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**CITY OF MIAMI GENERAL EMPLOYEES'
AND SANITATION EMPLOYEES'
RETIREMENT TRUST**

**Actuarial Valuation Report
as of
January 21, 2020**





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January 21, 2020

Board of Trustees
City of Miami General Employees' and
Sanitation Employees' Retirement Trust
2901 Bridgeport Avenue
Coconut Grove, Florida 33133

Dear Members of the Board:

This report presents the results of the actuarial valuation of the City of Miami General Employees' and Sanitation Employees' Retirement Trust for the plan year beginning October 1, 2019. The purpose of this report is to provide a summary of the funded status of the plan as of October 1, 2019 and to determine the minimum required contribution amount for the 2020/2021 fiscal year. In addition, this report provides a record of any plan amendments or other plan changes affecting the financial status of the fund. Our calculations were prepared based on member data and financial information provided by the Retirement Trust office.

The asset values used to determine unfunded liabilities are not market values but less volatile market related values. A smoothing technique is applied to market values to determine the market related values. The unfunded liability amounts using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return on assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation.

Summary of Valuation Results

Currently, the trust receives contributions from the City of Miami and from active members. The amount of the City contributions varies from year to year, while the member contributions are equal to 10% of payroll. After taking into account expected member contributions, the total required contribution from the City is \$54,121,724, or 44.13% of covered payroll, for the 2021 fiscal year payable on October 1, 2020. In comparison, the required contribution for the 2020 fiscal year was \$49,923,146, or 44.97% of covered payroll.



The City Ordinance requires that, as a minimum, all fiscal year contributions made by the City to the Retirement Trust shall be made quarterly, in equal payments, on the first day of each quarter. On this basis, the total required City contribution for the 2020/2021 fiscal year is \$55,617,338, and the City is required to make minimum quarterly contributions of \$13,904,335 beginning on October 1, 2020.

The valuation is based on a series of actuarial assumptions, including an interest (actuarial asset return) rate of 7.60% per year and annual pay increases ranging between 4.00% and 8.75%. Actuarial gains and losses result when the actual experience of the plan (such as asset return, pay increases, turnover, deaths, etc.) is different from that expected by the actuarial assumptions. The basis for the assumptions is an experience study for the three year period ended September 30, 2017 performed by Southeastern Advisory Services.

The plan's unfunded liability was projected to be \$340,409,412 as of October 1, 2019, taking into account expected contributions from the City of \$49,923,146 based on the October 1, 2018 valuation. The actual unfunded liability is \$366,520,541. The increase of \$26,111,129 in the unfunded liability is primarily due to an actuarial loss for the year. This loss was largely due to pay increases greater than expected and benefit changes associated with non-bargaining members and a retroactive 5% salary increase for a member's highest salary for all members except members of AFSCME Local 871. These benefit changes represented \$12,106,830 of the increase. Favorable returns on the actuarial value of assets offset some of the loss. A summary of the amortization payments is presented in Table III.

A summary of the results of the valuation and the contribution requirements is presented in Table I. The present value of accrued benefits and other disclosure information can be found in Tables IV, Va, and Vb. The disclosure information required by Chapter 112, Florida Statutes, is presented in Table VI. Tables VIIa through IXb provide information about the fund's assets and historical contributions. In particular, Table VIIa provides an asset reconciliation between October 1, 2018 and October 1, 2019 and calculation of the actuarial value of assets. Table VIIIb provides a breakdown of the fund assets by investment type and Tables VIIIa, VIIIb, IXa and IXb provide a historical record of the growth, expenses, revenues, annual returns and contributions of the fund. Tables Xa through Xf provide a variety of useful information concerning the participant population. Table Xg provides information to be included in the Comprehensive Annual Financial Report.

Tables XI and XII provide a description of the actuarial assumptions and plan provisions reflected in the valuation. Since the previous valuation, benefit enhancements have been included for non-bargaining members. See Table XIIb for further details.

This actuarial valuation was prepared and completed by me or under my direct supervision and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate and, in my opinion, the techniques and assumptions used are reasonable and meet the requirements and intent of Part VII, Chapter 112, Florida Statutes. There is no benefit or expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. All known events or trends which may require a material increase in plan costs or required contribution rates have been taken into account in the valuation.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation



was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Retirement Trust and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Retirement Trust.

Future actuarial results may differ significantly from the current results 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. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

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 opinion contained herein.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Todd B. Green' followed by a horizontal flourish.

Todd B. Green, ASA, FCA, MAAA
President

A handwritten signature in blue ink that reads 'Micki R. Taylor'.

Micki R. Taylor, ASA, EA, FCA, MAAA
Consulting Actuary
Enrolled Actuary No. 17-5975

TBG/mrt

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**SUMMARY OF VALUATION RESULTS****TABLE I**

	<u>As of October 1, 2018</u>	<u>As of October 1, 2019</u>
1. Number of Members		
a. Active Members	1,959	1,972
b. Inactive Members (due contribs. refund)	226	239
c. Deferred Vested Members	36	38
d. Retired Members:		
i. Non-disabled	1,509	1,482
ii. Disabled	50	51
iii. Beneficiaries	388	387
iv. Sub-total	<u>1,947</u>	<u>1,920</u>
e. Total Members	<u>4,168</u>	<u>4,169</u>
2. Total Annual Compensation	\$107,770,892	\$119,071,503
3. Total Covered Payroll	\$111,004,019	\$122,643,648
4. Total Annual Benefit Payments	\$73,140,684	\$73,278,003
5. Liabilities, Assets and Normal Cost		
a. Present Value of Future Benefits	\$1,167,283,295	\$1,223,046,901
b. Actuarial Value of Assets	\$678,854,470	\$715,548,690
c. Actuarial Accrued Liability	\$1,035,827,306	\$1,082,069,231
d. PV of Future Member Contributions	<u>\$94,153,811</u>	<u>\$100,583,523</u>
e. PV of Future Normal Costs	\$37,302,178	\$40,394,147
f. Present Value of Future Payroll	\$941,538,110	\$1,005,835,229
g. Employer Normal Cost Rate	5.29%	5.46%
h. Individual Entry Age Employer Normal Cost	\$5,867,786	\$6,694,104
6. Unfunded Liability		
a. Actuarial Accrued Liability	\$1,035,827,306	\$1,082,069,231
b. Actuarial Value of Assets	<u>\$678,854,470</u>	<u>\$715,548,690</u>
c. Unfunded Liability	\$356,972,836	\$366,520,541
(item 6.a. minus 6.b., not less than zero)		
	2019/2020 Fiscal	2020/2021 Fiscal
	Year	Year
7. Total Required Minimum City Contribution		
a. Normal Cost (with custodial expenses)	\$6,229,786	\$7,056,104
b. Amortization of Unfunded Liability	<u>\$43,693,360</u>	<u>\$47,065,620</u>
c. Minimum Required Contribution	\$49,923,146	\$54,121,724
As a percentage of covered payroll	44.97%	44.13%
8. Total Recommended Contribution		
Payable Quarterly	\$51,302,736	\$55,617,338
Quarterly	\$12,825,684	\$13,904,335
On	October 1, 2019	October 1, 2020
Fiscal Year	2020	2021



GAIN AND LOSS ANALYSIS

TABLE II

1. Actual Unfunded Accrued Liability as of October 1, 2018	\$356,972,836
2. Plan sponsor normal cost for this plan year	\$5,789,764
3. Interest on 1. and 2.	\$27,569,958
4. Plan sponsor contribution for this plan year (including amounts expected to be paid)	(\$43,526,929)
5. Interest on 4.	(\$1,654,023)
6. Changes due to a. + b. + c. + d.	
a. plan/assumption changes	\$12,106,830
b. funding method	\$0
c. actuarial (gain)/loss	\$9,262,105
	<hr/>
	\$21,368,935
7. Total current unfunded actuarial accrued liability 1. + 2. + 3. + 4. + 5. + 6.	\$366,520,541
8. Items Affecting Calculation of Accrued Liability	
a. Plan provisions reflected in the unfunded accrued liability (see Table XIIa on page 48)	
b. Plan amendments reflected in item 6.a. above (see Table XIIb on page 56)	
c. Actuarial assumptions and methods used to determine actuarial accrued liability and normal cost (see Table XIa on page 31)	
d. Changes in actuarial assumptions and methods reflected in items 6.a. above (see Table XIb on page 36)	



UNFUNDED LIABILITY BASES

TABLE III

Date Established		Original Amount	Outstanding Balance as of October 1, 2018	2018/2019 Amortization Payment	Outstanding Balance as of October 1, 2019	2019/2020 Amortization Payment	Years Remaining as of October 1, 2019
10/1/2002	Actuarial Loss	\$65,123,335	\$19,268,702	\$5,527,761	\$15,205,361	\$5,693,594	3
10/1/2002	Assumption Change	(\$8,586,760)	(\$5,281,170)	(\$747,206)	(\$4,935,333)	(\$769,622)	8
10/1/2003	Actuarial Loss	\$51,257,531	\$19,558,426	\$4,584,559	\$16,460,307	\$4,722,095	4
10/1/2003	Assumption Change	\$21,280,291	\$14,439,327	\$1,876,431	\$13,660,285	\$1,932,724	9
10/1/2004	Actuarial Loss	\$23,177,230	\$10,805,766	\$2,155,489	\$9,471,515	\$2,220,154	5
10/1/2005	Actuarial Loss	\$18,410,024	\$10,101,429	\$1,763,459	\$9,105,679	\$1,816,363	6
10/1/2006	Actuarial Gain	(\$2,191,548)	(\$1,376,884)	(\$214,713)	(\$1,266,814)	(\$221,154)	7
10/1/2006	Assumption and Method Change	(\$35,017,429)	(\$29,765,880)	(\$3,159,732)	(\$28,868,355)	(\$3,254,523)	12
10/1/2007	Actuarial Gain	(\$636,143)	(\$448,189)	(\$63,412)	(\$418,839)	(\$65,314)	8
10/1/2008	Method Change ¹	\$404,497	\$383,885	\$36,731	\$376,329	\$37,833	14
10/1/2008	Method Change ²	(\$31,590,204)	(\$24,554,243)	(\$3,190,892)	(\$23,229,473)	(\$3,286,619)	9
10/1/2008	Actuarial Loss	\$49,292,225	\$38,313,564	\$4,978,955	\$36,246,440	\$5,128,323	9
10/1/2009	Assumption Change	(\$13,505,492)	(\$11,210,662)	(\$1,351,415)	(\$10,711,257)	(\$1,391,958)	10
10/1/2009	Plan Amendment	(\$67,211,205)	(\$55,790,789)	(\$6,725,430)	(\$53,305,459)	(\$6,927,193)	10
10/1/2009	Actuarial Loss	\$105,604,767	\$87,660,581	\$10,567,249	\$83,755,536	\$10,884,266	10
10/1/2010	Actuarial Loss	\$61,039,131	\$53,520,623	\$6,033,739	\$51,554,451	\$6,214,751	11
10/1/2011	Actuarial Loss	\$63,298,488	\$58,095,053	\$6,166,953	\$56,343,324	\$6,351,961	12
10/1/2011	Plan/Assumption Changes	\$3,784,141	\$3,473,063	\$368,675	\$3,368,341	\$379,736	12
10/1/2012	Actuarial Loss	\$49,256,529	\$46,281,420	\$4,652,792	\$45,146,016	\$4,792,376	13
10/1/2012	Assumption Changes	\$7,834,245	\$7,361,054	\$740,026	\$7,180,468	\$762,227	13
10/1/2013	Actuarial Loss	\$9,605,158	\$9,196,885	\$879,988	\$9,015,860	\$906,388	14
10/1/2013	Assumption Changes	\$7,959,102	\$7,620,794	\$729,183	\$7,470,791	\$751,058	14
10/1/2014	Actuarial Gain	(\$11,561,233)	(\$11,236,089)	(\$1,027,655)	(\$11,062,377)	(\$1,058,485)	15
10/1/2014	Assumption Changes	\$7,960,612	\$7,736,731	\$707,603	\$7,617,120	\$728,831	15
10/1/2014	Change EA Span	(\$9,724,655)	(\$9,451,163)	(\$864,405)	(\$9,305,046)	(\$890,338)	15
10/1/2015	Actuarial Gain	(\$847,438)	(\$833,120)	(\$73,109)	(\$823,328)	(\$75,302)	16
10/1/2015	Assumption Changes	\$7,732,566	\$7,601,930	\$667,090	\$7,512,587	\$687,103	16
10/1/2016	Actuarial Gain	(\$3,675,043)	(\$3,643,835)	(\$307,812)	(\$3,612,954)	(\$317,047)	17
10/1/2016	Assumption Changes	\$60,055,995	\$59,546,028	\$5,030,138	\$59,041,388	\$5,181,043	17
10/1/2017	Actuarial Loss	\$14,014,971	\$13,973,635	\$1,139,669	\$13,895,962	\$1,173,859	18
10/1/2018	Actuarial Gain	(\$9,961,505)	(\$9,961,505)	(\$786,455)	(\$9,932,124)	(\$810,049)	19
10/1/2018	Plan/Assumption Changes	\$45,587,469	\$45,587,469	\$3,599,106	\$45,453,011	\$3,707,079	19
10/1/2019	Actuarial Gain	\$14,004,299	\$0	\$0	\$14,004,299	\$1,105,632	20
10/1/2019	Plan/Assumption Changes	\$12,106,830	\$0	\$0	\$12,106,830	\$955,828	20
		\$504,280,781	\$356,972,836	\$43,693,360	\$366,520,541	\$47,065,620	

Date	Projected Unfunded Liability
October 1, 2019	\$366,520,541
October 1, 2020	\$347,310,481
October 1, 2021	\$325,228,488
October 1, 2022	\$300,013,940
October 1, 2039	\$0

¹Reflects actuarial gain due to correction in development of Actuarial Value of Assets and an actuarial loss due to update in valuation software.

