Seattle City Employees' Retirement System

Actuarial Valuation

As of January 1, 2015

By

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May 26, 2015

Retirement Board
Seattle City Employees' Retirement System
720 Third Avenue, Suite 900
Seattle, WA 98104

Dear Members of the Board:

As requested, we have prepared an actuarial valuation of the Seattle City Employees' Retirement System (SCERS) as of January 1, 2015. This report reflects the benefit provisions and contribution rates in effect as of January 1, 2015.

Actuarial Certification

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by SCERS staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. It should be noted that the valuation was based on the DRAFT audited financial statements, as the final audited statements were not yet available. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations), and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

This valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The

Retirement Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix A at the May 8, 2014 meeting.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for SCERS. Actuarial computations under GASB Statement No. 27 are for purposes of fulfilling financial accounting requirements. Note that actuarial computations under GASB Statements No. 67 and 68 are shown in a separate report. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of SCERS' funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of SCERS. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

a) SCERS may provide a copy of Milliman's work, in its entirety, to the System's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System.

b) SCERS may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the City of Seattle. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report, along with the information contained in the Comprehensive Annual Financial Report, is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We would like to express appreciation to the system staff, including Mr. Jeff Davis, who gave substantial assistance in supplying the data on which this report is based.

Respectfully submitted,

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Section 1 Summary of the Findings

	January 1, 2015	January 1, 2014
Total Actuarial Contribution Rate	25.26%	25.76%
Funding Ratio	66.0%	64.2%

Overview

We are pleased to present the results of the January 1, 2015 actuarial valuation. This valuation determines the minimum actuarially required employer contribution rate payable beginning January 1, 2016 based on the Board's funding policy. Several key points of the valuation are summarized as follows:

- **Investment Returns:** For the year ending December 31, 2014, the SCERS assets returned around 5.7% on a market basis (gross of investment expenses), a rate of return less than the assumed rate. From January 1, 2014 to December 31, 2014, the SCERS assets were assumed to earn 7.50%. The result is an actuarial loss on assets for the 2014 year. Note that only one-fifth of this loss will be recognized in the current year Actuarial Value of Assets (AVA), due to the asset smoothing method; see Section 3 of this report for details. Currently, a net asset gain is being deferred in the AVA; this implies that, if all actuarial assumptions are met in future years, the minimum actuarially required contribution rate is expected to decrease in future years.

- **City Contribution Rate:** The minimum actuarially required contribution rate has decreased from the prior valuation, from 25.76% to 25.26% of payroll. Since the employees contribute a fixed 10.03% of pay, the minimum actuarially required employer contribution rate has decreased from 15.73% of pay to 15.23%.

  The most significant factor causing this decrease was the recognition of deferred asset gains from prior years. See the section below titled "Analysis of Change" for more details.

- **Funding Progress:** On the basis of the January 1, 2014 actuarial valuation, the Funding Ratio (which is measured as the Actuarial Value of Assets divided by the Actuarial Accrued liability) was 64.2%. Based on the January 1, 2015 valuation, the Funding Ratio has increased to 66.0%.The most significant factors causing this increase were the Unfunded Actuarial Accrued Liability (UAAL) amortization payment made by the City during the prior year, and the recognition of deferred asset gains in the Actuarial Value of Assets. Note that these Funding Ratios are calculated using the AVA; Funding Ratio results based on the Market Value of Assets are shown in Table 1 at the end of this section.

Overview (continued)

- **Funding Policy:** In August 2013, the Seattle City Council passed a resolution to formally close the period over which any SCERS Unfunded Actuarial Accrued Liability (UAAL) will be amortized. This resolution stipulated that the 30-year amortization period would be closed as of the January 1, 2013 actuarial valuation. The result is that, for purposes of the January 1, 2015 valuation calculation, a 28-year remaining closed period is in effect.

The effect of closing the UAAL amortization period is that the total SCERS UAAL is projected to be fully paid off over the next 28 years from the January 1, 2015 valuation date.

Minimum Actuarially Required Contribution Rate

Based on the actuarial valuation of the benefits in effect under the Seattle City Employees' Retirement System (SCERS) as of January 1, 2015, the total minimum actuarially required contribution rate decreased from 25.76% to 25.26% for the year beginning January 1, 2016.

The current contribution rates for the death benefit program are projected to be sufficient to finance the $2,000 death benefit.

Based on a fixed member contribution rate of 10.03%, this means the City's contribution rate may be decreased from 15.73% to 15.23% effective January 1, 2016. This reflects the City's commitment to fund at least the minimum actuarially required contribution rate, which is based on a 28-year amortization of the UAAL beginning January 1, 2015. A greater City contribution rate would result in a shorter amortization of the UAAL, if all actuarial assumptions are met.

It should be noted that this rate is not equivalent to the GASB 25/27 Annual Required Contribution (ARC) because the actuarial required rate assumes an increase in membership, which is not consistent with current GASB reporting requirements. Note that for the year ending December 31, 2014, GASB Statements 27 and 67 will apply to SCERS. For this transition year, we have continued to show all previous GASB calculations shown in prior reports. See Section 6 of this report for more information on the new accounting statements. See our separate GASB 67 accounting report for information on the calculations relevant to that statement.

It should be noted that the recommended 25.26% of pay is calculated based on the Actuarial Value of Assets (AVA); see Section 3 of this report for details. This AVA is currently deferring a net actuarial asset gain of $56.0 million under the asset smoothing method. This means that if no actuarial gains or losses occur in the future, the minimum actuarially required contribution rate would decrease slightly over the next several years as the deferred asset gains are phased into the AVA.

Minimum Actuarially Required Contribution Rate (continued)

We have performed a five-year projection of the contribution rates if 7.50% was returned on the market value of assets in each future year (and assuming that no other actuarial gains or losses occur and there are no other changes to assumptions or benefit provisions). This projection shows the expected impact of recognizing the currently deferred asset gains and losses over time. The result is a decrease in the contribution rate over the next several years.

It is likely that the market value of assets will not return an annual average of exactly 7.50% over all future years. To show the potential impact of volatility in asset returns on the contribution rate, we have performed a projection of the contribution rates at the 5th and 95th percentile expected returns (thereby yielding a 90% asset-return-based confidence interval for the specified rates). These projections are shown in the chart below.

Projected Total Actuarial Required Contribution Rate

Contribution Year*	Assuming 7.50% Future Returns	90% Asset Return Confidence Interval
2016	25.26%	25.26% - 25.26%
2017	25.20%	24.44% - 25.95%
2018	24.88%	23.24% - 26.54%
2019	24.73%	22.01% - 27.55%
2020	24.80%	20.78% - 29.03%
2021	24.80%	19.27% - 30.68%

** Contribution year lags valuation year by one year. For example: Contribution Year 2016 is based on the 2015 valuation results, amortized over 28 years beginning in 2015, if the increase takes place in 2016.*

Compounded Average Return for Period

	Percentile	
	95th	*5th*
1-Year Period	*-11.7%*	*27.1%*
2-Year Period	*-6.9%*	*20.5%*
3-Year Period	*-4.7%*	*17.7%*
4-Year Period	*-3.3%*	*16.0%*
5-Year Period	*-2.4%*	*14.9%*

The 90% confidence interval results are based on the 5th and 95th percentile compounded returns for one-, two-, three-, four- and five-year periods. Since actuarial assets are used, deferred gains or losses would continue to decrease or increase the minimum actuarially required contribution rate after these dates.

See Section 8 of this report for a detailed discussion of the projected contribution rates.

Funding Progress

On the basis of the January 1, 2014 actuarial valuation, the Funding Ratio was 64.2%. Based on the January 1, 2015 valuation, the Funding Ratio is 66.0%. The increase in the Funding Ratio is due mainly to recognition of asset gains and the UAAL payment made by the City in 2014. See Section 3 of this report for a full discussion.

See the following section titled Analysis of Change for more details.

Analysis of Change

The following chart shows the sources of change in the actuarial contribution rate and the funding ratio between the prior and current actuarial valuations.

Sources of Change	Actuarial Contrib. Rate	Funding Ratio
January 1, 2014 Actuarial Valuation	**25.76 %**	**64.2 %**
Expected Valuation-to-Valuation Change	-	1.0 %
Asset Gain/Loss on Actuarial Value	(0.28)%	0.9 %
Salary/Membership Growth Different Than Expected	(0.18)%	(0.1)%
Changes in Assumptions	-	-
Other	(0.04)%	-
Total Change	(0.50)%	1.80 %
January 1, 2015 Actuarial Valuation	**25.26 %**	**66.0 %**

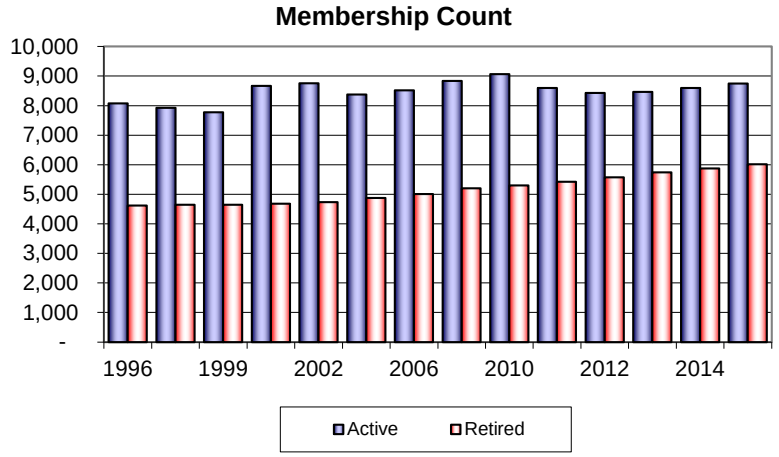
Contingent COLA Benefits

The Seattle Municipal Code allows for an increase in the cost-of-living adjustment (COLA) available to current and future retired members. Currently, the Floor COLA (also referred to as a Restoration of Purchasing Power COLA) is at the 65% level. The enhanced COLA benefit (70% Floor COLA) does not become effective until the System attains at least a 100% funding level.

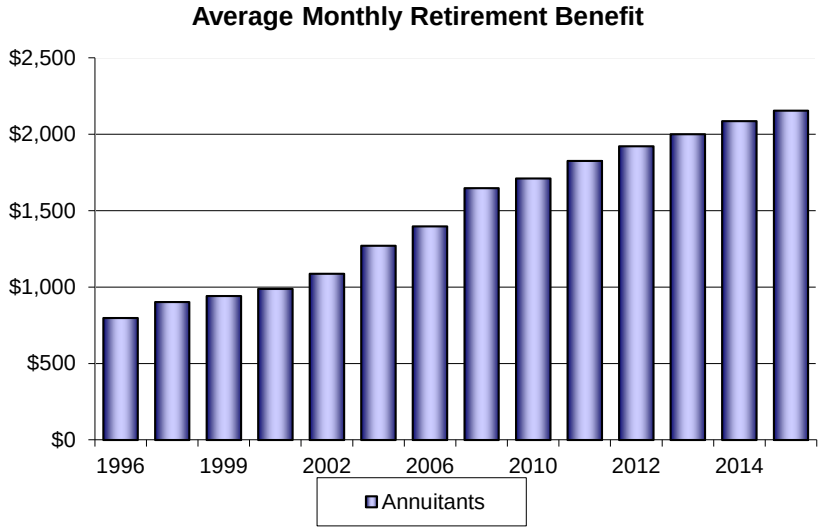
Since it is unknown when this benefit will become effective, especially given the current funded status of the System, we have not included the valuation of these potential benefit changes (i.e., the increase in the ROPP COLA to the 70% level) in this valuation. See Appendix A of this report for further details.

Membership Information

Total valuation payroll has increased by 6.7% since the 2014 valuation, and active membership has increased by 1.7% during this same period. As of January 1, 2015, the annualized payroll is $648 million for 8,746 active members.



Retired member counts and average retirement benefit amounts continue to increase steadily. As of January 1, 2015, there were 6,019 retired members and beneficiaries with an average benefit of $2,154 per month. This represents a 2.4% increase in count and a 3.3% increase in average benefit amount.



Analysis of Change in Member Population

The following table summarizes the year-to-year change in member population.

