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city of CINCINNATI RETIREMENT

GASB STATEMENT NO. 68 REPORT

FOR THE

RETIREMENT SYSTEM FOR EMPLOYEES

OF THE CITY OF CINCINNATI

PREPARED AS OF JUNE 30, 2016

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

December 12, 2016

Board of Trustees
Retirement System for Employees of the City of Cincinnati
801 Plum Street
Cincinnati, OH 45202

Dear Members of the Board:

Presented in this report is information to assist the Retirement System for Employees of the City of Cincinnati (System) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 68. The information is presented for the period ending June 30, 2016 (the Measurement Date) to assist the System in better understanding the requirements of GASB 68 and to identify the information to be provided by the System's actuary, Cavanaugh Macdonald Consulting (CMC).

GASB Statement No. 68 established accounting and financial reporting requirements for governmental employers that provide pension benefits to their employees through a trust.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of December 31, 2015. The valuation was based upon data, furnished by the System, concerning active, inactive and retired members along with pertinent financial information.

To the best of our knowledge, this report is complete and accurate. The necessary calculations were performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement Plans.

The calculations were prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, and, in our opinion, meet the requirements of GASB 68.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Plan, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 68 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Respectfully submitted,

Edward J. Koebel

E H Gary

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

Eric H. Gary, FSA, FCA, MAAA
Principal and Chief Healthcare Actuary

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REPORT OF THE ANNUAL GASB STATEMENT NO. 68
REQUIRED INFORMATION FOR THE
RETIREMENT SYSTEM FOR THE EMPLOYEES
OF THE CITY OF CINCINNATI

PREPARED AS OF JUNE 30, 2016

SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), "Accounting and Financial Reporting For Pensions", in June 2013. This report has been prepared as of June 30, 2016. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the System as of December 31, 2015. The results of that valuation were detailed in a report dated August 4, 2016.

The NPL shown in the GASB Statement Number 67 Report for the Retirement System for Employees of the City of Cincinnati prepared as of June 30, 2016 and submitted November 4, 2016 is the NPL used for purposes of GASB 68. Please refer to that report for the derivation of the NPL.

Pension Expense includes amounts for service cost (the Normal Cost under EAN for the year), interest on the NPL, changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the remaining service life of the System membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the PE is shown in Section IV.

The unamortized portions of each year's experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included on the employer's balance sheet. The development of the deferred inflows and outflows is shown in Section III.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 68 for note disclosure and Required Supplementary Information (RSI).

SECTION II - SUMMARY OF PRINCIPAL RESULTS
($ IN THOUSANDS)

Valuation Date (VD):	December 31, 2015
Prior Measurement Date:	June 30, 2015
Measurement Date (MD):	June 30, 2016
Reporting Date (RD):	June 30, 2016
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.50%
Municipal Bond Index Rate at Prior Measurement Date	3.82%
Municipal Bond Index Rate at Measurement Date	3.01%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from future benefit payments for current members	N/A
Single Equivalent Interest Rate at Prior Measurement Date	5.08%
Single Equivalent Interest Rate at Measurement Date	7.50%
Net Pension Liability:	
Total Pension Liability (TPL)	$ 2,215,822
Fiduciary Net Position (FNP)	1,651,375
Net Pension Liability (NPL = TPL – FNP)	$ 564,447
FNP as a percentage of TPL	74.53%
Pension Expense (PE):	$(496,831)
Deferred Outflows of Resources:	$83,399
Deferred Inflows of Resources:	$328,350

SECTION III – FINANCIAL STATEMENT NOTES

The material presented herein will follow the order presented in GASB 68. Paragraph numbers are provided for ease of reference.

Paragraphs 40(a) and (b): The information required is to be supplied by the Employer.

Paragraph 40(c): The data required regarding the membership of the Retirement System for Employees of the City of Cincinnati were furnished by the System. The following table summarizes the membership of the System as of December 31, 2015, the Valuation Date.

Membership

	Number
Retired participants and beneficiaries currently receiving benefits	4,264
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	191
Inactive participants*	7,518
Active participants	
Full-Time	2,931
Part-Time	979
Total	15,883

* Participants who are former employees who have an employee account balance in the plan but are not otherwise vested in an employer provided benefit.

Paragraphs 40(d) and (e): The information required is to be supplied by the Employer.

Paragraphs 41: This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are outlined in Schedule C. The total pension liability was determined by an actuarial valuation as of December 31, 2015, using the following actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2016:

Inflation	3.0 percent
Salary increases, including inflation	3.0 to 7.0 percent, for five-year select period beginning December 31, 2011; 4.0 to 7.5 percent, thereafter
Long-Term Investment Rate of Return, net of pension plan investment expense, including inflation	7.50 percent
Municipal Bond Index Rate	
Prior Measurement Date	3.82 percent
Measurement Date	3.01 percent
Year FNP is projected to be depleted	N/A
Single Equivalent Interest Rate, net of pension plan investment expense, including inflation	
Prior Measurement Date	5.08 percent
Measurement Date	7.50 percent

Mortality	Both pre-retirement and post-retirement mortality rates were based on the RP 2000 combined mortality table, male rates set forward 2 years and female rates set forward 1 year and using a Scale AA projection to 2020. Post-disability mortality rates were based on the RP 2000 disabled retiree mortality table, female rates set back 5 years.

The actuarial assumptions used in the December 31, 2015 valuation were based on the results of the last actuarial experience study, dated October 28, 2011.

Paragraph 42

(a) **Discount rate**. The discount rate used to measure the total pension liability was 5.08% as of June 30, 2015 and 7.50% as June 30, 2016.

(b) **Projected cash flows:** The projection of cash flows used to determine the discount rate assumed that plan member contributions of 9.0% and Employer contributions of 16.25% will be made as set out in City Council ordinance and the Collaborative Settlement Agreement.

(c) **Long term rate of return:** The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

(d) **Municipal bond rate:** The discount rate determination used a municipal bond rate of 3.82% as of June 30, 2015. The municipal bond rate was not needed as of June 30, 2016 as the FNP is now projected to not be depleted during the projection period.

(e) **Periods of projected benefit payments:** Projected future benefit payments for all current plan members were projected through 2114.

(f) **Assumed asset allocation**: The target asset allocation and best estimates of arithmetic real rates of return for each major asset class as listed in the last actuarial experience study, dated October 28, 2011 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
Broad Fixed Income	14.00%	1.10%
High Yield	3.00%	5.60%
Broad US Equity	19.50%	6.60%
US Mid-Cap Growth	5.00%	7.80%
US Small-Cap Value	5.00%	10.60%
Developed Large-Cap	11.00%	7.80%
Non-US Small-Cap	5.00%	11.90%
Emerging Market	5.00%	11.30%
Hedge Fund – Hedged Equity	15.00%	4.70%
Real Estate - Core	7.50%	5.10%
Infrastructure	5.00%	8.30%
Private Equity - FOF	5.00%	13.20%
Total	100.00%	

*Arithmetic mean

(g): **Sensitivity analysis**: This is the disclosure of the sensitivity of the NPL to changes in the discount rate. The following presents the NPL of the System, calculated using the discount rate of 7.50 percent, as well as what the System's NPL calculated using a discount rate that is 1-percentage-point lower (6.50 percent) or 1-percentage-point higher (8.50 percent) than the current rate:

($ thousands)	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
System's Net Pension Liability	$787,823	$564,447	$373,616

Paragraph 44: This paragraph requires a schedule of changes in Net Pension Liability. The needed information is provided in the table below.

CHANGES IN THE NET PENSION LIABILITY
($ thousands)

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
Balances at June 30, 2015	$2,904,463	$1,510,182	$1,394,281
Changes for the year:			
Service cost	31,764		31,764
Interest	143,383		143,383
Benefit changes	(76,301)		(76,301)
Difference between expected and actual experience	4,137		4,137
Changes of assumptions	(627,693)		(627,693)
Contributions - employer		67,939	(67,939)
Contributions - employee		16,337	(16,337)
Net investment income		(11,631)	11,631
Benefit payments, including refunds of employee contributions	(163,931)	(163,931)	0
Administrative expense		(5,418)	5,418
Other changes	0	237,897	(237,897)
Net changes	(688,641)	141,193	(829,834)
Balances at June 30, 2016	$2,215,822	$1,651,375	$564,447

Paragraph 45(a): The date of the actuarial valuation upon which the TPL is based is December 31, 2015. The TPL as of June 30, 2016 is determined using standard roll forward techniques. The roll forward calculation adds the normal cost for the first half of 2016 (also called the service cost), subtracts the actual benefit payments and refunds for the six months, and then applies the expected SEIR for the period. This procedure was used to determine the TPL as of June 30, 2016, as shown in the following table. In addition, an expected TPL as of June 30, 2016 is determined by rolling forward the June 30, 2015 TPL using similar techniques. The difference between this expected TPL and the actual TPL as of June 30, 2016 is the experience gain or loss for the period. The impact of measuring the liabilities using a discount rate of 7.50% as opposed to the 5.08% used last year is shown as an assumption gain. The impact of the plan provision changes due to the Collaborative Settlement Agreement are shown as a benefit change gain.

