



# PENSION PLAN PROJECTIONS AND MODELING

**New Orleans Fire**

**April 6, 2015**

★ Segal Consulting

# Disclosure

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- Segal Consulting was retained by the Business Council of the City of New Orleans (BCNO) and the City of New Orleans through a cooperative endeavor agreement (CEA) in mid-October 2014 to provide actuarial and technical analysis to the Pension Working Group.
- This presentation is intended for the use of the Working Group, for the purpose of modeling projected plan liabilities of the City's Firefighters' Pension Relief Fund.
- Projections, by their nature, are not a guarantee of future results. They are intended to serve as estimates of future financial outcomes that are based on assumptions about future experience and the information available at the time the modeling is undertaken and completed. The charts included in this presentation show how the Plan would be affected if specific investment return, mortality, turnover, disability and retirement assumptions are met. Actual results may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.
- Segal was asked to provide options for the Working Group to review and consider the legal risk if any. **Segal does not practice law or render legal advice. Legal interpretations on which the Working Group bases decisions are, as always, subject to the advice of counsel.**
- The various options shown are for the Pension Working Group to understand the financial impact and **are not recommendations.**
- The calculations included in this presentation were completed under the supervision of Eric J. Atwater, FSA, FCA, MAAA, EA and Deborah K. Brigham, FCA, ASA, MAAA, EA, with the assistance of Samantha Allen and Matt Powell.

# Background

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- Note that Segal is tasked with replicating the current plan of benefits based on the current assumptions and then projecting the cost using a “**reasonable**” set of actuarial assumptions and methods based on its professional experience.
- Thus, the projected cost provided by Segal may differ from the current actuary’s projections.
  - The actual cost patterns may differ even if the assumptions are the same since the method to determine the cost may differ slightly.
  - However, the present value of the projected benefits should be about the same since the plan of benefits modeled is the same.
- Segal conducted a high-level review of the assumptions and have made some modifications for modeling future plan cost. However, Segal’s review is not a substitute for an in-depth experience study and will only be for purposes of modeling future cost.
- Based on the information provided and discussion with the Plan’s actuary, **we modified the salary growth and disabled mortality assumptions for purposes of modeling future plan liabilities and cost.**
- **Also note have used 5-year, instead of 7-year, asset smoothing. All other assumptions are the same as the 2014 valuation report.**
- **Also note, we have assumed 100% of the DROP/PLOP is paid immediately for purposes of modeling all scenarios.**

# Updated Market Value of Assets

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- **Note that we have updated our prior projections to use the most recent unaudited asset value as of January 1, 2015 of \$61.3 million (versus \$80.6 million projected previously).**
  - The value as of January 1, 2015 is unaudited and thus we were not provided with a reconciliation to analyze the difference from the prior projection.
  - The \$19.3 million lower asset value increases the annual recommended contribution (ARC) about \$1.5 million annually above the prior projection.
  - If the actual asset value is about \$20 million lower, or about \$41.3 million, then the cost will be about \$1.5 million higher.

