



# PENSION PLAN OPTIONS

CITY OF MEMPHIS

July 1, 2014

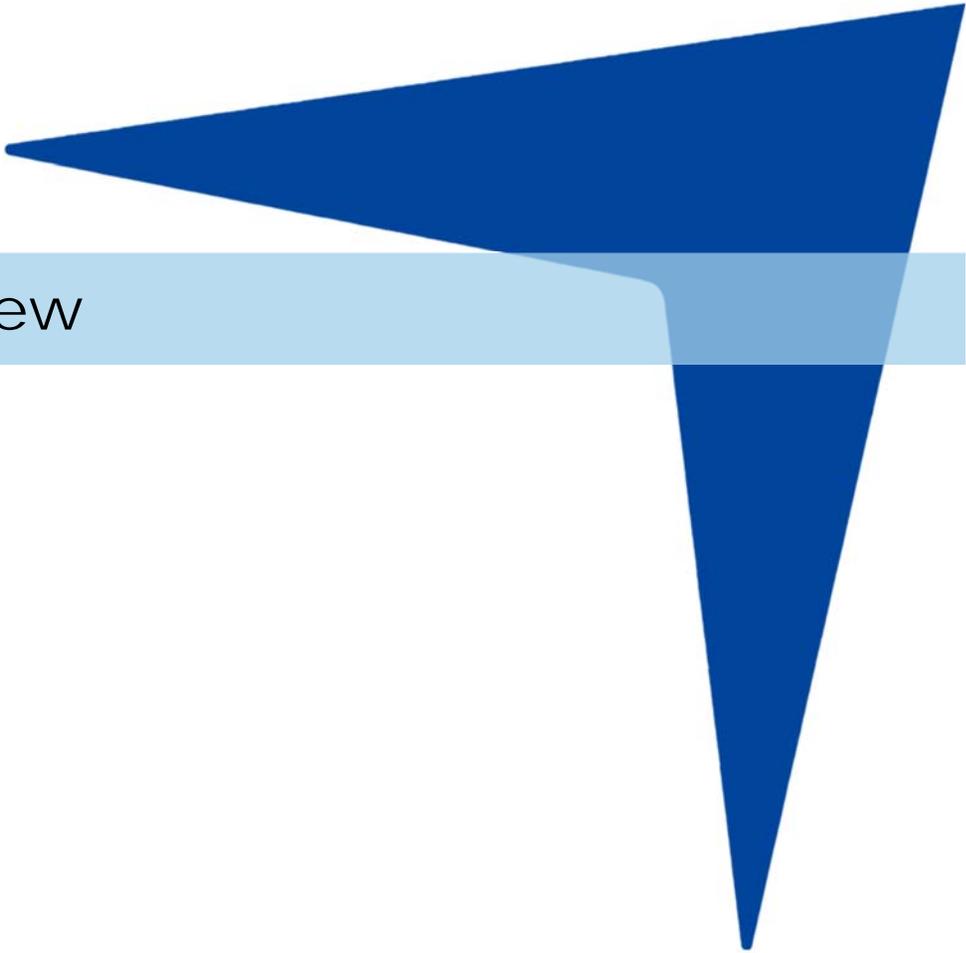
 Segal Consulting



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## I. Retirement Plans Overview

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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 had the following approximated impact: lowering the Unfunded Actuarial Accrued Liability (UAAL) \$82.0 million and the Annual Required Contribution (ARC) \$8.2 million, or 2.7% of pay (from \$96.0 million to \$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 the 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. Both firms agreed to use a compromise or "agreed upon" set of assumptions related to mortality by applying a one-year set-forward to the current table and by using an age-service based salary scale averaging 4.25% increases.
- Segal presented the updated results based on the "agreed upon" set of assumptions on June 6, 2014.

# Retirement Plans Overview

## *Types of Plans*

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- **Defined Benefit vs Defined Contribution**
- Retirement Plans fall into two broad categories:
  - **Defined Benefit (DB) Plans** — focus on benefit security
  - **Defined Contribution (DC) Plans** — focus on wealth accumulation
- **Defined Benefit Plans** include final average salary plans, career average salary plans, flat dollar plans, and cash balance plans
  - Risk borne by City
  - Risks include: wage inflation risk, inflation risk, interest rate risk, investment risk, longevity risk, incentive risk, and regulatory risk
- **Defined Contribution Plans** include 401(a), 457, and matching plans
  - Risk borne by Employee
  - Risks include: wage inflation risk, inflation risk, interest rate risk, investment risk, longevity risk, incentive risk, regulatory risk, non-participation risk, leakage risk, and will-power risk
- **Hybrid Plans** are a combination of a Defined Benefit plan and a Defined Contribution plan and/or Social Security
  - Risks are shared between City and Employee
  - Includes Combination plans (DB + DC), Cash Balance and Variable type designs

# Retirement Plans Overview

## Key Features

Objective	Defined Benefit (DB)	Defined Contribution (DC)
<b>Predictable Contribution Costs</b>	Annual contribution may vary from year-to-year based upon actuarial assumptions (see above). Rates may be set by statute to increase predictability.	Annual cash expenditures are more predictable as they are based on a set percentage of employee salaries.
<b>Funding Certainty</b>	Plan liabilities change based on actuarial assumptions, e.g., future salary increases, investment earnings, employee turnover.	Employer liability is fulfilled annually as contributions are made to employee accounts based on a percentage of payroll.
<b>Investment Risk</b>	Investment risk is assumed by the employer. Contributions may be lowered by earnings that exceed assumed rates of return.	The employee assumes investment risk and bears a direct relationship to the retirement benefit. In some cases, the plan design includes a minimum guaranteed return.
<b>Expenses</b>	<p>Expenses include actuarial valuation and investment fees including recordkeeping and investment management.</p> <p>Employer pays administrative and investment fees.</p> <p><b>Average investment and administrative fee about 75 basis points (bps)</b></p>	<p>Expenses may appear lower than a Defined Benefit plan because no actuarial valuation is necessary and but still requires recordkeeping and other compliance-related expense.</p> <p>Plan typically spreads administrative expenses to participants. Expenses may be hard to understand</p> <p><b>Average investment and administrative expenses 150 basis points (bps)</b></p>

# Retirement Plans Overview

## *Key Features continued*

Objective	Defined Benefit (DB)	Defined Contribution (DC)
<b>Recruitment Tool</b>	Some portability through service credit purchase or return of employee contributions.	Assets are portable.
<b>Reward Career Employees</b>	Benefits are typically based on final year(s) of salary, rewarding career employees.	Benefits are based upon accumulated contributions and earnings.
<b>Understandable Benefits</b>	Benefits require explanation because they are based on a set of variables, e.g., future earnings and year of service at retirement. There are no separate accounts.	Benefits are based on accumulated contributions plus earnings at the time of retirement. Market fluctuations make it difficult to predict retirement benefit.
<b>Benefit Potential</b>	Benefits paid at retirement are for life and are guaranteed by the plan's benefit formula. Cost of living increases are common.	Benefits paid at retirement are based on contributions and earnings. The final retirement benefit can be eroded by pre-retirement distributions.
<b>Access to Benefits While Employed</b>	Benefits may not be withdrawn while actively employed. Loans can be made provided IRS guidelines are followed, but are rare.	Benefits may be withdrawn or loaned under certain circumstances provided IRS guidelines are followed.

