



# PENSION PLAN REVIEW

June 10, 2014

CITY OF MEMPHIS

 Segal Consulting



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# I. Assumptions and Methods Review

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# Background

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- Segal Consulting was retained by the City of Memphis City Council in March 2014 to provide advice and guidance as the City evaluates its retirement plans.
- The City Council Budget Committee held a meeting on March 4, 2014 to discuss areas of disagreement between the current assumptions and issues raised by the Fire actuary. The primary points of disagreement centered around the discount rate, actuarial value of assets methodology and salary growth assumption.
- After the March meeting, Segal requested items to further analyze plan experience and help the City quantify its Unfunded Liability.
- On May 1, 2014 PwC completed an experience study with recommended assumption changes that lowered the Unfunded Actuarial Accrued Liability (UAAL) about \$82.0 million and Annual Required Contribution (ARC) about \$8.2 million or about 2.7% of pay (from about \$96.0 million to about \$87.8 million).
- A follow-up meeting was held May 6, 2014 with the Committee to review Segal's estimate of the plan's funded status given suggested assumption changes. Segal suggested some additional assumption changes that lowered the UAAL an additional \$160.2 million and ARC an additional \$18.5 million (from about \$87.8 million to about \$69.3 million).
- The primary discrepancy between PwC and Segal's assumptions were related to mortality and salary growth assumptions. This presentation describes the process PwC and Segal used to arrive at the "agreed upon" set of assumptions, summarizes the agreed upon assumptions and projects the future pension cost of the current plan.
- Additionally, we have analyzed the impact of contributing the full ARC in 2, 3 or 4 years based on the "agreed upon" set of assumptions.

# Overview of Actuarial Assumptions

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Two types:

- Demographic Assumptions - When will benefits be payable? Who will be there to receive benefits? What amount will be payable?
- Economic Assumptions - How much will assets grow? How will salaries increase? What is the expectation for long-term inflation?

## Economic

- Discount rate (Investment rate of return)
- Salary increases
- Inflation
- Payroll growth rate
- Administrative expenses
- Cost-of-Living Adjustment (COLA)

## Demographic

- Retirement
- Withdrawal
- Disability
- Death in active service
- Death after retirement
- Percent married
- Percentage electing refund of contributions
- Percentage electing lump sums

# Economic Assumption Development

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Each economic assumption has two or three components (or building blocks).

**INVESTMENT RATE  
OF RETURN  
(DISCOUNT RATE)**



**SALARY INCREASES**



**PAYROLL GROWTH**



**Building blocks must be consistent across all economic assumptions.**

## Reconciliation of Assumption Changes – PwC vs Segal

	Unfunded	ARC
<b>As of July 1, 2013 (As reported in valuation; Before changes)</b>	<b>\$709,200,000</b>	<b>\$96,000,000</b>
<b>1. Retirement rates</b>		
• Change from assuming 100% retirement at single age	(99,000,000)	(8,700,000)
<b>2. Asset Smoothing</b>		
• Change to direct smoothing of investment gain/losses over 5 years	(39,900,000)	(3,400,000)
<b>3. Percentage married</b>		
• Change from assuming 90% to 80% of Fire and Police are married	(8,600,000)	(1,400,000)
<b>4. Withdrawal (Turnover)*</b>		
• Revise turnover assumption to fit experience	(1,400,000)	(1,000,000)
<b>5. Mortality</b>		
• Change from current table to RP-2014 with generational mortality improvements	66,900,000	6,300,000
<b>As of July 1, 2013 (After PwC assumption changes)</b>	<b>\$627,200,000</b>	<b>\$87,800,000</b>
<b>6. Mortality</b>		
• Segal suggested modifying proposed table by setting forward 3 years to reflect lag in Memphis-area mortality improvements	(92,700,000)	(7,700,000)
<b>7. Salary Growth</b>		
• Segal suggested use of the service-based table developed by PwC in the March 5, 2014 study based on plan experience	(67,500,000)	(10,800,000)
<b>As of July 1, 2013 (After Segal assumption changes)</b>	<b>\$467,000,000</b>	<b>\$69,300,000</b>