# Modeling Introduction

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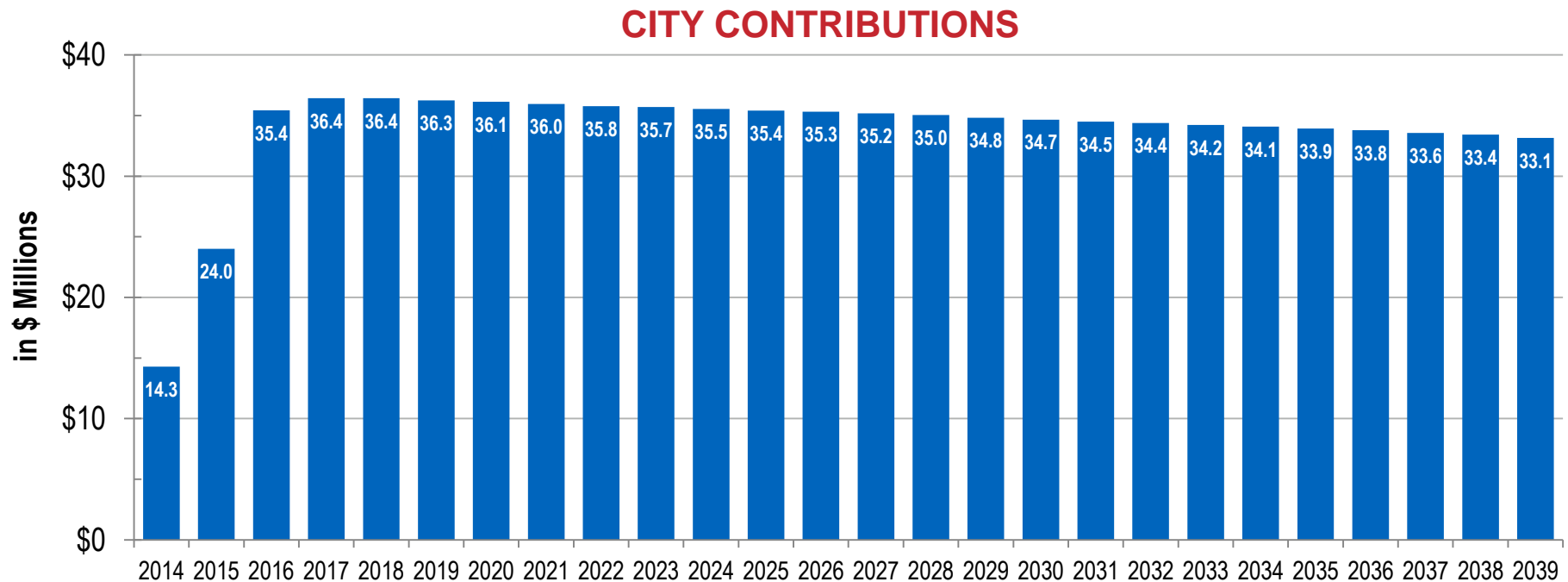
- Segal was asked to model the impact of various changes, or put a price tag on a “package” of changes.
- We analyzed the following options:
  - 1) Option #1 (i.e., No Change) – no plan changes; administer benefits in current manner; pay Annual Required Contribution (ARC)
  - 2) Option #2 – increase multiplier for current participants; Supplemental Employee Benefits (SEB) or “Workers’ Comp” offset
  - 3) Option #3 – apply statutory language; increase employee contributions and retirement age; lower new hire multiplier to 2.5%; eliminate PLOP feature; Supplemental Employee Benefits (SEB) or “Workers’ Comp” offset
- We analyzed the projected impact of the Workers’ Comp offset under a number of scenarios and developed cost savings ranging from \$4.2 million to \$7.9 million over the next 20 years, with the impact varying depending on changes in participant behavior or utilization and the effect of inflation on benefit levels.
- **Thus, we have assumed an annual savings of about \$6.1 million for the Supplemental Employee Benefit (SEB) or Workers’ Comp changes as provided by the City.**

# Annual Pension Contributions (No Change)

## *Current Plan, Pay ARC Annually*

The following are the projected City pension contributions under the current plan based on the “modeling” assumptions and assuming the City contributes 100% of the Annual Recommended Contribution (ARC) annually.

- The cost would be, on average, about \$5.0 million higher (lower) annually if the investment return were 1.0% lower (higher) annually.
- The projected contributions below assumes an asset value of \$61.3 million as of January 1, 2015.
- If the asset value is \$20 million less, or about \$41.3 million instead of \$61.3 million, then the contributions would be about \$1.5 million higher annually and about \$20 million of DROP/PLOP liabilities would not be able to be paid immediately.