²Reflects method change of amortization of unfunded liability from level dollar to level percent of pay and change in asset smoothing method from 3 to 5 year smoothing.

*The total experience loss (gain) for the 2018/2019 plan year of \$9,262,105 is adjusted for contribution timing differences adjusted for interest equal to \$4,742,194.



1. Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a)/(b)	Annual Payroll (c)	UAAL as % of Annual Payroll [(b) - (a)]/(c)
10/1/2015	593,839,115	881,284,759	287,445,644	67.38%	78,707,859	365.21%
10/1/2016	618,446,623	952,072,001	333,625,378	64.96%	94,536,971	352.90%
10/1/2017	645,491,328	981,027,466	335,536,138	65.80%	107,890,759	311.00%
10/1/2018	678,854,470	1,035,827,306	356,972,836	65.54%	107,770,892	331.23%
10/1/2019	715,548,690	1,082,069,231	366,520,541	66.13%	119,071,503	307.82%

2. Method and assumptions used in calculations of actuarially determined contributions

Valuation date: October 1, 2019

Actuarial cost method: Entry Age Normal

Amortization method: Level percent, closed

Remaining amortization period: 3 to 20 years

Asset valuation method: 5-Year Smoothed Market

Actuarial assumptions:

- Investment rate of return* 7.60%
- Projected salary increases* 4% to 8.75%
- Payroll Growth 3.00%
- *Includes inflation at 3.50%
- Cost of living adjustments 4% per year, with \$54 per year minimum and \$400 per year maximum.



PRESENT VALUE OF ACCRUED BENEFITS

TABLE Va

Shown below is the development of the Total Present Value of Accrued Benefits for the Plan. The calculations were performed using the Plan’s discount rate of 7.6% which was adopted in May 2012 and first used in the October 1, 2015 valuation.

1. Actuarial Present Value of Accrued Benefits*

	<u>As of 10/1/2018</u>	<u>As of 10/1/2019</u>
a. Vested Accrued Benefits:		
i. Retired members, beneficiaries, and deferred vested members	\$771,318,434	\$765,344,472
ii. Active and inactive members*	<u>\$185,013,584</u>	<u>\$234,954,033</u>
iii. Sub-total	\$956,332,018	\$1,000,298,505
b. Non-vested Accrued Benefits	<u>\$12,179,367</u>	<u>\$15,685,452</u>
c. Total Benefits	<u>\$968,511,385</u>	<u>\$1,015,983,957</u>

2. Statement of Changes in Total Actuarial Present Value of All Accrued Benefits

a. Actuarial Present Value as of October 1, 2018	\$968,511,385
b. Increase (Decrease) During 2018/2019 Plan Year Attributable to:	
i. Interest	\$70,771,740
ii. Benefits accumulated/experience	\$36,876,490
iii. Benefits paid	(\$74,608,564)
iv. Changes in actuarial assumptions/plan amendments	<u>\$14,432,906</u>
v. Net increase (decrease)	<u>\$47,472,572</u>
c. Actuarial Present Value as of October 1, 2019	\$1,015,983,957

3. Items Affecting Calculation of Actuarial Present Value of Accrued Benefits

- a. Plan provisions reflected in the accrued benefits (see Table XIIa on page 48)
- b. Plan amendments reflected in item 2.b.iv. above (see Table XIIb on page 56)
- c. Actuarial assumptions and methods used to determine present values (see Table XIa on page 31)
- d. Changes in actuarial assumptions and methods reflected in item 2.b.v. above (see Table XIb on page 36)

* The actuarial present value of vested benefits for active and inactive members includes nonforfeitable accumulated member contributions in the amount of \$110,392,059 as of October 1, 2018 and \$122,948,157 as of October 1, 2019.



PROGRESS OF FUNDING

TABLE Vb

Year Ending 9/30	Interest Rate Assumption	Present Value of Accrued Benefits*	Market Value of Assets	Funded Ratio
2004	8.10%	\$605,934,834	\$546,454,226	90.20%
2005	8.10%	\$647,824,031	\$586,943,151	90.60%
2006	8.10%	\$650,607,217	\$623,992,356	95.90%
2007	8.10%	\$683,690,757	\$694,302,333	101.60%
2008	8.10%	\$714,893,783	\$576,492,500	80.64%
2009	8.10%	\$742,076,105	\$538,012,201	72.50%
2010	8.10%	\$800,285,084	\$553,797,518	69.20%
2011	8.00%	\$805,349,932	\$517,904,877	64.31%
2012	7.90%	\$813,986,821	\$566,197,533	69.56%
2013	7.80%	\$815,905,442	\$590,384,170	72.36%
2014	7.70%	\$819,382,358	\$619,561,295	75.61%
2015	7.60%	\$830,865,832	\$589,051,025	70.90%
2016	7.60%	\$892,062,084	\$617,704,941	69.24%
2017	7.60%	\$916,191,299	\$667,854,473	72.89%
2018	7.60%	\$968,511,385	\$704,529,898	72.74%
2019	7.60%	\$1,015,983,957	\$733,864,555	72.23%

**The cost method used for determining the Present Value of Accrued Benefits is Unit Credit. Calculations are based on current service and the current salaries as of the valuation date. The Present Value of Accrued Benefits is defined by participants' accumulated plan benefits as those future benefit payments that are attributable under the plan's provisions to employees' service rendered to the benefit information date. Their measurement is primarily based on employees' history of pay and service and other appropriate factors as of that date. Future salary changes are not considered. Future years of service are considered only in determining employees' expected eligibility for particular types of benefits, for example, early retirement, death, and disability benefits. To measure their actuarial present value, assumptions are used to adjust those accumulated plan benefits to reflect the time value of money (through discounts for interest) and the probability of payment (by means of decrements such as for death, disability, withdrawal, or retirement) between the benefit information date and the expected date of payment. An assumption of an ongoing plan underlies those assumptions.*

**INFORMATION REQ. BY FLORIDA STATUTE (CHAPTER 112)****TABLE VI****After Plan/Assumption Changes****Actuarial Valuation prepared as of:****October 1, 2018****October 1, 2019****1. Participant Data**

a. Active members:

i. Number

1,959

1,972

ii. Total annual payroll

\$107,770,892

\$119,071,503

iii. Estimated covered payroll

\$111,004,019

\$122,643,648

b. Retired members (other than disabled):

i. Number

1,509

1,482

ii. Total annualized benefit

\$65,133,562

\$65,024,645

c. Beneficiaries receiving benefits:

i. Number

388

387

ii. Total annualized benefit

\$6,596,223

\$6,775,042

d. Disabled members receiving benefits:

i. Number

50

51

ii. Total annualized benefit

\$1,410,899

\$1,478,316

e. Terminated vested and inactive members:

i. Number

262

277

ii. Total annualized benefit

\$940,721

\$990,671

2. Assets

a. Actuarial value of assets

\$678,854,470

\$715,548,690

b. Market value of assets

\$704,529,898

\$733,864,555

3. Liabilities

a. Present value of all future expected benefit payments:

i. Active and inactive members:

Retirement benefits

\$354,416,914

\$414,885,401

Vesting benefits

\$23,581,082

\$23,665,446

Disability benefits

\$2,674,624

\$2,660,828

Death benefits

\$4,507,984

\$5,144,180

Return of contributions

\$10,784,257

\$11,346,574

Total

\$395,964,861

\$457,702,429

ii. Terminated vested members

\$6,509,494

\$6,796,257

iii. Retired members and beneficiaries:

Retired (other than disabled) and beneficiaries

\$752,356,947

\$745,652,848

Disabled members

\$12,451,993

\$12,895,367

Total

\$764,808,940

\$758,548,215

iv. Total present value of all future expected

benefit payments

\$1,167,283,295

\$1,223,046,901



After Plan/Assumption Changes

Actuarial Valuation prepared as of:
October 1, 2018 October 1, 2019

7. Other disclosures

a. Present value of active members':

i. Future salaries:

at attained age

\$941,538,110

\$1,005,835,229

at entry age

N/A

N/A

ii. Future contributions:

at attained age

\$94,153,811

\$100,583,523

at entry age

N/A

N/A

b. Present value of future normal contributions from City

\$37,302,178

\$40,394,147

c. Present value of future expected benefit payments for active members at entry age

N/A

N/A

d. Amount of active and inactive members' accumulated contributions

\$110,392,059

\$122,948,157

**INFORMATION REQ. BY FLORIDA STATUTE (CHAPTER 112)****TABLE VI**

(CONTINUED)

Before Plan/Assumption Changes**Actuarial Valuation prepared as of:****October 1, 2018** **October 1, 2019****1. Participant Data**

a. Active members:

i. Number	1,959	1,972
ii. Total annual payroll	\$107,770,892	\$119,071,503
iii. Estimated covered payroll	\$111,004,019	\$122,643,648

b. Retired members (other than disabled):

i. Number	1,509	1,482
ii. Total annualized benefit	\$65,133,562	\$65,024,645

c. Beneficiaries receiving benefits:

i. Number	388	387
ii. Total annualized benefit	\$6,596,223	\$6,775,042

d. Disabled members receiving benefits:

i. Number	50	51
ii. Total annualized benefit	\$1,410,899	\$1,478,316

e. Terminated vested and inactive members:

i. Number	262	277
ii. Total annualized benefit	\$940,721	\$990,671

2. Assets

a. Actuarial value of assets	\$678,854,470	\$715,548,690
b. Market value of assets	\$704,529,898	\$733,864,555

3. Liabilities

a. Present value of all future expected benefit payments:

i. Active and inactive members:

Retirement benefits	\$354,416,914	\$399,375,399
Vesting benefits	\$23,581,082	\$24,714,260
Disability benefits	\$2,674,624	\$2,855,184
Death benefits	\$4,507,984	\$5,074,769
Return of contributions	\$10,784,257	\$11,472,443
Total	\$395,964,861	\$443,492,055

ii. Terminated vested members

	\$6,509,494	\$6,796,257
--	-------------	-------------

iii. Retired members and beneficiaries:

Retired (other than disabled) and beneficiaries	\$752,356,947	\$745,652,848
Disabled members	\$12,451,993	\$12,895,367
Total	\$764,808,940	\$758,548,215

iv. Total present value of all future expected benefit payments

	\$1,167,283,295	\$1,208,836,527
--	-----------------	-----------------



INFORMATION REQ. BY FLORIDA STATUTE (CHAPTER 112)

**TABLE VI
(CONTINUED)**

Before Plan/Assumption Changes	Actuarial Valuation prepared as of:	
	October 1, 2018	October 1, 2019
b. Active actuarial liability	\$261,746,893	\$301,517,630
c. Actuarial accrued liability	\$1,035,827,306	\$1,069,962,401
d. Unfunded actuarial accrued liability (please reference Table III for details concerning the unfunded liability bases and schedule of amortization payments)	\$356,972,836	\$354,413,711
4. Actuarial Present Value of Accrued Benefits (please reference Tables Va and Vb for details concerning the present value of accrued benefits)	\$968,511,385	\$1,001,551,051
5. Pension Cost		
a. Normal cost contributed by City	\$6,229,786	\$6,426,233
b. Payment to amortize unfunded liability	\$43,693,360	\$46,109,792
c. Subtotal (not less than zero)	\$49,923,146	\$52,536,025
d. Normal cost contributed by members	\$11,100,402	\$12,264,365
e. Total required contribution As a percentage of covered payroll:	\$61,023,548 54.97%	\$64,800,390 52.84%
f. Amount to be contributed by members As a percentage of covered payroll:	\$11,100,402 10.00%	\$12,264,365 10.00%
g. Amount to be contributed by City As a percentage of covered payroll:	\$49,923,146 44.97%	\$52,536,025 42.84%
6. Past Contributions		
a. Required contribution	\$51,726,758	\$56,621,877
b. Actual contribution made by:		
i. City	\$40,879,285	\$43,526,929
ii. Members	\$10,847,473	\$13,094,948



Before Plan/Assumption Changes

Actuarial Valuation prepared as of:
October 1, 2018 October 1, 2019

7. Other disclosures

a. Present value of active members':

i. Future salaries:

at attained age

\$941,538,110

\$1,022,003,772

at entry age

N/A

N/A

ii. Future contributions:

at attained age

\$94,153,811

\$102,200,377

at entry age

N/A

N/A

b. Present value of future normal contributions from City

\$37,302,178

\$36,673,749

c. Present value of future expected benefit payments for active members at entry age