TPL Roll-Forward ($ thousands)	Old Assumptions (1)	New Assumptions (2)	Plan Changes (3)
(a) Interest Rate (SEIR)	5.08%	7.50%	7.50%
(b) TPL as of December 31, 2015	$2,913,439	$2,281,985	$2,207,484
(c) Entry Age Normal Cost for the period January 1, 2016 – June 30, 2016	16,280	9,572	10,515
(d) Actual Benefit Payments and Refunds for the period January 1, 2016 – June 30, 2016	$81,966	$81,966	$81,966
(e) TPL as of June 30, 2016 = [(c) x $(1 + (a))^{1/2}$] + (d) – [(e) x $(1 + (a))^{1/4}$]	$2,919,816	$2,292,123	$2,215,822
(f) June 30, 2014 TPL Rolled Forward to June 30, 2015	2,915,679		
(g) Experience (Gain)/Loss: (1e) – (1f)	$4,137		
(h) Assumption (Gain)/Loss: (2e) – (1e)		$(627,693)	
(i) Benefit Changes (Gain)/Loss: (3e) – (2e)			$(76,301)

Paragraph 45(c): Since the prior measurement date, the discount rate used to measure liabilities was changed from 5.08% to 7.50%. There have been no other changes in actuarial assumptions and methods used in the measurement of the total pension liability since the prior measurement date.

Paragraph 45(d): Since the prior measurement date, there were several changes in benefit terms used in the measurement of the total pension liability as a result of the Collaborative Settlement Agreement (CSA) between the City and various plaintiff groups representing certain active and retired members of CRS as approved by the Court on October 5, 2015 and generally effective January 1, 2016. As some of the changes outlined in the CSA have yet to be finalized or may be subject to interpretation, the valuation represents our understanding of the CSA as of the valuation date.

Paragraph 45(f): There have been no known changes between the measurement date of the net pension liability and reporting date that are expected to have a significant effect on the net pension liability.

Paragraph 45(g): The information required is to be supplied by the Employer.

Paragraph 45(h): Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce pension expense they are labeled deferred inflows. If they will increase pension expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive System members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five year period.

The table below provides a summary of the deferred inflows and outflows as of June 30, 2016.

($ thousands)	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$2,129	$0
Changes of assumptions	0	328,350
Net difference between projected and actual earnings on plan investments	81,270	0
Employer contributions subsequent to the Measurement Date	0	$0
Total	$83,399	$328,350

Paragraph 45(i): **A**mounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year Ended June 30:	
2017	$(298,828)
2018	(11,344)
2019	39,095
2020	26,126
2021	0
Thereafter	0

SECTION IV – PENSION EXPENSE

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

The next three items refer to any changes that occurred in the TPL due to:

- benefit changes,
- actual versus expected experience or
- changes in actuarial assumptions.

Benefit changes, which are reflected immediately in PE, can be positive, if there is a benefit improvement for existing System members, or negative if there is a benefit reduction.

The next items to be recognized are the portion of current year changes in TPL due to actual versus expected experience for the year and the portion of current year changes in TPL due to changes in actuarial assumptions. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire System membership from the prior year. The remaining service life of active members is the average number of years they are expected to remain active. For the year ended June 30, 2016 this number is 11.22. The remaining service life of the inactive members is, of course, zero. Therefore, the figure to use for the amortization is the weighted average of these two amounts, or 2.06. The table below provides the calculation of the average remaining future service life.

Category	Number (1)	Average Years of Future Service Life (2)
a. Active Members	2,804	11.22
b. Inactive Members	12,481	0.00
c. Total	15,285	
Weighted Average Years of Future Service Life [(a1 x a2) + (b1 x b2)]/c1		2.06

Member contributions for the year and projected earnings on the FNP, again at the rate used to calculate the liabilities, are subtracted from the amount determined thus far. The current year portions of previously determined experience, assumption, and investment earnings amounts, recognized as deferred inflows and outflows (see Section III) are included next. Deferred inflows are subtracted from the PE while deferred outflows are added to the PE. Finally, administrative expenses and other miscellaneous items are included.

The calculation of the Pension Expense is shown in the following table.

Pension Expense
For the Year Ended June 30, 2016
($ thousands)

Service Cost	$31,764
Interest on the total pension liability	143,383
Current-period benefit changes	(76,301)
Expensed portion of current-period difference between expected and actual experience in the total pension liability	2,008
Expensed portion of current-period changes of assumptions	(304,705)
Member contributions	(16,337)
Projected earnings on plan investments	(118,995)
Expensed portion of current-period differences between actual and projected earnings on plan investments	26,125
Administrative expense	5,418
Other	(237,897)
Recognition of beginning deferred outflows of resources as pension expense	77,974
Recognition of beginning deferred inflows of resources as pension expense	(29,268)
Pension Expense	$(496,831)

SECTION V – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the System's financial statements:

Paragraphs 46(a) and (b): The required tables are provided in Schedule A and the information is as of the Measurement Dates.

Paragraph 46(c): The required table is provided in Schedule A and the information is as of the Employer's Fiscal Year Ends.

Paragraph 47: In addition the following should be noted regarding the RSI:

Changes of benefit terms. There were several changes in benefit provisions as a result of the Collaborative Settlement Agreement (CSA) between the City and various plaintiff groups representing certain active and retired members of CRS as approved by the Court on October 5, 2015 and generally effective January 1, 2016. As some of the changes outlined in the CSA have yet to be finalized or may be subject to interpretation, the valuation represents our understanding of the CSA as of the valuation date.

Changes in actuarial assumptions and methods: None.

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contribution rates in the schedule of employer contributions are calculated as of December 31, eighteen months prior to the end of the fiscal year in which contributions are reported (as of December 31, 2014 for the fiscal year 2016 contributions). The following actuarial methods and assumptions were used to determine actuarial contribution rates reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level dollar, open
Remaining amortization period	30 years
Asset valuation method	5-year smoothed market
Inflation	3.0 percent
Salary increase	3.0 to 7.0 percent, including inflation for five-year select period beginning December 31, 2011; 4.0 to 7.5 percent, including inflation thereafter
Investment rate of return	7.5 percent, net of pension plan investment expense, and including inflation

APPENDIX A

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY
($ thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$ 25,937	$ 27,785	$ 31,764							
Interest	148,408	149,052	143,383							
Benefit changes	0	0	(76,301)							
Difference between expected and actual experience	0	(14,024)	4,137							
Changes of assumptions	(17,827)	155,948	(627,693)							
Benefit payments	(156,149)	(159,176)	(162,103)							
Refunds of contributions	(1,785)	(2,231)	(1,828)							
Net change in total pension liability	(1,416)	157,354	(688,641)							
Total pension liability - beginning	2,748,525	2,747,109	2,904,463							
Total pension liability - ending (a)	$ 2,747,109	$ 2,904,463	$ 2,215,822							
Plan net position										
Contributions - employer	$ 37,740	$ 29,084	$ 67,939							
Contributions - member	15,059	16,186	16,337							
Net investment income	258,382	49,138	(11,631)							
Benefit payments	(156,149)	(159,176)	(162,103)							
Administrative expense	(1,384)	(1,570)	(5,418)							
Refunds of contributions	(1,785)	(2,231)	(1,828)							
Other	0	0	237,897							
Net change in plan net position	151,863	(68,569)	141,193							
Plan net position - beginning	1,426,888	1,578,751	1,510,182							
Plan net position - ending (b)	$ 1,578,751	$ 1,510,182	$ 1,651,375							
Net pension liability - ending (a) - (b)	$ 1,168,358	$ 1,394,281	$ 564,447							

SCHEDULE OF THE NET PENSION LIABILITY
($ thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$2,747,109	$2,904,463	$2,215,822							
Plan net position	1,578,751	1,510,182	1,651,375							
Net pension liability	$1,168,358	$1,394,281	$ 564,447							
Ratio of plan net position to total pension liability	57.47%	52.00%	74.53%							
Covered-employee payroll	$ 163,477	$ 164,575	$ 174,963							
Net pension liability as a percentage of covered-employee payroll	714.69%	847.20%	322.61%							

SCHEDULE OF EMPLOYER CONTRIBUTIONS
($ thousands)

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Actuarially determined employer contribution	$ 69,939	$ 75,566	$ 78,101	$ 66,999	$ 49,952	$ 54,875	$ 80,882	$ 43,065	$ 38,767	$ 38,571
Actual employer contributions	67,939	29,084	37,739	37,192	33,608	31,160	30,029	26,650	23,969	31,763
Annual contribution deficiency (excess)	$ 2,000	$ 46,482	$ 40,362	$ 29,807	$ 16,344	$ 23,715	$ 50,853	$ 16,415	$ 14,798	$ 6,808
Covered-employee payroll	$ 174,963	$ 164,575	$ 163,477	$ 167,148	$ 167,148	$ 165,029	$ 167,589	$ 170,416	$ 164,640	$ 182,396
Actual contributions as a percentage of covered-employee payroll	38.83%	17.67%	23.09%	22.25%	20.11%	18.88%	17.92%	15.64%	14.56%	17.41%

Notes:

Fiscal year changed in 2013 from December 31 to June 30.