**Note:** Assumes City contributes 100% of ARC annually beginning in FY '16.

# Cash Flow Projections (No Change)

*Current Plan, Pay ARC Annually*

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Contributions		Disbursements						
Year	Employee	City	Benefit Payments	Expenses	Net Cash Flow	Net Investment Return @ 7.50%	Market Value of Assets (MVA), EoY	Funded Percentage <sup>1</sup> (MVA/AAL)	Unfunded <sup>1</sup> (MVA - AAL)
2014	\$2.0	\$14.3	(\$26.3)	(\$0.2)	(\$10.2)	(\$13.3)	\$61.3	17.7%	\$393.7
2015	\$2.7	\$24.0	(\$91.7)	(\$0.2)	(\$65.2)	\$4.6	\$0.7	14.8%	\$352.5
2016	\$3.0	\$35.4	(\$26.0)	(\$0.2)	\$12.2	\$0.5	\$13.4	0.2%	\$361.5
2017	\$3.1	\$36.4	(\$25.8)	(\$0.2)	\$13.5	\$1.5	\$28.3	3.6%	\$356.2
2018	\$3.1	\$36.4	(\$25.6)	(\$0.2)	\$13.7	\$2.7	\$44.7	7.5%	\$349.6
2019	\$3.2	\$36.3	(\$31.5)	(\$0.2)	\$7.8	\$3.6	\$56.1	11.6%	\$342.5
2020	\$3.3	\$36.1	(\$30.9)	(\$0.2)	\$8.3	\$4.4	\$68.8	14.3%	\$334.9
2021	\$3.3	\$36.0	(\$29.7)	(\$0.2)	\$9.4	\$5.3	\$83.5	17.4%	\$327.0
2022	\$3.4	\$35.8	(\$28.6)	(\$0.3)	\$10.3	\$6.7	\$100.5	20.8%	\$318.8
2023	\$3.5	\$35.7	(\$30.8)	(\$0.3)	\$8.1	\$7.8	\$116.4	24.4%	\$310.6
2024	\$3.6	\$35.5	(\$30.5)	(\$0.3)	\$8.3	\$9.0	\$133.7	27.8%	\$301.7
2025	\$3.7	\$35.4	(\$32.9)	(\$0.3)	\$5.9	\$10.2	\$149.8	31.4%	\$292.7
2026	\$3.8	\$35.3	(\$35.3)	(\$0.3)	\$3.5	\$11.3	\$164.6	34.6%	\$283.1
2027	\$3.9	\$35.2	(\$30.5)	(\$0.3)	\$8.3	\$12.5	\$185.5	37.6%	\$273.0
2028	\$3.9	\$35.0	(\$34.4)	(\$0.3)	\$4.2	\$14.0	\$203.6	41.4%	\$262.7
2029	\$3.9	\$34.8	(\$33.1)	(\$0.3)	\$5.3	\$15.4	\$224.3	44.7%	\$251.5
2030	\$4.0	\$34.7	(\$32.1)	(\$0.3)	\$6.3	\$16.9	\$247.5	48.3%	\$239.9
2031	\$4.1	\$34.5	(\$32.9)	(\$0.3)	\$5.4	\$18.6	\$271.5	52.1%	\$227.7
2032	\$4.2	\$34.4	(\$32.2)	(\$0.3)	\$6.1	\$20.4	\$298.0	55.8%	\$215.0
2033	\$4.3	\$34.2	(\$38.3)	(\$0.4)	(\$0.2)	\$22.3	\$320.1	59.6%	\$201.7
2034	\$4.4	\$34.1	(\$37.9)	(\$0.4)	\$0.2	\$23.9	\$344.1	63.1%	\$187.4
2035	\$4.5	\$33.9	(\$37.2)	(\$0.4)	\$0.8	\$25.7	\$370.6	66.6%	\$172.5
2036	\$4.5	\$33.8	(\$36.8)	(\$0.4)	\$1.1	\$27.7	\$399.5	70.2%	\$157.0
2037	\$4.6	\$33.6	(\$39.0)	(\$0.4)	(\$1.2)	\$29.7	\$428.0	74.0%	\$140.5
2038	\$4.6	\$33.4	(\$39.0)	(\$0.4)	(\$1.4)	\$31.9	\$458.5	77.7%	\$123.1
2039	\$4.7	\$33.1	(\$38.5)	(\$0.4)	(\$1.1)	\$34.1	\$491.6	81.5%	\$104.3
2040	\$4.8	\$32.8	(\$38.0)	(\$0.4)	(\$0.8)	\$36.7	\$527.5	85.3%	\$84.6
2041	\$4.9	\$32.5	(\$42.9)	(\$0.4)	(\$5.9)	\$39.1	\$560.6	89.2%	\$64.0
2042	\$5.1	\$31.9	(\$41.2)	(\$0.5)	(\$4.7)	\$41.7	\$597.7	93.0%	\$42.0
2043	\$5.3	\$30.9	(\$49.3)	(\$0.5)	(\$13.6)	\$44.0	\$628.1	96.9%	\$19.3
Total	\$117.4	\$1,005.4	(\$1,078.9)	(\$9.5)	\$34.4	\$508.9			
Present Value	\$55.5	\$508.7	(\$547.0)	(\$4.3)	\$12.8	\$177.1			