# Retirement Plans Overview

## *Types of Defined Benefit Plans*

Type	Description	Example	Variations	Pros	Cons
<b>1. Final Average Salary</b>	Benefit based on a percentage of participant's average salary during specified period	1.5% x Final 5-year Average Salary x Years of Service	May limit service or salary; Overall dollar limit	Benefit linked to salary growth; Keeps pace with Inflation	Back-loaded accrual/cost pattern
<b>2. Career Average Salary</b>	Benefit based on percentage of participant's average salary over career	1.5% x Career Average Salary x Years of Service	May include inflation update; Layered accruals are common	Benefit partially linked to salary growth; Level accrual/cost pattern w/o updates	Does not keep pace with inflation; Increased administration
<b>3. Flat Dollar</b>	Benefit based on stated amount for each year of service	\$60 x Years of Service	May include inflation update; May limit service	Simplicity; Uniformity; Level accrual/cost pattern w/o updates	Benefit not linked to salary growth; Does not keep pace with inflation
<b>4. Cash Balance</b>	Benefit based on account balance that can be converted to annuity at retirement; Account balance determined similar to DC Plan	7.5% of annual salary contributed to account; account balance grows 5% per year for interest	Contribution may vary by age/service	Benefit partially linked to salary growth; Keeps some pace with inflation; Benefit defined in terms of account balance	Lack of familiarity; Administrative complexity

# Retirement Plans Overview

## *Types of Risk*

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1

### **Investment Risk—Rate of return on assets**

- In DB plans, the employer bears most of the investment risk
- In DC plans, the employee bears most of the investment risk

2

### **Inflation Risk or Purchasing Power Risk—cost of living before and after retirement**

- In DB plans, benefit based on final average salary resulting in limited cost-of-living risk
- In public sector DB plans, typically some form of post-retirement benefit increase is provided, so retirees have protection against inflation
- In DC plans, inflation protection is not provided

3

### **Longevity Risk—Outliving retirement assets**

- In DB plans, benefits paid as life annuity, so employer bears the risk
- In DC plans, benefits based on account balance, so employee bears the risk

4

### **Contribution Risk—Level and volatility of annual contributions**

- In DB plans, employer bears most of this risk. If investment returns are poor,
- employers may need to make additional contributions
- In DC plans, contributions are a percentage of salary
  - If investment returns are poor, employees may need to make additional contributions

**There are other risks to retirement income, but these are the primary four of concern.**

# Retirement Plans Overview

## Risk of Various Retirement Plans

	Defined Benefit								Defined Contribution	
	Final Average		Career Average		Flat Dollar		Hybrid		401(a), 401(k), 403(b)	
	ER	EE	ER	EE	ER	EE	ER	EE	ER	EE
<b>Economic Risks</b>										
Investment Risk	4	1	4	1	4	1	3	2	0	4
Inflation risk	3	2	1	3	0	4	2	2	1	3
Contribution Risk	4	1	4	1	3	1	3	1	1	1
Longevity Risk	4	0	4	0	4	0	3	2	0	4
<b>Non-Economic Risks</b>										
Accounting Risk	3	0	3	0	3	0	3	0	0	0
<b>Features</b>										
Rewards older/longer service employees	3		3		4		2		1	
Planning Tool	2		2		2		1		1	
Hiring Attractiveness	2		2		2		3		3	

Risks	Features
0 None	Not applicable
1 Low	Minor importance
2 Somewhat low	Somewhat minor importance
3 Somewhat high	Relatively important
4 High	Very Important