	Actives	Deferred Members*	Retirees/ Beneficiaries
January 1, 2014 Valuation	8,603	2,037	5,880
Termination with Refund / Death	(136)	(71)	(226)
Termination without Refund	(210)	210	-
Service Retirement	(264)	(52)	316
Disability Retirement	(1)	(1)	2
Rehires	25	(25)	-
New Entrants / Beneficiaries	729	29	47
Data Corrections	-	-	-
January 1, 2015 Valuation	8,746	2,127	6,019

**Counts include non-vested terminated members whose contributions are still on deposit with SCERS as of valuation date.*

Summary Exhibit

A summary of the key results of this valuation, along with a comparison to the January 1, 2014 valuation, is shown in Table 1.

Note that the valuation measures are based on the Actuarial Value of Assets, which recognizes asset gains and losses over a five-year period; however, we have also shown key measures using the Market Value of Assets (MVA).

Graphs 1 and 2 and the associated data table show historical asset and liability information, including the Present Value of Future Benefits (PVFB) and Present Value of Future Normal Costs (PVFNC), at previous valuation dates.

Seattle City Employees' Retirement System
Actuarial Valuation

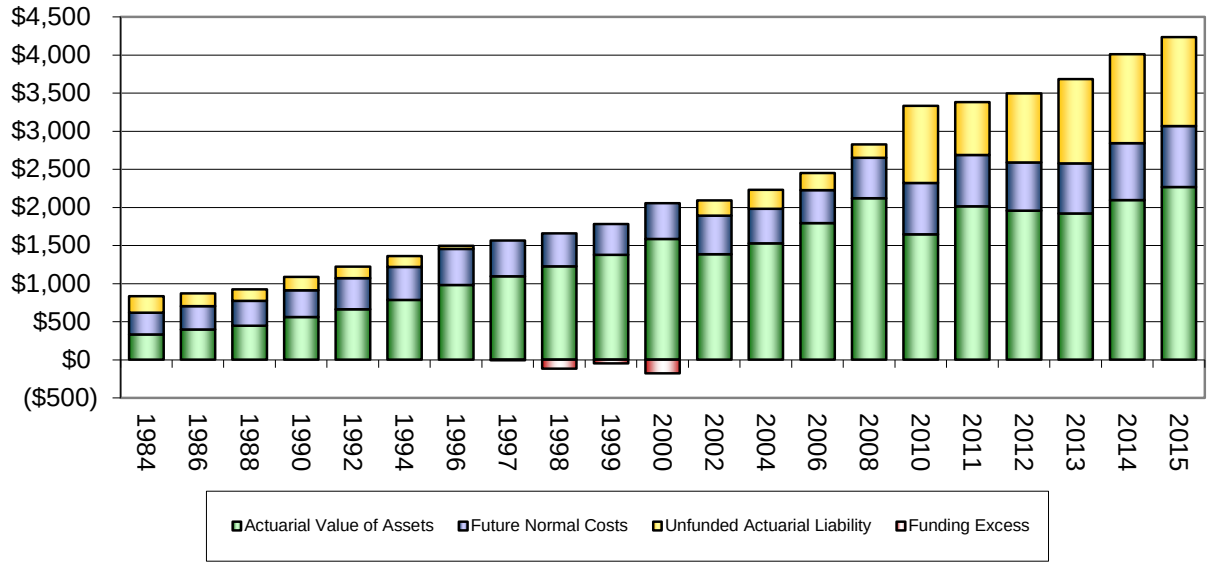
Table 1 Summary of Results

	Valuation January 1, 2015	Valuation January 1, 2014	Percentage Change
I. Total Membership			
A. Active Members	8,746	8,603	1.7%
B. Retired Members & Beneficiaries	6,019	5,880	2.4%
C. Vested Terminated Members*	2,127	2,037	4.4%
D. Total	16,892	16,520	2.3%
II. Pay as of Valuation Date			
A. Annual Total ($millions)	$ 647.8	$ 606.9	6.7%
B. Annual Average	$ 74,068	$ 70,548	5.0%
III. Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	$ 2,292	$ 2,226	2.9%
B. Disability Retirement	1,274	1,235	3.2%
C. Surviving Spouse and Dependents	1,327	1,276	3.9%
D. Total	$ 2,154	$ 2,086	3.3%
IV. Actuarial Accrued Liability ($millions)			
A. Active Members	$ 1,679.1	$ 1,603.1	4.7%
B. Retired Members	1,583.4	1,497.0	5.8%
C. Vested Terminated Members	170.1	160.0	6.3%
D. Total	$ 3,432.6	$ 3,260.1	5.3%
V. Assets			
A. Actuarial Value of Assets ($millions)	$ 2,266.7	$ 2,094.3	8.2%
VI. Unfunded Actuarial Accrued Liability or Surplus Funding ($millions)	$ 1,165.9	$ 1,165.8	0.0%
VII. Amortization of UAAL Total Contribution Rate Needed for 28-Year** Amortization (as a % of Payroll)	25.26%	25.76%	(1.9)%
VIII. Funding Ratio	66.0%	64.2%	2.8%
IX. Normal Cost as a Percent of Salary	15.80%	15.79%	0.1%
Market Value of Assets (MVA) -- For Informational Purposes Only			
X. Assets Based on MVA A. Market Value of Assets ($millions)	$ 2,322.7	$ 2,216.9	4.8%
XI. Amortization of UAAL Based on MVA A. Total Contribution Rate Needed for 28-Year** Amortization (as a % of Payroll)	24.57%	24.67%	(0.4)%
XII. Funding Ratio Based on MVA	67.7%	68.0%	(0.5)%

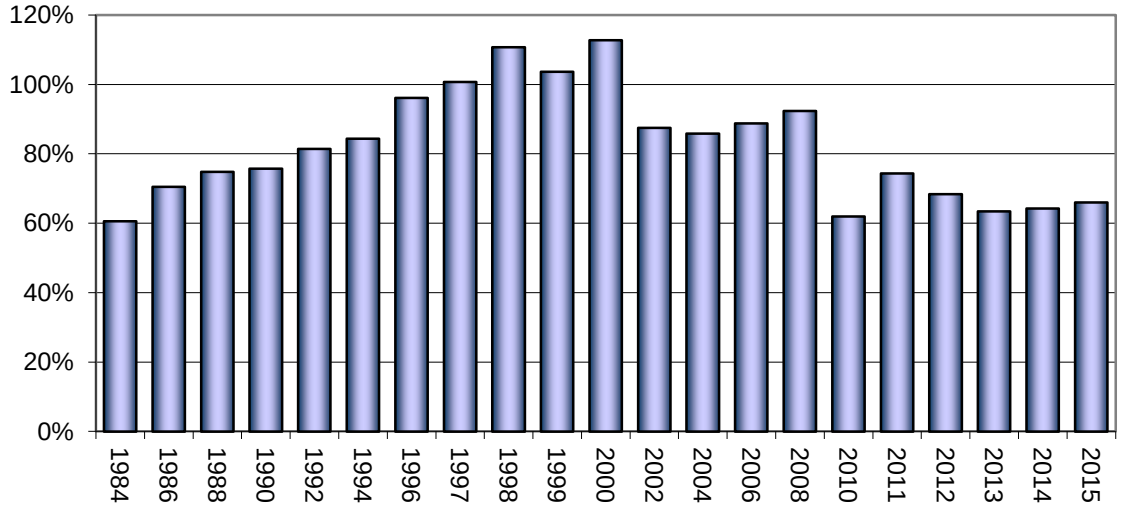
** Includes non-vested terminated members whose contributions are still on deposit with SCERS as of valuation date.*

*** Amortization method is closed 30-year beginning with January 1, 2013 valuation. 2014 values shown are over 29 years.*

Graph 1 Historical Asset and Liability Comparison



Graph 2 Historical Funding Ratios



Year	(in $Millions) PVFB	Assets	PVFNC	UAAL	Funding Ratio
2002	2,088.7	1,383.7	507.3	197.7	87.5%
2004	2,229.8	1,527.5	450.9	251.4	85.9%
2006	2,448.5	1,791.8	431.0	225.8	88.8%
2008	2,825.8	2,119.4	531.2	175.2	92.4%
2010	3,328.7	1,645.3	674.9	1,008.5	62.0%
2011	3,379.6	2,013.7	670.6	695.4	74.3%
2012	3,494.1	1,954.3	634.8	905.0	68.3%
2013	3,679.8	1,920.1	654.5	1,105.2	63.5%
2014	4,007.3	2,094.3	747.2	1,165.8	64.2%
2015	4,231.3	2,266.7	798.7	1,165.9	66.0%

Section 2 Scope of the Report

This report presents the actuarial valuation of the Seattle City Employees' Retirement System as of January 1, 2015.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets of the System. A summary of the assets is set forth in Table 2. Sections 3, 4, and 5 describe how the obligations of the System are to be met under the actuarial cost method in use.

Section 6 discloses actuarial information based on the requirements of Statements No. 25 and 27 of the Governmental Accounting Standards Board. Note that GASB Statements 67 and 68 will replace Statements 25 and 27; for this transition year, we have continued to include all GASB 25 and 27 exhibits in the actuarial valuation report. GASB 67 and 68 calculations will be included in a separate accounting report.

Section 7 sets forth estimated actuarial gains or losses from the various sources. Section 8 shows projections of the System's funding under both optimistic and pessimistic scenarios. Section 9 shows projections of SCERS benefit payments and dollar contributions over a 10-year period following the actuarial valuation.

Appendix A is a summary of the actuarial procedures and assumptions used to compute the liabilities and contributions shown in this report.

The current benefit structure, as determined by the provisions of the governing law on January 1, 2015, is summarized in Appendix B. Schedules of valuation data classifying the data used in the valuation by various categories of contributing members, former contributing members and beneficiaries make up Appendix C.

Comparative statistics are presented on the System's membership and contribution rates. Appendix D is a glossary of actuarial terms used in this report.

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Section 3 Assets

In many respects, an actuarial valuation can be regarded as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is January 1, 2015. On that date, the assets available for the payment of benefits are appraised. These assets are compared with the actuarial liabilities, which are generally well in excess of the assets. The actuarial process thus leads to a method of determining what contributions by members and their employers are needed to pay expected benefits.

This section of the report deals with the asset determination. In the next section, the actuarial liabilities will be discussed. Section 5 will deal with the process for determining required contributions, based on the relationship between the assets and the actuarial liabilities.

Financial Exhibits

Table 2 shows the calculation of the Actuarial Value of Assets as of January 1, 2015. Note that a net gain is currently being deferred. This means that, if the system earns 7.50% in the future, the AVA will experience an actuarial gain over upcoming years as the remaining portions of deferred gains are recognized. In both the Executive Summary and Section 8 of this report, we discuss projections of the minimum actuarially required contribution rates resulting from this expected increase in the AVA.

Tables 3 and 4 summarize the financial resources of the System on January 1, 2015 on a Market Value basis. Table 3 shows the Market Value of Assets at January 1, 2015 and January 1, 2014. Table 4 shows the changes in Market Value of Assets during the year ending January 1, 2014 and the year ending January 1, 2015.

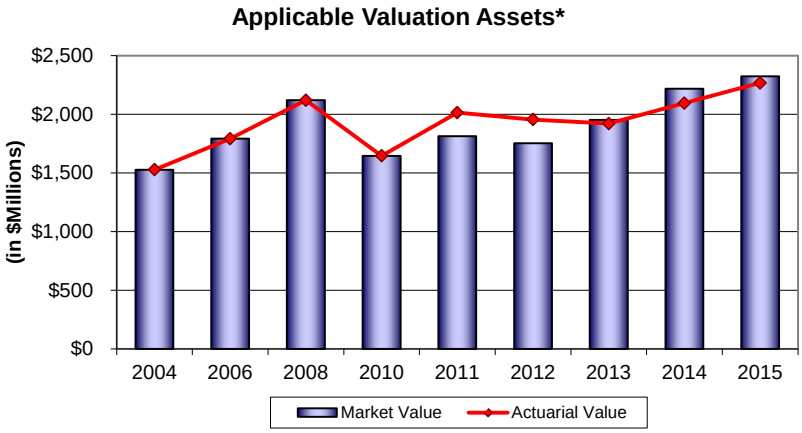
Tables 3 and 4 are taken directly from data furnished to us by SCERS staff. We have accepted these tables for use in this report without audit, but we have reviewed them for reasonableness and consistency with previous reports.