\* Impact withdrawal assumption change includes impact of netting affect since impact of adopting all assumptions varies slightly from adopting individual changes assumption changes

## Process for Arriving at Agreed Upon Assumptions

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- After the May 6<sup>th</sup> meeting, there was a difference of about 6.0% of the total liability or about \$160.2 million between the PwC and Segal assumptions.
- PwC, Segal and the City held a conference call after the May 6<sup>th</sup> meeting to discuss and reconcile the differences between the assumptions. The primary points of contention were:
  - **Salary growth**
    - Segal suggested to use the salary growth assumption developed by PwC in their March 5, 2014 salary study based on actual plan experience (average 3.9%).
    - PwC and the City suggested the salary growth assumption based on actual plan experience is too low as it expects higher increases going forward due to lack of recent increases
  - **Mortality assumption**
    - Segal suggested to set the projected table forward 3 years to reflect slower mortality improvements in the Memphis-area
    - PwC contended the Memphis-area mortality is improving and closing the gap between the national average life expectancy
- Both PwC and Segal suggested modifications to their respective salary growth and mortality assumptions and went back-and-forth on 2-3 additional conference calls before finally settling on a set of “agreed upon” salary growth and mortality assumptions.
- The “agreed upon” set of assumptions, except salary growth and mortality, were based on PwC suggestions from the May 1, 2014 experience study. The mortality assumption was modified to a one-year set forward. The salary growth assumption was changed from a flat 5.0% to a table based on service averaging about 4.25% annually (see next page)
- **Also, as part of the agreed upon assumptions the City has agreed to conduct periodic experience reviews every 4 to 5 years to continue to monitor the assumptions**



## Agreed Upon Salary Growth Assumption

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- The following are the projected salary increases for the agreed upon set of assumptions:

Age	Years of Service			
	1	2	3	4+
<21	7.25%	10.75%	8.75%	6.50%
21-25	7.25%	10.75%	8.75%	6.50%
26-30	8.25%	10.25%	8.00%	5.75%
31-35	7.75%	9.25%	7.00%	5.00%
36-40	6.75%	8.00%	6.00%	4.50%
41-45	5.50%	6.75%	5.50%	4.44%
46-50	5.50%	6.75%	5.50%	4.38%
51-55	5.50%	6.75%	5.50%	4.31%
56	5.50%	6.75%	5.50%	4.23%
57	5.50%	6.75%	5.50%	4.20%
58	5.50%	6.75%	5.50%	4.18%
59	5.50%	6.75%	5.50%	4.15%
60	5.50%	6.75%	5.50%	4.13%
61	5.50%	6.75%	5.50%	4.11%
62	5.50%	6.75%	5.50%	4.10%
63	5.50%	6.75%	5.50%	4.09%
64	5.50%	6.75%	5.50%	4.08%
<=65	5.50%	6.75%	5.50%	4.06%

## Reconciliation of Agreed Upon Assumption Changes

	Unfunded	ARC
<b>As of July 1, 2013 (Before Any Changes)</b>	<b>\$709,200,000</b>	<b>\$96,000,000</b>
<b>1. Retirement rates</b>		
• Change from assuming 100% retirement at single age	(99,000,000)	(8,700,000)
<b>2. Asset Smoothing</b>		
• Change to direct smoothing of investment gain/losses over 5 years	(39,900,000)	(3,400,000)
<b>3. Percentage married</b>		
• Change from assuming 90% to 80% of Fire and Police are married	(8,600,000)	(1,400,000)
<b>4. Withdrawal (Turnover)</b>		
• Revise turnover assumption to fit experience	(3,600,000)	(1,500,000)
<b>5. Mortality</b>		
• Change from current table to RP-2014, set forward 1 year, with generational mortality improvements	26,100,000	2,400,000
<b>6. Salary Growth</b>		
• Segal suggested use of the service-based table developed by PwC in the March 5, 2014 study based on plan experience	(32,000,000)	(5,100,000)
<b>As of July 1, 2013 (Agreed upon assumption changes)*</b>	<b>\$551,900,000</b>	<b>\$78,300,000</b>