N/A

N/A

d. Amount of active and inactive members' accumulated contributions

\$110,392,059

\$122,948,157



DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

TABLE VIIa

Valuation date October 1:	2018	2019	2020	2021	2022	2023
A. Actuarial Value Beginning of Year	\$ 645,491,328	\$ 678,854,470	\$ 0	\$ 0	\$ 0	\$ 0
B. Market Value End of Year	704,529,898	733,864,555	0	0	0	0
C. Market Value Beginning of Year	667,854,473	704,529,898	0	0	0	0
D. Cash Flow						
D1. Contributions	\$ 51,726,758	\$ 56,621,877	\$ 0	\$ 0	\$ 0	\$ 0
D2. Benefit Payments	(72,722,490)	(72,810,575)	0	0	0	0
D3. Refund Payments	(2,318,219)	(1,797,989)				
D4. Other Expenses	(287,451)	(60,586)	0	0	0	0
D5. Investment Expenses	(2,179,681)	(2,296,127)	0	0	0	0
D6. Net	(25,781,083)	(20,343,400)	0	0	0	0
E. Investment Income						
E1. Market Total: B.-C.-D6.	62,456,508	49,678,057	0	0	0	0
E2. Assumed Rate	7.60%	7.60%	7.60%	7.60%	7.60%	7.60%
E3. Amount for Immediate Recognition	52,039,768	55,154,603	0	0	0	0
E4. Amount for Phased-In Recognition	10,416,740	(5,476,546)	0	0	0	0
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.20*E4.	\$ 2,083,348	\$ (1,095,309)	\$ 0	\$ 0	\$ 0	\$ 0
F2. First Prior Year	6,556,563	2,083,348	(1,095,309)	0	0	0
F3. Second Prior Year	3,333,929	6,556,563	2,083,348	(1,095,309)	0	0
F4. Third Prior Year	(8,995,514)	3,333,929	6,556,563	2,083,348	(1,095,309)	0
F5. Fourth Prior Year	4,126,131	(8,995,514)	3,333,929	6,556,563	2,083,348	(1,095,309)
F6. Total Recognized Investment Gain	\$ 7,104,457	\$ 1,883,017	\$ 10,878,531	\$ 7,544,602	\$ 988,039	\$ (1,095,309)
G. Preliminary Actuarial Value End of Year:						
A.+D6.+E3.+F6.	\$ 678,854,470	\$ 715,548,690	\$ 0	\$ 0	\$ 0	\$ 0
H. Corridor						
H1. 80% of Market Value	\$ 563,623,918	\$ 587,091,644				
H2. 120% of Market Value	\$ 845,435,878	\$ 880,637,466				
I. Actuarial Value End of Year						
G. Not Less than H1. or Not Greater than H2.	\$ 678,854,470	\$ 715,548,690				
J. Difference Between Market & Actuarial Values	\$ 25,675,428	\$ 18,315,865	\$ 7,437,334	\$ (107,268)	\$ (1,095,309)	\$ 0
K. Market Value Rate of Return	9.19%	6.81%				
L. Actuarial Value Rate of Return	8.99%	8.17%				

The Actuarial Valuation of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 4 year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, actuarial value will become equal to market value.

**ASSETS OF THE FUND****TABLE VIIIb**

	As of October 1, 2018	As of October 1, 2019
1. Market Value of Assets*		
a. Cash equivalents (3.29%)	\$25,319,528	\$24,162,655
b. U.S. government & agency securities (14.86%)	\$107,958,385	\$109,033,726
c. Corporate bonds (12.48%)	\$68,574,982	\$91,567,941
d. Corporate stock (69.13%)	\$499,478,556	\$507,320,337
e. Real estate fund (0%)	\$0	\$0
f. Total invested assets (99.76%)	\$701,331,451	\$732,084,659
g. Cash (0.05%)	\$474,359	\$336,653
h. Fixed assets (0.14%)	\$875,037	\$1,001,508
i. Receivable member contributions (0.07%)	\$437,780	\$487,559
j. Accrued interest and other receivable (0.49%)	\$3,883,176	\$3,630,714
k. Accounts payable (-0.12%)	(\$845,008)	(\$875,923)
l. Other payables (-0.38%)	(\$1,626,897)	(\$2,800,615)
m. Market value of assets (100%)	\$704,529,898	\$733,864,555

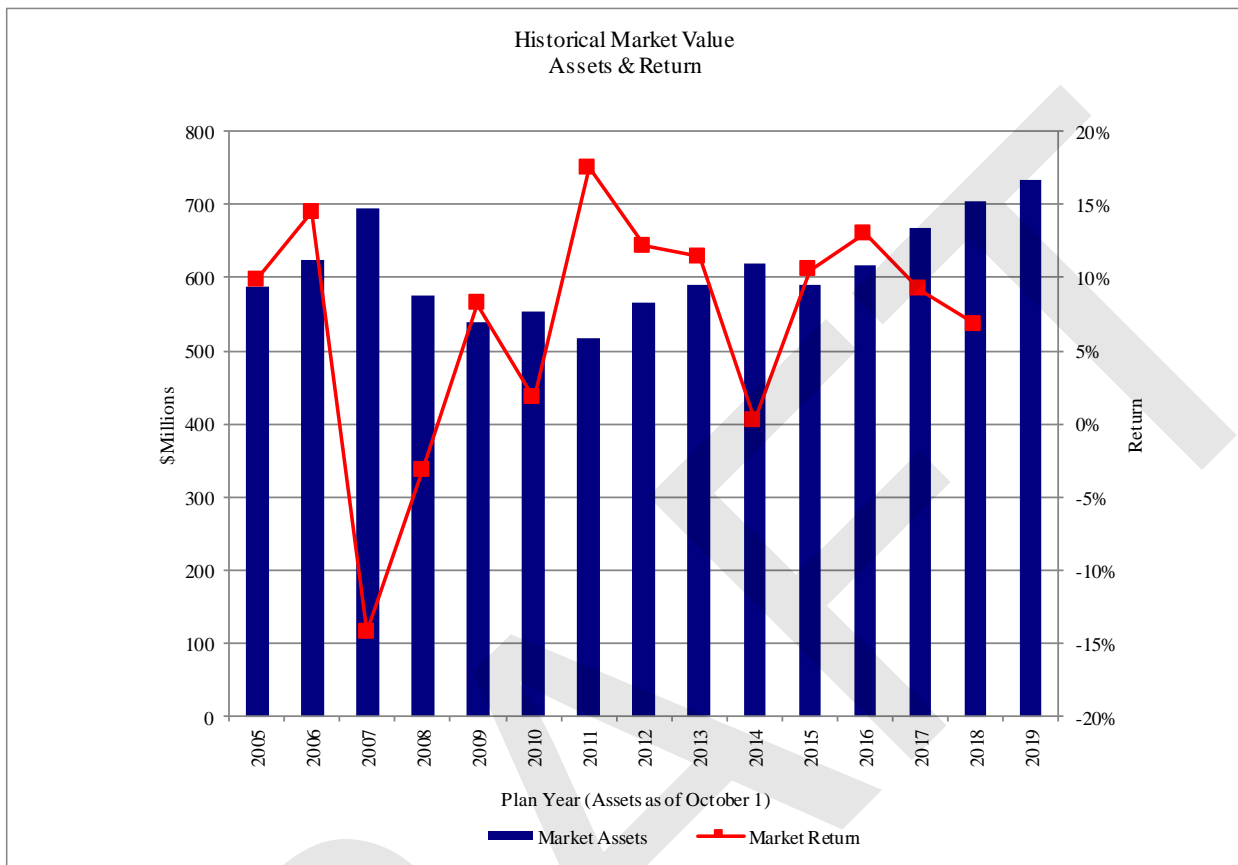
* The percentages in parentheses indicate the proportion of assets committed to each type of investment as of October 1, 2019.

	Year Ending October 1, 2018	Year Ending October 1, 2019
Realized gains and (losses)	\$ 26,647,073	\$ 41,520,793
Unrealized gains and (losses)	\$ 25,381,449	\$ (5,116,397)



HISTORICAL ASSET INFORMATION

TABLE VIIIa



Plan Year	Market Value as of October 1	Actuarial Value as of October 1	Benefit Payments*	Other Expenses	City and Member Contributions	Market Return	Actuarial Value
2004/2005	\$546,454,226	\$564,591,815	\$47,094,075	\$0	\$26,861,717	11.32%	7.96%
2005/2006	\$586,943,151	\$588,495,706	\$49,830,280	(\$149,607)	\$30,039,931	9.82%	8.58%
2006/2007	\$623,992,356	\$618,482,563	\$51,773,454	\$28,646	\$33,048,564	14.49%	10.58%
2007/2008	\$694,302,333	\$664,145,175	\$52,653,558	\$142,958	\$32,279,954	(14.22)%	2.63%
2008/2009	\$576,492,500	\$691,791,000	\$55,035,075	\$53,221	\$34,983,730	(3.24)%	(3.82)%
2009/2010	\$538,012,201	\$645,614,641	\$63,947,313	\$49,748	\$36,765,804	8.20%	5.48%
2010/2011	\$553,797,518	\$652,999,926	\$74,666,559	\$94,187	\$29,415,586	1.78%	(1.11)%
2011/2012	\$517,904,877	\$600,678,610	\$73,572,275	\$73,998	\$34,560,894	17.53%	(0.11)%
2012/2013	\$566,197,533	\$560,966,742	\$74,211,130	\$252,895	\$32,302,052	12.17%	7.00%
2013/2014	\$590,384,170	\$556,570,561	\$73,771,095	\$265,995	\$37,941,331	11.40%	10.46%
2014/2015	\$619,561,295	\$576,796,227	\$73,029,933	\$176,693	\$41,199,961	0.25%	8.75%
2015/2016	\$589,051,025	\$593,839,115	\$73,827,066	\$233,337	\$42,476,965	10.51%	9.72%
2016/2017	\$617,704,941	\$618,446,623	\$73,580,735	\$352,230	\$45,436,953	13.03%	9.19%
2017/2018	\$667,854,473	\$645,491,328	\$75,040,709	\$287,451	\$51,726,758	9.19%	8.99%
2018/2019	\$704,529,898	\$678,854,470	\$74,608,564	\$60,586	\$56,621,877	6.81%	8.17%
2019/2020	\$733,864,555	\$715,548,690					

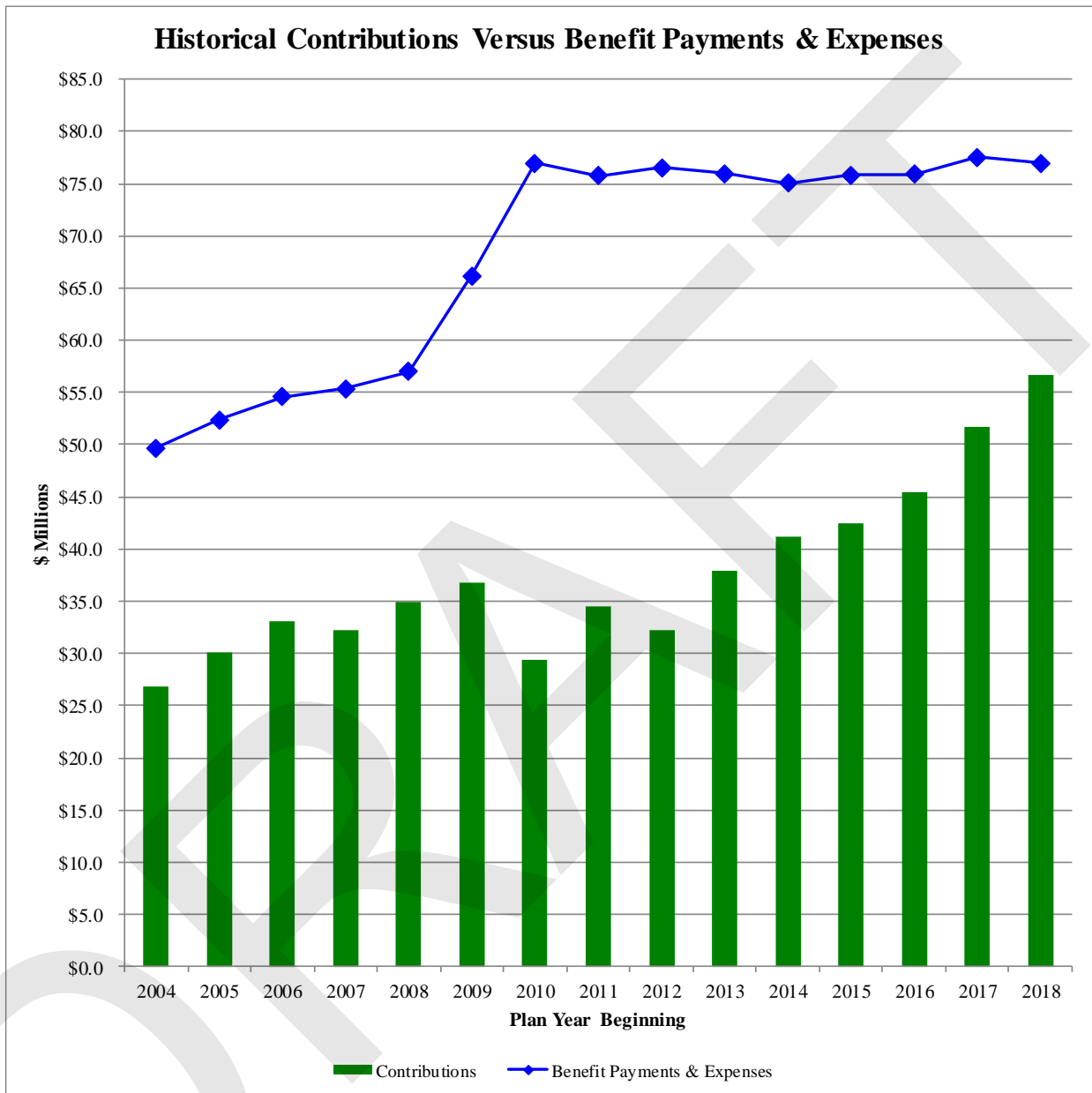
**Including contribution refunds*

**REVENUES BY SOURCE AND EXPENSE BY TYPE****TABLE VIIIb**

REVENUES					
Fiscal Year	City Contributions	Member Contributions	Total Contributions	Investment Return	Total
2004/2005	\$19,003,415	\$7,858,302	\$26,861,717	\$63,303,292	\$90,165,009
2005/2006	\$22,018,443	\$8,021,488	\$30,039,931	\$58,921,495	\$88,961,426
2006/2007	\$24,229,028	\$8,819,536	\$33,048,564	\$91,851,585	\$124,900,149
2007/2008	\$22,762,902	\$9,517,052	\$32,279,954	(\$94,751,747)	(\$62,471,793)
2008/2009	\$23,191,828	\$11,791,902	\$34,983,730	(\$16,473,559)	\$18,510,171
2009/2010	\$24,037,093	\$12,728,711	\$36,765,804	\$45,195,934	\$81,961,738
2010/2011	\$20,232,513	\$9,183,073	\$29,415,586	\$11,660,396	\$41,075,982
2011/2012	\$25,973,331	\$8,587,563	\$34,560,894	\$89,507,450	\$124,068,344
2012/2013	\$25,568,193	\$6,733,859	\$32,302,052	\$68,425,900	\$100,727,952
2013/2014	\$30,710,096	\$7,231,235	\$37,941,331	\$67,186,584	\$105,127,915
2014/2015	\$33,036,318	\$8,163,643	\$41,199,961	\$3,351,737	\$44,551,698
2015/2016	\$32,881,500	\$9,595,465	\$42,476,965	\$62,031,436	\$104,508,401
2016/2017	\$34,355,719	\$11,081,234	\$45,436,953	\$80,606,098	\$126,043,051
2017/2018	\$40,879,285	\$10,847,473	\$51,726,758	\$62,456,508	\$114,183,266
2018/2019	\$43,526,929	\$13,094,948	\$56,621,877	\$49,678,057	\$106,299,934