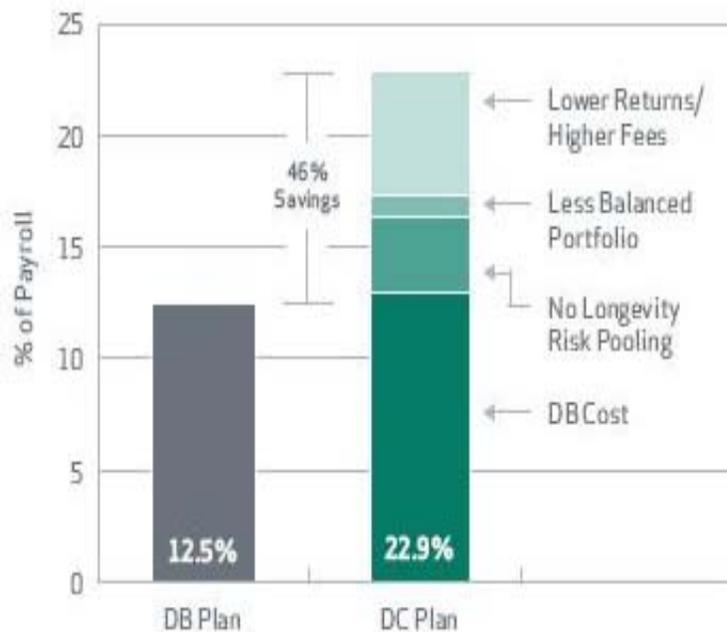
ER = Employer  
EE = Employee

# Retirement Plans Overview

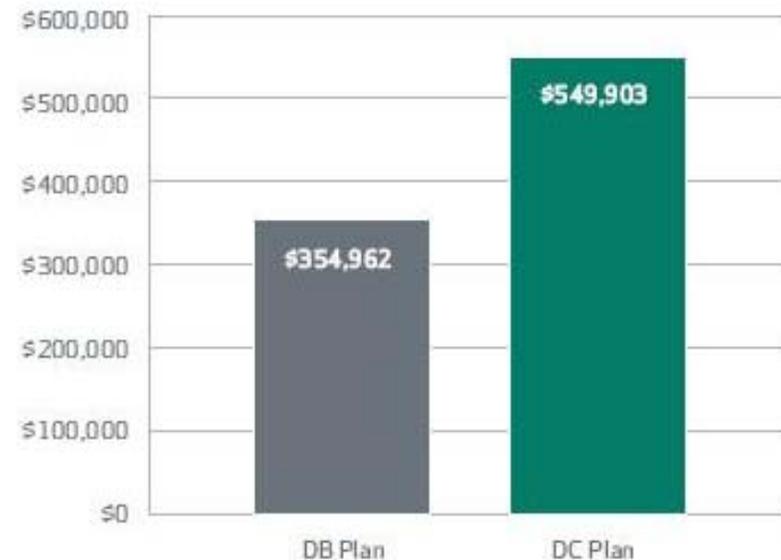
## *Efficiency of Retirement Plans*

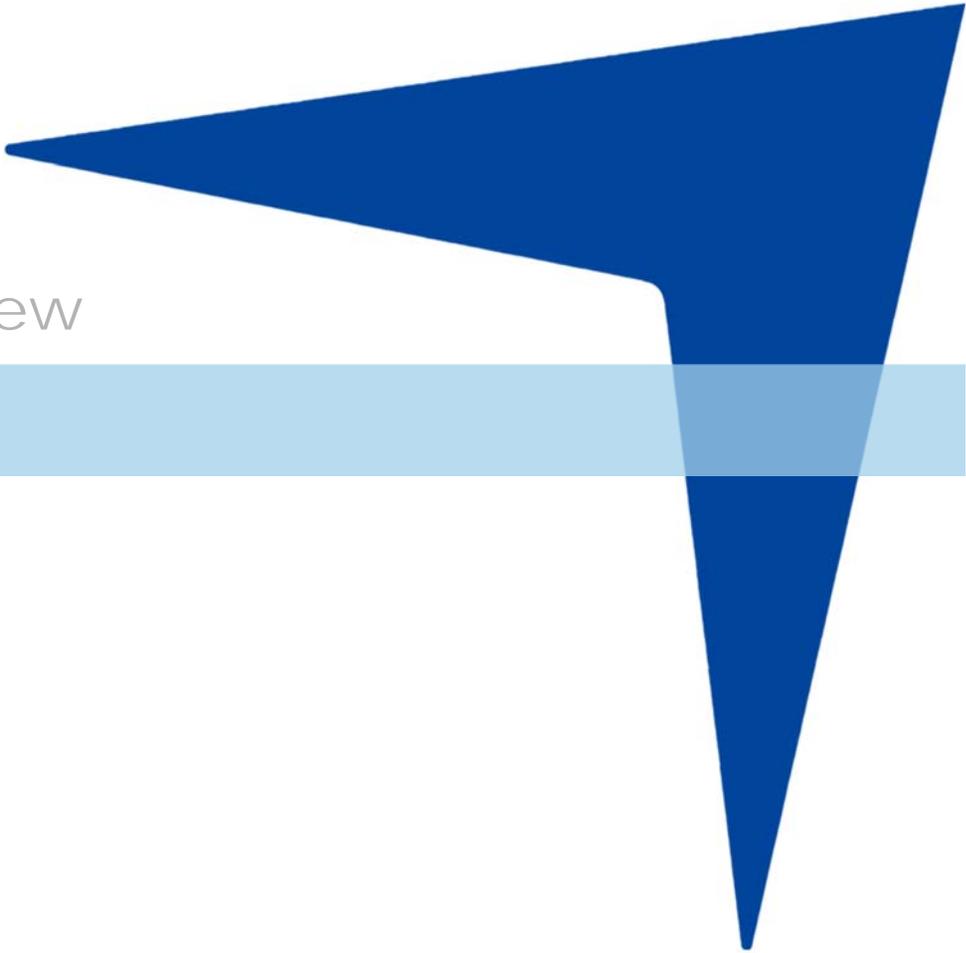
- Note that a DB plan is still the most cost efficient way to deliver retirement benefits as illustrated by the graphs below.
  - The article “A Better Bang for the Buck: The Economic Efficiencies of DB Plans” revealed that DB plans are more about 45% more cost effective than DC plans at delivering retirement benefits . The primary sources of the efficiency of DB plans are: (1) Lower investment returns and higher expenses (2) Less balanced portfolio and (3) Lack of risk pooling.

Cost of DB and DC Plan as % of Payroll



Per Employee Amount Required at Age 62  
DB Plan vs. DC Plan





I. Retirement Plans Overview

**II. Plan Redesign Approach**

III. Current Plan Review

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Appendices



# Plan Design

## *Approach*

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I

### Basic Directions

- Setting Goals and Objectives
- Retirement Plans Review
- Risk and Features of Retirement Plans

II

### Setting a Route

- Key Decisions
- Balancing Stakeholder concerns
- Drill down on goals

III

### Plan Redesign Specifics

- Key Provisions
- Relative Impact of Plan Changes
- Impact on Replacement Ratios

IV

### Evaluating Options

- Decision Matrix
- Legal Considerations
- Other issues

**Having a framework for making plan changes is key to successful plan redesign.**

# Plan Design Approach

## *AGES Principles*

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- The American Academy of Actuaries published a paper in January 2014 that is 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

# Plan Design Approach

## *Basic Directions*

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**The overarching goal is to structure a sustainable retirement program that supports the City's needs and provides meaningful retirement benefits to workers.**

This requires:

- Understanding budgetary constraints and reasonable annual funding
- Balancing stakeholder concerns
- Determining retirement philosophy including income replacement targets, sources of replacement income, and benefit adequacy
  - Benefits that attract, motivate and retain talent
  - Encouraging and helping employees save for retirement
- Recognizing pension obligations
  - Reasonable actuarial assumptions and methods
  - Contractual obligations to employees



# Plan Design Approach

## *Balancing Stakeholder Needs*

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### City Concerns

- Providing services
- Increases in costs
- Recruiting and retention

### Employee Concerns

- Competitive compensation and benefits
- Affordable health care (*in retirement*)
- Adequacy of retirement benefits (*replace standard of living*)
- Outliving retirement assets

### Taxpayer/Customer Concerns

- Increases in taxes/funding/fares
- Decreases in services
- Enhancements to services



# Plan Design Approach

## Setting Goals

### EMPLOYEE VALUE PROPOSITION



### The Employee Value Proposition—What do employees want?

Plan Design Implications:

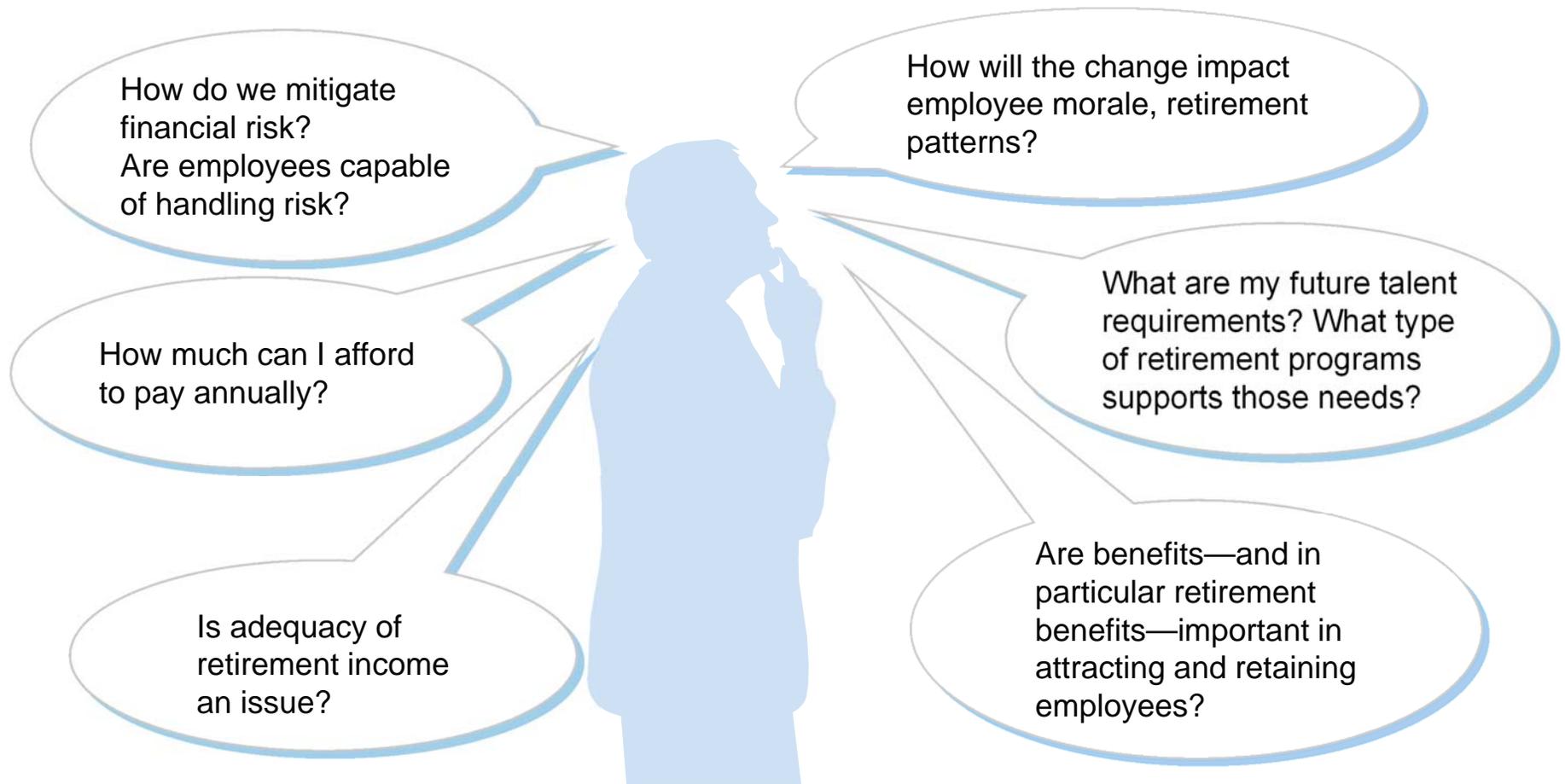
1. Several of the most important job satisfaction components are the least managed.
2. To attract and retain talent, public employers are combining tangible (*compensation and benefits*) and intangible (*affiliation, work content, and career*) elements into a total rewards package.
3. Question: How do retirement benefits assist employers and employees in meeting their goals?

# Plan Design Approach

## *Setting Goals*

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What is the “right” plan design?



**The “right” design requires answers to some tough questions.**

# Plan Design Approach

## *Drilling Down*

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### Plan Risks

- Who bears the risk?

### Employer Contribution Options

- How soon to begin paying ARC
- Budgeting and Funding requirements may differ

### Level of retirement benefits

- Percentage of pre-retirement income provided to career employees
- Benefit levels that will attract new employees and retain current high-performing employees

### Participants who would be impacted by changes

- Future hires and Non-vesteds
- Grandfathering

### Legal considerations

- What are legal risks?
- Contingency fund?

### Other considerations

- Administration
- Demographics



# Plan Design Approach

## Evaluating Options

### Sample Decision Matrix

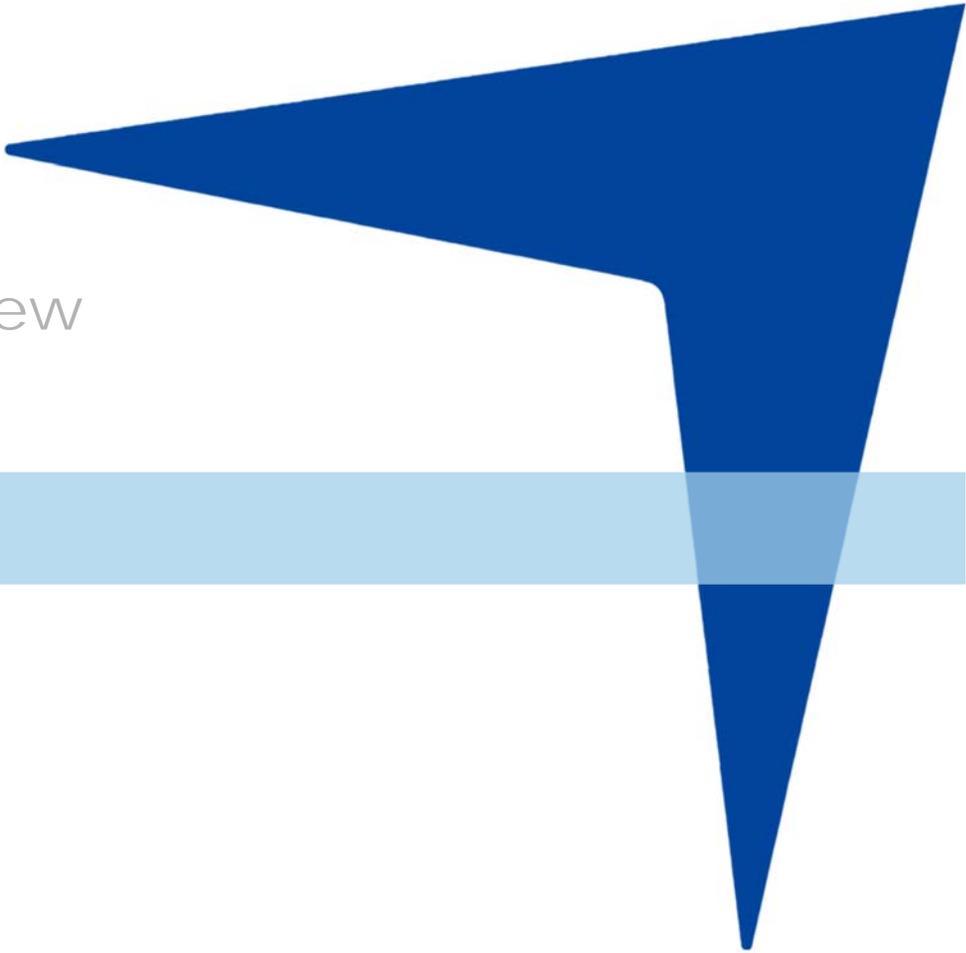
Decision Criteria	Options for Consideration		
	Option 1	Option 2	Option 3
<b>Financial Criteria</b>			
<b>Predictable Cost:</b> Is the contribution predictable based on known information such as participants' annual compensation, expected annual employee contributions to DC plans, or percentage of general budget? <i>Sample Goal: Predictable annual contribution</i>			
<b>Reduce Unfunded Actuarial Accrued Liability (UAAL):</b> Does the plan increase, decrease or have no effect on past service liability amounts? <i>Sample Goal: Eliminate Unfunded actuarial accrued liability within 25 years</i>			
<b>Funding Flexibility:</b> Do funding requirements provide for varying contributions; (i.e., prefunding in good years and using the prefunding to help meet contribution requirement in other years?) <i>Sample Goal: Flexibility to meet funding requirements</i>			
<b>HR Criteria (Employee Focused)</b>			
<b>Benefit Security:</b> Who/What/How are the retirement benefits promised to employees guaranteed to be paid? <i>Sample Goal: To have a retirement program the City can afford over the long term and accumulate sufficient assets to pay all retirement benefits</i>			
<b>Encourage Employee Savings:</b> Will the retirement program provide a means and encourage individual employee savings for retirement? <i>Sample Goal: To encourage employees to save for retirement</i>			
<b>Employee Understanding/Appreciation:</b> Will employees know what benefits to expect from the retirement program at retirement. How complicated are the plan benefits to explain and illustrate to participants? Are the plan provisions and eligibility requirements easy to follow? <i>Sample Goal: For employees to know what benefits are promised and their value; To have a benefit plan that is easy to use and understand for the employee</i>			
<b>Positive Influence on Employee Retention:</b> Are the benefits from all sources provided by the retirement program adequate for normal retirement (defined benefit, defined contribution, social security or a combination) wanted by employees? <i>Sample Goal: To have a retirement program that provides adequate benefits at retirement and helps retain employees</i>			