Actuarial Asset Method

Beginning with the January 1, 2011 actuarial valuation, SCERS adopted five-year asset smoothing. This smoothing process recognizes the asset gain or loss occurring in each year evenly over a five-year period.

Actuarial Asset Method (continued)

The following graph shows a historical comparison of the actuarial and market assets used for valuation purposes. Note that prior to 2011 the AVA was equal to the MVA.



**Prior to 2010, actuarial valuations were only performed every second year.*

Table 2 Calculation of Actuarial Value of Assets at January 1, 2015

(All dollar amounts in millions)

Five-Year Asset Smoothing

Year Ended	Market Value at Beginning of Year	Total Contributions	Benefit Payments Plus Admin. Expenses	Expected Investment Return	Market Value of Assets		Asset Gain/(Loss)	Current Phase Out	Deferred Amount
					Expected*	Actual			
December 31, 2010	1,645.3	90.6	131.7	125.9	1,730.1	1,812.8	82.7	0%	-
December 31, 2011	1,812.8	100.7	140.7	139.0	1,911.8	1,753.5	(158.3)	20%	(31.7)
December 31, 2012	1,753.5	119.6	152.4	134.6	1,855.3	1,951.4	96.1	40%	38.4
December 31, 2013	1,951.4	137.4	161.8	150.3	2,077.3	2,216.9	139.6	60%	83.8
December 31, 2014	2,216.9	154.0	170.7	165.7	2,365.9	2,322.7	(43.2)	80%	(34.6)
								Total Deferred at Jan. 1, 2015:	56.0
								Market Value of Assets at Jan. 1, 2015:	2,322.7
								Less Total Deferred at Jan. 1, 2015:	56.0
								Actuarial Value of Assets at Jan. 1, 2015:	**2,266.7**

**Expected Market Value of Assets based on the actuarial investment return assumption for the prior year, taking into account actual cashflows during year.*

Table 3 Summary of Plan Net Assets (at Market Value)

	January 1,2015		January 1,2014	
	Market Value	Distribution	Market Value	Distribution
Assets				
Cash and short-term investments	115,932,503	5.0%	42,474,712	1.9%
Securities lending collateral	25,231,590	1.1%	13,595,048	0.6%
Receivables				
Employee	2,901,009	0.1%	2,737,213	0.1%
Employer	4,203,851	0.2%	2,991,610	0.1%
Interest and Dividends	4,052,719	0.2%	4,171,873	0.2%
Sales Proceeds Receivable	6,237,050	0.3%	5,726,852	0.3%
Total Receivables	17,394,629	0.7%	15,627,548	0.7%
Investments at fair value				
Fixed Income				
US Government obligations	175,685,948	7.6%	170,500,534	7.7%
Corporate bonds	181,902,501	7.8%	168,108,438	7.6%
Mortgage backed	118,076,247	5.1%	115,343,657	5.2%
Foreign sovereign	62,846,773	2.7%	63,253,024	2.9%
Domestic stocks	743,020,216	32.0%	700,186,774	31.6%
International stocks	590,547,932	25.4%	624,912,362	28.2%
Real estate	243,557,977	10.5%	231,616,985	10.4%
Alternative	106,759,091	4.6%	106,262,940	4.8%
Total investments	2,222,396,685	95.7%	2,180,184,714	98.3%
Total assets	2,380,955,407	102.5%	2,251,882,022	101.6%
Liabilities				
Pension & Other payables	2,286,308	-0.1%	1,876,818	-0.1%
Securities lending obligation	28,228,622	-1.2%	16,750,032	-0.8%
Investment commitments payable	27,736,782	-1.2%	16,346,687	-0.7%
Total Liabilities	58,251,712	-2.5%	34,973,537	-1.6%
Market Value of Net Assets Held in Trust For Pension Benefits	**2,322,703,695**	**100.0%**	**2,216,908,485**	**100.0%**

Table 4 Summary of Changes in Plan Net Assets (at Market Value)

	January 1,2015 Market Value	January 1,2014 Market Value
Additions		
Contributions		
Employer	89,988,898	77,073,667
Employee	63,969,504	60,342,581
Total contributions	153,958,402	137,416,248
Investment activities		
Investment income (loss)		
Net change in fair value of investments	93,680,606	267,444,451
Interest	11,584,482	8,377,595
Dividends	25,542,523	22,327,842
Net investment income (loss)	130,807,611	298,149,888
Securities lending activities		
Securities lending income	23,941	11,511
Borrowing rebates	216,063	64,217
Total securities lending income	240,004	75,728
Securities lending management fees	(59,989)	(18,925)
Net income from securities lending	180,015	56,803
Investment activity expenses		
Investment management fees	(7,802,096)	(7,606,049)
Investment consultant fees	(333,389)	(499,140)
Investment custodial fees	(341,946)	(283,841)
Total investment activity expenses	(8,477,431)	(8,389,030)
Total additions	276,468,597	427,233,909
Deductions		
Benefits	150,239,008	141,424,206
Refunds of contributions	15,103,615	15,278,136
Administrative expenses	5,330,764	5,058,356
Total deductions	170,673,387	161,760,698
Net Increase/(Decrease)	105,795,210	265,473,211
Net position held in trust for pension benefits		
Beginning of Year	2,216,908,485	1,951,435,274
End of Year	**2,322,703,695**	**2,216,908,485**

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Section 4 Actuarial Liabilities

In the previous section, an actuarial valuation was related to an inventory process and an analysis was given of the inventory of assets of the System as of the valuation date, January 1, 2015. In this section, the discussion will focus on the commitments of the System, which will be referred to as its actuarial liabilities (or, actuarial value of future benefits).

Actuarial Present Value of Future Benefits

In an active system, the present value of future actuarial liabilities will almost always exceed the actuarial assets. This is usually expected in all but a fully closed down fund, where no further contributions of any sort are anticipated. This deficiency has to be provided for by future contributions. The funding method for the system sets out a schedule of future contributions that will deal with any deficiency in an orderly fashion. The determination of the level of future contributions needed is discussed in the next section (Section 5) of this report.

Table 5 contains an analysis of the actuarial present value of all future benefits for contributing members, former contributing members, and beneficiaries. The analysis is given by type of benefit.

The actuarial liabilities summarized in Table 5 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes a measure of both benefits already earned and future benefits to be earned. Thus, for all current members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of their surviving beneficiaries.
The actuarial assumptions used to determine the liabilities are based on the results of the 2014 Investigation of Experience Report. New assumptions were adopted by the Board effective with this January 1, 2014 actuarial valuation. See Appendix A of this report for details.

Actuarial Cost Method

The method used to determine how the actuarial cost for an individual (or for the System as a whole) is allocated to past and future years is referred to as the actuarial cost method. For this valuation, the individual entry age normal cost (EANC) method has been used.

Under this method, the actuarial liabilities discussed above are allocated into two primary calculation components:

1. A normal cost
2. An actuarial accrued liability

Normal Cost and Actuarial Accrued Liability

The normal cost under the EANC method is developed so that benefits are allocated as a level percentage of payroll for each member, from the member's membership date to the member's termination date. One key feature of the EANC method is that normal costs tend to be stable from year to year (assuming no change in assumptions or benefit provisions) because most members' entry age cost percentages do not change materially from year to year, and because the population typically does not change considerably from year to year. The normal cost rates as a percentage of payroll for the current and prior valuation are shown by benefit type in Table 6. These normal cost contribution rates are intended to be contributed in each year in order to fund the ongoing cost of benefit accruals.

The annual normal cost rate may be considered the ongoing cost of benefit accruals for any given plan year. When the present value of all future normal costs is subtracted from the present value of total benefits, the result is the actuarial accrued liability (AAL). This can be thought of as the current value of all past normal costs, or the amount that would be in the fund if all prior actuarial assumptions had been exactly met. The AAL represents the portion of the present value of total benefits that the cost method allocates to past service.

To the extent that this AAL exceeds plan assets, an unfunded actuarial accrued liability (UAAL) exists. Table 7 calculates the UAAL, if any, for the current and prior valuations. Note that currently, a UAAL exists for SCERS; the payoff of this UAAL is discussed in more detail in Section 5 (City Contributions) of this report.

Table 5 Actuarial Present Value of Future Benefits (PVFB)

($ Millions)

		January 1, 2015	January 1, 2014
A.	Active Members		
	Service Retirement	$ 2,347.7	$ 2,227.6
	Vested Retirement	62.1	59.2
	Disability Retirement	7.0	6.6
	Survivor Benefits	22.1	21.4
	Refund of Member Contributions	38.9	35.5
	Total	$ 2,477.8	$ 2,350.3
B.	Inactive Members and Annuitants		
	Service Retirement	$ 1,476.1	$ 1,391.4
	Disability Retirement	10.1	9.5
	Beneficiaries	97.2	96.1
	Inactive Members	170.1	160.0
	Total	$ 1,753.5	$ 1,657.0
C.	**Grand Total PVFB**	**$ 4,231.3**	**$ 4,007.3**

Table 6 Normal Cost Contribution Rates as Percentages of Salary

	January 1, 2015	January 1, 2014
Service Retirement	12.52 %	12.49 %
Vested Retirement	1.24	1.25
Disability Retirement	0.07	0.07
Survivor Benefits	0.17	0.18
Refund of Member Contributions	1.20	1.20
Administrative Expenses	0.60	0.60
Total	**15.80 %**	**15.79 %**

Table 7 Unfunded Actuarial Accrued Liability (UAAL)

($ Millions)

		January 1, 2015	January 1, 2014
A.	Actuarial present value of all future benefits for present and former members and their survivors (Table 3)	$ 4,231.3	$ 4,007.3
B.	Less actuarial present value of total future normal costs for present members	798.7	747.2
C.	Actuarial accrued liability* [A - B]	$ 3,432.6	$ 3,260.1
D.	Less actuarial value of assets available for benefits (Table 2)	2,266.7	2,094.3
E.	Unfunded actuarial accrued liability (Funding Excess, if negative) [C - D]	$ 1,165.9	$ 1,165.8
F.	Funding Ratio [D ÷ C]	66.0%	64.2%

**The actuarial accrued liability as of January 1, 2016 is projected to be $3,612.1 million.*

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Section 5 City Contributions

As shown in Table 7 in the previous section of this report, the AAL exceeds the current Actuarial Value of Assets. In other words, as of the January 1, 2015 valuation, a UAAL exists for SCERS.

Because a UAAL exists, the total calculated minimum actuarially required contribution rate will consist of two components:

1. The normal cost contribution rate as of January 1, 2015
2. An amortization payment intended to pay off the UAAL in accordance with the SCERS funding policy

Funding

The current SCERS funding policy was updated by a Seattle City Council resolution in August 2013. The funding policy specifies that the UAAL will be amortized as a level percentage of payroll over a closed 30-year period as of the January 1, 2013 actuarial valuation. This means that, for the January 1, 2015 valuation, the amortization contribution rate must pay off the current UAAL over a 28-year period.

Actuarial Gains and Losses

When experience is different from actuarial expectation, an actuarial gain or loss occurs. Ongoing actuarial gains and losses decrease and increase the UAAL. Section 7 of this report illustrates the historical actuarial gains and losses on the UAAL by source.

Amortization of UAAL

Table 8 details the components of the minimum actuarially required contribution rate of 25.26% by breaking it into the necessary funding components: normal cost and amortization of UAAL. It then illustrates the split between member and employer contribution rates, assuming that member contributions are allocated entirely toward paying the ongoing normal cost of benefits.

As of the January 1, 2015 valuation, the minimum actuarially required contribution rate for the employer has decreased to 15.23% beginning January 1, 2016. This is mainly due to the recognition of deferred asset gains from prior years.

The total contribution rate of 25.76% being paid in 2015 was calculated in order to amortize the January 1, 2014 UAAL over a 29-year period; however, this rate is not projected to perfectly amortize the January 1, 2015 UAAL over 28 years due to gains and losses that have occurred during the year. Table 9 details the expected amortization of the UAAL over the 28-year closed period beginning January 1, 2015.