EXPENSES					
Fiscal Year	Benefits Paid	Member Refunds	Other Expenses	Investment Expenses	Total
2004/2005	\$45,926,417	\$1,167,658	\$0	\$2,591,529	\$49,685,604
2005/2006	\$48,077,147	\$1,753,133	(\$149,607)	\$2,729,501	\$52,410,174
2006/2007	\$50,106,211	\$1,667,243	\$28,646	\$2,788,072	\$54,590,172
2007/2008	\$51,631,847	\$1,021,711	\$142,958	\$2,541,524	\$55,338,040
2008/2009	\$54,191,981	\$843,094	\$53,221	\$1,902,174	\$56,990,470
2009/2010	\$62,162,717	\$1,784,596	\$49,748	\$2,179,360	\$66,176,421
2010/2011	\$72,737,854	\$1,928,705	\$94,187	\$2,207,877	\$76,968,623
2011/2012	\$72,186,394	\$1,385,881	\$73,998	\$2,129,415	\$75,775,688
2012/2013	\$72,431,710	\$1,779,420	\$252,895	\$2,077,290	\$76,541,315
2013/2014	\$71,903,481	\$1,867,614	\$265,995	\$1,913,700	\$75,950,790
2014/2015	\$71,940,377	\$1,089,556	\$176,693	\$1,855,342	\$75,061,968
2015/2016	\$71,859,673	\$1,967,393	\$233,337	\$1,794,082	\$75,854,485
2016/2017	\$72,514,134	\$1,066,601	\$352,230	\$1,960,554	\$75,893,519
2017/2018	\$72,722,490	\$2,318,219	\$287,451	\$2,179,681	\$77,507,841
2018/2019	\$72,810,575	\$1,797,989	\$60,586	\$2,296,127	\$76,965,277

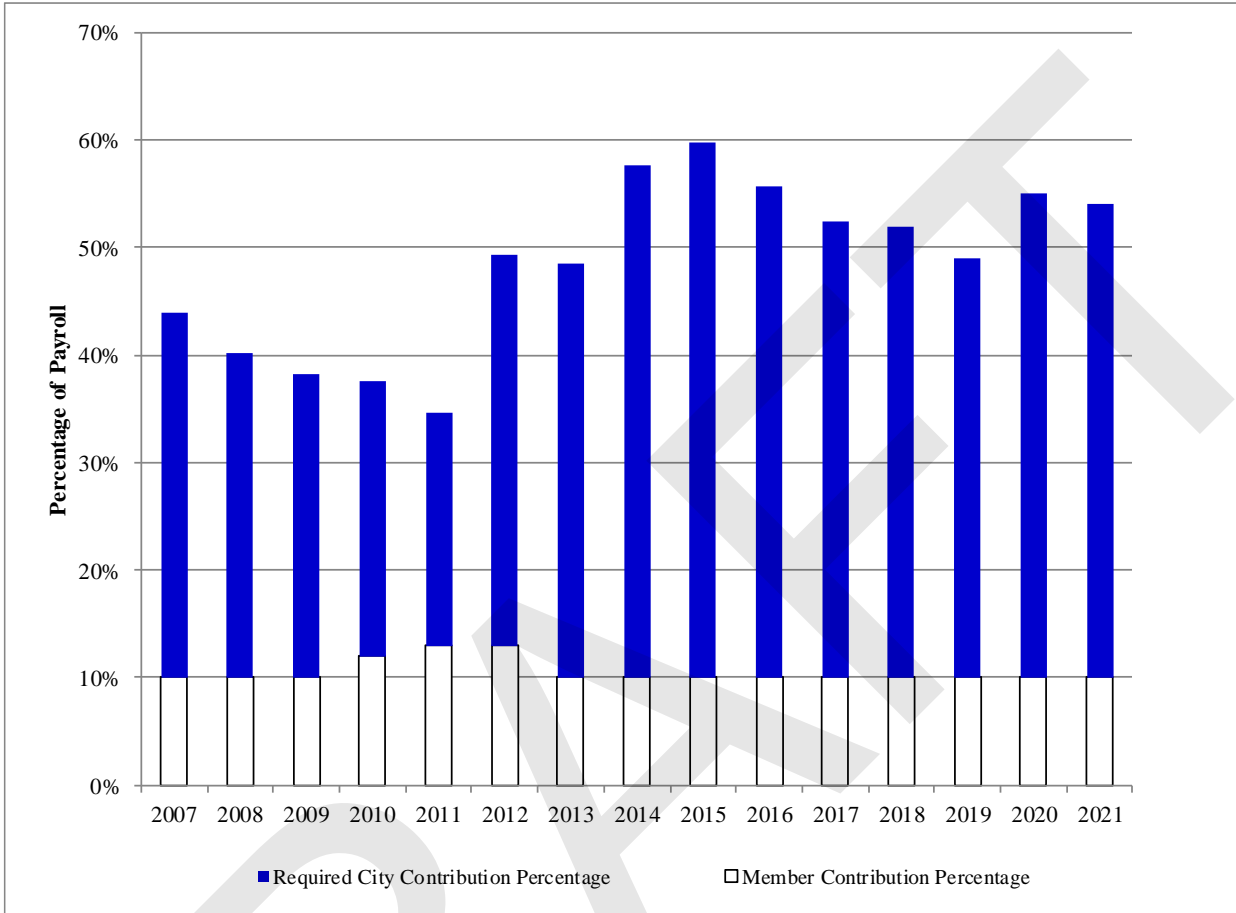
The city contributions for fiscal year 2010/2011 include contributions of \$4,712,259 (paid 10/1/2010), \$13,779,647 (paid 12/3/2010) and receivable contributions of \$1,740,607 (paid 11/1/2011).



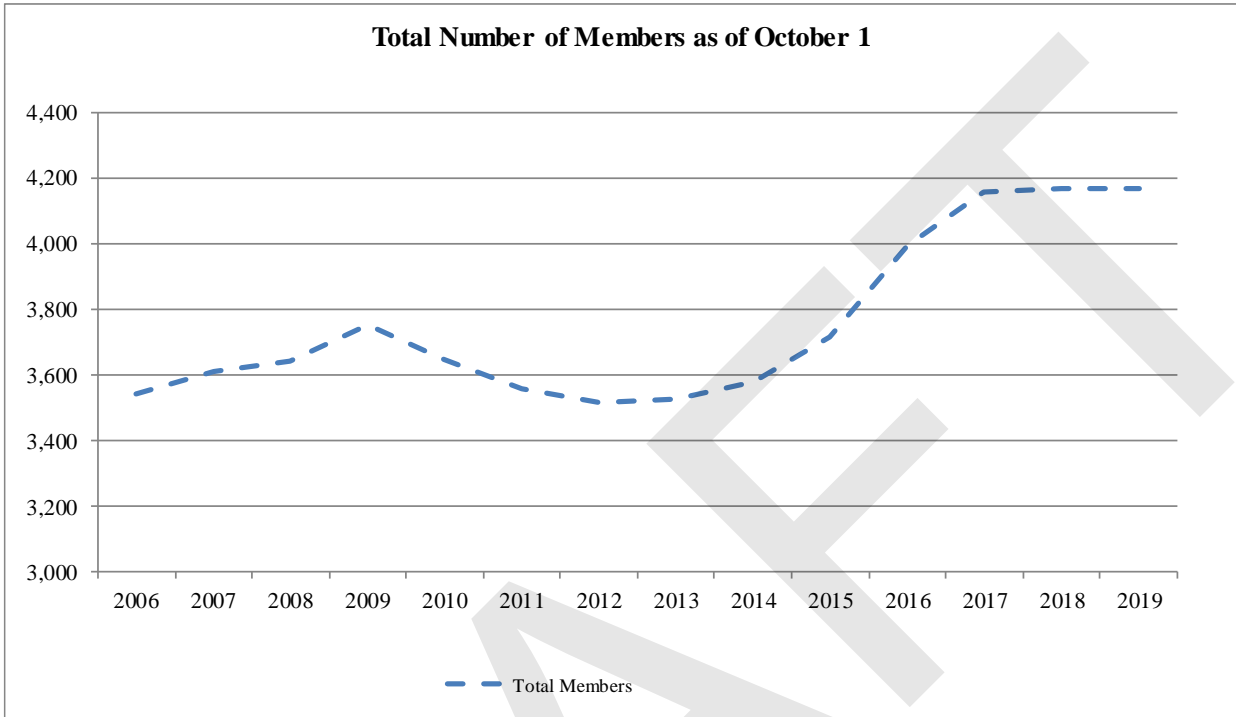


HISTORICAL CONTRIBUTION RATE

TABLE IXb



<u>Fiscal Year</u>	<u>Member Contribution Percentage</u>	<u>Required City Contribution Percentage</u>	<u>Fiscal Year</u>	<u>Member Contribution Percentage</u>	<u>Required City Contribution Percentage</u>
2012	13%	36.32%	2017	10%	42.38%
2013	10%	38.53%	2018	10%	41.98%
2014	10%	47.69%	2019	10%	39.03%
2015	10%	49.78%	2020	10%	44.97%
2016	10%	45.72%	2021	10%	44.13%



	As of 10/1/2018	As of 10/1/2019
1. Active Members	1,959	1,972
2. Non-active, Non-Retired Members		
a. Fully vested	36	38
b. Non-vested	226	239
c. Sub-total	262	277
3. Retired Members		
a. Non-disabled	1,509	1,482
b. Disabled	50	51
c. Beneficiaries	388	387
d. Sub-total	1,947	1,920
4. Total Members	4,168	4,169



DATA RECONCILIATION

TABLE Xb

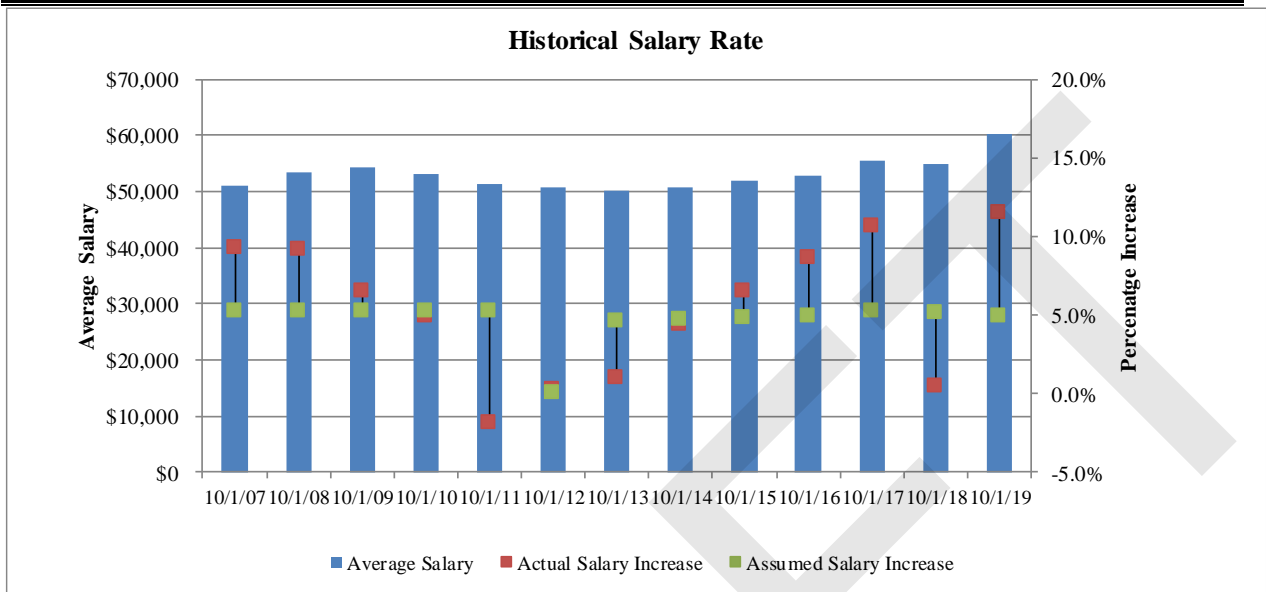
	<u>Active</u>	<u>Non-Active Non-Retired</u>	<u>Retired</u>	<u>Total</u>
1. Number of members as of October 1, 2018	1,959	262	1,947	4,168
<hr/>				
2. Change in Status during the plan year:				
a. Actives who became inactive	(42)	42		0
b. Actives/Inactive who retired	(20)	(2)	22	0
c. Active/Inactive who became disabled	(2)		2	0
d. Inactive who became active	4	(4)		0
e. Retired but returned to work				0
3. No longer members due to:				
a. Death	(1)		(65)	(66)
b. Refund of contributions	(52)	(21)		(73)
c. Correction in status				0
4. New members due to:				
a. Initial membership	126			126
b. Death of another member			14	14
c. Omitted last year				0
<hr/>				
5. Number of members as of October 1, 2019	1,972	277	1,920	4,169

Retired group includes 28 and 29 DROP members as of October 1, 2018 and October 1, 2019 respectively.