*The agreed upon set of assumptions lowered the liability about 4.5% or about \$117.1 million and the Annual Required Contribution (ARC) about 20% or about \$17.7 million annually.*

\* Total may not add due to rounding



I. Assumptions and Methods Review

**II. Funding Options**

III. Path Forward

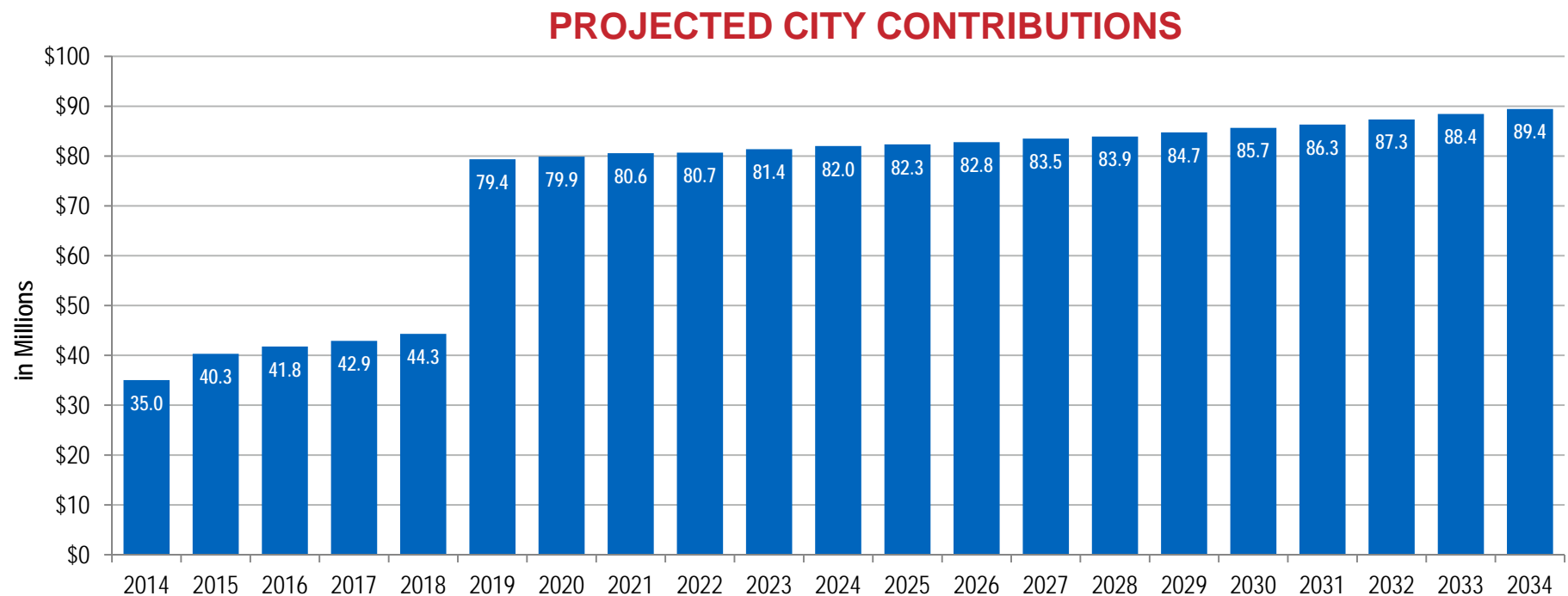
Appendices



# Projected Cost (in Dollars) – Current Funding Policy

The following are the projected City pension contributions under the current plan based on the agreed upon assumptions.

- Note that the contributions shown below are based on the current funding policy (i.e., City contributing about 11.5% of pay) for the next 5 years and then contributing the ARC, based on closed 30-year amortization, thereafter.