Amortization of UAAL (continued)

The total contribution rate can be immediately (i.e., as of the beginning of the next calendar year) decreased from 25.76% of pay to 25.26% of pay to be projected to amortize the UAAL over the scheduled 28 years from January 1, 2015. If the contribution rate is not decreased, the UAAL would be projected to be amortized over a shorter period than 28 years. Because this figure is based on an Actuarial Value of Assets that is currently deferring a net gain, this 25.26% is projected to decrease over the next several years if no other actuarial asset gains or losses were to occur.

In Section 8 of this report, we have included a five-year projection of the actuarial required contribution, including optimistic and pessimistic investment return scenarios.

Table 8 Contribution Rates as Percentages of Salary

		Actuarial Required Contribution Beginning	
		January 1, 2015	January 1, 2014
A.	Total normal cost rate	15.80 %	15.79 %
B.	UAAL amortization rate	9.46	9.97
C.	Actuarial required contribution rate	25.26 %	25.76 %
D.	Member contribution rate	10.03	10.03
E.	Allocation of employer contribution rate [1]		
	Normal cost	5.77 %	5.76 %
	Amortization payment	9.46	9.97
	Total employer contribution rate	15.23 %	15.73 %

[1] *If member contributions are all allocated to paying normal cost.*

Table 9 Amortization of Unfunded Actuarial Accrued Liability (UAAL)*

($ Millions)

Year	Payroll	Total Contribution Rate	Normal Cost Rate	UAAL Rate	UAAL Beginning Balance	UAAL Amortization Payment	UAAL Interest	UAAL Ending Balance
2015	$ 648	25.76%	15.80%	9.96%	$ 1,165.9	$ 64.5	$ 85.1	$ 1,186.4
2016	677	25.26%	15.80%	9.46%	1,186.4	64.0	86.6	1,209.0
2017	708	25.26%	15.80%	9.46%	1,209.0	67.0	88.2	1,230.3
2018	740	25.26%	15.80%	9.46%	1,230.3	70.0	89.7	1,249.9
2019	773	25.26%	15.80%	9.46%	1,249.9	73.1	91.1	1,267.9
2020	808	25.26%	15.80%	9.46%	1,267.9	76.4	92.3	1,283.7
2021	845	25.26%	15.80%	9.46%	1,283.7	79.9	93.3	1,297.1
2022	883	25.26%	15.80%	9.46%	1,297.1	83.5	94.2	1,307.7
2023	923	25.26%	15.80%	9.46%	1,307.7	87.3	94.9	1,315.3
2024	965	25.26%	15.80%	9.46%	1,315.3	91.3	95.3	1,319.3
2025	1009	25.26%	15.80%	9.46%	1,319.3	95.5	95.4	1,319.3
2026	1055	25.26%	15.80%	9.46%	1,319.3	99.8	95.3	1,314.7
2027	1103	25.26%	15.80%	9.46%	1,314.7	104.4	94.8	1,305.1
2028	1153	25.26%	15.80%	9.46%	1,305.1	109.1	93.9	1,289.9
2029	1205	25.26%	15.80%	9.46%	1,289.9	114.0	92.5	1,268.5
2030	1259	25.26%	15.80%	9.46%	1,268.5	119.1	90.7	1,240.1
2031	1316	25.26%	15.80%	9.46%	1,240.1	124.5	88.4	1,204.0
2032	1375	25.26%	15.80%	9.46%	1,204.0	130.1	85.5	1,159.5
2033	1437	25.26%	15.80%	9.46%	1,159.5	135.9	82.0	1,105.5
2034	1502	25.26%	15.80%	9.46%	1,105.5	142.1	77.7	1,041.0
2035	1570	25.26%	15.80%	9.46%	1,041.0	148.5	72.6	965.1
2036	1641	25.26%	15.80%	9.46%	965.1	155.2	66.7	876.5
2037	1715	25.26%	15.80%	9.46%	876.5	162.2	59.8	774.1
2038	1793	25.26%	15.80%	9.46%	774.1	169.6	51.8	656.2
2039	1874	25.26%	15.80%	9.46%	656.2	177.3	42.7	521.6
2040	1959	25.26%	15.80%	9.46%	521.6	185.3	32.3	368.6
2041	2048	25.26%	15.80%	9.46%	368.6	193.8	20.5	195.4
2042	2141	25.26%	15.80%	9.46%	195.4	202.6	7.2	(0.0)

**Amortization shown does not include the projected impact of currently deferred asset gains and losses.*

Section 6 Actuarial Information for Accounting Purposes

The Governmental Accounting Standards Board (GASB) has issued standards under Statements No. 25 and 27. Statement 25 is required reporting by the plan (the System) and Statement 27 is reporting by state and local governmental employers (the City). Statement 25 includes certain supplementary information:

1. A schedule of funding progress
2. A schedule of employer contributions

It should be noted that GASB has recently issued new statements (Statements No. 67 and 68) that supersede Statements No. 25 and 27. These will result in significant accounting changes. GASB Statement No. 67 will be effective beginning with the December 31, 2014 SCERS financial statements, and GASB Statement No. 68 will be effective beginning with the December 31, 2015 SCERS financial statements. For this transition year, we have included all of the GASB 25 and 27 exhibits in the actuarial valuation report as usual. The GASB 67 and 68 exhibits will be included in a separate accounting report.

The schedule of funding progress is shown in Table 11 and compares assets and liabilities over the years. Primarily due to the poor investment returns of 2000 through 2003, as well as the extreme market downturn of 2008, the plan is not fully funded. Another material factor in the current funding shortfall is the benefit enhancements triggered in 2007 (i.e., 65% Floor COLA and the 1.5% COLA for all retirees).

The schedule of employer contributions is shown in Table 13 and shows that, except for the most recent five years, the employer has consistently made contributions equal to or greater than the GASB Actuarial Required Contribution (ARC).

Table 10 develops the Annual Pension Cost (APC) and Net Pension Obligation (NPO). The NPO can be thought of as the accumulated value of APC in excess of employer contributions. Because contributions have exceeded the APC in prior years, a negative NPO had built up. The past two years, SCERS has had a positive NPO after five consecutive years with actual contributions less than the APC.

The current SCERS contribution rate is not sufficient to fund the UAAL over a period of 30 years or less under GASB calculation rules, since GASB rules preclude the use of an active membership growth assumption. Therefore, the GASB ARC will be equal to the amount needed to fund the normal cost for the year plus a 30-year amortization payment of the UAAL calculated with 0% membership growth. This is the minimum contribution allowed for accounting purposes under current GASB parameters.

Actuarial Information (continued)

Due to the large increase in the ARC, as well as the fact that the ARC was not fully funded by SCERS, the NPO is now positive.

Note that the concept of the NPO will no longer apply under the new GASB Statements No. 67 and 68.

Table 10 GASB Statement No. 27 Annual Pension Cost and Net Pension Obligation

For Fiscal Years Ending December 31, 2014 and December 31, 2015
Based on the January 1, 2013 and January 1, 2014 Valuations*

		2014	2015
1a	Total Normal Cost Rate	14.95%	15.79%
1b	Employee Contribution Rate	10.03%	10.03%
1c	Employer Normal Cost Rate (1a - 1b)	4.92%	5.76%
2a	Total Employer Contribution Rate	14.31%	15.73%
2b	Amortization Payment Rate (2a - 1c)	9.39%	9.97%
2c	Amortization Period	35 years	32 years
2d	GASB 27 Amortization Rate	10.68%	10.59%
3	Total Annual Required Contribution (ARC) Rate (1c + 2d)**	15.60%	16.35%
4	Covered Employee Payroll***	630,925,565	
5a	ARC (3 x 4)	98,424,388	
5b	Interest on Net Pension Obligation (NPO)	309,086	
5c	ARC Adjustment	(216,683)	
5d	Annual Pension Cost (APC) (5a + 5b + 5c)	98,516,791	
6	Employer Contribution	89,988,898	
7a	Change in NPO (5d - 6)	8,527,893	
7b	NPO at Beginning of Year	4,121,143	
7c	NPO at End of Year (7a + 7b)	12,649,036	

* *Beginning with the January 1, 2013 actuarial valuation report, GASB calculations take into account the lag between determination of the actuarial contribution rate and the date of expected contribution rate. For example, the January 1, 2011 actuarial valuation calculates the contribution rate beginning January 1, 2012 (for fiscal year ending December 31, 2012). This change was made due to SCERS' new funding policy, adopted in 2011, to contribute the actuarially determined contribution rate (previously, a fixed rate was contributed).*

** *If the amortization period determined by the actual contribution rate exceeds the maximum amortization period required by GASB Statement No. 27, the ARC is determined using an amortization of the UAAL over 30 years.*

*** *Covered payroll includes compensation paid to all active employees on which contributions were made.*

Table 11 Schedule of Funding Progress

(All dollar amounts in millions)

Actuarial Valuation Date January 1	Actuarial Value of Assets	Actuarial Accrued Liabilities (AAL)	Unfunded Actuarial Accrued Liabilities (UAAL)	Funded Ratio	Covered Payroll[1]	UAAL as a Percentage of Covered Payroll
1986	$ 395.7	$ 561.3	$ 165.6	70.5%	$ 182.0	91.0%
1988	445.4	595.3	149.9	74.8	199.0	75.3
1990	558.8	737.9	179.1	75.7	212.3	84.4
1992	660.0	810.5	150.5	81.4	239.4	62.9
1994	781.8	926.2	144.4	84.4	291.8	49.5
1996	980.2	1,019.7	39.5	96.1	310.6	12.7
1997	1,094.8	1,087.3	(7.5)	100.7	316.9	(2.4)
1998 [2]	1,224.6	1,266.7	42.1	96.7	341.5	12.3
1999	1,375.0	1,326.6	(48.4)	103.6	370.4	(13.1)
2000	1,582.7	1,403.1	(179.6)	112.8	383.6	(46.5)
2002	1,383.7	1,581.4	197.7	87.5	405.1	48.8
2004	1,527.5	1,778.9	251.4	85.9	424.7	59.2
2006	1,791.8	2,017.5	225.8	88.8	447.0	50.5
2008	2,119.4	2,294.6	175.2	92.4	501.9	34.9
2010	1,645.3	2,653.8	1,008.5	62.0	580.9	173.6
2011	2,013.7	2,709.0	695.4	74.3	563.2	123.5
2012	1,954.3	2,859.3	905.0	68.3	557.0	162.5
2013	1,920.1	3,025.3	1,105.2	63.5	567.8	194.6
2014	2,094.3	3,260.1	1,165.8	64.2	597.9	195.0
2015	2,266.7	3,432.6	1,165.9	66.0	630.9	184.8

[1] *Covered Payroll includes compensation paid to all active employees on which contributions are calculated. Covered Payroll differs from the Active Member Valuation Payroll shown in Table 1, which is an annualized compensation of only those members who were active on the actuarial valuation date.*

[2] *Reflects increased COLA benefits adopted by the City Council after the valuation was completed.*

Table 12 Solvency Test

(All dollar amounts in millions)