<sup>1</sup> Beginning of the year.

Assumes City contributes ARC beginning in FY '16

Present Value (i.e., total amount in today's dollars) determined using 5.0% cost of capital.



# Option Details

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- The following changes were modeled as part of **Option #2**:
  - 1) Increase multiplier for current active employees – increase multiplier to 3 1/3% for all 30 years of service
  - 2) Offset Workers' Comp – reduce pension benefit by Workers' Comp
- The following changes were modeled as part of **Option #3**:
  - 1) Lower multiplier for future hires – lower multiplier from 2.75% to 2.50% for future hires.
  - 2) Extend retirement ages for future hires – increase retirement age from age 52 to age 55 for future hires.
  - 3) “Statutory” (Alternative) interpretation for current active employees – require participants be at least age 50 and have at least 12 years of service to receive the 3 1/3% multiplier; 90% pension upon reaching 30 years of service
  - 4) Increase employee contributions – increase employee contributions from 10% to 11% effective January 1, 2017; from 11% to 12% effective January 1, 2019; and from 12% to 13% effective January 1, 2021
  - 5) Eliminate PLOP – eliminate PLOP feature and remove PLOP interest
  - 6) Offset Workers' Comp – reduce pension benefit by Workers' Comp
- **Note that the PLOP is actuarial equivalent so removing the feature has no impact the liabilities but does impact the timing of the cash flows. We modeled the impact of removing the PLOP interest by reducing the PLOP balances as of January 1, 2015 by 25%.**



# Annual Pension Contributions (Option #2)

*Pay ARC Annually*

Fiscal Year	Baseline	Impact on City Contributions of		Option #2
		3.33% for Current Participants	Workers' Comp	
2015	\$24.0	---	---	\$24.0
2016	\$35.4	\$1.2	(\$6.1)	\$30.5
2017	\$36.4	\$1.3	(\$6.1)	\$31.6
2018	\$36.4	\$1.3	(\$6.1)	\$31.6
2019	\$36.3	\$1.2	(\$6.1)	\$31.4
2020	\$36.1	\$1.2	(\$6.1)	\$31.2
2021	\$36.0	\$1.2	(\$6.1)	\$31.0
2022	\$35.8	\$1.2	(\$6.1)	\$30.8
2023	\$35.7	\$1.1	(\$6.1)	\$30.7
2024	\$35.5	\$1.1	(\$6.1)	\$30.6
2025	\$35.4	\$1.1	(\$6.1)	\$30.4
2026	\$35.3	\$1.1	(\$6.1)	\$30.3
2027	\$35.2	\$1.1	(\$6.1)	\$30.1
2028	\$35.0	\$1.0	(\$6.1)	\$30.0
2029	\$34.8	\$1.0	(\$6.1)	\$29.7
2030	\$34.7	\$1.0	(\$6.1)	\$29.5
2031	\$34.5	\$1.0	(\$6.1)	\$29.3
2032	\$34.4	\$0.9	(\$6.1)	\$29.2
2033	\$34.2	\$0.9	(\$6.1)	\$29.0
2034	\$34.1	\$0.9	(\$6.1)	\$28.9
2035	\$33.9	\$0.9	(\$6.1)	\$28.7
2036	\$33.8	\$0.9	(\$6.1)	\$28.6
2037	\$33.6	\$0.9	(\$6.1)	\$28.3
2038	\$33.4	\$0.9	(\$6.1)	\$28.2
2039	\$33.1	\$0.9	(\$6.1)	\$27.9
2040	\$32.8	\$0.9	(\$6.1)	\$27.6
2041	\$32.5	\$0.9	(\$6.1)	\$27.3
2042	\$31.9	\$0.9	(\$6.1)	\$26.7
2043	\$30.9	\$0.9	(\$6.1)	\$25.7
2044	\$28.3	\$0.9	(\$6.1)	\$23.1
Total	\$1,024.6	\$29.6	(\$176.9)	\$877.2
Present Value <sup>1</sup>	\$531.2	\$15.5	(\$88.0)	\$458.7