ACTIVE DATA TABLE

TABLE XC



Date	Average Salary	Actual Salary Increase	Assumed Salary Increase	Date	Average Salary	Actual Salary Increase	Assumed Salary Increase
10/1/10	53,140	4.86%	5.25%	10/1/15	52,055	6.53%	4.82%
10/1/11	51,250	(1.92)%	5.25%	10/1/16	52,726	8.64%	4.95%
10/1/12	50,785	0.25%	0.00%	10/1/17	55,528	10.63%	5.18%
10/1/13	50,029	1.01%	4.55%	10/1/18	55,013	0.45%	5.09%
10/1/14	50,748	4.38%	4.66%	10/1/19	60,381	11.47%	4.92%

Active Members as of 10/1/2019

	<u>Number</u>	<u>Annual Compensation</u>
Males	1,073	\$ 65,362,713
Females	899	\$ 53,708,790
Total	1,972	\$ 119,071,503
Average Annual Compensation		\$ 60,381
Average Entry Age		36.76
Average Years of Service		9.24

The average pay shown is the average of the annual rate of pay excluding any overtime pay or other special compensation.

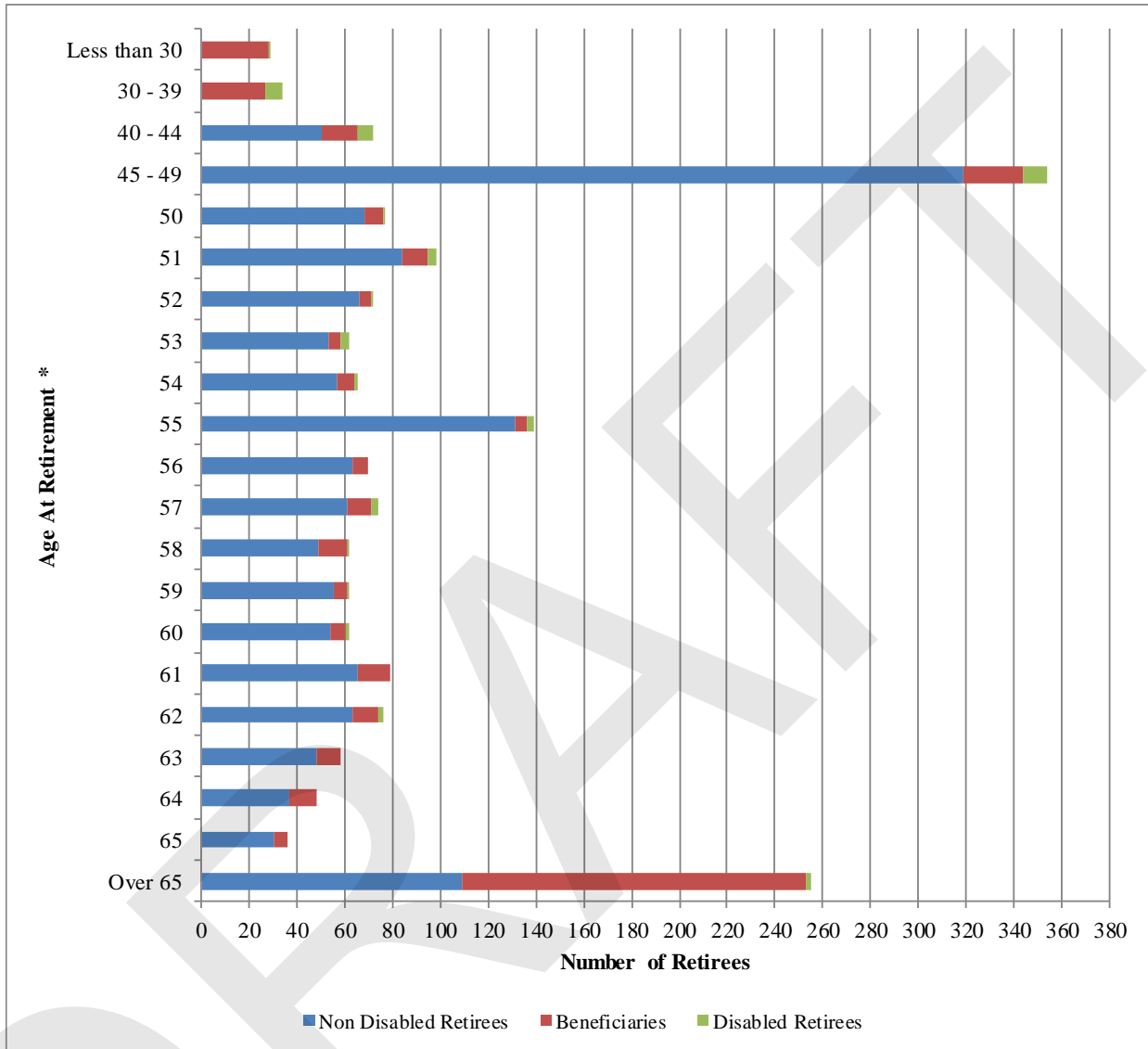


AGE-SERVICE-SALARY TABLE

TABLE Xd

Attained Age	Completed Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	19	16	0	0	0	0	0	0	0	0	35
Avg. Pay*	35,481	39,189	0	0	0	0	0	0	0	0	37,176
25 to 29	31	101	10	0	0	0	0	0	0	0	142
Avg. Pay*	41,995	44,860	51,974	0	0	0	0	0	0	0	44,736
30 to 34	23	148	42	26	0	0	0	0	0	0	239
Avg. Pay*	40,511	49,316	52,012	50,942	0	0	0	0	0	0	49,119
35 to 39	15	113	46	67	19	1	0	0	0	0	261
Avg. Pay*	40,609	50,428	62,450	61,041	67,949	97,833	0	0	0	0	56,164
40 to 44	8	68	29	66	55	14	0	0	0	0	240
Avg. Pay*	40,698	51,699	58,484	66,361	77,534	84,260	0	0	0	0	64,004
45 to 49	11	81	37	56	52	43	15	0	0	0	295
Avg. Pay*	39,425	49,373	66,979	68,625	83,309	85,762	84,733	0	0	0	67,949
50 to 54	3	74	31	48	60	36	17	3	0	0	272
Avg. Pay*	57,138	49,293	60,375	76,761	79,055	88,015	95,388	110,059	0	0	70,731
55 to 59	6	77	37	38	47	25	10	7	1	0	248
Avg. Pay*	46,225	50,971	55,049	69,433	72,601	81,624	75,657	96,463	72,036	0	63,847
60 to 64	2	33	24	35	39	13	4	0	0	0	150
Avg. Pay*	54,501	47,705	58,296	62,411	76,517	79,877	63,335	0	0	0	63,618
65 & Up	1	24	28	20	15	1	1	0	0	0	90
Avg. Pay*	65,545	47,723	47,542	70,223	61,705	51,979	74,021	0	0	0	55,535
Total	119	735	284	356	287	133	47	10	1	0	1,972
Avg. Pay*	41,172	48,928	57,711	66,148	76,490	84,698	84,607	100,542	72,036	0	60,381

*The average pay shown is the average of the annual rate of pay excluding any overtime pay or other special compensation.



Average benefit being paid to non-disabled retirees is \$3,656.36 per month.

Average benefit being paid to beneficiaries is \$1,458.88 per month.

Average benefit being paid to disabled retirees is \$2,415.55 per month.

*Data to compute Age at Retirement for deceased retirees with benefit continuing to a survivor was not available.



PROJECTED BENEFIT PAYMENTS

TABLE Xf

Fiscal Year	Projected Payments
2020	\$ 78,397,347
2021	\$ 80,651,201
2022	\$ 82,943,818
2023	\$ 85,236,430
2024	\$ 87,478,875
2025	\$ 89,301,631
2026	\$ 91,130,050
2027	\$ 92,943,590
2028	\$ 94,485,647
2029	\$ 95,882,497



Schedule of Active Member Valuation Data

<u>Valuation Date</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Annual Average Pay</u>	<u>% Increase In Average Pay</u>
October 1, 2015	1,512	78,707,859	52,055	2.58%
October 1, 2016	1,793	94,536,971	52,726	1.29%
October 1, 2017	1,943	107,890,759	55,528	5.31%
October 1, 2018	1,959	107,770,892	55,013	(0.93)%
October 1, 2019	1,972	119,071,503	60,381	9.76%

Schedule of Retirants and Beneficiaries Added to and Removed from Rolls

<u>Year Ended</u>	<u>Added to Rolls</u>		<u>Removed from Rolls</u>		<u>Rolls – End of Year</u>		<u>% Increase In Annual Allowances</u>	<u>Average Annual Allowances</u>
	<u>Number</u>	<u>Annual Allowances</u>	<u>Number</u>	<u>Annual Allowances</u>	<u>Number</u>	<u>Annual Allowances</u>		
September 30, 2015	43	\$1,641,524	67	\$1,538,547	2,007	\$72,097,726	0.14%	\$35,923
September 30, 2016	51	\$1,921,346	74	\$1,811,924	1,984	\$72,207,148	0.15%	\$36,395
September 30, 2017	49	\$2,076,806	54	\$1,118,605	1,979	\$73,165,349	1.33%	\$36,971
September 30, 2018	41	\$1,776,058	73	\$1,800,723	1,947	\$73,140,684	(0.03)%	\$37,566
September 30, 2019	38	\$1,943,043	65	\$1,805,724	1,920	\$73,278,003	0.19%	\$38,166



Solvency Test

Valuation Date	Aggregate Accrued Liabilities for			Reported Assets Actuarial Value	Portion of Accrued Liabilities Covered by Reported Assets		
	(1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active Member (Employer Financed Portion)		(1)	(2)	(3)
September 30, 2013	\$70,317,889	\$739,487,758	\$56,105,615	\$556,570,561	100%	66%	0%
September 30, 2014	\$76,301,336	\$735,433,118	\$54,123,745	\$576,796,227	100%	68%	0%
September 30, 2015	\$83,524,419	\$733,521,064	\$64,239,276	\$593,839,115	100%	70%	0%
September 30, 2016	\$91,512,215	\$773,892,248	\$86,667,540	\$618,446,623	100%	68%	0%
September 30, 2017	\$100,581,074	\$778,034,035	\$102,412,357	\$645,491,328	100%	70%	0%
September 30, 2018	\$110,392,059	\$771,318,434	\$154,116,813	\$678,854,470	100%	74%	0%
September 30, 2019	\$122,948,157	\$765,344,472	\$193,776,602	\$715,548,690	100%	77%	0%



**Analysis of Financial Experience
Gains & Losses in Accrued Liabilities During Year Ending September 30
Resulting from Differences Between Assumed Experience & Actual Experience**

\$ Gain (or Loss) For Year Ending September 30	2019
Age & Service Retirements	1,656,916
If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pay, a loss.	
Disability Retirements	(510,708)
If disability claims are less than assumed, there is a gain. If more claims, a loss.	
Death-In-Service Retirements	(305,018)
If survivor claims are less than assumed, there is a gain. If more claims, a loss.	
Withdrawal From Employment	292,024
If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	
Pay Increases and Data Adjustments	(17,156,591)
If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	
Contribution Income	(4,401,671)
If more contributions are received than expected, there is a gain. If less, a loss.	
Investment Income	3,834,350
If there is greater investment income than assumed, there is a gain. If less income, a loss.	
Death After Retirement	271,077
If retirants live longer than assumed, there is a loss. If not as long, a gain.	
New Members/Rehires	(452,350)
Other	
Miscellaneous gains and losses resulting from timing of financial transactions, valuation methods, increase in maximum benefit limits, etc.	
	\$2,767,672
Gain (or Loss) During Year From Financial Experience	<u>(\$14,004,299)</u>
Non-Recurring Items	<u>(\$12,106,830)</u>
Adjustments for plan amendments, assumption changes, etc.	
Composite Gain (or Loss) During Year	(\$26,111,129)



RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September 2017, Actuarial Standard of Practice Number 51, Assessment and Disclosure of Risk in Measuring Pension Obligations, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, is first applicable for the October 1, 2019 actuarial valuation for the Plan.

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become “pay as you go.” The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay and
- external risks such as the regulatory and political environment.