## Funding Options Overview

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- The projected cost shown prior **did not** assume any changes in funding policy over the next 5 years. However, the City may amend its funding policy to mitigate the significant increase in contribution looming from the recent changes in state pension law.
- The ultimate funding level will depend on the new plan design adopted. However, the interim funding is not as impacted by the plan design. Therefore, we have analyzed the following options to increase the funding of the City:
  - **Fully fund ARC in 5 years (Option A)** – increase contribution 1.0% of payroll each year for the next 4 years, then begin paying ARC in Year 5 based on 30-year level dollar closed amortization
  - **Fully fund ARC in 4 years (Option B)**– increase contribution 1.5% of payroll each year for the next 3 years, then begin paying ARC in Year 4 based on 31-year level dollar closed amortization
  - **Fully fund ARC in 3 years (Option C)**– increase contribution 2.0% of payroll each year for the next 2 years, then begin paying ARC in Year 3 based on 32-year level dollar closed amortization
  - **Fully fund ARC in 2 years (Option D)**– increase contribution 3.0% of payroll next year, then begin paying ARC in Year 2 based on 33-year level dollar closed amortization
  - **Fully fund ARC in 1 year (Option E)** – contribute ~11.5% for FY '15, then begin paying ARC in Year 1 based on 34-year level dollar closed amortization
- The following pages compare the impact on the City.

# Projected City Pension Cost – Funding Options

The following compares the projected City pension contributions under the various funding options.

Fiscal Year	Annual City Contributions (in millions)					
	Current Policy	Option A	Option B	Option C	Option D	Option E
2015	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0
2016	\$40.3	\$43.8	\$45.6	\$47.3	\$50.8	\$72.4
2017	\$41.8	\$49.0	\$52.7	\$56.3	\$70.5	\$68.6
2018	\$42.9	\$54.1	\$59.7	\$72.5	\$71.0	\$69.1
2019	\$44.3	\$59.7	\$73.3	\$71.7	\$70.1	\$68.3
2020	\$79.4	\$75.8	\$73.6	\$71.9	\$70.4	\$68.6
2021	\$79.9	\$76.4	\$74.1	\$72.5	\$70.9	\$69.1
2022	\$80.6	\$77.1	\$74.8	\$73.2	\$71.6	\$69.8
2023	\$80.7	\$77.2	\$74.9	\$73.3	\$71.8	\$70.0
2024	\$81.4	\$77.9	\$75.6	\$74.0	\$72.5	\$70.7
2025	\$82.0	\$78.5	\$76.3	\$74.7	\$73.2	\$71.4
2026	\$82.3	\$78.9	\$76.6	\$75.0	\$73.5	\$71.7
2027	\$82.8	\$79.3	\$77.1	\$75.5	\$74.0	\$72.2
2028	\$83.5	\$80.1	\$77.8	\$76.3	\$74.8	\$73.0
2029	\$83.9	\$80.5	\$78.3	\$76.7	\$75.2	\$73.4
2030	\$84.7	\$81.3	\$79.1	\$77.6	\$76.1	\$74.3
2031	\$85.7	\$82.3	\$80.1	\$78.5	\$77.0	\$75.3
2032	\$86.3	\$82.9	\$80.7	\$79.2	\$77.7	\$75.9
2033	\$87.4	\$84.0	\$81.8	\$80.2	\$78.8	\$77.0
2034	\$88.4	\$85.1	\$82.9	\$81.4	\$79.9	\$78.2
2035	\$89.4	\$86.1	\$83.9	\$82.4	\$80.9	\$79.2
2036	\$90.7	\$87.4	\$85.2	\$83.7	\$82.2	\$80.5
2037	\$91.8	\$88.5	\$86.3	\$84.8	\$83.3	\$81.6
2038	\$92.8	\$89.5	\$87.4	\$85.8	\$84.4	\$82.7
2039	\$94.2	\$90.9	\$88.8	\$87.3	\$85.8	\$84.1
2040	\$95.6	\$92.3	\$90.2	\$88.7	\$87.3	\$85.6
<b>Total</b>	<b>\$2,007.7</b>	<b>\$1,973.5</b>	<b>\$1,951.8</b>	<b>\$1,935.4</b>	<b>\$1,918.8</b>	<b>\$1,897.7</b>
<b>Present Value @ 5.0%</b>	<b>\$1,025.2</b>	<b>\$1,021.4</b>	<b>\$1,019.1</b>	<b>\$1,017.3</b>	<b>\$1,015.2</b>	<b>\$1,012.3</b>