APPENDIX B

SUMMARY OF BENEFIT PROVISIONS VALUED

Eligibility

All active employees of the City except for the following:

- Members of the State Police and Fireman's Disability and Pension Fund.
- Employees for whom the City contributes to PERS.
- Elected officials.

As part of the plan provisions from Ordinance 84-2011 that were passed by the City Council on March 16, 2011 and adopted by the Board, participants in the System were divided into the following groups:

Group	Criteria
A, B	Retirees as of 7/1/2011.
C	Active members who attain 30 years of service or age 60 with 5 years of service before 7/1/2011.
D	Active members who first attain 30 years of service or age 60 with 5 years of service on or after 7/1/2011 but before 1/1/2014 and retire on or before 1/1/2014.
E	Active members who first attain 30 years of service or age 60 with 5 years of service on or after 7/1/2011 but before 1/1/2014 and retire after 1/1/2014.
F	Active members hired before 1/1/2010 and not in groups C, D, or E.
G	Active members hired on or after 1/1/2010.

As part of the CSA approved by the Court on October 5, 2015 and generally effective January 1, 2016, participants in the System were further classified as follows:

Class	Criteria
Retirees Class	Retirees as of 7/1/2011 and their designated optionees.
Current Employees Class	Participants with at least 5-years of service and were actively employed on July 1, 2011 and were members of Groups C, D, E, and F.
Non-CSA participants	All other participants who are not included as part of the CSA.

Service Retirement Benefit

<u>Groups A, B, C and D:</u>

Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.
Early Retirement Eligibility	Age 55 with 25 years of service.
Benefit Formula Multiplier	Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.
Average Highest Compensation	Average of the highest three consecutive years of compensation.
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.
Benefit	a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement. b) A pension which together with the annuity produces a total annual retirement allowance equal to the product of the applicable benefit formula multiplier, the member's average highest compensation, and the number of years of service. Early Retirement Benefit is actuarially reduced from normal retirement age.

Group E – Current Employees Class:

Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.
Early Retirement Eligibility	Age 55 with 25 years of service.

Retirement benefit is composed of as many as three components:

Part A Benefit: for service earned through December 31, 2013

Part B Benefit: for service earned on and after January 1, 2014 up to a combined 20 years of service

Part C Benefit: for service earned on or after January 1, 2014 in excess of a combined 20 years of service.

Benefit Formula Multiplier	**Part A Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier. **Part B Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier. **Part C Benefit:** 2.20% multiplier
Average Highest Compensation	**Part A Benefit:** Average of the highest three consecutive years of compensation **Part B Benefit:** Average of the highest five consecutive years of compensation **Part C Benefit:** Average of the highest five consecutive years of compensation
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.

Benefit

a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement.

b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service.

Early Retirement Benefit is actuarially reduced from normal retirement age.

Group E – Non-CSA participants:

Normal Retirement Eligibility	Age 65 with 5 years of service or age 60 with 30 years of service.
Reduced Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.

Retirement benefit is composed of as many as three components:

Part A Benefit: for service earned through December 31, 2013

Part B Benefit: for service earned on and after January 1, 2014 up to a combined 30 years of service

Part C Benefit: for service earned on or after January 1, 2014 in excess of a combined 30 years of service.

Benefit Formula Multiplier

Part A Benefit: Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.

Part B Benefit: 2.20% multiplier

Part C Benefit: 2.00% multiplier

Average Highest Compensation

<u>Part A Benefit:</u> Average of the highest three consecutive years of compensation

<u>Part B Benefit:</u> Average of the highest five consecutive years of compensation

<u>Part C Benefit:</u> Average of the highest five consecutive years of compensation

Years of Service

Years or fractional years of full-time service rendered to the plan sponsor.

Benefit

a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement.

b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service.

Reduced Normal Retirement Part A benefits will not be actuarially reduced.

Reduced Normal Retirement Part B and C benefits are actuarially reduced from normal retirement age.

<u>Group F– Current Employees Class:</u>

Normal Retirement Eligibility

Age 60 with 5 years of service or 30 years of service.

Early Retirement Eligibility

Age 55 with 25 years of service.

Retirement benefit is composed of as many as three components:

<u>Part A Benefit:</u> for service earned through June 30, 2011

<u>Part B Benefit:</u> for service earned on and after July 1, 2011 up to a combined 20 years of service

<u>Part C Benefit</u>: for service earned on or after July 1, 2011 in excess of a combined 20 years of service.

Benefit Formula Multiplier	**<u>Part A Benefit:</u>** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.
	<u>Part B Benefit:</u> Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.
	<u>Part C Benefit:</u> 2.20% multiplier
Average Highest Compensation	**<u>Part A Benefit:</u>** Average of the highest three consecutive years of compensation
	<u>Part B Benefit:</u> Average of the highest five consecutive years of compensation
	<u>Part C Benefit:</u> Average of the highest five consecutive years of compensation
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.
Benefit	a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement. b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service. Early Retirement Benefit is actuarially reduced from normal retirement age.

Group F Non-CSA participants:

Normal Retirement Eligibility	Age 65 with 5 years of service or age 60 with 30 years of service.
Reduced Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.
Early Retirement Eligibility	Prior to January 1, 2014, age 55 with 25 years of service or age 57 with 15 years of service. On or after January 1, 2014, age 57 with 15 years of service.

Retirement benefit is composed of as many as three components:

Part A Benefit: for service earned through June 30, 2011

Part B Benefit: for service earned on and after July 1, 2011 up to a combined 30 years of service

Part C Benefit: for service earned on or after July 1, 2011 in excess of a combined 30 years of service.

Benefit Formula Multiplier	**Part A Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.
	Part B Benefit: 2.20% multiplier
	Part C Benefit: 2.00% multiplier
Average Highest Compensation	**Part A Benefit:** Average of the highest three consecutive years of compensation
	Part B Benefit: Average of the highest five consecutive years of compensation
	Part C Benefit: Average of the highest five consecutive years of compensation
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.

Benefit	a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement. b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service. Reduced Normal Retirement Part A benefits will not be actuarially reduced. Reduced Normal Retirement Part B and C benefits are actuarially reduced from normal retirement age. Early Retirement Part A, B, and C benefits are actuarially reduced from normal retirement age.

Group G

Normal Retirement Eligibility	Age 67 with 5 years of service or age 62 with 30 years of service.
Early Retirement Eligibility	Age 57 with 15 years of service.
Benefit Formula Multiplier	Benefit is calculated using a 2.20% multiplier for all years of service up to 30 years and a 2.00% multiplier for all service in excess of 30 years.
Average Highest Compensation	Average of the highest five consecutive years of compensation.
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.
Benefit	a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement. b) A pension which together with the annuity produces a total annual retirement allowance equal to the product of the applicable benefit formula multiplier,

the member's average highest compensation, and the number of years of service.

Early Retirement Benefit is actuarially reduced from normal retirement age.

Miscellany for All Groups

In no event shall the retirement allowance be greater than 90% of a member's average highest compensation.

In no event shall the retirement allowance be greater than that permitted by Section 415 of the Internal Revenue Code.

The average highest compensation used in the calculation of benefits depends on which benefit formula applies to the member. The formula that uses the 2.22% multiplier includes overtime compensation and the lump sum payment for unused vacation, unused sick-pay, etc. The formulas that use all other multipliers do not include overtime or the lump sum payment.