There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year. The Plan is primarily funded by member and employer contributions to the trust fund, together with the earnings on these accumulated contributions. These contributions fund benefit accruals for current active members and administrative expenses. The remainder of the contributions amortizes the unfunded actuarial accrued liability. The required contribution rate is the sum of the rates for the normal cost for the plan and the amortization of the unfunded actuarial accrued liability. The required contribution rate is sensitive to increases in the UAAL and periods of lower than expected returns would lead to much higher contribution rates as a percentage of payroll.



RISK CONSIDERATIONS

The other significant risk factor for the Plan is investment return because of the volatility of returns and the size of plan assets compared to payroll. A perusal of historical returns over 10-20 years reveals that the actual return each year is rarely close to the average return for the same period. This is to be expected, given the underlying capital market assumptions and the Plan's asset allocation. To the extent market rates of interest affect the expected return on assets, there is a risk of change to the discount rate which determines the present value of liabilities and actuarial valuation results.

A key demographic risk for the Plan is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect a margin for improvement in mortality experience, these assumptions are refined every experience study. The risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.



1. Actuarial Cost Method

The modified individual entry age normal cost method. Under this method, normal costs are determined on the individual entry age normal method. However, if the actuarial value of assets exceeds the entry age accrued liability, the individual entry age normal cost rate for the Plan shall be adjusted by the excess actuarial value of assets divided by the present value of future payroll, in order for the unfunded accrued liability to not be less than zero.

As of October 1, 1997, the unfunded actuarial accrued liability is zero. Currently, changes in actuarial assumptions and methods, plan amendments for actives and actuarial gains and losses are amortized as a level percent of pay over 20 years. Plan amendments for retirees are amortized over 15 years.

2. Decrements

• Pre-Retirement Mortality

Female: RP2000 Generational, 100% Combined Healthy White Collar, Scale BB
Male: RP2000 Generational, 50% Combined Healthy White Collar / 50% Combined Healthy Blue Collar, Scale BB

• Post-Retirement Healthy Mortality

Female: RP2000 Generational, 100% Annuitant White Collar, Scale BB
Male: RP2000 Generational, 50% Annuitant White Collar / 50% Annuitant Blue Collar, Scale BB

• Post-Retirement Disabled Mortality

Female: RP2000, 100% Disabled Female set forward two years, no projection scale
Male: RP2000, 100% Disabled Male setback four years, no projection scale

• Disability

Representative values of the assumed annual rates of disability among members in active service are set forth in the following table. 90% of disabilities are assumed to be ordinary (non-occupational), and 10% are service incurred. Of the service incurred disabilities, 50% are assumed to be accidental.

Age	Rate	Age	Rate	Age	Rate	Age	Rate
20	0.02%	30	0.05%	40	0.09%	50	0.18%
25	0.02%	35	0.07%	45	0.12%	55	0.26%



- Permanent Withdrawal from Active Status**

Representative values of the assumed annual rates of withdrawal among members in active service are set forth in the following table.

Age	Completed Years of Service					
	0	1	2	3	4	5 or more
20	13.5%	13.0%	10.8%	8.5%	7.0%	6.0%
25	13.5%	13.0%	10.8%	8.5%	7.0%	5.3%
30	13.5%	13.0%	10.8%	8.5%	7.0%	4.8%
35	13.0%	12.5%	10.3%	8.2%	7.0%	4.4%
40	12.4%	11.9%	9.7%	7.6%	6.5%	3.4%
45	11.8%	11.3%	9.0%	7.0%	5.7%	2.9%
50	11.2%	10.7%	8.5%	6.4%	4.7%	2.4%
55	10.9%	10.4%	8.2%	6.1%	4.4%	2.0%

- Retirement (non-Backdrop)**

Representative values of the assumed annual rates of retirement among members in active service are set forth in the following table. The rates for ages 45 through 54 are the assumed rates before the age of 55 under the rule of 70.

Age	Rate	Age	Rate	Age	Rate	Age	Rate	Age	Rate
45	7%	50	10%	55	18%	60	18%	65	16%
46	7%	51	10%	56	18%	61	18%	66	16%
47	7%	52	10%	57	18%	62	18%	67	16%
48	7%	53	10%	58	18%	63	18%	68	16%
49	7%	54	10%	59	18%	64	18%	69	16%
								70	100%



- Rates of Backdrop Elections**

The valuation assumes members will elect a five-year Backdrop.

Age	Years of Service								
	10-14	15-20	21	23	25	27	29	30	35
50								15%	
51							15%	15%	
52							15%	10%	
53						15%	10%	10%	
54						15%	10%	10%	
55					18%	10%	10%	10%	25%
56					18%	10%	10%	10%	25%
57				18%	10%	10%	10%	10%	25%
58				18%	10%	10%	10%	10%	25%
59			18%	10%	10%	10%	10%	10%	25%
60	18%	18%	18%	10%	10%	10%	10%	25%	25%
61	10%	10%	10%	10%	10%	10%	25%	25%	25%
62	10%	10%	10%	10%	10%	10%	25%	25%	25%
63	10%	10%	10%	10%	10%	25%	25%	25%	25%
64	10%	10%	10%	10%	10%	25%	25%	25%	25%
65	10%	25%	25%	25%	25%	25%	25%	25%	25%
66	10%	25%	25%	25%	25%	25%	25%	25%	25%
67	10%	25%	25%	25%	25%	25%	25%	25%	16%
68	10%	25%	25%	25%	25%	25%	25%	25%	16%
69	10%	25%	25%	25%	25%	25%	25%	25%	16%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

3. Interest Rate

7.60% per annum, compounded annually, including inflation.



4. **Salary Increases**

Salaries are assumed to increase at a rate that varies based on years of credited service.

Years of Credited Service	Rate of Increase
Less Than 1	8.75%
1	8.00%
2	6.50%
3	5.50%
4	5.00%
5	5.00%
6	4.50%
7	4.50%
8	4.50%
9	4.50%
10 or more	4.00%

5. **Inflation**

3.5% per annum.

6. **Spouses**

80% of active members are assumed to be married with the husband 3 years older than his wife.

7. **Expenses**

The City shall provide for the non-investment expenses of the Retirement Trust. However, there may be some non-investment expenses during the Plan year which will be reimbursed by the City after the end of the year. An allowance for other expenses is made in that the interest rate assumption is net of investment expenses. The City’s normal cost includes an allowance of \$362,000 per year for the payment of custodial/trustee expenses.

8. **Assets**

Actuarial value, as developed in Table VIIa. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected market value. The actuarial value of assets cannot be less than 80% or more than 120% of market value.



9. Funding Period (Pursuant to Chapter 112, Florida Statutes)

Prior to October 1, 1997, the Gates Agreement amortization payments were paid in accordance with Schedule B of Attachment E of the Gates Agreement. As of October 1, 1997, the payment schedule was replaced. The unfunded actuarial accrued liability as of October 1, 1997 was zero. Beginning October 1, 2011, the following amortization periods apply all as level percent of pay amounts:

Benefit changes for actives	20 years
Benefit changes for retirees	15 years
Actuarial gain/loss	20 years
Change in assumptions and methods	20 years

10. Maximum Benefit

The valuation reflects the maximum benefit limits under Internal Revenue Code Section 415, indexed in future years at the 3.5% per year assumed rate of inflation.



The following assumptions have been changed during the last few plan years:

1. Effective October 1, 1990: Change in interest rate from 7.50% to 8.00%.
2. Effective October 1, 1991: Salary increase assumption was changed from graduated rates to a flat 6.50% per year.
3. Effective October 1, 1993: Change in mortality rates.
4. Effective October 1, 1995:
 - Change in interest rate from 8.00% to 8.10% per year.
 - Change in salary increase assumption from 6.50% to 6.00% per year.
 - Change in mortality rates.
 - Addition of rates of retirement before the age of 55 under the rule of 70.
5. Effective October 1, 1997: Change in employee turnover rates.

Age	Assumed Annual Termination Rates for	
	Prior Rates	Revised Rates
20	4.8%	5.3%
25	4.2%	4.6%
30	3.6%	4.0%
35	3.0%	3.4%
40	2.4%	2.6%
45	1.8%	2.0%
50	1.2%	1.3%
55	0.9%	1.0%



6. Effective October 1, 1997: Changes in funding and asset methods.

Gates Settlement Schedule B Amortization Payments

Prior to October 1, 1997, the Gates Agreement amortization payments were paid in accordance with Schedule B of Attachment E of the Gates Agreement. As of October 1, 1997, the payment schedule will be replaced. The unfunded actuarial accrued liability as of October 1, 1997 is zero. Beginning October 1, 1998, the following amortization periods will apply all as level dollar amounts:

Benefit improvements for actives	30 years
Benefit improvements for retirees	15 years
Actuarial gain/loss	15 years
Change in assumptions	20 years

Asset Valuation Method

As of October 1, 1997, the actuarial value of assets shall be changed to moving market value averaged over three years. Each year, the actuarial asset value will be projected forward at the valuation date based on actual contributions and benefit payments at the assumed interest assumption. One third of the difference between the projected actuarial value and the market value plus prior deferrals is added to the projected actuarial value. The remaining two thirds is deferred to each of the next two years as future adjustments to the actuarial value. The result cannot be greater than 120% of market value or less than 80% of market value.

As of October 1, 1997 the actuarial value is equal to the market value.

Valuation Cost Method

The modified aggregate entry age normal cost method will be applied for costs for the fiscal year beginning October 1, 1998. (The City contribution for the fiscal year beginning October 1, 1998 is based on the October 1, 1997 actuarial valuation.)



7. Effective October 1, 1998: Change in employee retirement rates.

Ages	Assumed Annual Retirement Rates	
	Prior Rates	Revised Rates
45-49	5%	15%
50-54	5%	20%
55	20%	30%
56-61	10%	20%
62	20%	20%
63-64	15%	20%
65-69	20%	20%
70	100%	100%

8. Effective October 1, 1999 changes made to reflect Revenue Code Section 415(L)(1)(A) limitations on the maximum annual benefits payable from the Plan.

9. Effective October 1, 2000:

- Change in salary increase assumption from 6.00% to 5.75% per year.
- Revised turnover rates for employees with less than 5 years of service as follows:

Ages	Completed Years of Service				
	0	1	2	3	4
20	12.5%	11.0%	9.0%	7.5%	6.5%
25	12.5%	11.0%	9.0%	7.5%	6.5%
30	12.5%	11.0%	9.0%	7.5%	6.5%
35	12.5%	11.0%	9.0%	7.5%	6.5%
40	11.4%	10.4%	8.4%	6.6%	6.0%
45	10.8%	9.8%	7.8%	6.0%	5.2%
50	10.2%	9.2%	7.2%	5.4%	4.2%
55	9.9%	8.9%	6.9%	5.1%	3.9%



- Change in employee retirement rates

Ages	Assumed Annual Retirement Rates	
	Prior Rates	Revised Rates
45-49	15%	10%
50-54	20%	15%
55	30%	30%
56-61	20%	20%
62	20%	20%
63-64	20%	20%
65-69	20%	20%
70	100%	100%

- Change in employee disability rates

Ages	Assumed Annual Disability Rates	
	Prior Rates	Revised Rates
20	0.03%	0.05%
25	0.03%	0.05%
30	0.04%	0.08%
35	0.05%	0.10%
40	0.07%	0.12%
45	0.10%	0.15%
50	0.18%	0.20%
55	0.26%	0.28%

- Change in mortality rates for active members by setting back ages 2 years in the 1983 Group Annuity Mortality Table for males and females.

10. Effective October 1, 2002 change in salary increase assumption from 5.75% to 5.00% per year.

11. Effective October 1, 2003:

- Change in mortality rates for retired members by setting back ages 2 years in the 1983 Group Annuity Mortality Table for males and females.
- Change in mortality rates for retired disabled members by setting forward ages 7 years in the 1983 Group Annuity Mortality Table for males and females.



- Revised turnover rates for employees with less than 5 years of service as follows

Ages	Completed Years of Service				
	0	1	2	3	4
20	12.5%	11.5%	9.5%	7.5%	6.5%
25	12.5%	11.5%	9.5%	7.5%	6.5%
30	12.5%	11.5%	9.5%	7.5%	6.5%
35	12.0%	11.0%	9.0%	7.2%	6.5%
40	11.4%	10.4%	8.4%	6.6%	6.0%
45	10.8%	9.8%	7.8%	6.0%	5.2%
50	10.2%	9.2%	7.2%	5.4%	4.2%
55	9.9%	8.9%	6.9%	5.1%	3.9%

- Change in employee retirement rates

Ages	Assumed Annual Retirement Rates	
	Prior Rates	Revised Rates
45-49	10%	10%
50-54	15%	15%
55	30%	26%
56-61	20%	18%
62	20%	18%
63-64	20%	18%
65-69	20%	16%
70	100%	100%

12. Effective October 1, 2006:

- Upgrade in actuarial valuation software.
- Change in salary increase assumption from 5.00% to 5.25% per year.
- Change in mortality rates for retired members by setting back ages 1 year in the 1983 Group Annuity Mortality Table for males and females.



Revised turnover rates for employees with 5 or more years of service as follows:

Ages	Assumed Annual Termination Rates for	
	Prior Rates	Revised Rates
20	5.3%	5.8%
25	4.6%	5.1%
30	4.0%	4.5%
35	3.4%	3.9%
40	2.6%	3.1%
45	2.0%	2.5%
50	1.3%	2.0%
55	1.0%	1.5%

13. Effective October 1, 2008: Changes in asset methods and amortization of Unfunded Actuarial Liability.

Asset Valuation Method

The new actuarial asset valuation method spreads asset gains and losses over five years, instead of the three years under the prior method.