<sup>1</sup> Present Value (i.e., total amount in today's dollars) determined using 5.0% cost of capital.

# Annual Pension Contributions (Option #3)

*Pay ARC Annually*

Fiscal Year	Baseline	Impact on City Contributions of					Option #3
		2.50% for Future Hires	Age 55 Retirement Age	Statutory Interpretation	13% Employee Contributions	Workers' Comp	
2015	\$24.0	---	---	---	---	---	\$24.0
2016	\$35.4	(\$0.0)	(\$0.0)	(\$1.2)	\$0.0	(\$6.1)	\$28.1
2017	\$36.4	(\$0.0)	(\$0.0)	(\$1.3)	\$0.0	(\$6.1)	\$29.0
2018	\$36.4	(\$0.1)	(\$0.0)	(\$1.3)	(\$0.3)	(\$6.1)	\$28.6
2019	\$36.3	(\$0.1)	(\$0.1)	(\$1.3)	(\$0.3)	(\$6.1)	\$28.4
2020	\$36.1	(\$0.1)	(\$0.1)	(\$1.3)	(\$0.7)	(\$6.1)	\$27.9
2021	\$36.0	(\$0.1)	(\$0.1)	(\$1.2)	(\$1.1)	(\$6.1)	\$27.3
2022	\$35.8	(\$0.2)	(\$0.1)	(\$1.2)	(\$1.1)	(\$6.1)	\$27.1
2023	\$35.7	(\$0.2)	(\$0.2)	(\$1.2)	(\$1.1)	(\$6.1)	\$26.9
2024	\$35.5	(\$0.2)	(\$0.2)	(\$1.2)	(\$1.1)	(\$6.1)	\$26.7
2025	\$35.4	(\$0.3)	(\$0.2)	(\$1.2)	(\$1.1)	(\$6.1)	\$26.5
2026	\$35.3	(\$0.3)	(\$0.2)	(\$1.1)	(\$1.2)	(\$6.1)	\$26.4
2027	\$35.2	(\$0.3)	(\$0.2)	(\$1.1)	(\$1.2)	(\$6.1)	\$26.2
2028	\$35.0	(\$0.3)	(\$0.3)	(\$1.1)	(\$1.2)	(\$6.1)	\$26.0
2029	\$34.8	(\$0.4)	(\$0.3)	(\$1.1)	(\$1.2)	(\$6.1)	\$25.8
2030	\$34.7	(\$0.4)	(\$0.3)	(\$1.1)	(\$1.2)	(\$6.1)	\$25.6
2031	\$34.5	(\$0.4)	(\$0.4)	(\$1.0)	(\$1.2)	(\$6.1)	\$25.3
2032	\$34.4	(\$0.4)	(\$0.4)	(\$1.0)	(\$1.3)	(\$6.1)	\$25.2
2033	\$34.2	(\$0.5)	(\$0.4)	(\$1.0)	(\$1.3)	(\$6.1)	\$25.0
2034	\$34.1	(\$0.5)	(\$0.5)	(\$1.0)	(\$1.3)	(\$6.1)	\$24.8
2035	\$33.9	(\$0.5)	(\$0.5)	(\$0.9)	(\$1.3)	(\$6.1)	\$24.6
2036	\$33.8	(\$0.5)	(\$0.6)	(\$0.9)	(\$1.3)	(\$6.1)	\$24.4
2037	\$33.6	(\$0.5)	(\$0.6)	(\$0.9)	(\$1.3)	(\$6.1)	\$24.2
2038	\$33.4	(\$0.5)	(\$0.7)	(\$0.9)	(\$1.3)	(\$6.1)	\$24.0
2039	\$33.1	(\$0.5)	(\$0.7)	(\$0.8)	(\$1.3)	(\$6.1)	\$23.7
2040	\$32.8	(\$0.5)	(\$0.8)	(\$0.8)	(\$1.3)	(\$6.1)	\$23.4
2041	\$32.5	(\$0.5)	(\$0.8)	(\$0.7)	(\$1.3)	(\$6.1)	\$23.0
2042	\$31.9	(\$0.5)	(\$0.9)	(\$0.6)	(\$1.3)	(\$6.1)	\$22.5
2043	\$30.9	(\$0.3)	(\$1.0)	(\$0.6)	(\$1.3)	(\$6.1)	\$21.6
2044	\$28.3	\$0.1	(\$1.3)	(\$0.4)	(\$1.1)	(\$6.1)	\$19.4
Total	\$1,024.6	(\$9.2)	(\$11.9)	(\$29.3)	(\$30.6)	(\$176.9)	\$766.6
Present Value <sup>1</sup>	\$531.2	(\$3.8)	(\$4.2)	(\$15.7)	(\$13.4)	(\$88.0)	\$406.1