# Plan Design Approach

## Evaluating Options

### Sample Decision Matrix *continued*

Decision Criteria	Options for Consideration		
	Option 1	Option 2	Option 3
<b>HR Criteria (continued)</b>			
<b>Target Income Replacement Ratio:</b> Will the new plan provide a benefit at normal retirement that meets the City's Target Income Replacement Ratio? <i>Sample Goal: Plan provides at least a 70% income replacement, from all sources.</i>			
<b>Meaningful Benefit for Early Career Hires:</b> Is the program designed to provide future early career hires adequate benefits at retirement? <i>Sample Goal: To provide target income replacement ratio within City's targeted range.</i>			
<b>Meaningful Benefit for a Career Employee:</b> Does the plan provide a future career employee a benefit at normal retirement that meets the City's Target Income Replacement Ratio? <i>Sample Goal: To provide target income replacement ratio within City's targeted range.</i>			
<b>Supports New Employee Recruiting:</b> Are the benefits provided by the new retirement program the type (defined benefit, defined contribution or a combination) wanted by new employees? <i>Sample Goal: To have the retirement program be a positive attraction for new employee recruitment</i>			
<b>Other</b>			
<b>Administrative Complexity:</b> How complicated would the plan benefits be to calculate? Are the complications such that there is an increase on administrative cost? <i>Sample Goal - to have a plan that the City can administer easily and maintains or lowers administrative cost</i>			
<b>Predictability of Retirement Benefits:</b> Will the benefits provided be determinable or is the benefit a function of the funds accumulated for the employee? <i>Sample Goal: To have the retirement benefit definitely determinable</i>			
<b>Risk of Litigation:</b> Will the new plan limit exposure to litigation risk? <i>Sample Goal: To develop a plan that meets current legal requirements and exposes the City to minimal litigation risk</i>			



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Appendices



# Current Plan

## *Pension Plan Highlights—General Employees\**

	1948 Plan	1978 Plan	2012 Plan
<b>Total Normal Cost (as % of Pay):</b>	~13.5%	16.5%	14.0%
<b>Employee Contribution (as % of Pay):</b>	5.0%	8.0%	8.0%
<b>City Normal Cost (as % of Pay):</b>	~8.5%	~8.5%	~6.0%
<b>Vesting</b>	10 years	10 years	10 years
<b>Refund of Contributions</b>	Contributions plus following annualized interest based on years at termination: 0 – 5 years: 0.0%, 5 – 14 years: ~8.0%, 15 or more years: ~7.5%		
<b>Multiplier:</b>	2.50% up to 25 years; 1.0% thereafter (max 72.5%)		2.25% up to 25 years; 1.0% thereafter (max 72.5%)
<b>Final Average Earnings:</b>	~ 1 year	~1 year	3 years
<b>Normal Retirement Age (NRA):</b>	60/10 or 25 years	60/10 or 65/5 or 25 years	55/10 or 65/5 or 25 years
<b>Early Retirement Age (ERA):</b>	N/A	N/A	5% per year from Age 62
<b>Cost-of-Living-Adjustment (COLA):</b>	N/A	N/A	N/A
<b>Normal Form:</b>	100% J&S	75% J&S	75% J&S

\* Note that the City does not participate in Social Security

# Current Plan

## *Pension Plan Highlights—Fire and Police\**

	1948 Plan	1978 Plan	2012 Plan
<b>Total Normal Cost (as % of Pay):</b>	17.0%	17.0%	14.5%
<b>Employee Contribution (as % of Pay):</b>	5.0%	8.0%**	8.0%
<b>City Normal Cost (as % of Pay):</b>	12.0%	~9.0%**	~6.5%
<b>Vesting</b>	10 years	10 years	10 years
<b>Refund of Contributions</b>	Contributions plus following annualized interest based on years at termination: 0 – 5 years: 0.0%, 5 – 14 years: ~8.0%, 15 or more years: ~7.5%		
<b>Multiplier:</b>	2.50% up to 25 years; 1.0% thereafter (max 72.5%)		2.25% up to 25 years; 1.0% thereafter (max 72.5%)
<b>Final Average Earnings:</b>	~ 1 year	3 years	3 years
<b>Normal Retirement Age (NRA):</b>	60/10 or 25 years	60/10 or 25 years	55/10 or 25 years
<b>Early Retirement Age (ERA):</b>	N/A	N/A	5% per year from Age 52
<b>Cost-of-Living-Adjustment (COLA):</b>	N/A	N/A	N/A
<b>Normal Form:</b>	100% J&S	75% J&S	75% J&S

\* Note that the City does not participate in Social Security

\*\* Effective July 1, 2012, increases 0.5% of pay until reaching 8.0% of pay

# Current Plan

## Snapshot of Key Funding Elements

The following compares key funding elements as of July 1, 2013 and July 1, 2014 based on the "agreed upon" set of assumptions.