# Impact of Funding Options

The following compares the impact, **against the current policy**, of the City's projected pension contributions under the various funding options.

Fiscal Year	Annual Impact of Changing from Current Policy				
	Option A	Option B	Option C	Option D	Option E
2014	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
2015	\$3.5	\$5.3	\$7.0	\$10.5	\$32.1
2016	\$7.3	\$10.9	\$14.5	\$28.7	\$26.9
2017	\$11.2	\$16.8	\$29.6	\$28.1	\$26.2
2018	\$15.4	\$29.0	\$27.3	\$25.8	\$24.0
2019	(\$3.5)	(\$5.8)	(\$7.4)	(\$9.0)	(\$10.8)
2020	(\$3.5)	(\$5.8)	(\$7.4)	(\$9.0)	(\$10.8)
2021	(\$3.5)	(\$5.8)	(\$7.4)	(\$8.9)	(\$10.7)
2022	(\$3.5)	(\$5.8)	(\$7.4)	(\$8.9)	(\$10.7)
2023	(\$3.5)	(\$5.7)	(\$7.3)	(\$8.9)	(\$10.7)
2024	(\$3.5)	(\$5.7)	(\$7.3)	(\$8.8)	(\$10.6)
2025	(\$3.5)	(\$5.7)	(\$7.3)	(\$8.8)	(\$10.6)
2026	(\$3.5)	(\$5.7)	(\$7.3)	(\$8.8)	(\$10.6)
2027	(\$3.4)	(\$5.7)	(\$7.2)	(\$8.7)	(\$10.5)
2028	(\$3.4)	(\$5.6)	(\$7.2)	(\$8.7)	(\$10.5)
2029	(\$3.4)	(\$5.6)	(\$7.2)	(\$8.7)	(\$10.5)
2030	(\$3.4)	(\$5.6)	(\$7.2)	(\$8.7)	(\$10.4)
2031	(\$3.4)	(\$5.6)	(\$7.1)	(\$8.6)	(\$10.4)
2032	(\$3.4)	(\$5.6)	(\$7.1)	(\$8.6)	(\$10.3)
2033	(\$3.4)	(\$5.5)	(\$7.1)	(\$8.5)	(\$10.3)
2034	(\$3.3)	(\$5.5)	(\$7.1)	(\$8.5)	(\$10.2)
2035	(\$3.3)	(\$5.5)	(\$7.0)	(\$8.5)	(\$10.2)
2036	(\$3.3)	(\$5.5)	(\$7.0)	(\$8.4)	(\$10.2)
2037	(\$3.3)	(\$5.4)	(\$7.0)	(\$8.4)	(\$10.1)
2038	(\$3.3)	(\$5.4)	(\$6.9)	(\$8.3)	(\$10.1)
2039	(\$3.3)	(\$5.4)	(\$6.9)	(\$8.3)	(\$10.0)
<b>Total</b>	<b>(\$34.2)</b>	<b>(\$55.9)</b>	<b>(\$72.3)</b>	<b>(\$88.9)</b>	<b>(\$109.9)</b>
<b>Present Value @ 5.0%</b>	<b>(\$3.7)</b>	<b>(\$6.0)</b>	<b>(\$7.9)</b>	<b>(\$10.0)</b>	<b>(\$12.8)</b>