Disability Retirement Benefit

Eligibility — 5 years of service.

Benefit — 90% of normal retirement benefit at disability date but not less than the smaller of:

(1) 25% of average highest compensation

(2) 90% of the retirement benefit member would have become entitled to had he continued in service to normal retirement age without further change in average highest compensation.

Deferred Vested Retirement Benefit

Eligibility — 5 years of service.

Benefit — Normal retirement benefit beginning at normal retirement age.

Preretirement Death Benefit

(1) Refund of contributions with interest.

(2) Survivor Benefits according to type of survivors if member has at least 18 months of service.

Postretirement Death Benefit

(1) Lump sum $5,000 for group AB only.

(2) If no Joint and Survivor Option is selected, balance of member contributions not received back in retirement benefit payments prior to death.

Optional Forms of Benefit

(1) Joint and 100% Survivor Payment

(2) Joint and 50% Survivor Payment

(3) 66 2/3% Joint and Survivor Payment

(4) 80% Joint and Survivor Payment

COLA Increases

Retirees Class:

3% simple COLA based on the participant's benefit on January 1, 2016 including all previously granted COLA's. Effective January 1, 2016 the COLA will be suspended for a 3-year period.

In the third year of the COLA suspension (calendar year 2018), members will receive a one-time payment that is the lesser of 3% of their base pension benefit and $1,000. This payment will be made on January 1, or the anniversary date of the member's retirement according to when the member normally receives a COLA.

Current Employees Class:

3% simple COLA with a 3-year delay following each participant's date of retirement.

Non-CSA Participants:

Increases will be indexed to the CPI-U with a maximum of 2% per year and will be based on simple interest. There is no suspension or delay for COLA increases.

Poverty Exception:

Any member of the Retirees Class or Current Employees Class who retired or retires with at least 5-years of service and whose household income is below 150% of federal poverty guidelines will receive a 3% compounding COLA until such time income exceeds 150% of federal poverty guidelines at which point the participant will receive a 3% simple COLA.

Contributions

By Members:	Each member, commencing January 1, 1978, contributes at a rate of 7.0% of the salary used to compute retirement benefits until his retirement. Beginning January 1, 2010, the employee contribution rate was increased 0.5% per year over 4 years to reach 9.0% of pay. The CSA establishes the contribution rate for members shall not exceed 9.0% of pay for the term of the agreement.
By Employers:	The sponsoring employer makes annual contributions based on members' salaries so that, when members become eligible for benefits, reserves will have been accumulated adequate to provide the pension and other benefits payable by the plan on account of creditable service.

2007 Early Retirement Window

City employees who have 28 years or more of service credit prior to January 1, 2008 were eligible. Those electing to retire prior to January 1, 2008 were credited with two more years of service.

Deferred Retirement Option Plan (DROP)

At the time of this report, the design of the DROP has not been finalized and is still being negotiated. The valuation was performed using the most up-to-date design proposal available and is described below.

Eligibility	Current Employees Class members with at least 30 years of service.
Maximum Participation Period	5 years.
Minimum Participation Period	None.
Benefit	Monthly pension benefit calculated as if eligible member actually retired on their DROP effective date, including any adjustments for an assigned optionee. The monthly pension benefit will be contributed to the member's DROP account in the CRS Pension Trust and paid out as a lump sum upon termination from the DROP.

Employee Contributions	Members continue to contribute 9% of pay while participating in DROP. The following portions will be credited to the member's DROP account and the remaining portion will be contributed to the CRS Pension Trust:

Amounts Credited to Member's DROP Account	
Years 1 & 2	50% of employee contributions
Years 3 & 4	75% of employee contributions
Year 5	100% of employee contributions

Employer Contributions	Employer contributions to the CRS Pension Trust continue to apply in the same manner as for other actively employed members who are not participating in the DROP. Employer contributions are not credited to the member's DROP account.
Interest	DROP account balances are credited each month at a rate equal to the 10-year U.S. Treasury Note Business Day Series adjusted quarterly with a cap of 4% but not less than 0%.

APPENDIX C

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

INVESTMENT RATE OF RETURN: 7.50% per year, net of investment expenses (5.08% at beginning of fiscal year).

INFLATION ASSUMPTION: 3.00% per annum.

SALARY INCREASES: Salary increases are assumed to vary by service. In addition, salary increases are assumed to be lower for a five-year select period beginning with the December 31, 2011 valuation. Representative rates are as follows:

	Annual Increase	
Service	Select Period	Ultimate Period
0	7.0%	7.5%
5	4.5	5.0
10	3.0	4.5
20	3.0	4.5
30	3.0	4.0

SEPARATIONS FROM ACTIVE SERVICE: For death rates, RP-2000 Combined Mortality Table set forward two years for males and set forward one year for females and using a Scale AA projection to 2020 was used. Representative values of the assumed annual rates of separation from active service are as follows:

	Annual Rate of Withdrawal			
Age	Less than One Year of Service	Between One and Three Years of Service	Between Three and Five Years of Service	Five or More Years of Service
20	25.0%	10.0%	7.5%	5.0%
25	25.0	10.0	7.5	5.0
30	25.0	10.0	7.5	3.5
35	25.0	10.0	4.0	2.8
40	25.0	10.0	4.0	2.3
45	25.0	10.0	4.0	1.5
50	25.0	10.0	4.0	1.5
55	25.0	10.0	4.0	1.5
60	25.0	10.0	4.0	1.5
65	25.0	10.0	4.0	1.5
70	25.0	10.0	4.0	1.5

Age	Annual Rate of Disability Groups C, D, E, and F	Group G
20	0.01%	0.01%
25	0.02	0.02
30	0.03	0.03
35	0.05	0.05
40	0.09	0.09
45	0.15	0.15
50	0.27	0.27
55	0.42	0.42
60	0.00	0.50
67	0.00	0.00

Age	Early Retirement	Less than 30 Years of Service	30 Years of Service	31+ Years of Service
	Annual Rate of Retirement			
	Current Employees Class - Groups C, D, E, and F*			
50			45.0	30.0
55	10.0%		45.0	30.0
59	10.0		45.0	30.0
60		25.0%	30.0	25.0
61		20.0	20.0	20.0
65		20.0	20.0	20.0
70		100.0	100.0	100.0
	Non-CSA Participant - E, and F			
50			45.0	30.0
55			45.0	30.0
57	10.0%		45.0	30.0
59	10.0		45.0	30.0
60		25.0%	30.0	25.0
61		20.0	20.0	20.0
65		20.0	20.0	20.0
70		100.0	100.0	100.0
	Group G			
57	10.0%			
60	20.0			
62	20.0		25.0%	20.0%
65	20.0		25.0	20.0
67		25.0%	25.0	20.0
69		20.0	20.0	20.0
70		100.0	100.0	100.0

* For purposes of valuing DROP benefits, the rates listed for 30 or more years of service are adjusted as follows:

- 30% of members who are expected to retire with 31, 32, 33, 34, or 35 years of service are assumed to enter the DROP upon attaining 30 year of service.
- 10% of members who are expected to retire with 30 years of service are assumed to enter the DROP upon attaining 30 years of service.

DEATHS AFTER RETIREMENT: The RP-2000 Combined Mortality Table set forward two years for males and set forward one year for females and using a Scale AA projection to 2020 is used for the period after retirement and for dependent beneficiaries. The RP-2000 Disabled Mortality Table (set back 5 years for females) is used for the period after disability.

EXPENSES: Estimated budgeted administrative expenses of 0.75% of payroll are added to the normal cost rate.

COST-OF-LIVING ADJUSTMENT: Members not covered under the Collaborative Settlement Agreement are assumed to receive 2.0% simple annual benefit increases.

PERCENT MARRIED: 70% of male members and 30% of female members are assumed to be married with the male three years older than his spouse.

ASSETS: Market Value of Assets.

WITHDRAWAL ASSUMPTION: It is assumed that 100% of vested members who terminate with less than 15 years of service elect to withdraw their contributions and that 50% of vested members who terminate with 15 or more years of service elect to withdraw their contributions while the remaining 50% elect to leave their contributions in the plan in order to be eligible for a benefit at their retirement date.

DROP CREDITING RATE: 3.0% annually.

VALUATION METHOD: Entry age actuarial cost method.