	July 1, 2013	July 1, 2014**	Change since July 1, 2013
<b>A. Unfunded Actuarial Accrued Liability (UAAL)</b>			
1. Actuarial Accrued Liability (AAL)	\$2,475,600,000	\$2,506,700,000	\$31,100,000
2. Actuarial Value of Assets (AVA)	<u>1,923,700,000</u>	<u>2,032,500,000</u>	<u>(\$108,800,000)</u>
<b>3. Unfunded Actuarial Accrued Liability</b>	<b>\$551,900,000</b>	<b>\$474,200,000</b>	<b>(\$77,700,000)</b>
4a. Funded Ratio – Actuarial Basis [ (2) ÷ (1) ]	77.7%	81.1%	3.4%
<b>4b. Funded Ratio – Market Value Basis</b>	<b>82.4%</b>	<b>86.5%</b>	<b>4.1%</b>
<b>B. Annual Recommended Contribution (ARC)</b>			
5. Net City Normal Cost	\$29,300,000	\$30,900,000	\$1,600,000
6. Payment to amortize Unfunded (UAAL)	<u>43,500,000</u>	<u>37,300,000</u>	<u>(6,200,000)</u>
<b>7. Total ARC [ (5) + (6), adjusted for timing ]</b>	<b>\$78,300,000</b>	<b>\$73,400,000</b>	<b>(\$4,900,000)</b>
<b>8. City ARC as % of Payroll</b>	<b>25.7%</b>	<b>20.9%</b>	<b>(4.8%)</b>
<b>9. Projected Payroll</b>	<b>\$304,600,000</b>	<b>\$350,600,000</b>	<b>\$46,000,000</b>

\* Based on "agreed upon" assumptions outlined in June 10, 2014 presentation; \$2,040.1 million market value of assets as of July 1, 2013

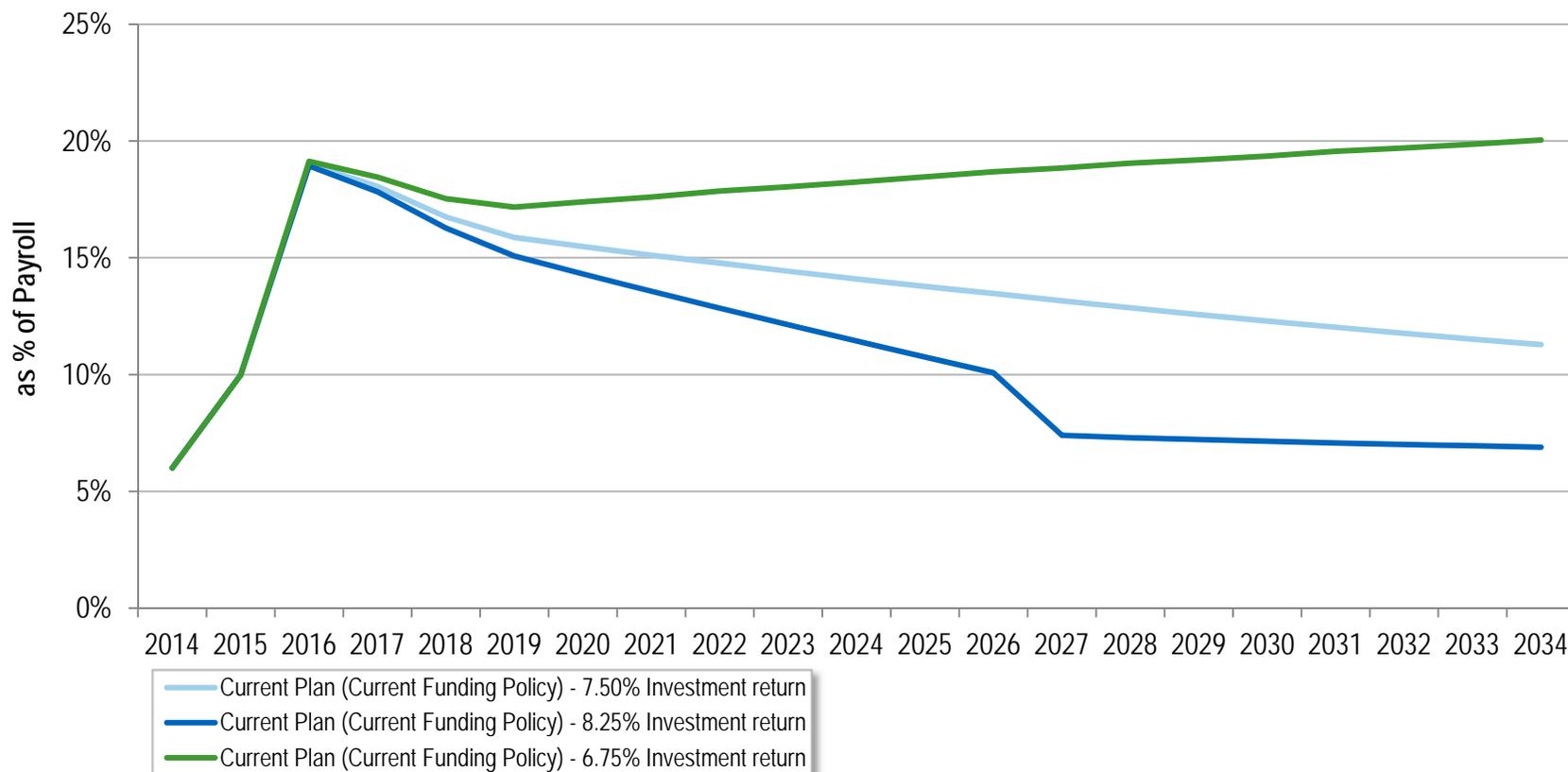
\*\* Estimated based projections using "agreed upon" assumption as provided by PwC May 29, 2014, ~12.75% investment return from July 1, 2013 to June 30, 2014 (\$2,169.3 million market value of assets as of July 1, 2014) and 30-year amortization of Unfunded Actuarial Accrued Liability

# Current Plan

## *Projected Cost as Percentage of Payroll*

- The projected cost of the current plan is shown under 7.50%, 8.25% and 6.75% annual investment return assumption scenarios to highlight the cost variability.
- Note that the contributions shown below are based on the City contributing \$35 million for the next five years and then contributing the ARC, based on closed 30-year amortization, thereafter. See *Funding Options* section for contributing ARC sooner.