Under the new asset method, the expected return is determined each year based on the beginning of year market value and actual cash flows during the year and an expected asset return of 8.1%. Any difference between the expected market value return and the actual market value return is recognized evenly over a period of five years. The resulting actuarial value of assets cannot be less than 80% or more than 120% of the market value of assets.

The new actuarial asset method will phase-in over a five-year period. The phase-in approach assumes 1-year smoothing (20% recognition) of the asset loss for the year ended September 30, 2008. Next year the asset method will include 2-year smoothing, followed by 3-year smoothing and so on, until the full 5-year smoothing is completely phased-in.

Amortization of the Unfunded Actuarial Liability

The method to amortize the unfunded actuarial liability has been changed from level dollar to level percent of pay. Under the level percentage of projected payroll amortization method, amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members. The dollar amount of the payments increases over time as payroll increases due to inflation. The dollar amount of the payments, adjusted with inflation, can be expected to remain level as a percent of pay. For example, if the amortization payment increases 3% per year and the payroll also increases 3% per year, then the amortization payment is level as a percentage of pay.



The periods to amortize benefit changes for actives and changes in assumptions were changed to 15 years.

14. Effective October 1, 2009:

- Change in death-in-service rates for active members to utilize the UP-1994 Group Annuity Mortality Table, projected to 2018 (using scale AA), set forward 1 year.
- Change in mortality rates for retired members to utilize the UP-1994 Group Annuity Mortality Table, projected to 2018 (using scale AA), set forward 2 years.
- Change in mortality rates for disabled retirees to utilize the UP-1994 Group Annuity Mortality Table, projected to 2018 (using scale AA), set forward 8 years.
- Revised turnover rates for employees with less than 5 years of service as follows:

Ages	Completed Years of Service				
	0	1	2	3	4
20	13.0%	12.0%	10.0%	8.0%	7.0%
25	13.0%	12.0%	10.0%	8.0%	7.0%
30	13.0%	12.0%	10.0%	8.0%	7.0%
35	12.5%	11.5%	9.5%	7.7%	7.0%
40	11.9%	10.9%	8.9%	7.1%	6.5%
45	11.3%	10.3%	8.3%	6.5%	5.7%
50	10.7%	9.7%	7.7%	5.9%	4.7%
55	10.4%	9.4%	7.4%	5.6%	4.4%

- Revised turnover rates for disabled retirements as follows:

Age	Rate	Age	Rate	Age	Rate	Age	Rate
20	0.03%	30	0.06%	40	0.10%	50	0.18%
25	0.03%	35	0.08%	45	0.13%	55	0.26%



14. Effective October 1, 2009 (continued):

- Change in the age 55 retirement rate assumption from 26% to 18%.
- Salary Assumption modifications in accordance with table below, applicable to Fiscal Year 2010/2011. Salary increase rates remain unchanged from current assumption of 5.25% for future years after Fiscal Year 2011.

Salary Range	Percent Reduction
Less than \$39,999.99	0%
\$40,000.00 - \$54,999.99	5%
\$55,000.00 - \$74,999.99	7%
\$75,000.00 - \$119,999.99	9%
\$120,000 +	12%

15. Effective October 1, 2011:

- Change in the assumed interest rate from 8.10% to 8.00% per year. A phased-in interest rate assumption will be utilized in accordance with the following table:

Valuation Year	Interest Rate Assumption
2011	8.00%
2012	7.90%
2013	7.80%
2014	7.70%
2015	7.60%

- Change in the assumed salary increase rates from 5.25% to rates varying by years of credited service as shown below:

Years of Credited Service	Rate of Increase
Less Than 1	8.75%
1	8.00%
2	6.50%
3	5.50%
4	5.00%
5	5.00%
6	4.50%
7	4.50%
8	4.50%
9	4.50%
10 or more	4.00%



The assumed pay increases for the year beginning October 1, 2011 is 0%.

- To reflect the new Backdrop, rates of retirement have been decreased at earlier ages and increased at later ages when the member is eligible to Backdrop. We have assumed members will elect a five year Backdrop.
- The City’s normal cost includes an allowance of \$250,000 per year for the payment of custodial/trustee expenses.
- Funding Period (Pursuant to Chapter 112, Florida Statutes)
The following amortization periods apply all as level percent of pay amounts:

Benefit changes for actives	20 years
Benefit changes for retirees	15 years
Actuarial gain/loss*	20 years
Change in assumptions and methods	20 years

*Unfunded liability bases established prior to October 1, 2011 were amortized using the remaining periods as of October 1, 2011, with an additional 5 years applied to each period. The original amortization period plus the five additional years do not exceed 30 years.

16. Effective October 1, 2012:

- Change in the assumed interest rate from 8.00% to 7.90% per year. A phased-in interest rate assumption will be utilized in accordance with the following table:

Valuation Year	Interest Rate Assumption
2011	8.00%
2012	7.90%
2013	7.80%
2014	7.70%
2015	7.60%

Change in employee disability rates

Ages	Assumed Annual Disability Rates	
	Prior Rates	Revised Rates
20	0.03%	0.02%
25	0.03%	0.02%
30	0.06%	0.05%
35	0.08%	0.07%
40	0.10%	0.09%
45	0.13%	0.12%
50	0.18%	0.18%
55	0.26%	0.26%



17. Effective October 1, 2013:

- Change in the assumed interest rate from 7.90% to 7.80% per year. A phased-in interest rate assumption will be utilized in accordance with the following table:

Valuation Year	Interest Rate Assumption
2011	8.00%
2012	7.90%
2013	7.80%
2014	7.70%
2015	7.60%

18. Effective October 1, 2014:

- Change in the assumed interest rate from 7.80% to 7.70% per year. A phased-in interest rate assumption will be utilized in accordance with the following table:

Valuation Year	Interest Rate Assumption
2011	8.00%
2012	7.90%
2013	7.80%
2014	7.70%
2015	7.60%

19. Effective October 1, 2015:

- Change in the assumed interest rate from 7.70% to 7.60% per year.
- Change in mortality rates for disabled retirees to utilize the UP-1994 Group Annuity Mortality Table, projected to 2018 (using scale AA), set forward 7 years.
- Revised turnover rates for employees with 5 or more years of service as follows:

Ages	Assumed Annual Termination Rates for Members	
	Prior Rates	Revised Rates
20	5.8%	6.0%
25	5.1%	5.3%
30	4.5%	4.8%
35	3.9%	4.4%
40	3.1%	3.4%
45	2.5%	2.9%
50	2.0%	2.4%
55	1.5%	2.0%



- Change in employee retirement rates

Ages	Assumed Annual Retirement Rates	
	Prior Rates	Revised Rates
45-49	10%	8%
50-54	15%	12%
55	18%	23%
56-64	18%	18%
65-69	16%	16%
70	100%	100%

20. Effective October 1, 2016:

The mortality assumptions used by the Florida Retirement System were adopted as required by HB 1309. The updated assumptions are as follows:

- Pre-Retirement Mortality
 Female: RP2000 Generational, 100% Combined Healthy White Collar, Scale BB
 Male: RP2000 Generational, 50% Combined Healthy White Collar / 50% Combined Healthy Blue Collar, Scale BB
- Post-Retirement Healthy Mortality
 Female: RP2000 Generational, 100% Annuitant White Collar, Scale BB
 Male: RP2000 Generational, 50% Annuitant White Collar / 50% Annuitant Blue Collar, Scale BB
- Post-Retirement Disabled Mortality
 Female: RP2000, 100% Disabled Female set forward two years, no projection scale
 Male: RP2000, 100% Disabled Male setback four years, no projection scale

21. Effective October 1, 2018:

- Revised turnover rates for employees with less than 5 years of service as follows:

Ages	Completed Years of Service				
	0	1	2	3	4
20	13.5%	13.0%	10.8%	8.5%	7.0%
25	13.5%	13.0%	10.8%	8.5%	7.0%
30	13.5%	13.0%	10.8%	8.5%	7.0%
35	13.0%	12.5%	10.3%	8.2%	7.0%
40	12.4%	11.9%	9.7%	7.6%	6.5%
45	11.8%	11.3%	9.0%	7.0%	5.7%
50	11.2%	10.7%	8.5%	6.4%	4.7%
55	10.9%	10.4%	8.2%	6.1%	4.4%



- Change in employee retirement rates

Ages	Assumed Annual Retirement Rates	
	Prior Rates	Revised Rates
45-49	8%	7%
50-54	12%	10%
55	23%	18%

*Note: Assumption changes that have first been reflected in this valuation are shown in bold print.

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1. Plan Effective Date

The original plan effective date is July 1, 1956, including all amendments through September 30, 2019.

2. Membership

An employee becomes a member upon employment unless he is a member of any other pension or retirement system supported wholly or in part by the City. An employee ceases to be a member if (i) he is absent from service for more than three years of any five consecutive year period, (ii) he withdraws his contributions, (iii) he becomes a member of any other City sponsored retirement plan, or (iv) he becomes a beneficiary or dies.

3. Membership Service

Service as an employee for which contributions were made.

4. Creditable Service

Sum of Membership Service, Prior Service, and Military Service.

5. Compensation

Employee's base salary, including pick-up contributions. Compensation for pension purposes does not include the cash payment at retirement for accumulated unused leaves, such as, vacation and sick leave. For members who retire on or after October 1, 2018, except members of AFSCME Local 871 bargaining unit, compensation shall include a retroactive 5% salary increase for the member's highest one year salary.

6. Member Contributions

10% of compensation.

7. Average Final Compensation

Members Eligible for Retirement (meet Rule of 70 or age 55 and 10 years of service) as of September 30, 2010

Average annual compensation during highest two years of membership service. For members employed before May 24, 1984, Average Final Compensation is average annual compensation during highest one year of membership service.

Members of the AFSCME Local 1907 bargaining unit and non-bargaining members hired before September 30, 2010

Average annual compensation during the highest one year of membership service, increased by 5%.

All Other Members

Average annual compensation during the highest five years of the last 10 years of service. Members retiring between October 1, 2010 and on or before September 30, 2011 will be based on the average of the highest three years of membership service; for members who retire on or after October 1, 2011 and on or before September 20, 2012, it will be based on the average highest four years of membership service; and for members who retire on or after October 1, 2012, the average of the highest five years of the last 10 years of service. In no event shall the average final compensation of any member who is employed on September 20, 2010 and retires on or after October 1, 2010 be less than the member's final average compensation as of September 30, 2010.



8. Service Retirement Benefit

Members Eligible for Retirement as of September 30, 2010

3% of Average Final Compensation multiplied by Creditable Service.

All Other Members

3% of Average Final Compensation multiplied by Creditable Service as of September 30, 2010. For members of the AFSCME Local 1907 bargaining unit and non-bargaining members hired before September 30, 2010, 3% of Average Final Compensation multiplied by all years of Creditable Service. For service after September 30, 2010, 2.25% (2.5% for members of the AFSCME Local 871 bargaining unit) of Average Final Compensation multiplied by Creditable Service up to 15 years; for Creditable Service in excess of 15 years but less than 20 years, 2.5% of Average Final Compensation multiplied by Creditable Service; for Creditable Service in excess of 20, 2.75% of Average Final Compensation multiplied by Creditable Service. For members of the Sanitation bargaining unit, the 2.50% multiplier applies to each year of Creditable Service up to 20 years. The service retirement benefit shall be based on a member's total Creditable Service and the benefit multiplier in effect at the time the service is earned, multiplied by average final compensation in effect at the time of retirement or separation from employment.

9. Normal Retirement

Members Eligible for Retirement as of September 30, 2010 and members of the AFSCME Local 1907 bargaining unit and non-bargaining members hired before September 30, 2010

• **Age and Service**

Age 55 and 10 years of continuous Creditable Service.

• **Rule of 70**

Age plus Service equaling 70 points

• **Benefit Amount**

The basic retirement benefit.

• **Forms of Payment**

Normal Forms of Payment

Option 6a: Lump sum payment of member's accumulated contributions plus a monthly service retirement benefit equal to 50% of the amount to which he would have been otherwise entitled;

Option 6b: Monthly service retirement benefit for member's lifetime equal to 105% of the amount to which he would have been otherwise entitled;

Option 6c: Monthly service retirement benefit for member's lifetime equal to the amount to which he was entitled, provided that, upon his death, 40% of that amount would continue to be paid to his surviving spouse for the lifetime of such spouse.

Actuarially Reduced Forms of Payment

Option 2 – Equal Payment Survivor Annuity: Reduced joint and 100% survivor annuity;

Option 3 – One-Half Payment Survivor Annuity: Reduced joint and 50% survivor annuity

All Other Members

• **Age and Service**

Age 55 and 30 years of continuous Creditable Service, or

Age 60 and 10 years of continuous Creditable Service

• **Rule of 80**

Age plus Service equaling 80 points



- **Benefit Amount**

The basic retirement benefit payable as a life annuity.

- **Forms of Payment**

Actuarially Reduced Forms of Payment

Option 2 – Equal Payment Survivor Annuity: Reduced joint and 100% survivor annuity;

Option 3 – One-Half Payment Survivor Annuity: Reduced joint and 50% survivor annuity

Option 6a: Lump sum payment of member’s accumulated contributions plus a monthly service retirement benefit equal to 50% of the amount to which he would have been otherwise entitled;

Option 6c: Monthly service retirement benefit for member’s lifetime equal to the amount to which he was entitled, provided that, upon his death, 40% of that amount would continue to be paid to his surviving spouse for the lifetime of such spouse.