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city of
CINCINNATI
RETIREMENT

GASB STATEMENT NO. 68 REPORT

FOR THE

RETIREMENT SYSTEM FOR EMPLOYEES

OF THE CITY OF CINCINNATI

PREPARED AS OF JUNE 30, 2016

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December 12, 2016

Board of Trustees
Retirement System for Employees of the City of Cincinnati
801 Plum Street
Cincinnati, OH 45202

Dear Members of the Board:

Presented in this report is information to assist the Retirement System for Employees of the City of Cincinnati (System) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 68. The information is presented for the period ending June 30, 2016 (the Measurement Date) to assist the System in better understanding the requirements of GASB 68 and to identify the information to be provided by the System's actuary, Cavanaugh Macdonald Consulting (CMC).

GASB Statement No. 68 established accounting and financial reporting requirements for governmental employers that provide pension benefits to their employees through a trust.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of December 31, 2015. The valuation was based upon data, furnished by the System, concerning active, inactive and retired members along with pertinent financial information.

To the best of our knowledge, this report is complete and accurate. The necessary calculations were performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement Plans.

The calculations were prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, and, in our opinion, meet the requirements of GASB 68.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Plan, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 68 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Respectfully submitted,

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

Eric H. Gary, FSA, FCA, MAAA
Principal and Chief Healthcare Actuary

EJK/EG

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REPORT OF THE ANNUAL GASB STATEMENT NO. 68
REQUIRED INFORMATION FOR THE
RETIREMENT SYSTEM FOR THE EMPLOYEES
OF THE CITY OF CINCINNATI

PREPARED AS OF JUNE 30, 2016

SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), "Accounting and Financial Reporting For Pensions", in June 2013. This report has been prepared as of June 30, 2016. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the System as of December 31, 2015. The results of that valuation were detailed in a report dated August 4, 2016.

The NPL shown in the GASB Statement Number 67 Report for the Retirement System for Employees of the City of Cincinnati prepared as of June 30, 2016 and submitted November 4, 2016 is the NPL used for purposes of GASB 68. Please refer to that report for the derivation of the NPL.

Pension Expense includes amounts for service cost (the Normal Cost under EAN for the year), interest on the NPL, changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the remaining service life of the System membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the PE is shown in Section IV.

The unamortized portions of each year's experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included on the employer's balance sheet. The development of the deferred inflows and outflows is shown in Section III.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 68 for note disclosure and Required Supplementary Information (RSI).

SECTION II - SUMMARY OF PRINCIPAL RESULTS
($ IN THOUSANDS)

Valuation Date (VD):	December 31, 2015
Prior Measurement Date:	June 30, 2015
Measurement Date (MD):	June 30, 2016
Reporting Date (RD):	June 30, 2016
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.50%
Municipal Bond Index Rate at Prior Measurement Date	3.82%
Municipal Bond Index Rate at Measurement Date	3.01%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from future benefit payments for current members	N/A
Single Equivalent Interest Rate at Prior Measurement Date	5.08%
Single Equivalent Interest Rate at Measurement Date	7.50%
Net Pension Liability:	
Total Pension Liability (TPL)	$ 2,215,822
Fiduciary Net Position (FNP)	1,651,375
Net Pension Liability (NPL = TPL – FNP)	$ 564,447
FNP as a percentage of TPL	74.53%
Pension Expense (PE):	$(496,831)
Deferred Outflows of Resources:	$83,399
Deferred Inflows of Resources:	$328,350

SECTION III – FINANCIAL STATEMENT NOTES

The material presented herein will follow the order presented in GASB 68. Paragraph numbers are provided for ease of reference.

Paragraphs 40(a) and (b): The information required is to be supplied by the Employer.

Paragraph 40(c): The data required regarding the membership of the Retirement System for Employees of the City of Cincinnati were furnished by the System. The following table summarizes the membership of the System as of December 31, 2015, the Valuation Date.

Membership

	Number
Retired participants and beneficiaries currently receiving benefits	4,264
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	191
Inactive participants*	7,518
Active participants	
Full-Time	2,931
Part-Time	979
Total	15,883

* Participants who are former employees who have an employee account balance in the plan but are not otherwise vested in an employer provided benefit.

Paragraphs 40(d) and (e): The information required is to be supplied by the Employer.

Paragraphs 41: This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are outlined in Schedule C. The total pension liability was determined by an actuarial valuation as of December 31, 2015, using the following actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2016:

Inflation	3.0 percent
Salary increases, including inflation	3.0 to 7.0 percent, for five-year select period beginning December 31, 2011; 4.0 to 7.5 percent, thereafter
Long-Term Investment Rate of Return, net of pension plan investment expense, including inflation	7.50 percent
Municipal Bond Index Rate	
Prior Measurement Date	3.82 percent
Measurement Date	3.01 percent
Year FNP is projected to be depleted	N/A
Single Equivalent Interest Rate, net of pension plan investment expense, including inflation	
Prior Measurement Date	5.08 percent
Measurement Date	7.50 percent

Mortality	Both pre-retirement and post-retirement mortality rates were based on the RP 2000 combined mortality table, male rates set forward 2 years and female rates set forward 1 year and using a Scale AA projection to 2020. Post-disability mortality rates were based on the RP 2000 disabled retiree mortality table, female rates set back 5 years.

The actuarial assumptions used in the December 31, 2015 valuation were based on the results of the last actuarial experience study, dated October 28, 2011.

Paragraph 42

(a) Discount rate. The discount rate used to measure the total pension liability was 5.08% as of June 30, 2015 and 7.50% as June 30, 2016.

(b) Projected cash flows: The projection of cash flows used to determine the discount rate assumed that plan member contributions of 9.0% and Employer contributions of 16.25% will be made as set out in City Council ordinance and the Collaborative Settlement Agreement.

(c) Long term rate of return: The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

(d) Municipal bond rate: The discount rate determination used a municipal bond rate of 3.82% as of June 30, 2015. The municipal bond rate was not needed as of June 30, 2016 as the FNP is now projected to not be depleted during the projection period.

(e) Periods of projected benefit payments: Projected future benefit payments for all current plan members were projected through 2114.

(f) Assumed asset allocation: The target asset allocation and best estimates of arithmetic real rates of return for each major asset class as listed in the last actuarial experience study, dated October 28, 2011 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
Broad Fixed Income	14.00%	1.10%
High Yield	3.00%	5.60%
Broad US Equity	19.50%	6.60%
US Mid-Cap Growth	5.00%	7.80%
US Small-Cap Value	5.00%	10.60%
Developed Large-Cap	11.00%	7.80%
Non-US Small-Cap	5.00%	11.90%
Emerging Market	5.00%	11.30%
Hedge Fund – Hedged Equity	15.00%	4.70%
Real Estate - Core	7.50%	5.10%
Infrastructure	5.00%	8.30%
Private Equity - FOF	5.00%	13.20%
Total	100.00%	

*Arithmetic mean

(g): **Sensitivity analysis**: This is the disclosure of the sensitivity of the NPL to changes in the discount rate. The following presents the NPL of the System, calculated using the discount rate of 7.50 percent, as well as what the System's NPL calculated using a discount rate that is 1-percentage-point lower (6.50 percent) or 1-percentage-point higher (8.50 percent) than the current rate:

($ thousands)	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
System's Net Pension Liability	$787,823	$564,447	$373,616

Paragraph 44: This paragraph requires a schedule of changes in Net Pension Liability. The needed information is provided in the table below.

CHANGES IN THE NET PENSION LIABILITY
($ thousands)

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
Balances at June 30, 2015	$2,904,463	$1,510,182	$1,394,281
Changes for the year:			
Service cost	31,764		31,764
Interest	143,383		143,383
Benefit changes	(76,301)		(76,301)
Difference between expected and actual experience	4,137		4,137
Changes of assumptions	(627,693)		(627,693)
Contributions - employer		67,939	(67,939)
Contributions - employee		16,337	(16,337)
Net investment income		(11,631)	11,631
Benefit payments, including refunds of employee contributions	(163,931)	(163,931)	0
Administrative expense		(5,418)	5,418
Other changes	0	237,897	(237,897)
Net changes	(688,641)	141,193	(829,834)
Balances at June 30, 2016	$2,215,822	$1,651,375	$564,447

Paragraph 45(a): The date of the actuarial valuation upon which the TPL is based is December 31, 2015. The TPL as of June 30, 2016 is determined using standard roll forward techniques. The roll forward calculation adds the normal cost for the first half of 2016 (also called the service cost), subtracts the actual benefit payments and refunds for the six months, and then applies the expected SEIR for the period. This procedure was used to determine the TPL as of June 30, 2016, as shown in the following table. In addition, an expected TPL as of June 30, 2016 is determined by rolling forward the June 30, 2015 TPL using similar techniques. The difference between this expected TPL and the actual TPL as of June 30, 2016 is the experience gain or loss for the period. The impact of measuring the liabilities using a discount rate of 7.50% as opposed to the 5.08% used last year is shown as an assumption gain. The impact of the plan provision changes due to the Collaborative Settlement Agreement are shown as a benefit change gain.