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## Path Forward Overview

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- Now that an agreed upon set of assumptions have been established, the City can begin plotting the path forward.
  - One of the first steps in the path forward is to analyze the projected cost of the current plan under the agreed upon set of assumptions and decide on the funding path to reach payment of the full ARC
  - Also, by focusing on funding the current plan the City will have an accurate picture of the cost of the current plan and how much it needs to reduce its cost
- Over the next month, we envision having at least one meeting focused exclusively on plan design including thorough analysis of various options from all stakeholder's perspective
  - The current plan will be compared against various options under various investment returns to determine the impact on the City
  - The impact on the participant of the various options will be estimated by analyzing the impact on retirement income under various investment returns
  - Additionally, we will review/discuss transition issues and other issues pertinent to plan design such as impact on retirement patterns



# Plan Design Principles

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- The American Academy of Actuaries published a paper in January 2014 that's focused on building enduring retirement-income systems
- The Academy's new initiative, *Retirement for the AGES*, is intended to provide a framework for well-functioning retirement systems that meet the needs of each of the stakeholders in the retirement system<sup>1</sup>
- The initiative is based on four key principles<sup>1</sup>:
  - **Alignment** – stakeholder's roles should be aligned with their skills. Important tasks such as financial analysis and investment management should be the responsibility of those who have knowledge and experience to perform them well
  - **Governance** – good governance helps balance needs of various stakeholders as well as oversees significant administrative and investment functions
  - **Efficiency** – risk pooling and other financial techniques should be adopted or incorporated to ensure that a retirement-income system is efficient and maximizes income while avoiding excessive risk
  - **Sustainability** – roles and skills, good governance and financial efficiency should be structured to support a sustainable retirement-income system that provides income to the population at large



<sup>1</sup> from *Retirement for the Ages* January 2014 monograph

# Thank you!

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## Projections Disclosure

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**These projections shown in this report are to be used solely for the purpose of comparing alternative designs. These projections are not applicable for other purposes:**

- Projections, by their nature, are not a guarantee of future results.
- The modeling of alternatives are intended to serve as estimates of future financial outcomes that are based on the information available at the time the modeling is undertaken, and the agreed-upon assumptions and methodologies described herein.
- Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used.
- Actual experience may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.
- Note that the project scope did not include Segal producing a full replication of the City's valuation results. Therefore, Segal relied solely on information provided by PwC.