<sup>1</sup> Present Value (i.e., total amount in today's dollars) determined using 5.0% cost of capital.

# Questions?

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# Appendices



# Appendices

## *Glossary of Terms*

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### **Actuarial Accrued Liability (AAL)**

The portion of the Present Value of Projected Benefits (PVB) that has been accrued (or earned) to date. AAL is also expressed as difference between PVB and actuarial present value of future normal costs, or the accumulated normal costs attributable to the years before the valuation date.

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### **Annual Required Contribution (ARC)**

Sum of Normal Cost (NC) and amortization of Unfunded Actuarial Accrued Liability (UAAL). This is the amount actuarially determined to ensure that, if paid on an ongoing basis, there will be sufficient resources available for future benefit payments.

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### **Normal Cost (NC)**

Represents portion of PVB allocated to the current year by the funding method.

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### **Present Value of Projected Benefits (PVB)**

Present value of all future benefit payments for current retirees and active employees, taking into account actuarial assumptions including discount rate, Salary growth, turnover, mortality, disability, retirement and other experience.

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### **Unfunded Actuarial Accrued Liability (UAAL)**

The difference between the Actuarial Accrued Liability and the Actuarial Value of Assets.

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# Appendices

## *Projection Assumptions and Methods*

<b>Participant Data</b>	Census data as of January 1, 2014
<b>Projection Methodology</b>	Liabilities are projected forward assuming all economic and demographic assumptions are met. No cost-of-living-adjustments (i.e., COLAs) are assumed.
<b>New Entrants</b>	New entrants are assumed to replace participants who exit such that the total headcount remains constant. The new entrants' age, salary, etc. is based on hires over the last 5 years
<b>Salary Increases</b>	5.00% for first 15 years of service, 4.50% for 15 – 20 years of service, 4.0% for 20 – 25 years of service, 3.50% thereafter
<b>Payroll Growth</b>	~2.50% (see Appendices for details; Not used for Unfunded amortization payment)
<b>Discount Rate</b>	7.50%
<b>Investment Return</b>	7.50% (unless specifically stated)
<b>Market Value of Assets</b>	\$84.8M as of January 1, 2014; <b>\$61.3M as of January 1, 2015</b>
<b>Actuarial Value of Assets</b>	<b>Five-year smoothing of investment gains/losses with 20% corridor around market value (Reset to Market Value of Assets as of January 1, 2015)</b>
<b>Employer Contribution</b>	<b>Assumes City contributions of \$24.4M for FY '15</b> Residual amount to meet actuarially determined contribution beginning FY '16 unless specifically stated; Consists of Net Normal Cost and payment on Unfunded Actuarial Accrued Liability (UAAL); Payment on UAAL based on closed 30-year, level-dollar amortization
<b>Employee Contributions</b>	10.00% and 6.66% of pay for 2015 for participants with less than or more than 20 years of service respectively 10.00% of pay for years 2016 and thereafter for all participants
<b>Funding Method</b>	Entry Age Normal
<b>Administrative Expenses</b>	\$0.2M; increasing 3.0% annually
<b>DROP/PLOP accounts</b>	Assumes 100% of DROP/PLOP accounts paid immediately (\$37.9M DROP and \$26.0M PLOP as of January 1, 2015)