TPL Roll-Forward ($ thousands)	Old Assumptions (1)	New Assumptions (2)	Plan Changes (3)
(a) Interest Rate (SEIR)	5.08%	7.50%	7.50%
(b) TPL as of December 31, 2015	$2,913,439	$2,281,985	$2,207,484
(c) Entry Age Normal Cost for the period January 1, 2016 – June 30, 2016	16,280	9,572	10,515
(d) Actual Benefit Payments and Refunds for the period January 1, 2016 – June 30, 2016	$81,966	$81,966	$81,966
(e) TPL as of June 30, 2016 = [(c) x (1 + (a))$^{1/2}$] + (d) – [(e) x (1 + (a))$^{1/4}$]	$2,919,816	$2,292,123	$2,215,822
(f) June 30, 2014 TPL Rolled Forward to June 30, 2015	2,915,679		
(g) Experience (Gain)/Loss: (1e) – (1f)	$4,137		
(h) Assumption (Gain)/Loss: (2e) – (1e)		$(627,693)	
(i) Benefit Changes (Gain)/Loss: (3e) – (2e)			$(76,301)

Paragraph 45(c): Since the prior measurement date, the discount rate used to measure liabilities was changed from 5.08% to 7.50%. There have been no other changes in actuarial assumptions and methods used in the measurement of the total pension liability since the prior measurement date.

Paragraph 45(d): Since the prior measurement date, there were several changes in benefit terms used in the measurement of the total pension liability as a result of the Collaborative Settlement Agreement (CSA) between the City and various plaintiff groups representing certain active and retired members of CRS as approved by the Court on October 5, 2015 and generally effective January 1, 2016. As some of the changes outlined in the CSA have yet to be finalized or may be subject to interpretation, the valuation represents our understanding of the CSA as of the valuation date.

Paragraph 45(f): There have been no known changes between the measurement date of the net pension liability and reporting date that are expected to have a significant effect on the net pension liability.

Paragraph 45(g): The information required is to be supplied by the Employer.

Paragraph 45(h): Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce pension expense they are labeled deferred inflows. If they will increase pension expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive System members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five year period.

The table below provides a summary of the deferred inflows and outflows as of June 30, 2016.

($ thousands)	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$2,129	$0
Changes of assumptions	0	328,350
Net difference between projected and actual earnings on plan investments	81,270	0
Employer contributions subsequent to the Measurement Date	0	$0
Total	$83,399	$328,350

Paragraph 45(i): Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year Ended June 30:	
2017	$(298,828)
2018	(11,344)
2019	39,095
2020	26,126
2021	0
Thereafter	0

SECTION IV – PENSION EXPENSE

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

The next three items refer to any changes that occurred in the TPL due to:

- benefit changes,
- actual versus expected experience or
- changes in actuarial assumptions.

Benefit changes, which are reflected immediately in PE, can be positive, if there is a benefit improvement for existing System members, or negative if there is a benefit reduction.

The next items to be recognized are the portion of current year changes in TPL due to actual versus expected experience for the year and the portion of current year changes in TPL due to changes in actuarial assumptions. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire System membership from the prior year. The remaining service life of active members is the average number of years they are expected to remain active. For the year ended June 30, 2016 this number is 11.22. The remaining service life of the inactive members is, of course, zero. Therefore, the figure to use for the amortization is the weighted average of these two amounts, or 2.06. The table below provides the calculation of the average remaining future service life.

Category	Number (1)	Average Years of Future Service Life (2)
a. Active Members	2,804	11.22
b. Inactive Members	12,481	0.00
c. Total	15,285	
Weighted Average Years of Future Service Life [(a1 x a2) + (b1 x b2)]/c1		2.06

Member contributions for the year and projected earnings on the FNP, again at the rate used to calculate the liabilities, are subtracted from the amount determined thus far. The current year portions of previously determined experience, assumption, and investment earnings amounts, recognized as deferred inflows and outflows (see Section III) are included next. Deferred inflows are subtracted from the PE while deferred outflows are added to the PE. Finally, administrative expenses and other miscellaneous items are included.

The calculation of the Pension Expense is shown in the following table.

Pension Expense
For the Year Ended June 30, 2016
($ thousands)

Service Cost	$31,764
Interest on the total pension liability	143,383
Current-period benefit changes	(76,301)
Expensed portion of current-period difference between expected and actual experience in the total pension liability	2,008
Expensed portion of current-period changes of assumptions	(304,705)
Member contributions	(16,337)
Projected earnings on plan investments	(118,995)
Expensed portion of current-period differences between actual and projected earnings on plan investments	26,125
Administrative expense	5,418
Other	(237,897)
Recognition of beginning deferred outflows of resources as pension expense	77,974
Recognition of beginning deferred inflows of resources as pension expense	(29,268)
Pension Expense	$(496,831)

SECTION V – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the System's financial statements:

Paragraphs 46(a) and (b): The required tables are provided in Schedule A and the information is as of the Measurement Dates.

Paragraph 46(c): The required table is provided in Schedule A and the information is as of the Employer's Fiscal Year Ends.

Paragraph 47: In addition the following should be noted regarding the RSI:

Changes of benefit terms. There were several changes in benefit provisions as a result of the Collaborative Settlement Agreement (CSA) between the City and various plaintiff groups representing certain active and retired members of CRS as approved by the Court on October 5, 2015 and generally effective January 1, 2016. As some of the changes outlined in the CSA have yet to be finalized or may be subject to interpretation, the valuation represents our understanding of the CSA as of the valuation date.

Changes in actuarial assumptions and methods: None.

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contribution rates in the schedule of employer contributions are calculated as of December 31, eighteen months prior to the end of the fiscal year in which contributions are reported (as of December 31, 2014 for the fiscal year 2016 contributions). The following actuarial methods and assumptions were used to determine actuarial contribution rates reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level dollar, open
Remaining amortization period	30 years
Asset valuation method	5-year smoothed market
Inflation	3.0 percent
Salary increase	3.0 to 7.0 percent, including inflation for five-year select period beginning December 31, 2011; 4.0 to 7.5 percent, including inflation thereafter
Investment rate of return	7.5 percent, net of pension plan investment expense, and including inflation

APPENDIX A

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY
($ thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$ 25,937	$ 27,785	$ 31,764							
Interest	148,408	149,052	143,383							
Benefit changes	0	0	(76,301)							
Difference between expected and actual experience	0	(14,024)	4,137							
Changes of assumptions	(17,827)	155,948	(627,693)							
Benefit payments	(156,149)	(159,176)	(162,103)							
Refunds of contributions	(1,785)	(2,231)	(1,828)							
Net change in total pension liability	(1,416)	157,354	(688,641)							
Total pension liability - beginning	2,748,525	2,747,109	2,904,463							
Total pension liability - ending (a)	$ 2,747,109	$ 2,904,463	$ 2,215,822							
Plan net position										
Contributions - employer	$ 37,740	$ 29,084	$ 67,939							
Contributions - member	15,059	16,186	16,337							
Net investment income	258,382	49,138	(11,631)							
Benefit payments	(156,149)	(159,176)	(162,103)							
Administrative expense	(1,384)	(1,570)	(5,418)							
Refunds of contributions	(1,785)	(2,231)	(1,828)							
Other	0	0	237,897							
Net change in plan net position	151,863	(68,569)	141,193							
Plan net position - beginning	1,426,888	1,578,751	1,510,182							
Plan net position - ending (b)	$ 1,578,751	$ 1,510,182	$ 1,651,375							
Net pension liability - ending (a) - (b)	$ 1,168,358	$ 1,394,281	$ 564,447							

SCHEDULE OF THE NET PENSION LIABILITY
($ thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$2,747,109	$2,904,463	$2,215,822							
Plan net position	1,578,751	1,510,182	1,651,375							
Net pension liability	$1,168,358	$1,394,281	$ 564,447							
Ratio of plan net position to total pension liability	57.47%	52.00%	74.53%							
Covered-employee payroll	$ 163,477	$ 164,575	$ 174,963							
Net pension liability as a percentage of covered-employee payroll	714.69%	847.20%	322.61%							

SCHEDULE OF EMPLOYER CONTRIBUTIONS
($ thousands)

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Actuarially determined employer contribution	$ 69,939	$ 75,566	$ 78,101	$ 66,999	$ 49,952	$ 54,875	$ 80,882	$ 43,065	$ 38,767	$ 38,571
Actual employer contributions	67,939	29,084	37,739	37,192	33,608	31,160	30,029	26,650	23,969	31,763
Annual contribution deficiency (excess)	$ 2,000	$ 46,482	$ 40,362	$ 29,807	$ 16,344	$ 23,715	$ 50,853	$ 16,415	$ 14,798	$ 6,808
Covered-employee payroll	$ 174,963	$ 164,575	$ 163,477	$ 167,148	$ 167,148	$ 165,029	$ 167,589	$ 170,416	$ 164,640	$ 182,396
Actual contributions as a percentage of covered-employee payroll	38.83%	17.67%	23.09%	22.25%	20.11%	18.88%	17.92%	15.64%	14.56%	17.41%

Notes:

Fiscal year changed in 2013 from December 31 to June 30.