10. Early Retirement

- **Age**

Any age with at least 20 years of Creditable Service.

- **Amount**

Actuarial equivalent of the basic service retirement benefit that otherwise would have commenced at age 55. For members not eligible for retirement on October 1, 2010 the amount is the actuarial equivalent of the basic service retirement benefit payable at the earliest of the retirement eligibility dates under 9. above.

- **Form of Payment**

Same as for Normal Retirement.

11. Deferred Vested Retirement

- **Eligibility**

Completion of 10 years of Creditable Service and provided the member does not withdraw his accumulated contributions.

- **Amount**

The basic retirement benefit.

- **Form of Payment**

Same as for Normal Retirement.



12. Ordinary Disability Retirement

- **Eligibility**
Completion of 10 years of Creditable Service.
- **Condition**
The member must have become totally incapacitated from the further performance of duty not as a result of an accident in the performance of duty.
- **Amount**
The greater of 90 percent of the product of the benefit multiplier in effect at the time the service is earned multiplied by the number of years of credited service; or 30 percent of the member's final average compensation.
- **Form of Payment**
Life annuity.

13. Accidental Service Incurred Disability Retirement

- **Eligibility**
Any member.
- **Condition**
The Member must have become totally and permanently incapacitated for duty as a result of an accident occurring while in the performance of his duty.
- **Amount**
66 2/3% of the greater of Average Final Compensation or final compensation.
- **Form of Payment**
Life annuity provided that, upon the member's death, 40% of the benefit would continue to be paid to surviving spouse for the lifetime of such spouse.

14. Service Incurred Disability Retirement

- **Eligibility**
Any member.
- **Condition**
The member must have become totally and permanently incapacitated for duty as a result of tuberculosis, hypertension, or heart disease (which was not an existing condition at the time of employment).
- **Amount**
The greater of 90 percent of the product of the benefit multiplier in effect at the time the service is earned multiplied by the number of years of credited service; or 40 percent of the member's final average compensation.
- **Form of Payment**
Life annuity.



15. Ordinary Death Benefit

- **Eligibility**
Completion of 3 years of Creditable Service.
- **Condition**
The member must have died for a reason other than while in the actual performance of duty.
- **Amount**
Lump sum payment of accumulated contributions plus 50% of compensation during the year immediately preceding death.

16. Surviving Spouse Benefit

- **Eligibility**
Any member who is eligible for Normal, Early, or Rule of 70 Retirement who dies prior to actual retirement and whose spouse elects not to receive a payment of the member's accumulated contributions.
- **Amount**
If the member is eligible for retirement on September 30, 2010, 40% of the sum of the member's basic retirement benefit calculated as if the member had attained age 55 and retired on date of death. In addition, the surviving spouse will receive 50% of the member's compensation during the year immediately preceding death. If the member is not eligible for retirement on September 30, 2010, the spousal benefit will be based on the optional form of payment elected by the member. If the member has not elected an optional allowance, the spouse will receive the 40% survivor benefit actuarially reduced.
- **Form of Payment**
Life annuity.

17. Accidental Death Benefit

- **Eligibility**
Membership in the Plan.
- **Condition**
The member must have died accidentally while in the actual performance of duty.
- **Amount**
50% of Average Final Compensation plus a lump sum payment equal to accumulated contributions.
- **Form of Payment**
Life annuity.

18. Minimum Retired Death Benefit

A retired member who dies prior to having received 12 monthly retirement payments and prior to having an optional allowance becoming effective will have a lump sum equal to the excess, if any, of 12 times the monthly payments over the actual payments received paid to his designated beneficiary.



19. Return of Contributions

A member who terminates employment and is not eligible for any other benefit shall receive a refund of his accumulated contributions. If a member dies in active service, his beneficiary shall receive a refund of his accumulated contributions except as otherwise noted in this section.

20. Cost-of-Living Adjustment

Effective October 1, 1998, the annual cost-of-living benefit will be 4% of the total benefit with minimum increases of \$54 per year and maximum increases of \$400 per year.

21. Limitation on Benefits

Effective September 30, 2012, for members not eligible to retire on that date, member retirement allowances shall not exceed the lesser of 100 percent of the member's average final compensation or an annual retirement allowance of \$80,000 as of the retirement or DROP entry based on the normal form of benefit in effect on the date of retirement. In no event shall the benefit limitation be less than the member's accrued benefit on September 30, 2012 based on the normal form of benefit in effect on that date.

22. Deferred Retirement Option Program ("DROP")

Any employee who is eligible for a service or Rule of 70 retirement is eligible to participate in the DROP. Upon election of participation, a member's creditable service, accrued benefits, and compensation calculation are frozen and the DROP payment is based on the member's average final compensation. The member's contribution and the City contribution to the retirement plan for that member ceases as no further service credit is earned. The member does not acquire additional pension credit for the purposes of the pension plan but may continue City employment for up to a maximum of 48 months. Once the maximum participation has been achieved, the participant must terminate employment.

There are two DROP programs, the Forward Drop and the BACDROP. A member can participate in both programs simultaneously. The Forward DROP is a DROP benefit equal to the regular retirement benefit the member would have received had the member separated from service and commenced the receipt of benefits from the plan. The BACDROP is a DROP benefit actuarially calculated. A member may elect to BACDROP to a date, no further back than the date of the member's retirement eligibility date. The BACDROP period must be in 12 month increments, beginning at the start of a pay period, not to exceed 48 months. The benefits for the BACDROP will then be actuarially calculated to be the equivalent to the benefit earned at the date of retirement.

An individual account is created for each participant. The Board of Trustees of the retirement plan has established, by administrative rule, a series of investment vehicles which may be chosen by the participant. Any losses incurred on account of the option selected by the participant will not be made up by the City or the GESE Trust, and will be borne by the participant only. All interest will be credited to the member's account

**22. Deferred Retirement Option Program ("DROP") (continued)**

Upon termination of employment, a participant may receive payment from the DROP account in a lump sum distribution; or periodic payments. A participant may elect to rollover the balance to another qualified retirement plan, individual retirement account, an Internal Revenue Code Section 457 Plan, or an annuity. A participant may defer payment until the latest date authorized by Section 401(a)(9) of the Internal Revenue Code. DROP participation will not affect any other death or disability benefit provided under law or applicable collective bargaining agreement. If a participant dies before the account balances are paid out in full, the beneficiary will receive the remaining balance.

23. Backdrop Option

A Backdrop benefit option shall be implemented on January 1, 2013. The Backdrop option shall replace the existing DROP program. Employees who have not attained normal retirement eligibility as of January 1, 2013 or were not vested by October 1, 2010, and all employees hired on or after January 1, 2013, will be eligible for the Backdrop option but will not be eligible for the DROP. Anyone eligible for the forward DROP as of January 1, 2013 remains eligible for the forward DROP as it presently exists and anyone eligible for the forward DROP as of January 1, 2013 or vested prior to October 1, 2010, who chooses not to enter the forward DROP, remains eligible for the Backdrop.

Under the Backdrop option a member can receive a lump sum payment in addition to a monthly pension annuity. The employee chooses to take a Backdrop at the end of his employment with the City as long as he or she Backdrops to any date after he/she reaches the Normal Retirement date. If the member elects the Backdrop option, the monthly benefit payable on the member's actual retirement date (when the member leaves City employment) is based on the benefit the member would have received had he or she left employment and retired on an earlier Normal Retirement (NR) date, referred to as the Backdrop date. In addition, the member will receive a lump sum payment equal to the accumulation of annuity payments he or she would have received during the Backdrop period had he or she elected to receive immediate pension annuity payments starting as of the Backdrop date. Annuity payments would be accumulated at the rate of 3% per year, compounded annually. The member's Backdrop date can be any date after his or her Normal Retirement Date and the Backdrop period can be as little as one year and as long as 7 years (see below for the eligibility rules). If the member does not elect a Backdrop benefit option, his or her monthly retirement benefit will be calculated using his or her final average final compensation and creditable service as of the member's actual employment termination date.

Eligibility

All members are eligible to elect Backdrop after completing one year of service after eligibility for Normal Retirement. A Backdrop election must be made within 10 years after becoming eligible for Normal Retirement. The maximum Backdrop period is 7 years. Members who wish to elect the Backdrop option must provide at least 8 months' notice to separate, or a lesser period could apply if approved by the City Manager (due to special circumstances).



Distribution Options

The lump sum portion of this Backdrop benefit option is payable as follows:

- Cash Option
- Rollover to another tax deferred account (e.g. IRA) Option
- Combination Cash and Rollover Option

The annuity portion (as well as the Backdrop annuity accumulation) of this Backdrop benefit option is payable according to the annuity form elected (e.g. Joint and 100% Survivor annuity).

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The following plan amendments have been adopted within the past few years*:

1. Effective October 1, 1991:
 - a) Basic retirement benefit increased from 2.00% to 2.25%.
 - b) Rule of 75 retirement was changed to Rule of 70.
 - c) Cost of COLA was added.
2. Effective October 1, 1995: Early Retirement Incentive Program was implemented.
3. Effective October 1, 1997: No Changes
4. Effective October 1, 1998:
 - a) Basic retirement benefit multiplier is increased from 2.25% to 3.00%.
 - b) The Longevity Supplement ceases to be available.
 - c) The COLA percentage increased from 2% to 4% and the maximum COLA benefit increase of \$200 per year is increased to \$400 per year. In addition, the maximum cumulative COLA benefit on a quarterly basis is eliminated.
5. Effective October 1, 2007: Benefit reduction factors used for optional forms of benefit payment were updated.
6. Effective October 1, 2008:
 - a) The AFSCME bargaining unit members contribute 13% of payroll for fiscal year 2009/2010.
7. Effective September 30, 2010. The benefit changes do not apply to members eligible to retire (that is, meet Rule of 70 or age 55 and 10 years of creditable service) on that date:
 - a) Normal Retirement Date: Earlier of age 60 with 10 years of service, age 55 with 30 years of service or Rule of 80.
 - b) Benefit Formula: 2.25% per year – first 15 years; 2.5% per year -- 16 to 20 years; and 2.75% per year – over 20 years. The new benefit formula applies to all future service. Members as of September 30, 2010 retain the 3% benefit percentage earned up to that date, and earn the new percentage (based on years of service) for each year of service after that date.
Example: current member with 20 years of service (but not eligible for normal retirement) would retain 60% multiplier earned prior to plan change, and earn 2.75% for each year of service after the plan change.



- c) Maximum Benefit: Maximum annual benefit at retirement is lesser of 100% of average final compensation benefit and \$100,000 per year. Any member who has accrued a benefit in excess of the maximum benefit as of September 30, 2010 will retain that benefit but will not accrue any additional benefit.
- d) Normal Benefit Form: Life annuity. Members may elect actuarially reduced survivor options.
- e) Average final compensation: average of highest five consecutive years of the last 10 years of service, to be phased in over three years as follows: average final compensation for members who retire between October 1, 2010 and September 30, 2011 will be based on highest 3 consecutive year average; average final compensation for members who retire between October 1, 2011 and September 30, 2012 will be based on highest 4 consecutive year average; and average final compensation for members who retire after September 30, 2012 will be based on the highest 5 consecutive year average of the last 10 years of service. Provided, in no event will the average final compensation of any member be less than the member's average final compensation as of the date of the plan change.
- f) Contribution rate of 13% of pay for all members effective October 1, 2010. The 13% contribution rate applies to all members whether or not eligible to retire on September 30, 2010.

8. Effective October 1, 2011:

- a) Maximum Benefit: Effective September 30, 2012, the maximum annual benefit at retirement is \$80,000 per year. Any member who has accrued a benefit in excess of the maximum benefit as of September 30, 2012 will retain that benefit but will not accrue any additional benefit.
- b) Contribution rate of 10% of pay for all members effective October 1, 2012. The 10% contribution rate applies to all members whether or not eligible to retire on September 30, 2010.
- c) BACKDROP option. A Backdrop benefit option shall be implemented on January 1, 2013. The Backdrop option shall replace the existing DROP program. Employees who have not attained normal retirement eligibility as of January 1, 2013 or were not vested by October 1, 2010, and all employees hired on or after January 1, 2013, will be eligible for the Backdrop option but will not be eligible for the DROP. Anyone eligible for the forward DROP as of January 1, 2013 remains eligible for the forward DROP as it presently exists and anyone eligible for the forward DROP as of January 1, 2013 or vested prior to October 1, 2010, who chooses not to enter the forward DROP, remains eligible for the Backdrop.

9. Effective October 1, 2018:

- a) For members of the AFSCME Local 871 bargaining unit, the benefit multiplier is increased from 2.25% to 2.50% for the first 15 years of service.
- b) For members of the AFSCME Local 1907 bargaining unit hired before October 1, 2010, retirement eligibility at age 55 with 10 years of service or Rule of 70 is restored. The benefit multiplier is restored to 3% per year of service. The average final compensation is the highest 1 year of salary increased by 5%.



10. Effective October 1, 2019:

- a) **For non-bargaining members hired before October 1, 2010, retirement eligibility at age 55 with 10 years of service or Rule of 70 is restored. The benefit multiplier is restored to 3% per year of service. The average final compensation is the highest 1 year of salary increased by 5%.**
- b) **For members who retire on or after October 1, 2018, except members of AFSCME Local 871 bargaining unit, compensation shall include a retroactive 5% salary increase for the member's highest one year salary.**

*** Note: Amendments that have first been reflected in this valuation are indicated in bold print.**

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