**NOTE: Projections due not include cash contributions resulting from the mandamus judgment, nor longevity payments in dispute.**

# Appendices

## *Change in Pay-as-you-go Cost for Old Plan*

The following shows the range of the reduction in the annual pay-as-you-go cost for the Old Plan.

Fiscal Year	Change in Annual Contributions (in millions)	
	Valuation Assumptions	0% Continuation to Beneficiary
2015	(\$0.5)	(\$1.3)
2016	(\$1.2)	(\$2.4)
2017	(\$1.8)	(\$3.5)
2018	(\$2.5)	(\$4.5)
2019	(\$3.2)	(\$5.5)
2020	(\$3.9)	(\$6.5)
2021	(\$4.7)	(\$7.5)
2022	(\$5.4)	(\$8.5)
2023	(\$6.2)	(\$9.4)
2024	(\$7.0)	(\$10.2)
2025	(\$7.8)	(\$11.0)
2026	(\$8.5)	(\$11.8)
2027	(\$9.3)	(\$12.5)
2028	(\$10.0)	(\$13.1)
2029	(\$10.7)	(\$13.7)
2030	(\$11.5)	(\$14.3)
2031	(\$12.1)	(\$14.8)
2032	(\$12.8)	(\$15.2)
2033	(\$13.4)	(\$15.6)
2034	(\$13.9)	(\$15.9)
2035	(\$14.5)	(\$16.2)
2036	(\$14.9)	(\$16.5)
2037	(\$15.4)	(\$16.7)
2038	(\$15.8)	(\$16.9)
2039	(\$16.1)	(\$17.0)
2040	(\$16.4)	(\$17.2)
2041	(\$16.6)	(\$17.3)
2042	(\$16.9)	(\$17.4)
2043	(\$17.0)	(\$17.4)
2044	(\$17.2)	(\$17.5)



# Appendices

## *Projected Counts and Payroll—Modeling Assumptions*

January 1	Active Headcount		
	Current Participants	Future Hires	Total
2014	553		553
2015	523	30	553
2016	501	52	553
2017	479	74	553
2018	461	92	553
2019	436	117	553
2020	412	141	553
2021	386	167	553
2022	357	196	553
2023	340	213	553
2024	317	236	553
2025	295	258	553
2026	278	275	553
2027	261	292	553
2028	245	308	553
2029	220	333	553
2030	198	355	553
2031	178	375	553
2032	161	392	553
2033	143	410	553
2034	128	425	553
2035	113	440	553
2036	101	452	553
2037	81	472	553
2038	67	486	553
2039	45	508	553
2040	27	526	553
2041	15	538	553
2042	5	548	553
2043	0	553	553