Actuarial Valuation Date January 1	Actuarial Value of Valuation Assets	Actuarial Accrued Liabilities for (A) Active Member Contributions	(B) Inactives, Retirees and Beneficiaries	(C) Active Members (Employer Financed Portion)	(D) Total	Portion of Actuarial Accrued Liabilities Covered by Assets (A)	(B)	(C)	(D)
1986	$ 395.7	$ 110.7	$ 263.1	$ 187.5	$ 561.3	100.0%	100.0%	11.7%	70.5%
1988	445.4	136.0	303.6	155.7	595.3	100.0	100.0	3.7	74.8
1990	558.8	164.0	332.8	241.1	737.9	100.0	100.0	25.7	75.7
1992	660.0	202.6	357.9	250.0	810.5	100.0	100.0	39.8	81.4
1994	781.8	248.4	383.1	294.7	926.2	100.0	100.0	51.0	84.4
1996	980.2	294.1	409.3	316.3	1,019.7	100.0	100.0	87.5	96.1
1997	1,094.8	313.1	449.8	324.4	1,087.3	100.0	100.0	100.0	100.7
1998 [1]	1,224.6	337.3	551.8	377.6	1,266.7	100.0	100.0	88.9	96.7
1999	1,375.0	358.4	577.6	390.6	1,326.6	100.0	100.0	100.0	103.6
2000	1,582.7	385.2	599.4	418.5	1,403.1	100.0	100.0	100.0	112.8
2002	1,383.7	434.3	675.6	471.5	1,581.4	100.0	100.0	58.1	87.5
2004	1,527.5	482.5	758.9	537.5	1,778.9	100.0	100.0	53.2	85.9
2006	1,791.8	539.7	902.2	575.6	2,017.5	100.0	100.0	60.8	88.8
2008	2,119.4	590.1	1,084.9	619.6	2,294.6	100.0	100.0	71.7	92.4
2010	1,645.3	684.7	1,176.4	792.7	2,653.8	100.0	81.7	0.0	62.0
2011	2,013.7	683.7	1,290.9	734.4	2,709.0	100.0	100.0	5.3	74.3
2012	1,954.3	730.9	1,393.7	734.7	2,859.3	100.0	87.8	0.0	68.3
2013	1,920.1	757.3	1,513.4	754.6	3,025.3	100.0	76.8	0.0	63.5
2014	2,094.3	792.4	1,657.0	810.7	3,260.1	100.0	78.6	0.0	64.2
2015	2,266.7	829.7	1,753.5	849.4	3,432.6	100.0	82.0	0.0	66.0

[1] *Reflects increased COLA benefits adopted by the City Council after the valuation was completed.*

Table 13 Schedule of Employer Contributions

(All dollar amounts in millions)

Fiscal Year Ending December 31	Covered Employee Payroll[1]	Actual Employer Contributions[2]	Actual Employer Contribution %[3]	Annual Required Contribution (ARC) %[4]	Percentage of ARC Contributed
1990	$ 243.2	$ 21.8	8.91%	8.91%	100.0%
1991	239.4	21.5	8.91	8.91	100.0
1992	280.4	25.1	8.91	8.91	100.0
1993	291.8	26.1	8.91	8.91	100.0
1994	298.0	26.7	8.91	8.91	100.0
1995	310.6	27.8	8.91	8.91	100.0
1996	316.9	28.4	8.91	8.91	100.0
1997	316.3	28.3	8.91	8.91	100.0
1998 [4]	341.5	30.6	8.91	8.91	100.0
1999	370.4	29.7	8.03	4.50	178.0
2000	383.6	30.8	8.03	4.50	178.0
2001	405.1	32.7	8.03	3.04	264.0
2002	454.5	36.6	8.03	3.04	264.0
2003	424.7	34.2	8.03	8.03	100.0
2004	456.8	36.7	8.03	8.03	100.0
2005	447.0	35.9	8.03	8.03	100.0
2006	472.5	37.9	8.03	8.03	100.0
2007	501.9	40.3	8.03	8.03	100.0
2008	572.4	46.0	8.03	8.03	100.0
2009	580.9	46.7	8.03	8.03	100.0
2010	563.2	45.2	8.03	17.00	47.2
2011	557.0	50.3	9.03	13.11	68.9
2012	567.8	62.5	11.01	11.84	93.0
2013	597.9	77.1	12.89	14.02	91.9
2014	630.9	90.0	14.26	15.60	91.4

[1] *Computed as the dollar amount of the actual employer contribution made as a percentage of payroll divided by the contribution rate, expressed as a percentage of payroll.*

[2] *The actual and required employer contributions are expressed as a percentage of payroll, after first recognizing the $12 per employee assessment made for the death benefits. This assessment per employee is included in the actual employer contributions reported and has been previously recognized by the actuary in determining the ARC.*

[3] *The City makes employer contributions as a percentage of actual payroll as set in the City Ordinance. Thus, as long as the percentage equals the percentage required by the most recent actuarial valuation, the dollar amount of the Annual Required Contributions (ARC) is equal to the actual dollar amount of the employer contributions. The City Ordinance does not permit a reduction in the employer contribution rate less than the employee contribution rate. Thus, the City's contributions exceeded the ARC for 1999 through 2001 and resulted in a negative NPO amount.*

[4] *ARC reflects the increased COLA benefits adopted in 1998. ARC is calculated assuming 0.0% population growth.*

Table 14 GASB Statement No. 27 Five-Year Trend Information

Fiscal Year Ending	Annual Pension Cost (APC)	Contribution as a Percentage of APC	Net Pension Obligation (NPO)
December 31, 2010	93,923,454	48%	(29,167,296)
December 31, 2011	72,346,935	70%	(7,121,624)
December 31, 2012	67,061,747	93%	(2,575,309)
December 31, 2013	83,770,119	92%	4,121,143
December 31, 2014	98,516,791	91%	12,649,036

Table 15 GASB Statement No. 27 Annual Development of Pension Cost

Fiscal Year Ending	ARC at EOY	Interest on NPO	ARC Adjustment	Annual Pension Cost (APC)	Total Employer Contributions	Change in NPO	NPO Balance	Gain/Loss	Amort. Factor	Amort. Of Gain/Loss	Ending Balance
December 31, 2010	95,743,634	(6,034,612)	4,214,432	93,923,454	45,224,787	48,698,667	(29,167,296)	50,518,847	18.47603	(4,214,432)	(29,167,296)
December 31, 2011	73,028,744	(2,260,465)	1,578,656	72,346,935	50,301,263	22,045,672	(7,121,624)	22,727,481	18.47603	(1,578,656)	(7,121,624)
December 31, 2012	67,228,221	(551,926)	385,452	67,061,747	62,515,432	4,546,315	(2,575,309)	4,712,789	18.47603	(385,452)	(2,575,309)
December 31, 2013	83,830,319	(199,586)	139,386	83,770,119	77,073,667	6,696,452	4,121,143	6,756,652	18.47603	(139,386)	4,121,143
December 31, 2014	98,424,388	309,086	(216,683)	98,516,791	89,988,898	8,527,893	12,649,036	8,435,490	19.01924	216,683	12,649,036

Amortization Period: Open 30 years, unless fixed rate amortizes in less than 30 years.
Amortization Method: Level Percentage of Projected Payroll.

Section 7 Actuarial Gains or Losses

An analysis of actuarial gains or losses was performed in conjunction with the January 1, 2013, January 1, 2014 and January 1, 2015 actuarial valuations.

The results of our analysis of the financial experience of the System in the three most recent actuarial valuations are presented in Table 16. Each gain or loss shown represents our estimate of how much the given type of experience caused the UAAL to change in the period since the previous actuarial valuation.

Gains and losses due to demographic sources are approximate. Demographic experience is analyzed in greater detail in our periodic assumption studies.

Table 16 Analysis of Actuarial Gains or Losses*

(All dollar amounts in millions)

	Gain/(Loss) For Period		
	2014	2013	2012
Investment Income Investment income on AVA was greater (less) than assumed.	$ 32.6	$ 50.8	$ (151.6)
Pay Increases Pay increases were less (greater) than expected.	(3.9)	3.3	3.1
Age and Service Retirements Members retired at older (younger) ages or with less (greater) final average pay than expected.	13.0	11.7	13.7
Disability Retirements Disability claims were less (greater) than expected.	(0.1)	(0.1)	(0.1)
Death-in-Service Benefits Survivor claims were less (greater) than expected.	-	-	-
Withdrawal from Employment More (less) reserves were released by withdrawals than expected.	(25.4)	(19.1)	(14.9)
Death after Retirement Retirees died younger (lived longer) than expected.	5.6	(3.1)	(2.8)
Total Gain or (Loss) during Period from Financial Experience	$ 21.7	$ 43.5	$ (152.6)
Non-Recurring Items:			
Changes in actuarial assumptions and plan amendments caused a gain (loss).	-	(76.7)	-
Data revisions	-	-	(17.0)
Change in actuarial asset valuation method caused a gain (loss).	N/A	N/A	N/A
Composite Gain (Loss) During Period	$ 21.7	$ (33.2)	$ (169.6)

**Effects related to losses are shown in parentheses. Numerical results are expressed as a decrease (increase) in the UAAL.*

Section 8 Contribution Rate Projections and Increases

This section of the January 1, 2015 actuarial valuation is devoted to a detailed discussion of the contribution rates currently needed, and projected to be needed, in order to effectively fund the System.

This section illustrates two key points:

1. As mentioned throughout this report, the current AVA is deferring a net gain. As a result, if no actuarial asset gains or losses were to occur over the next several years (i.e., the market return equals 7.50%), the minimum actuarially required contribution rate would be projected to decrease slightly (and the Funding Ratio would be projected to increase) as the remaining deferred gains are fully phased in.
2. Currently, the City is expected to contribute a total rate of 25.26% of payroll (employer and member) beginning January 1, 2016, on the basis of the current valuation report. The actual contribution rate needed will vary in the future. We have shown projections to roughly quantify the potential impact of good and bad experience.

Projection of Minimum Actuarially Required Contribution Rate

We have performed a five-year projection of the minimum actuarially required contribution rate under three different scenarios:

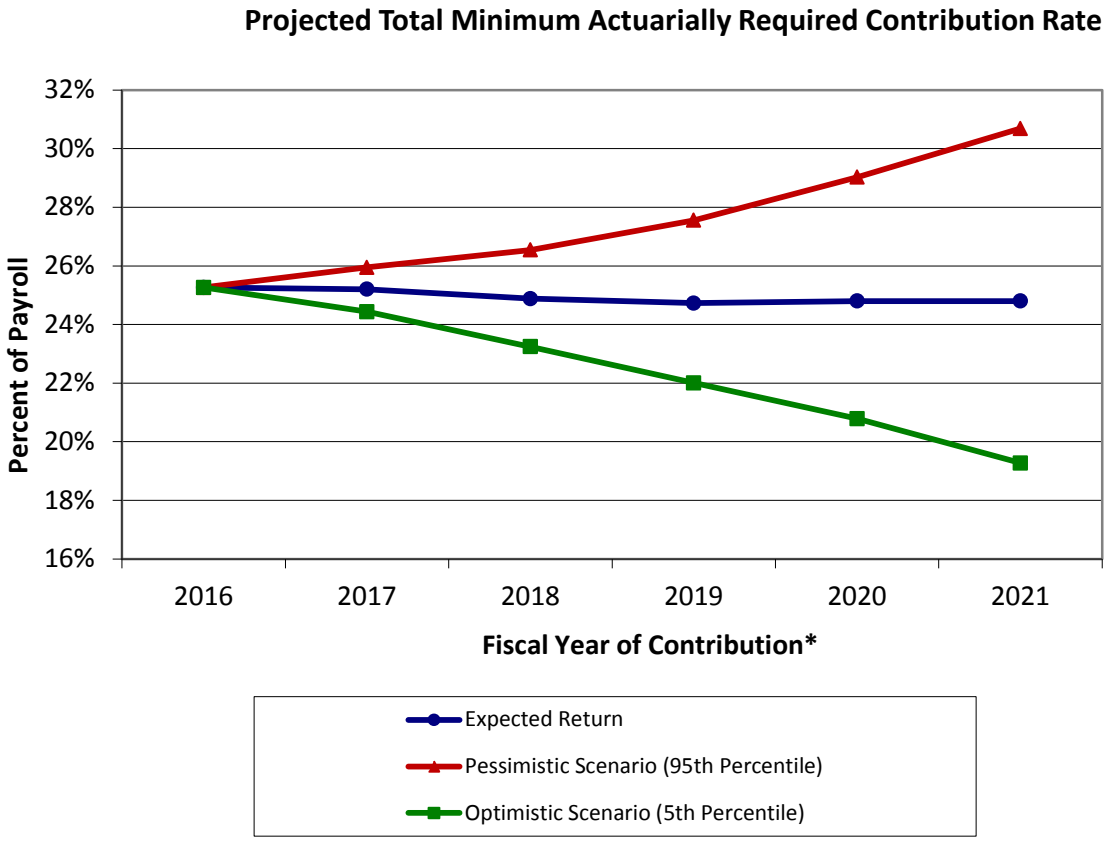
1. Assuming that the investment return assumption of 7.50% is met in each future year.
2. Assuming that the assets return at the 5th percentile.
3. Assuming that the assets return at the 95th percentile.

