefits:	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits, regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.
Pension plans:	Arrangements through which pensions are determined, assets dedicated for pensions are accumulated and managed, and benefits are paid as they come due.
Pensions:	Retirement income and, if provided through a pension plan, postemployment benefits other than retirement income (such as death benefits, life insurance, and disability benefits). Pensions do not include postemployment healthcare benefits and termination benefits.

Plan members:	Individuals that are covered under the terms of a pension plan. Plan members generally include (1) employees in active service (active plan members) and (2) terminated employees who have accumulated benefits but are not yet receiving them and retirees or their beneficiaries currently receiving benefits (inactive plan members).
Postemployment:	The period after employment.
Postemployment benefit changes:	Adjustments to the pension of an inactive employee.
Postemployment healthcare benefits:	Medical, dental, vision, and other health-related benefits paid subsequent to the termination of employment.
Projected benefit payments:	All benefits estimated to be payable through the pension plan to current active and inactive employees as a result of their past service and their expected future service.
Public employee retirement system:	A special-purpose government that administers one or more pension plans; also may administer other types of employee benefit plans, including postemployment healthcare plans and deferred compensation plans.
Real rate of return:	The rate of return on an investment after adjustment to eliminate inflation.
Service costs:	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
Single employer:	An employer whose employees are provided with pensions through a single-employer defined benefit pension plan.
Single-employer defined benefit pension plan (single-employer pension plan):	A defined benefit pension plan that is used to provide pensions to employees of only one employer.
Special funding situations:	Circumstances in which a nonemployer entity is legally responsible for making contributions directly to a pension plan that is used to provide pensions to the employees of another entity or entities and either of the following conditions exists: The amount of contributions for which the nonemployer entity legally is responsible is *not* dependent upon one or more events or circumstances unrelated to the pensions. The nonemployer entity is the only entity with a legal obligation to make contributions directly to a pension plan.

Termination benefits:	Inducements offered by employers to active employees to hasten the termination of services, or payments made in consequence of the early termination of services. Termination benefits include early-retirement incentives, severance benefits, and other termination-related benefits.
Total pension liability:	The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of Statement.

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