### CITY CONTRIBUTION AS PERCENTAGE OF PAYROLL

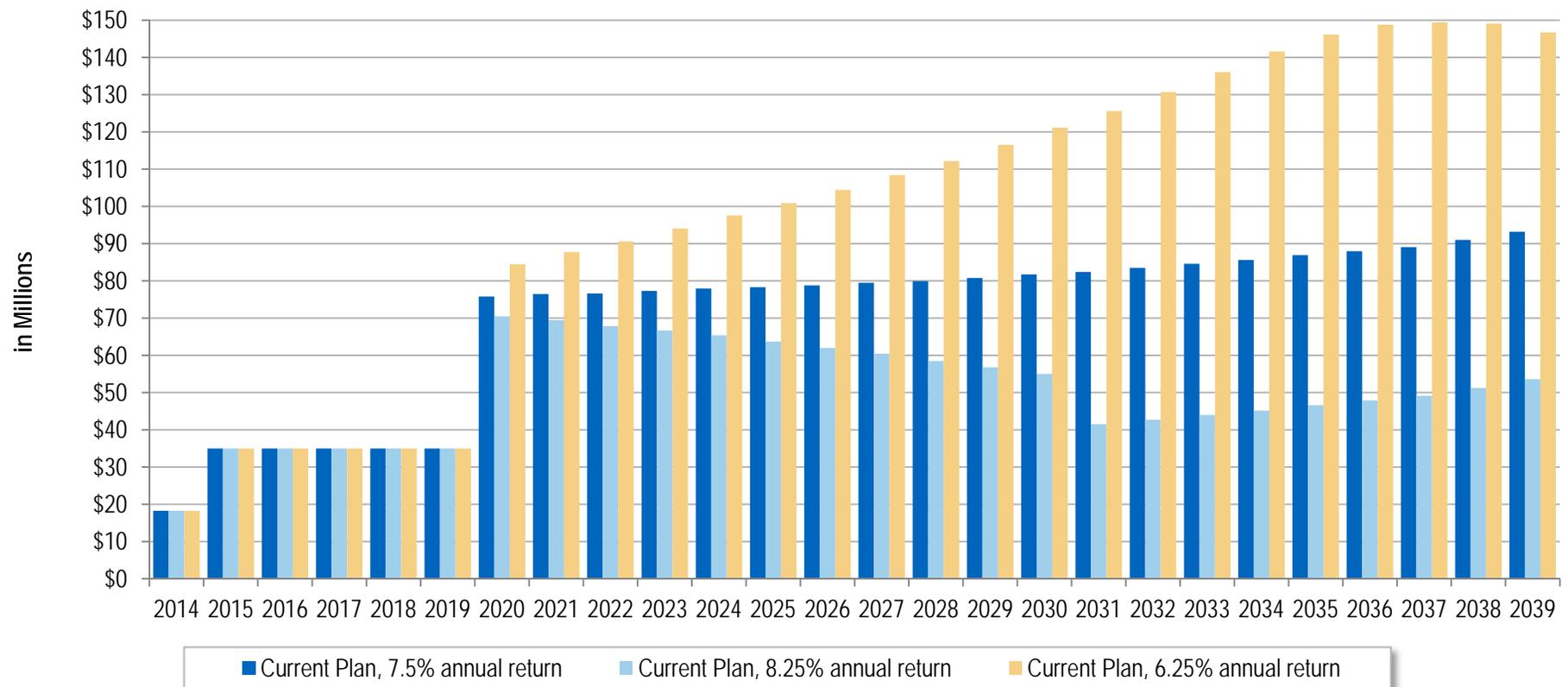


# Current Plan

## Projected Cost (in Dollars)

- The projected cost of the current plan is shown under 7.50%, 8.25% and 6.75% annual investment return assumption scenarios to highlight the cost variability.
- Note that the contributions shown below are based on the City contributing \$35 million for the next five years and then contributing the ARC, based on closed 30-year amortization, thereafter. See *Funding Options* section for contributing ARC sooner.

### CITY CONTRIBUTIONS



# Current Plan

## Projected Cost (in Dollars)

The following compares the projected City pension contributions under the current funding policy (~\$35 million annual contribution until FY '20) under various investment return scenarios.

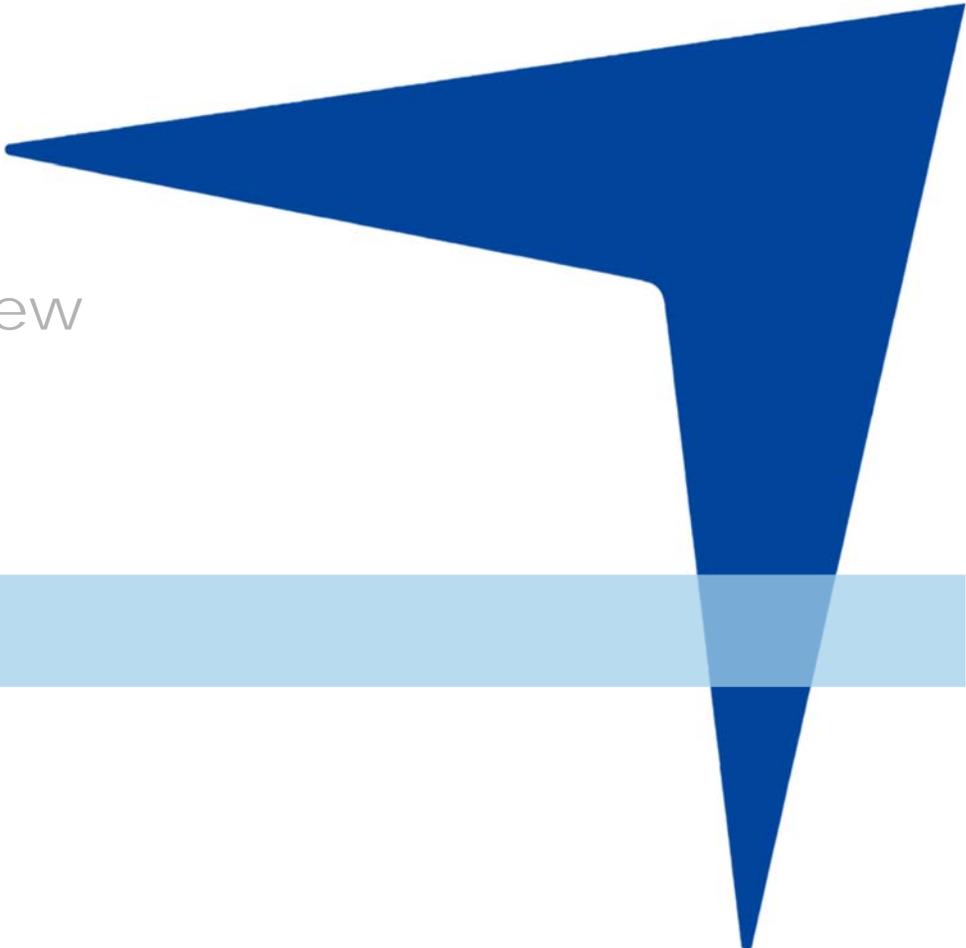
Fiscal Year	Annual City Contributions (in millions)		
	7.50% Annual Return	8.25% Annual Return	6.75% Annual Return
2015	35.0	35.0	35.0
2016	35.0	35.0	35.0
2017	35.0	35.0	35.0
2018	35.0	35.0	35.0
2019	35.0	35.0	35.0
<b>2020</b>	<b>75.8</b>	<b>70.5</b>	<b>84.4</b>
2021	76.5	69.5	87.8
2022	76.6	67.8	90.6
2023	77.3	66.7	94.1
2024	78.0	65.4	97.6
2025	78.3	63.7	100.9
2026	78.8	62.0	104.5
2027	79.5	60.5	108.4
2028	79.9	58.5	112.2
2029	80.8	56.8	116.5
2030	81.7	55.0	121.1
2031	82.4	41.5	125.6
2032	83.5	42.7	130.7
2033	84.6	44.0	136.1
2034	85.6	45.2	141.6
2035	86.9	46.6	146.2
2036	88.0	47.9	148.8
2037	89.0	49.1	149.5
2038	91.0	51.2	149.1
2039	93.2	53.6	146.7
2040	95.2	55.8	143.8
<b>Total</b>	<b>\$1,917.5</b>	<b>\$1,349.0</b>	<b>\$2,711.1</b>
<b>Present Value @ 5.0%</b>	<b>\$969.6</b>	<b>\$735.2</b>	<b>\$1,300.0</b>