The result is effectively a 90% confidence interval (based on asset returns) of the projected contribution rates in these years. Note that in each scenario, all other actuarial assumptions are assumed to be met.

The projections assume the City contributes the minimum actuarially required contribution rate each year in the future. This rate is based on a 28-year closed amortization period as of January 1, 2015 and includes a 0.50% population growth assumption. Future returns at the 5th and 95th percentile are based on Milliman's capital market assumptions and SCERS's target asset allocation as of January 1, 2015.

Table 17 provides the results of these projections.

Table 17 Projected Total Contribution Rates



Projected Minimum Actuarially Required Total Contribution Rate			
Contribution Year*	If Asset Return at 95th Percentile	Assuming 7.50% Future Returns	If Asset Return at 5th Percentile
2016	25.26%	25.26%	25.26%
2017	25.95%	25.20%	24.44%
2018	26.54%	24.88%	23.24%
2019	27.55%	24.73%	22.01%
2020	29.03%	24.80%	20.78%
2021	30.68%	24.80%	19.27%

** Contribution year lags calculation year by one year. For example: Contribution Year 2016 is based on the 2015 valuation results, amortized over 28 years beginning in 2015, if the increase takes place in 2016.*

Assumed Returns for Projection

The projection above uses the 5th and 95th percentile returns based on SCERS' target asset allocation and Milliman's January 1, 2015 capital market assumptions. These percentile returns vary by the number of years of return; for example, the Contribution Year 2016 number assumes one year of return at the one-year 5th or 95th percentile rate; the Contribution Year 2017 number assumes two years of return at the two-year 5th or 95th percentile rate.

The percentile rates assumed for this analysis are shown in the table below:

Compounded Average Return for Period		
	Percentile	
	95th	*5th*
1-Year Period	*-11.7%*	*27.1%*
2-Year Period	*-6.9%*	*20.5%*
3-Year Period	*-4.7%*	*17.7%*
4-Year Period	*-3.3%*	*16.0%*
5-Year Period	*-2.4%*	*14.9%*

Contribution Decreases

The current contribution rate would need to be decreased in order to be projected to perfectly amortize the UAAL over a 28-year period as of the valuation date. As of January 1, 2016, a minimum actuarially required contribution rate of 25.26% is projected to be needed in order to amortize the UAAL over a 28-year period beginning January 1, 2015.

This represents a decrease of 0.50% of pay compared with the current 25.76% of pay being contributed (by the employer and members combined) based on a target of a 100% Funding Ratio by January 1, 2043. Note that due to the future recognition of deferred asset gains, this amount is expected to decrease in the next valuation, if all assumptions are met.

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Section 9 Projection of Benefit Payments and Contribution Dollars

Projection of Benefit Payments and Contribution Dollars

This section of the January 1, 2015 actuarial valuation illustrates projected SCERS benefit payments and dollar contributions over a 10-year period following the actuarial valuation.

These projections assume all actuarial assumptions, including 7.50% investment returns (on a market basis) in each future year, are met in the future.

The projection of contribution dollars makes the following additional key assumptions:

1. Valuation payroll is assumed to grow with both wage inflation of 4.00% and annual population growth of 0.50% (per current SCERS assumptions).
2. The City is assumed to make the minimum actuarially required contribution rate calculated in each projection year.
3. Future recognition of currently deferred asset gains or losses is reflected in the projection.

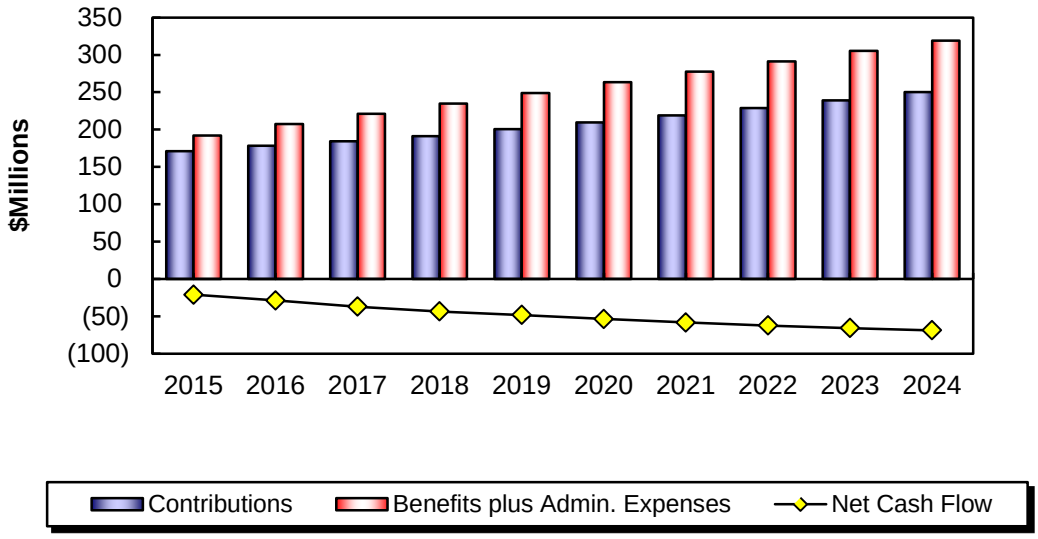
Table 18 shows the results of these projections.

Table 18 10-Year Projection of Benefit Payments and Contributions*

10-Year Projection of Cash Flows
($ in millions)

Year	Projected Payroll	Projected Admin. Expenses	Projected Benefit Payments	Projected Total Cash Outflow	Projected Total Contributions	Projected Net Cash Flow
2016	$ 677.1	$ 4.1	$ 188.0	$ 192.1	$ 171.0	$ (21.0)
2017	707.7	4.2	203.0	207.2	178.3	(28.9)
2018	739.7	4.4	216.7	221.1	184.0	(37.1)
2019	773.1	4.6	230.1	234.7	191.2	(43.5)
2020	808.0	4.8	243.9	248.7	200.4	(48.4)
2021	844.6	5.1	258.1	263.2	209.5	(53.7)
2022	882.7	5.3	272.0	277.3	218.9	(58.4)
2023	922.6	5.5	285.6	291.1	228.8	(62.3)
2024	964.4	5.8	299.3	305.1	239.2	(65.9)
2025	1,007.9	6.0	312.8	318.8	250.0	(68.9)

Cash Flow Projections



**Total contributions include City and employee contributions, and reflect anticipated future recognition of currently deferred asset gains and losses.*

Appendix A Actuarial Procedures and Assumptions

This section of the report describes the actuarial procedures and assumptions used in this valuation. The assumptions used in this valuation were adopted by the SCERS Board at its May 2014 meeting.

The actuarial assumptions used in the valuation are intended to estimate the future experience of the members of the System and of the System itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of the System's benefits. Table A-1 summarizes the actuarial assumptions.

Table A-2 presents expected annual salary increases for various years of service. Tables A-3 through A-6 show rates of decrement for service retirement, disability, mortality, and other terminations of employment. Table A-7 shows probabilities of refund upon termination.

Actuarial Cost Method

The actuarial valuation was prepared using the entry age actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. 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 sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the unfunded actuarial accrued liability or UAAL. The UAAL is amortized as a level percentage of the projected salaries of present and future members of the System.

Records and Data

The data used in the valuation consist of financial information; records of age, sex, service, salary, contribution rates and account balances of contributing members; and records of age, sex, and amount of benefit for retired members and beneficiaries. All of the data were supplied by the System and are accepted for valuation purposes without audit.

Replacement of Terminated Members

The ages at entry and distribution by sex of future members are assumed to average the same as those of the present members they replace. If the number of active members should increase, it is further assumed that the average entry age of the larger group will be the same, from an actuarial standpoint, as that of the present group. Under these assumptions, the normal cost rates for active members will not vary with the termination of present members.

City Contributions

The City contribution rate is determined as of the prior year's valuation such that the combined member and City contribution rate is sufficient to amortize the UAAL over a closed 30-year period beginning January 1, 2013. The amortization payment is based on a level percent of pay.

Administrative Expense

The annual contribution assumed to be necessary to meet general administrative expenses of the system, excluding investment expenses, is 0.60% of members' salaries. This figure is included in the calculation of the normal cost rate.

Valuation of Assets

The assets are valued using a five-year smoothing method based on the difference between the expected market value and the actual market value of the assets in each year. The expected market value is the prior year's market value increased with the net increase in the cash flow, all increased with interest during the past fiscal year at the expected investment return rate assumption.

Investment Earnings

The annual rate of investment earnings of the assets of the System is assumed to be 7.50%. This rate is compounded annually and is net of investment expenses.

Postretirement Benefit Increases

Postretirement benefit increases include:

- Automatic 1.5% Annual COLA – This benefit applies to all members.
- 65% Restoration of Purchasing Power (ROPP) – The member's benefit is the greater of 65% of the annual initial benefit adjusted for CPI or their applicable benefit. This minimum benefit is available to all retirees and beneficiaries. The financial impact of the ROPP benefit is valued assuming an annual price inflation rate of 3.25%.

Additional contingent COLA increases that were adopted in 2001, but not effective until the System reaches at least a 100% funding ratio, are not included in the valuation results.

Future Salaries

Table A-2 illustrates the rates of future salary increases assumed for the purpose of the valuation. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 4.00% per annum rate of increase in the general wage level of the membership.

Service Retirement

Table A-3 shows the annual assumed rates of retirement among members eligible for service retirement or reduced retirement. Separate rates are also used during the first year a member is eligible for service retirement.

Disability	The rates of disability used in this valuation are illustrated in Table A-4. It is assumed that one-third of all disabilities are duty related and two-thirds occur while off duty.
Mortality	The mortality rates used in this valuation are illustrated in Table A-5. A written description of each table used is included in Table A-1.
Other Terminations of Employment	The rates of assumed future withdrawal from active service for reasons other than death, disability, or retirement are shown for representative ages in Table A-6. Note that this assumption only applies to members who terminate and are not yet eligible for retirement.
Probability of Refund	Terminating members may forfeit a vested right to a deferred benefit if they elect a refund of their accumulated contributions. Table A-7 gives the assumed probability, at selected ages, that a terminating member will elect to receive a refund of his accumulated contributions instead of a deferred benefit. If a member terminates with more than 20 years of service, there is assumed to be a 20% probability that the member will elect a refund. Note that the probability of refund assumption only applies to members who terminate with a vested benefit and are not yet eligible for retirement.
Interest on Member Contributions	Interest on member contributions made prior to January 1, 2012 is assumed to accrue at a rate of 5.75% per annum, compounded annually. Interest on member contributions made on or after January 1, 2012 is assumed to accrue at 4.75%.
Portability	The cost of portability with other public retirement systems is not included in this valuation.
Probability of Marriage	We assumed 60% of the active members are married or have a registered domestic partner.
Commencement for Terminated Vested Members	Vested members who terminate but elect to leave their contributions in the System are assumed to commence receiving benefits at age 62.