APPENDIX B

SUMMARY OF BENEFIT PROVISIONS VALUED

Eligibility

All active employees of the City except for the following:

- Members of the State Police and Fireman's Disability and Pension Fund.
- Employees for whom the City contributes to PERS.
- Elected officials.

As part of the plan provisions from Ordinance 84-2011 that were passed by the City Council on March 16, 2011 and adopted by the Board, participants in the System were divided into the following groups:

Group	Criteria
A, B	Retirees as of 7/1/2011.
C	Active members who attain 30 years of service or age 60 with 5 years of service before 7/1/2011.
D	Active members who first attain 30 years of service or age 60 with 5 years of service on or after 7/1/2011 but before 1/1/2014 and retire on or before 1/1/2014.
E	Active members who first attain 30 years of service or age 60 with 5 years of service on or after 7/1/2011 but before 1/1/2014 and retire after 1/1/2014.
F	Active members hired before 1/1/2010 and not in groups C, D, or E.
G	Active members hired on or after 1/1/2010.

As part of the CSA approved by the Court on October 5, 2015 and generally effective January 1, 2016, participants in the System were further classified as follows:

Class	Criteria
Retirees Class	Retirees as of 7/1/2011 and their designated optionees.
Current Employees Class	Participants with at least 5-years of service and were actively employed on July 1, 2011 and were members of Groups C, D, E, and F.
Non-CSA participants	All other participants who are not included as part of the CSA.

Service Retirement Benefit

<u>Groups A, B, C and D:</u>

Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.
Early Retirement Eligibility	Age 55 with 25 years of service.
Benefit Formula Multiplier	Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.
Average Highest Compensation	Average of the highest three consecutive years of compensation.
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.
Benefit	a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement. b) A pension which together with the annuity produces a total annual retirement allowance equal to the product of the applicable benefit formula multiplier, the member's average highest compensation, and the number of years of service. Early Retirement Benefit is actuarially reduced from normal retirement age.

Group E – Current Employees Class:

Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.
Early Retirement Eligibility	Age 55 with 25 years of service.

Retirement benefit is composed of as many as three components:

Part A Benefit: for service earned through December 31, 2013

Part B Benefit: for service earned on and after January 1, 2014 up to a combined 20 years of service

Part C Benefit: for service earned on or after January 1, 2014 in excess of a combined 20 years of service.

Benefit Formula Multiplier	**Part A Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier. **Part B Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier. **Part C Benefit:** 2.20% multiplier
Average Highest Compensation	**Part A Benefit:** Average of the highest three consecutive years of compensation **Part B Benefit:** Average of the highest five consecutive years of compensation **Part C Benefit:** Average of the highest five consecutive years of compensation
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.

Benefit

a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement.

b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service.

Early Retirement Benefit is actuarially reduced from normal retirement age.

<u>Group E – Non-CSA participants:</u>

Normal Retirement Eligibility: Age 65 with 5 years of service or age 60 with 30 years of service.

Reduced Normal Retirement Eligibility: Age 60 with 5 years of service or 30 years of service.

Retirement benefit is composed of as many as three components:

<u>Part A Benefit:</u> for service earned through December 31, 2013

<u>Part B Benefit:</u> for service earned on and after January 1, 2014 up to a combined 30 years of service

<u>Part C Benefit</u>: for service earned on or after January 1, 2014 in excess of a combined 30 years of service.

Benefit Formula Multiplier

<u>Part A Benefit:</u> Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.

<u>Part B Benefit:</u> 2.20% multiplier

<u>Part C Benefit:</u> 2.00% multiplier

Average Highest Compensation	**Part A Benefit:** Average of the highest three consecutive years of compensation **Part B Benefit:** Average of the highest five consecutive years of compensation **Part C Benefit:** Average of the highest five consecutive years of compensation
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.
Benefit	a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement. b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service. Reduced Normal Retirement Part A benefits will not be actuarially reduced. Reduced Normal Retirement Part B and C benefits are actuarially reduced from normal retirement age.

Group F– Current Employees Class:

Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.
Early Retirement Eligibility	Age 55 with 25 years of service.

Retirement benefit is composed of as many as three components:

Part A Benefit: for service earned through June 30, 2011

Part B Benefit: for service earned on and after July 1, 2011 up to a combined 20 years of service

Part C Benefit: for service earned on or after July 1, 2011 in excess of a combined 20 years of service.

Benefit Formula Multiplier	**Part A Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier. **Part B Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier. **Part C Benefit:** 2.20% multiplier
Average Highest Compensation	**Part A Benefit:** Average of the highest three consecutive years of compensation **Part B Benefit:** Average of the highest five consecutive years of compensation **Part C Benefit:** Average of the highest five consecutive years of compensation
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.
Benefit	a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement. b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service. Early Retirement Benefit is actuarially reduced from normal retirement age.

Group F Non-CSA participants:

Normal Retirement Eligibility	Age 65 with 5 years of service or age 60 with 30 years of service.
Reduced Normal Retirement Eligibility	Age 60 with 5 years of service or 30 years of service.
Early Retirement Eligibility	Prior to January 1, 2014, age 55 with 25 years of service or age 57 with 15 years of service. On or after January 1, 2014, age 57 with 15 years of service.

Retirement benefit is composed of as many as three components:

Part A Benefit: for service earned through June 30, 2011

Part B Benefit: for service earned on and after July 1, 2011 up to a combined 30 years of service

Part C Benefit: for service earned on or after July 1, 2011 in excess of a combined 30 years of service.

Benefit Formula Multiplier	**Part A Benefit:** Members hired prior to July 12, 1998 were given a one-time irrevocable option to choose either the benefit formula using a 2.22% multiplier or the benefit formula using a 2.50% multiplier. For members hired on or after July 12, 1998, benefits are calculated using a 2.50% multiplier.
	Part B Benefit: 2.20% multiplier
	Part C Benefit: 2.00% multiplier
Average Highest Compensation	**Part A Benefit:** Average of the highest three consecutive years of compensation
	Part B Benefit: Average of the highest five consecutive years of compensation
	Part C Benefit: Average of the highest five consecutive years of compensation
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.

Benefit

a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement.

b) A pension which together with the annuity produces a total annual retirement allowance equal to the sum of Part A, Part B, and Part C benefits each of which is the product of the applicable benefit formula multiplier, the applicable average highest compensation, and the applicable number of years of service.

Reduced Normal Retirement Part A benefits will not be actuarially reduced.

Reduced Normal Retirement Part B and C benefits are actuarially reduced from normal retirement age.

Early Retirement Part A, B, and C benefits are actuarially reduced from normal retirement age.

Group G

Normal Retirement Eligibility	Age 67 with 5 years of service or age 62 with 30 years of service.
Early Retirement Eligibility	Age 57 with 15 years of service.
Benefit Formula Multiplier	Benefit is calculated using a 2.20% multiplier for all years of service up to 30 years and a 2.00% multiplier for all service in excess of 30 years.
Average Highest Compensation	Average of the highest five consecutive years of compensation.
Years of Service	Years or fractional years of full-time service rendered to the plan sponsor.

Benefit

a) An annuity which is actuarially equivalent to the accumulated contributions of the member at the time of retirement.

b) A pension which together with the annuity produces a total annual retirement allowance equal to the product of the applicable benefit formula multiplier, the member's average highest compensation, and the number of years of service.

Early Retirement Benefit is actuarially reduced from normal retirement age.

Miscellany for All Groups

In no event shall the retirement allowance be greater than 90% of a member's average highest compensation.

In no event shall the retirement allowance be greater than that permitted by Section 415 of the Internal Revenue Code.