January 1	Covered Payroll			
	Current Participants	Future Hires	Total	% Increase
2014	\$29.4	\$0.0	<b>\$29.4</b>	
2015	\$28.8	\$1.1	<b>\$29.8</b>	1.8%
2016	\$28.5	\$1.9	<b>\$30.4</b>	2.0%
2017	\$28.3	\$2.9	<b>\$31.2</b>	2.5%
2018	\$28.4	\$3.7	<b>\$32.1</b>	2.9%
2019	\$27.9	\$4.9	<b>\$32.7</b>	2.0%
2020	\$27.4	\$6.1	<b>\$33.5</b>	2.4%
2021	\$26.6	\$7.5	<b>\$34.0</b>	1.6%
2022	\$25.4	\$9.1	<b>\$34.5</b>	1.4%
2023	\$25.3	\$10.2	<b>\$35.5</b>	2.9%
2024	\$24.3	\$11.8	<b>\$36.1</b>	1.7%
2025	\$23.6	\$13.4	<b>\$37.0</b>	2.3%
2026	\$23.1	\$14.8	<b>\$37.9</b>	2.5%
2027	\$22.4	\$16.3	<b>\$38.7</b>	2.2%
2028	\$21.8	\$17.9	<b>\$39.7</b>	2.4%
2029	\$20.1	\$20.0	<b>\$40.0</b>	1.0%
2030	\$18.6	\$22.0	<b>\$40.7</b>	1.5%
2031	\$17.3	\$24.1	<b>\$41.4</b>	1.7%
2032	\$16.2	\$26.1	<b>\$42.3</b>	2.1%
2033	\$14.8	\$28.2	<b>\$43.1</b>	2.0%
2034	\$13.6	\$30.4	<b>\$44.0</b>	2.0%
2035	\$12.5	\$32.5	<b>\$45.0</b>	2.3%
2036	\$11.5	\$34.7	<b>\$46.2</b>	2.7%
2037	\$9.6	\$37.3	<b>\$46.9</b>	1.5%
2038	\$8.2	\$39.7	<b>\$47.9</b>	2.1%
2039	\$5.7	\$42.7	<b>\$48.3</b>	0.9%
2040	\$3.6	\$45.5	<b>\$49.1</b>	1.6%
2041	\$2.0	\$48.0	<b>\$50.0</b>	1.9%
2042	\$0.7	\$50.4	<b>\$51.2</b>	2.2%
2043	\$0.0	\$52.5	<b>\$52.5</b>	2.7%

# Appendices

## *Projected Normal Cost—Modeling Assumptions*

January 1	Normal Cost			
	Gross	Employee Contributions	Net	Net as % of Pay
2015	\$6.5	(\$2.8)	\$3.7	12.5%
2016	\$6.6	(\$3.0)	\$3.6	11.8%
2017	\$6.8	(\$3.1)	\$3.7	11.7%
2018	\$6.9	(\$3.2)	\$3.7	11.5%
2019	\$7.0	(\$3.3)	\$3.7	11.4%
2020	\$7.1	(\$3.4)	\$3.8	11.3%
2021	\$7.2	(\$3.4)	\$3.8	11.2%
2022	\$7.4	(\$3.5)	\$3.9	11.4%
2023	\$7.5	(\$3.6)	\$3.9	11.1%
2024	\$7.6	(\$3.6)	\$4.0	11.1%
2025	\$7.8	(\$3.7)	\$4.1	11.1%
2026	\$7.9	(\$3.8)	\$4.1	10.9%
2027	\$8.1	(\$3.9)	\$4.2	10.9%
2028	\$8.1	(\$4.0)	\$4.2	10.5%
2029	\$8.2	(\$4.0)	\$4.2	10.6%
2030	\$8.4	(\$4.1)	\$4.3	10.5%
2031	\$8.5	(\$4.1)	\$4.4	10.5%
2032	\$8.6	(\$4.2)	\$4.4	10.4%
2033	\$8.8	(\$4.3)	\$4.5	10.4%
2034	\$8.9	(\$4.4)	\$4.5	10.3%
2035	\$9.1	(\$4.5)	\$4.6	10.3%
2036	\$9.3	(\$4.6)	\$4.6	10.0%
2037	\$9.4	(\$4.7)	\$4.8	10.1%
2038	\$9.5	(\$4.8)	\$4.7	9.9%
2039	\$9.7	(\$4.8)	\$4.8	10.0%
2040	\$9.9	(\$4.9)	\$4.9	10.1%
2041	\$10.1	(\$5.0)	\$5.1	10.1%
2042	\$10.3	(\$5.1)	\$5.2	10.1%
2043	\$10.6	(\$5.3)	\$5.3	10.2%