Table A-1 Summary of Valuation Assumptions

January 1, 2015

I.	Economic assumptions	
	A. Price inflation	3.25%
	B. General wage increases	4.00
	C. Investment return	7.50
	D. Increase in membership	0.50
	E. Interest on member accounts	5.75/4.75*
II.	Demographic assumptions	
	A. Salary increases due to promotion and longevity	Table A-2
	B. Retirement	Table A-3
	C. Disability	Table A-4
	D. Mortality** among contributing members Men RP 2000 Employees Table for Males, with ages set back six years. Women RP 2000 Employees Table for Females, with ages set back six years.	Table A-5
	E. Mortality** among service retired members and beneficiaries Men RP2000 Combined Healthy Males, with ages set back two years. Women RP2000 Combined Healthy Females, with ages set back one year.	Table A-5
	F. Mortality** among disabled members Men RP2000 Disabled Males, with ages set back four years. Women RP2000 Disabled Females, with ages set back four years.	Table A-5
	G. Other terminations of employment	Table A-6
	H. Probabilities of vesting on termination	Table A-7

**Member contributions made prior to January 1, 2012 are assumed to accrue interest at 5.75%; contributions made on or after that date are assumed to accrue at 4.75%.*

***All mortality tables are generational using Projection Scale AA to reflect expected future mortality improvement.*

Table A-2 Future Salaries

Annual Rate of Increase

Years of Service	Promotion and Longevity	Total*
0 to 1	4.50%	8.68%
1 to 2	3.50	7.64
2 to 3	2.75	6.86
3 to 4	2.00	6.08
4 to 5	1.50	5.56
9 to 10	0.80	4.83
14 to 15	0.45	4.47
19 to 20	0.29	4.30
24 to 25	0.25	4.26
29 to 30	0.25	4.26
35 or more	0.25	4.26

**Total rate shown reflects compounded effect of merit increase and assumed wage growth of 4.00%.*

Table A-3 Retirement

	Annual Probability					
	Men			Women		
		Eligible for Full Benefits			Eligible for Full Benefits	
Age	Eligible for Reduced Benefits	Less than 30 years of service	30 years or more of service	Eligible for Reduced Benefits	Less than 30 years of service	30 years or more of service
Less than 50	0.0%	8.0%	8.0%	0.0%	10.0%	10.0%
50	5.0	8.0	10.0	5.0	10.0	10.0
51	5.0	8.0	10.0	5.0	10.0	10.0
52	5.0	8.0	12.0	5.0	10.0	12.0
53	3.0	8.0	12.0	3.0	10.0	12.0
54	3.0	8.0	12.0	3.0	10.0	12.0
55	6.0	8.0	12.0	6.0	10.0	12.0
56	5.0	8.0	12.0	5.0	10.0	12.0
57	5.0	8.0	12.0	5.0	13.0	12.0
58	5.0	8.0	12.0	5.0	13.0	12.0
59	5.0	8.0	15.0	8.0	13.0	15.0
60	6.0	14.0	15.0	8.0	15.0	15.0
61	9.0	12.0	15.0	12.0	13.0	15.0
62	15.0	20.0	30.0	15.0	20.0	26.5
63	12.0	18.0	22.0	12.0	18.0	20.0
64	9.5	18.0	22.0	13.0	18.0	20.0
65		40.0	32.0		40.0	30.0
66		40.0	32.0		40.0	38.0
67		40.0	32.0		40.0	38.0
68		30.0	26.0		33.0	32.0
69		30.0	26.0		33.0	32.0
70		*	*		*	*

**Immediate retirement is assumed for every person age 70 or over.*

Table A-4 Disability*

Age	Annual Rates	
	Men	Women
20	.00%	.00%
25	.00	.00
30	.02	.02
35	.02	.02
40	.03	.03
45	.03	.03
50	.04	.04
55	.04	.04
60	.04	.04
65	.00	.00

**It is assumed that one-third of all disabilities are duty related and two-thirds are non-duty related.*

Table A-5 Mortality

	Annual Probability*					
	Contributing Members		Members Retired for Service and Beneficiaries of Members		Disabled Members	
Age	Men	Women	Men	Women	Men	Women
22	0.03 %	0.02 %	0.03 %	0.02 %	2.26 %	0.74 %
27	0.04	0.02	0.04	0.02	2.26	0.74
32	0.04	0.02	0.04	0.03	2.26	0.74
37	0.05	0.03	0.08	0.05	2.26	0.74
42	0.08	0.05	0.11	0.08	2.26	0.74
47	0.11	0.08	0.15	0.12	2.26	0.74
52	0.16	0.12	0.21	0.19	2.64	0.98
57	0.23	0.18	0.36	0.31	3.29	1.45
62	0.33	0.28	0.67	0.58	3.93	1.97
67	0.54	0.43	1.27	1.10	4.66	2.53
72	N/A	N/A	2.22	1.86	5.69	3.32
77	N/A	N/A	3.78	3.10	7.33	4.58
82	N/A	N/A	6.44	5.08	9.76	6.35
87	N/A	N/A	11.08	8.64	12.83	8.78
92	N/A	N/A	18.34	14.46	16.22	12.25

**The mortality rates shown above are generationally projected on an individual basis using Projection Scale AA for the valuation.*

Table A-6 Other Terminations of Employment Among Members Not Eligible to Retire

Years of Service	Annual Rates for Men	Annual Rates for Women
0 to 1	6.5%	8.5%
1 to 2	5.8	8.3
2 to 3	5.3	8.0
3 to 4	4.8	7.8
4 to 5	4.4	7.5
5 to 6	4.1	7.0
6 to 7	3.8	6.3
7 to 8	3.5	5.7
8 to 9	3.2	5.1
9 to 10	2.9	4.5
10 to 11	2.6	4.1
11 to 12	2.3	3.8
12 to 13	2.1	3.4
13 to 14	1.9	3.1
14 to 15	1.7	2.7
15 to 16	1.5	2.4
16 to 17	1.4	2.0
17 to 18	1.2	1.7
18 to 19	1.1	1.4
19 to 20	1.0	1.2
20 to 21	0.9	1.1
21 to 22	0.8	1.0
22 to 23	0.8	0.9
23 to 24	0.7	0.8
24 to 25	0.7	0.8
25 to 26	0.6	0.7
26 to 27	0.6	0.7
27 to 28	0.5	0.6
28 to 29	0.5	0.6
29 to 30	0.4	0.5
30 and up	0.5	0.5

Table A-7 Probability of Refund

Age	Probabilities of Refund upon Termination*
25	70.0%
30	65.0
35	55.0
40	48.0
45	43.0
50	38.0
55	36.0
60	40.0

**If service is 20 or more years at termination, probability of refund is equal to 20%.*

Appendix B Provisions of Governing Law

All actuarial calculations are based upon our understanding of the provisions governing the Seattle City Employees' Retirement System, Chapter 4.36 of the Seattle City Code. The benefit and contribution provisions are summarized briefly below, along with corresponding references to the City code. This summary encompasses the major provisions of the System; it does not attempt to cover all of the detailed provisions.

Effective Date

The effective date of the retirement system was July 1, 1929. (Section 4.36.080)

Members' Contribution Rate

The members' contribution rate is 10.03% of salary as of January, 2012. Certain members who were contributing at a lower rate on June 23, 1972 continue to contribute at a lower rate. (Section 4.36.540A)

City Contribution Rate

The City contribution rate is the amount that is actuarially determined to be necessary to fund that portion of the retirement allowances not covered by the members' contributions. This amount shall be at least the members' contribution rate. (Section 4.36.545)

Final Compensation

Final compensation is based on highest average compensation (excluding overtime) during any consecutive 24 months. (Sections 4.36.040 and 4.36.050)

Service Retirement

Eligibility
30 years of service;

Age 52 and 20 years of service;

Age 57 and 10 years of service; or

Age 62 and 5 years of service.

Normal Form
Straight life benefit.

Optional Forms
Actuarial equivalent according to the mortality and interest basis adopted by the Retirement Board for such purposes.

Service Retirement (continued)

Amount of Allowance

The total monthly allowance is generally 2% times final compensation times total years of creditable service.

However, if the member does not qualify in one of the following ways, the 2% factor is reduced by 0.1% for each year that retirement precedes the earliest date the member would be:

(a) Any age with 30 years of service.

(b) Age 51-59, providing the member's age and years of service total 80 or more.

(c) Age 60 or older with 20 years of service.

(d) Age 65 or older with five years of service.

The reduction is somewhat less than 0.1% for members with less than 20 years of service.

For those hired on or after January 1, 1988, creditable service excludes the first six months of service.

Maximum Allowance

The formula-based retirement allowance (as described above) of any member shall be limited to 60% of final compensation, except where the minimum allowance described below applies.

Minimum Allowance

A monthly benefit based on twice the actuarial value of accumulated member contributions. This is not subject to the 60% of final compensation maximum.
(Sections 4.36.600, 4.36.605, 4.36.610 and 4.36.640)

Note: Effective January 1, 2011, the conversion of the contributions to an annuity benefit in the minimum allowance reflects option factors that use the new mortality rates.

Disability Retirement

Eligibility
Ten years of service credited within the 15 years preceding disability retirement. If disability occurs in the course of City employment, there is no service requirement.

Normal Form
Modified cash refund annuity. An optional survivor's benefit is available if the spouse is the beneficiary.

Amount of Allowance
The total monthly disability allowance is the greater of:

(a) 1.5% times final compensation times completed years of creditable service.

(b) 1.5% times final compensation times total years of creditable service that could have been earned to age 62, but not to exceed one-third of final compensation.

Maximum Allowance
The maximum disability allowance is 60% of final compensation.

Minimum Allowance
The minimum disability allowance is $140 per month.

(Sections 4.36.645 and 4.36.650)

Death Benefits

Retired Members
Death benefits to retired members are payable according to the form of retirement allowance elected.

Active Members

(a) Payment to the beneficiary of accumulated contributions, including interest; or

(b) If the member had completed 10 years of service at the time of death, a surviving spouse or a registered domestic partner may elect to receive, in place of (a) above, either:

  (1) A monthly allowance for life equal to the benefit the spouse would have received had the member just retired with a 100% contingent annuitant option in force; or

  (2) A cash payment of no more than one-half of the member's accumulated contributions, along with a correspondingly reduced retirement allowance.

(Section 4.36.680)

Withdrawal Benefits

Form
Payment of accumulated contributions, with interest.

(Section 4.36.665A)

Vested Withdrawal Benefits

Eligibility
Five years of service.

Amount of Allowance
Same as service retirement benefit.

Benefits Commence
Age 52, if 20 or more years of service;

Age 57, if 10-19 years of service; or

Age 62, regardless of years of service.

(Section 4.36.665)

Postretirement Benefit Increases

Provisions
Effective January 1, 2007, the City Council adopted a 65% Restoration of Purchasing Power benefit and an automatic 1.5% annual COLA to all members.

If the System reaches a 100% Funding Ratio, the restoration amount increases to 70%.

(Section 4.36.615)

Death Benefit System

Eligibility
Mandatory for all active members; optional for retired members.

Benefits
$2,000 upon the death of an active member or a participating retired member.

Assessment
Members pay an assessment of $12 per year; the City pays a matching amount. If these assessments are not adequate, additional amounts may be transferred from the interest earnings in the retirement fund.

(Sections 4.36.690 and 4.36.695)

Additional Contributions

Provisions
Members may voluntarily make contributions in excess of the regular rate; these are make-up contributions that apply only in specific situations.

Retirement Benefit
A monthly annuity which is the actuarial equivalent of accumulated additional contributions with interest.

Other Benefits
Accumulated additional contributions, with interest, generally become payable upon termination other than retirement.

(Sections 4.36.030 and 4.36.540A)

Appendix C Valuation Data

This valuation is based upon the membership of the system as of January 1, 2015. Membership data were supplied by the System and accepted for valuation purposes without audit. However, extensive tests were performed to ensure that the data are sufficiently accurate for valuation purposes.

The data for all contributing members, former contributing members, and their survivors are summarized in Table C-1.

Tables C-2 through C-4 present distributions of members receiving service retirement benefits, members receiving disability retirement benefits, and survivors receiving benefits. Shown in the tables are the numbers of persons receiving benefits, the total annual benefits received (including payments for the annual bonus), and the average annual benefit per recipient.

Table C-5 contains summaries of the data for contributing members. Values shown in the tables are the numbers of members and their total and average annual salaries.

The valuation also includes liabilities attributable to members who have terminated employment but have neither retired nor withdrawn their contributions.