The average highest compensation used in the calculation of benefits depends on which benefit formula applies to the member. The formula that uses the 2.22% multiplier includes overtime compensation and the lump sum payment for unused vacation, unused sick-pay, etc. The formulas that use all other multipliers do not include overtime or the lump sum payment.

Disability Retirement Benefit

Eligibility — 5 years of service.

Benefit — 90% of normal retirement benefit at disability date but not less than the smaller of:

(1) 25% of average highest compensation

(2) 90% of the retirement benefit member would have become entitled to had he continued in service to normal retirement age without further change in average highest compensation.

Deferred Vested Retirement Benefit

Eligibility — 5 years of service.

Benefit — Normal retirement benefit beginning at normal retirement age.

Preretirement Death Benefit

(1) Refund of contributions with interest.

(2) Survivor Benefits according to type of survivors if member has at least 18 months of service.

Postretirement Death Benefit

(1) Lump sum $5,000 for group AB only.

(2) If no Joint and Survivor Option is selected, balance of member contributions not received back in retirement benefit payments prior to death.

Optional Forms of Benefit

(1) Joint and 100% Survivor Payment

(2) Joint and 50% Survivor Payment

(3) 66 2/3% Joint and Survivor Payment

(4) 80% Joint and Survivor Payment

COLA Increases

Retirees Class:

3% simple COLA based on the participant's benefit on January 1, 2016 including all previously granted COLA's. Effective January 1, 2016 the COLA will be suspended for a 3-year period.

In the third year of the COLA suspension (calendar year 2018), members will receive a one-time payment that is the lesser of 3% of their base pension benefit and $1,000. This payment will be made on January 1, or the anniversary date of the member's retirement according to when the member normally receives a COLA.

Current Employees Class:

3% simple COLA with a 3-year delay following each participant's date of retirement.

Non-CSA Participants:

Increases will be indexed to the CPI-U with a maximum of 2% per year and will be based on simple interest. There is no suspension or delay for COLA increases.

Poverty Exception:

Any member of the Retirees Class or Current Employees Class who retired or retires with at least 5-years of service and whose household income is below 150% of federal poverty guidelines will receive a 3% compounding COLA until such time income exceeds 150% of federal poverty guidelines at which point the participant will receive a 3% simple COLA.

Contributions

By Members:	Each member, commencing January 1, 1978, contributes at a rate of 7.0% of the salary used to compute retirement benefits until his retirement. Beginning January 1, 2010, the employee contribution rate was increased 0.5% per year over 4 years to reach 9.0% of pay. The CSA establishes the contribution rate for members shall not exceed 9.0% of pay for the term of the agreement.
By Employers:	The sponsoring employer makes annual contributions based on members' salaries so that, when members become eligible for benefits, reserves will have been accumulated adequate to provide the pension and other benefits payable by the plan on account of creditable service.

2007 Early Retirement Window

City employees who have 28 years or more of service credit prior to January 1, 2008 were eligible. Those electing to retire prior to January 1, 2008 were credited with two more years of service.

Deferred Retirement Option Plan (DROP)

At the time of this report, the design of the DROP has not been finalized and is still being negotiated. The valuation was performed using the most up-to-date design proposal available and is described below.

Eligibility	Current Employees Class members with at least 30 years of service.
Maximum Participation Period	5 years.
Minimum Participation Period	None.
Benefit	Monthly pension benefit calculated as if eligible member actually retired on their DROP effective date, including any adjustments for an assigned optionee. The monthly pension benefit will be contributed to the member's DROP account in the CRS Pension Trust and paid out as a lump sum upon termination from the DROP.

Employee Contributions	Members continue to contribute 9% of pay while participating in DROP. The following portions will be credited to the member's DROP account and the remaining portion will be contributed to the CRS Pension Trust:

Amounts Credited to Member's DROP Account	
Years 1 & 2	50% of employee contributions
Years 3 & 4	75% of employee contributions
Year 5	100% of employee contributions

Employer Contributions	Employer contributions to the CRS Pension Trust continue to apply in the same manner as for other actively employed members who are not participating in the DROP. Employer contributions are not credited to the member's DROP account.
Interest	DROP account balances are credited each month at a rate equal to the 10-year U.S. Treasury Note Business Day Series adjusted quarterly with a cap of 4% but not less than 0%.

APPENDIX C

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

INVESTMENT RATE OF RETURN: 7.50% per year, net of investment expenses (5.08% at beginning of fiscal year).

INFLATION ASSUMPTION: 3.00% per annum.

SALARY INCREASES: Salary increases are assumed to vary by service. In addition, salary increases are assumed to be lower for a five-year select period beginning with the December 31, 2011 valuation. Representative rates are as follows:

	Annual Increase	
Service	Select Period	Ultimate Period
0	7.0%	7.5%
5	4.5	5.0
10	3.0	4.5
20	3.0	4.5
30	3.0	4.0

SEPARATIONS FROM ACTIVE SERVICE: For death rates, RP-2000 Combined Mortality Table set forward two years for males and set forward one year for females and using a Scale AA projection to 2020 was used. Representative values of the assumed annual rates of separation from active service are as follows:

	Annual Rate of Withdrawal			
Age	Less than One Year of Service	Between One and Three Years of Service	Between Three and Five Years of Service	Five or More Years of Service
20	25.0%	10.0%	7.5%	5.0%
25	25.0	10.0	7.5	5.0
30	25.0	10.0	7.5	3.5
35	25.0	10.0	4.0	2.8
40	25.0	10.0	4.0	2.3
45	25.0	10.0	4.0	1.5
50	25.0	10.0	4.0	1.5
55	25.0	10.0	4.0	1.5
60	25.0	10.0	4.0	1.5
65	25.0	10.0	4.0	1.5
70	25.0	10.0	4.0	1.5

Age	Annual Rate of Disability	
	Groups C, D, E, and F	Group G
20	0.01%	0.01%
25	0.02	0.02
30	0.03	0.03
35	0.05	0.05
40	0.09	0.09
45	0.15	0.15
50	0.27	0.27
55	0.42	0.42
60	0.00	0.50
67	0.00	0.00

	Annual Rate of Retirement			
Age	Early Retirement	Less than 30 Years of Service	30 Years of Service	31+ Years of Service
Current Employees Class - Groups C, D, E, and F*				
50			45.0	30.0
55	10.0%		45.0	30.0
59	10.0		45.0	30.0
60		25.0%	30.0	25.0
61		20.0	20.0	20.0
65		20.0	20.0	20.0
70		100.0	100.0	100.0
Non-CSA Participant - E, and F				
50			45.0	30.0
55			45.0	30.0
57	10.0%		45.0	30.0
59	10.0		45.0	30.0
60		25.0%	30.0	25.0
61		20.0	20.0	20.0
65		20.0	20.0	20.0
70		100.0	100.0	100.0
Group G				
57	10.0%			
60	20.0			
62	20.0		25.0%	20.0%
65	20.0		25.0	20.0
67		25.0%	25.0	20.0
69		20.0	20.0	20.0
70		100.0	100.0	100.0

* For purposes of valuing DROP benefits, the rates listed for 30 or more years of service are adjusted as follows:

- 30% of members who are expected to retire with 31, 32, 33, 34, or 35 years of service are assumed to enter the DROP upon attaining 30 year of service.
- 10% of members who are expected to retire with 30 years of service are assumed to enter the DROP upon attaining 30 years of service.

DEATHS AFTER RETIREMENT: The RP-2000 Combined Mortality Table set forward two years for males and set forward one year for females and using a Scale AA projection to 2020 is used for the period after retirement and for dependent beneficiaries. The RP-2000 Disabled Mortality Table (set back 5 years for females) is used for the period after disability.

EXPENSES: Estimated budgeted administrative expenses of 0.75% of payroll are added to the normal cost rate.

COST-OF-LIVING ADJUSTMENT: Members not covered under the Collaborative Settlement Agreement are assumed to receive 2.0% simple annual benefit increases.

PERCENT MARRIED: 70% of male members and 30% of female members are assumed to be married with the male three years older than his spouse.

ASSETS: Market Value of Assets.

WITHDRAWAL ASSUMPTION: It is assumed that 100% of vested members who terminate with less than 15 years of service elect to withdraw their contributions and that 50% of vested members who terminate with 15 or more years of service elect to withdraw their contributions while the remaining 50% elect to leave their contributions in the plan in order to be eligible for a benefit at their retirement date.

DROP CREDITING RATE: 3.0% annually.

VALUATION METHOD: Entry age actuarial cost method.