# Assumptions and Methodology

<b>Projection Methodology:</b>	Segal used the exact information provided by PriceWaterhouseCoopers (PwC), the Plan's actuary, to project the impact of the City's future pension cost under an agreed upon set of assumptions.																																																																																																			
<b>Data:</b>	N/A (based on projections provided by PwC May 29, 2014)																																																																																																			
<b>Discount Rate:</b>	7.50% (per July 1, 2013 valuation)																																																																																																			
<b>Salary Growth:</b>	<p>Modified PwC March 14, 2014 select-and-ultimate salary projection equal to approximately 5.0% annually to reflect expected salary increases as provided by the City. The revised salary table maintains a select-and-ultimate averaging approximately 4.25% annually (as shown below).</p> <table border="1"> <thead> <tr> <th rowspan="2">Age</th> <th colspan="4">Years of Service</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4+</th> </tr> </thead> <tbody> <tr><td>&lt;21</td><td>7.25%</td><td>10.75%</td><td>8.75%</td><td>6.50%</td></tr> <tr><td>21-25</td><td>7.25%</td><td>10.75%</td><td>8.75%</td><td>6.50%</td></tr> <tr><td>26-30</td><td>8.25%</td><td>10.25%</td><td>8.00%</td><td>5.75%</td></tr> <tr><td>31-35</td><td>7.75%</td><td>9.25%</td><td>7.00%</td><td>5.00%</td></tr> <tr><td>36-40</td><td>6.75%</td><td>8.00%</td><td>6.00%</td><td>4.50%</td></tr> <tr><td>41-45</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.44%</td></tr> <tr><td>46-50</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.38%</td></tr> <tr><td>51-55</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.31%</td></tr> <tr><td>56</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.23%</td></tr> <tr><td>57</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.20%</td></tr> <tr><td>58</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.18%</td></tr> <tr><td>59</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.15%</td></tr> <tr><td>60</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.13%</td></tr> <tr><td>61</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.11%</td></tr> <tr><td>62</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.10%</td></tr> <tr><td>63</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.09%</td></tr> <tr><td>64</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.08%</td></tr> <tr><td>&lt;=65</td><td>5.50%</td><td>6.75%</td><td>5.50%</td><td>4.06%</td></tr> </tbody> </table>	Age	Years of Service				1	2	3	4+	<21	7.25%	10.75%	8.75%	6.50%	21-25	7.25%	10.75%	8.75%	6.50%	26-30	8.25%	10.25%	8.00%	5.75%	31-35	7.75%	9.25%	7.00%	5.00%	36-40	6.75%	8.00%	6.00%	4.50%	41-45	5.50%	6.75%	5.50%	4.44%	46-50	5.50%	6.75%	5.50%	4.38%	51-55	5.50%	6.75%	5.50%	4.31%	56	5.50%	6.75%	5.50%	4.23%	57	5.50%	6.75%	5.50%	4.20%	58	5.50%	6.75%	5.50%	4.18%	59	5.50%	6.75%	5.50%	4.15%	60	5.50%	6.75%	5.50%	4.13%	61	5.50%	6.75%	5.50%	4.11%	62	5.50%	6.75%	5.50%	4.10%	63	5.50%	6.75%	5.50%	4.09%	64	5.50%	6.75%	5.50%	4.08%	<=65	5.50%	6.75%	5.50%	4.06%
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26-30	8.25%	10.25%	8.00%	5.75%																																																																																																
31-35	7.75%	9.25%	7.00%	5.00%																																																																																																
36-40	6.75%	8.00%	6.00%	4.50%																																																																																																
41-45	5.50%	6.75%	5.50%	4.44%																																																																																																
46-50	5.50%	6.75%	5.50%	4.38%																																																																																																
51-55	5.50%	6.75%	5.50%	4.31%																																																																																																
56	5.50%	6.75%	5.50%	4.23%																																																																																																
57	5.50%	6.75%	5.50%	4.20%																																																																																																
58	5.50%	6.75%	5.50%	4.18%																																																																																																
59	5.50%	6.75%	5.50%	4.15%																																																																																																
60	5.50%	6.75%	5.50%	4.13%																																																																																																
61	5.50%	6.75%	5.50%	4.11%																																																																																																
62	5.50%	6.75%	5.50%	4.10%																																																																																																
63	5.50%	6.75%	5.50%	4.09%																																																																																																
64	5.50%	6.75%	5.50%	4.08%																																																																																																
<=65	5.50%	6.75%	5.50%	4.06%																																																																																																
<b>Annual Investment Return:</b>	7.50%																																																																																																			
<b>Market Value of Assets:</b>	\$2,040.1 million as of July 1, 2013																																																																																																			
<b>Actuarial Value of Assets:</b>	5-year smoothing of investment gains/losses retroactively (currently \$1,923.7 million)																																																																																																			
<b>Funding Method:</b>	Entry Age Normal																																																																																																			

*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. The results included in this presentation show how the Plan would be affected if specific sets of assumptions are met. Actual results may differ due to such variables as demographic experience and stock market performance.*

# 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.

**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.

**Normal Cost (NC)**

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

**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.

**Unfunded Actuarial Accrued Liability (UAAL)**

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

# Projected Cost (as Percentage of Pay)

The following are the projected City pension contributions, as a percentage of pay, under the current plan based on the agreed upon assumptions.

- Note that the contributions shown below are based on the current funding policy (i.e., City contributing about 11.5% of pay) for the next 5 years and then contributing the ARC, based on closed 30-year amortization, thereafter.