Table C-1 Summary of Membership Data

	Contributing Members			Annuitants		
	Number	Annual Salaries ($1,000)	Average Annual Salaries	Number	Annual Benefits ($1,000)	Average Annual Benefits
January 1, 2015	8,746	$ 647,800	$ 74,068	6,019	$ 155,597	$ 25,852
January 1, 2014	8,603	606,888	70,548	5,880	147,145	25,026
January 1, 2013	8,465	579,396	68,449	5,742	137,836	24,006
January 1, 2012	8,430	560,412	66,476	5,580	128,645	23,056
January 1, 2011	8,599	569,472	66,225	5,428	118,920	21,909
January 1, 2010	9,071	596,892	65,802	5,304	108,886	20,529
January 1, 2008	8,842	529,062	59,835	5,201	102,772	19,760
January 1, 2006	8,521	468,096	54,934	5,011	83,988	16,761
January 1, 2004	8,382	441,562	52,680	4,876	74,341	15,246
January 1, 2002	8,758	418,908	47,831	4,733	61,801	13,058
January 1, 2000	8,669	382,620	44,137	4,681	55,542	11,865
January 1, 1999	7,779	333,984	42,934	4,644	52,482	11,301
January 1, 1998	7,926	329,028	41,512	4,649	50,394	10,840
January 1, 1996	8,078	314,448	38,926	4,619	44,271	9,585

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Inactive Lives

Table C-2 Members Receiving Service Retirement Benefits as of January 1, 2015*

	<50	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+	Totals
Number of Persons											
Male	0	16	103	366	770	681	416	269	183	149	2,953
Female	1	25	137	395	660	394	239	120	119	123	2,213
Total	1	41	240	761	1,430	1,075	655	389	302	272	5,166
Annual Benefits in Thousands											
Male	$ 0	$ 624	$ 4,036	$ 13,465	$ 23,739	$ 20,060	$ 10,822	$ 6,573	$ 4,342	$ 2,937	$ 86,598
Female	*	894	5,016	12,459	18,059	9,069	4,674	2,176	1,810	1,306	55,463
Total	0	1,518	9,052	25,924	41,798	29,129	15,496	8,749	6,152	4,243	142,061
Average Annual Benefits											
Male	$ 0	$ 39,000	$ 39,184	$ 36,790	$ 30,830	$ 29,457	$ 26,014	$ 24,435	$ 23,727	$ 19,711	$ 29,325
Female	*	35,760	36,613	31,542	27,362	23,018	19,556	18,133	15,210	10,618	25,062
Total	0	37,024	37,717	34,066	29,229	27,097	23,658	22,491	20,371	15,599	27,499

** Benefit amounts for groups with only one member not shown.*

Inactive Lives

Table C-3 Members Receiving Disability Retirement Benefits as of January 1, 2015*

	<50	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+	Totals
Number of Persons											
Male	0	2	4	4	5	3	4	5	1	2	30
Female	2	4	8	6	2	4	3	0	0	0	29
Total	2	6	12	10	7	7	7	5	1	2	59
Annual Benefits in Thousands											
Male	$ 0	$ 35	$ 76	$ 70	$ 69	$ 35	$ 51	$ 67	$ *	$ 25	$ 428
Female	32	74	156	86	44	42	33	0	0	0	467
Total	32	109	232	156	113	77	84	67	0	25	895
Average Annual Benefits											
Male	$ 0	$ 17,500	$ 19,000	$ 17,500	$ 13,800	$ 11,667	$ 12,750	$ 13,400	$ *	$ 12,500	$ 14,267
Female	16,000	18,500	19,500	14,333	22,000	10,500	11,000	0	0	0	16,103
Total	16,000	18,167	19,333	15,600	16,143	11,000	12,000	13,400	*	12,500	15,155

** Benefit amounts for groups with only one member not shown.*

Inactive Lives

Table C-4 Survivors Receiving Retirement Benefits as of January 1, 2015*

	<50	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+	Totals
Number of Persons											
Male	0	0	4	11	5	7	3	7	7	3	47
Female	7	7	22	45	65	58	64	84	122	187	661
Total	7	7	26	56	70	65	67	91	129	190	708
Annual Benefits in Thousands											
Male	$ 0	$ 0	$ 62	$ 166	$ 73	$ 89	$ 26	$ 74	$ 54	$ 15	$ 559
Female	85	161	412	778	1,157	1,128	1,019	1,348	1,862	2,623	10,573
Total	85	161	474	944	1,230	1,217	1,045	1,422	1,916	2,638	11,132
Average Annual Benefits											
Male	$ 0	$ 0	$ 15,500	$ 15,091	$ 14,600	$ 12,714	$ 8,667	$ 10,571	$ 7,714	$ 5,000	$ 11,894
Female	12,143	23,000	18,727	17,289	17,800	19,448	15,922	16,048	15,262	14,027	15,995
Total	12,143	23,000	18,231	16,857	17,571	18,723	15,597	15,626	14,853	13,884	15,723

**Benefit amounts for groups with only one member not shown.*

Note: In addition, 29 male survivors are receiving $380,929 and 57 female survivors are receiving $1,128,494 in Option B or Option C benefits for a certain period only.

Active Lives

Table C-5 Distribution of Employees and Salaries as of January 1, 2015

Number of Employees - By Age Group - Males

Nearest Year of Service	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Totals
0		13	13	39	25	26	23	16	12	4		2	173
1		16	48	61	72	65	50	30	28	19	3	1	393
2		8	31	60	47	43	27	30	20	16	4	2	288
3-4		5	34	37	52	45	35	30	23	21	8	3	293
5-9		1	49	155	192	176	166	161	122	89	28	5	1,144
10-14			4	36	97	125	141	126	134	93	33	6	795
15-19				1	25	82	140	142	157	87	49	13	696
20-24						16	84	106	117	80	29	8	440
25-29							13	83	97	104	39	5	341
30-34								15	58	60	22	1	156
35-39								5	24	52	20	3	104
40+									2	13	18	10	43
Totals	0	43	179	389	510	578	679	744	794	638	253	59	4,866

Monthly Salaries in Thousands - By Age Group - Males

Nearest Year of Service	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Totals
0	$	$ 40	$ 67	$ 238	$ 155	$ 175	$ 135	$ 87	$ 80	$ 17	$	$ 11	$ 1,005
1		49	232	353	439	412	330	186	192	125	18	6	2,342
2		25	139	343	283	276	190	208	143	119	23	24	1,773
3-4		21	166	223	355	309	235	219	163	166	57	13	1,927
5-9		1	237	865	1,203	1,174	1,067	959	773	567	143	20	7,009
10-14			14	198	588	790	933	829	871	583	230	37	5,073
15-19				8	149	565	920	950	1,020	568	316	89	4,585
20-24						97	589	765	796	562	178	47	3,034
25-29							98	602	654	708	292	33	2,387
30-34								106	455	428	155	8	1,152
35-39								42	160	386	148	13	749
40+									12	90	127	65	294
Totals	0	136	855	2,228	3,172	3,798	4,497	4,953	5,319	4,319	1,687	366	31,330

Active Lives

Table C-5 Distribution of Employees and Salaries as of January 1, 2015 (continued)

Average Monthly Salaries - By Age Group - Males

Nearest Year of Service	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Totals
0	$	$ 3,077	$ 5,154	$ 6,103	$ 6,200	$ 6,731	$ 5,870	$ 5,438	$ 6,667	$ 4,250	$	$ 5,500	$ 5,809
1		3,063	4,833	5,787	6,097	6,338	6,600	6,200	6,857	6,579	6,000	6,000	5,959
2		3,125	4,484	5,717	6,021	6,419	7,037	6,933	7,150	7,438	5,750	12,000	6,156
3-4		4,200	4,882	6,027	6,827	6,867	6,714	7,300	7,087	7,905	7,125	4,333	6,577
5-9		1,000	4,837	5,581	6,266	6,670	6,428	5,957	6,336	6,371	5,107	4,000	6,127
10-14			3,500	5,500	6,062	6,320	6,617	6,579	6,500	6,269	6,970	6,167	6,381
15-19				8,000	5,960	6,890	6,571	6,690	6,497	6,529	6,449	6,846	6,588
20-24						6,063	7,012	7,217	6,803	7,025	6,138	5,875	6,895
25-29							7,538	7,253	6,742	6,808	7,487	6,600	7,000
30-34								7,067	7,845	7,133	7,045	8,000	7,385
35-39								8,400	6,667	7,423	7,400	4,333	7,202
40+									6,000	6,923	7,056	6,500	6,837
Totals		3,163	4,777	5,728	6,220	6,571	6,623	6,657	6,699	6,770	6,668	6,203	6,439

Active Lives

Table C-5 Distribution of Employees and Salaries as of January 1, 2015 (continued)

Number of Employees - By Age Group - Females

Nearest Year of Service	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Totals
0	1	7	25	26	25	25	15	15	10	3	1		153
1		14	49	65	52	33	35	37	25	12	3		325
2		5	29	45	52	27	29	23	10	11	1		232
3-4		6	22	35	47	23	24	19	23	9	2	2	212
5-9		2	25	135	139	115	111	109	98	73	28	5	840
10-14			3	24	96	85	102	108	92	52	27	11	600
15-19				1	19	79	101	107	97	65	19	12	500
20-24					3	26	71	94	83	66	33	4	380
25-29							22	103	101	89	34	1	350
30-34								17	68	51	17	6	159
35-39								2	26	50	20	2	100
40+										16	11	2	29
Totals	1	34	153	331	433	413	510	634	633	497	196	45	3,880

Monthly Salaries in Thousands - By Age Group - Females

Nearest Year of Service	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Totals
0	$ 1	$ 22	$ 103	$ 149	$ 138	$ 139	$ 88	$ 67	$ 62	$ 31	$ 1	$	$ 801
1		48	217	322	288	184	187	229	170	60	14		1,719
2		20	133	249	297	174	175	133	57	68	4		1,310
3-4		16	88	203	241	163	143	111	154	58	12	18	1,207
5-9		3	91	645	789	681	617	631	605	447	127	14	4,650
10-14			8	123	530	548	664	707	589	315	152	27	3,663
15-19				4	89	480	636	651	610	371	89	33	2,963
20-24					17	144	411	607	513	429	180	10	2,311
25-29							131	635	619	557	230	5	2,177
30-34								112	485	311	121	31	1,060
35-39								13	162	298	140	12	625
40+										87	63	9	159
Totals	1	109	640	1,695	2,389	2,513	3,052	3,896	4,026	3,032	1,133	159	22,645

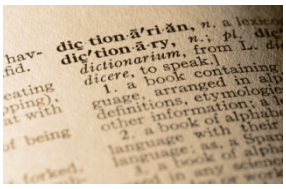
Active Lives

Table C-5 Distribution of Employees and Salaries as of January 1, 2015 (continued)

Average Monthly Salaries - By Age Group - Females

Nearest Year of Service	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Totals
0	$ 1,000	$ 3,143	$ 4,120	$ 5,731	$ 5,520	$ 5,560	$ 5,867	$ 4,467	$ 6,200	$ 10,333	$ 1,000	$	$ 5,235
1		3,429	4,429	4,954	5,538	5,576	5,343	6,189	6,800	5,000	4,667		5,289
2		4,000	4,586	5,533	5,712	6,444	6,034	5,783	5,700	6,182	4,000		5,647
3-4		2,667	4,000	5,800	5,128	7,087	5,958	5,842	6,696	6,444	6,000	9,000	5,693
5-9		1,500	3,640	4,778	5,676	5,922	5,559	5,789	6,173	6,123	4,536	2,800	5,536
10-14			2,667	5,125	5,521	6,447	6,510	6,546	6,402	6,058	5,630	2,455	6,105
15-19				4,000	4,684	6,076	6,297	6,084	6,289	5,708	4,684	2,750	5,926
20-24					5,667	5,538	5,789	6,457	6,181	6,500	5,455	2,500	6,082
25-29							5,955	6,165	6,129	6,258	6,765	5,000	6,220
30-34								6,588	7,132	6,098	7,118	5,167	6,667
35-39								6,500	6,231	5,960	7,000	6,000	6,250
40+										5,438	5,727	4,500	5,483
Totals	1,000	3,206	4,183	5,121	5,517	6,085	5,984	6,145	6,360	6,101	5,781	3,533	5,836

Appendix D Glossary



The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases the definitions have been modified for specific applicability to the Seattle City Employees' Retirement System. Defined terms are capitalized throughout this Appendix.

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Actuarial Accrued Liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Present Value

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Actuarially Equivalent	Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.
Amortization Payment	That portion of the pension plan contribution that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability (UAAL).
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 of the individual between entry age and assumed exit ages. 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.
Funding Ratio	The Actuarial Value of Assets divided by the Actuarial Accrued Liability. May also be calculated as the Market Value of Assets divided by the Actuarial Accrued Liability, in which case it is indicated that the Funding Ratio is shown on a Market Value basis.
Normal Cost	That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.
Projected Benefits	Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.
Surplus Funding	The excess of the Actuarial Value of Assets over the Actuarial Accrued Liability.
Unaccrued Benefit	The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.
Unfunded Actuarial Accrued Liability	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.