## Current Plan

### *Impact of Various Plan Provisions or “Levers”*

“Lever”	Description	Reduction in Ultimate Normal Cost (as % of Pay)	Approximate Reduction in Ultimate Normal Cost* (in 2014 Dollars)
<b>Vesting</b>	Extend 100% vesting from 10 to 15 years for <u>future hires</u>	0.2%	\$0.7
<b>Refund of Employee contributions</b>	Lower interest on employee contributions to 5.0% for <u>future hires</u>	0.4%	\$1.5
<b>Final Average Earnings (FAE)</b>	Extend final average earnings period from 3 to 5 years	0.8%	\$2.8
<b>Joint-and-Survivor</b>	Remove free 75% Joint-and-Survivor annuity for <u>future hires</u>	0.9%	\$3.2
<b>Employee Contributions</b>	Increase employee contributions 1%	1.0%	\$3.5
<b>Early Retirement</b>	Remove subsidized early retirement for <u>future hires</u>	2.4%	\$8.3

\* Approximated as of July 1, 2014 based on \$350.6 million payroll and information provided by PwC on June 26, 2014.



I. Retirement Plans Overview

II. Plan Redesign Approach

III. Current Plan Review

**IV. Plan Options**

V. Funding Options

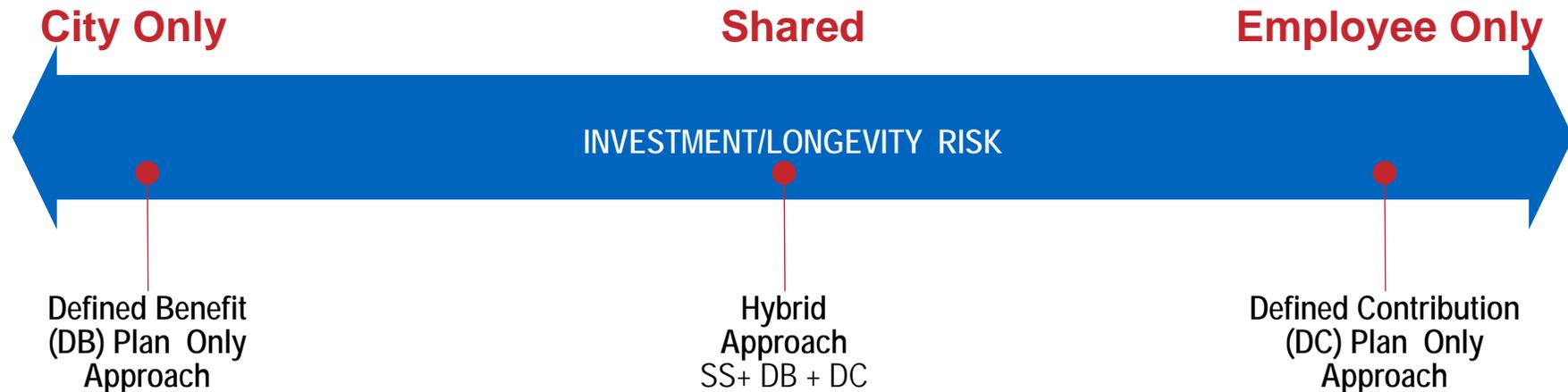
Appendices



# Retirement Plan Design

## *Investment and Longevity Risk of Various Pension Designs*

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- Under the Defined Benefit only approach, the investment risk traditionally lies solely with the City:
  - However, there are techniques the City may use to share some of the investment risk with employees such as having variable employee contributions, capping the City's contribution at a certain percentage of payroll or dollar amount or altering the benefit formula.
- The Hybrid approach allows for shared investment risk between the employee, City and/or Federal government:
  - The Hybrid approach allows the City to reward those who save more for retirement while providing floors against poor investment returns.
- The employee shares all of the risk under a Defined Contribution (DC) only approach:
  - The DC only approach is funded annually and allows the City easy flexibility to increase contributions during good times or to assist employees during periods of poor investment returns.

# Retirement Plan Design

## *Plan Options Considered*

---

Segal was retained to evaluate and advise City council on up to three retirement plans. After consideration of all stakeholders, Segal modeled the following pension plans:

1

### **Defined Contribution Only Plan (Mayor's Plan)**

- Eliminate future DB plan accruals (i.e., Hard Freeze)
- Establish 16.0% DC plan for all NonVested participants
- Place all future hires into 16.0% DC Plan

2

### **Hybrid Plans (Combo Defined Benefit + Defined Contribution)**

- Lower future DB plan accruals to 1.25% for NonVested participants
- Establish 6.0% DC plan for all NonVested participants
- Place all future hires into Hybrid Plan
- Social Security variation for General Employees

3

### **Defined Benefit Only Plan (Modified DB Plan)**

- Eliminate free Joint-and-Survivor annuity
- Amend employee refund of contributions policy
- Remove early retirement subsidy
- Extend salary averaging period

# Retirement Plan Design Options

## Highlights of Options

	Employee Group		
	Non-Vested General Employees (Gen)	Non-Vested Fire and Police (F&P)	Future Hires
<b>Mayor's Plan</b> – 16.0% Defined Contribution (DC) Plan	Hard Freeze DB Plan; 16.0% DC Plan (split 50/50 between City/Employee)	Hard Freeze DB Plan; 16.0% DC Plan (split 50/50 between City/Employee)	16.0% DC Plan (split 50/50 between City/Employee)
<b>Hybrid Option 1 (“SS” Option)</b> – Social Security and/or Defined Benefit (DB) and/or Defined Contribution (DC) Plan	Hard Freeze DB Plan; Social Security + 6.0% DC Plan (split 50/50 between City/Employee)	No Change	<i>General:</i> Social Security + 6.0% DC Plan (split 50/50 between City/Employee)  <i>F&amp;P:</i> 1.25% DB Plan* with 5.0% Employee contributions + 6.0% DC Plan (split 50/50 between City/Employee)
<b>Hybrid Option 2 (“Hybrid” Option)</b> – Defined Benefit (DB) + Defined Contribution (DC) Plan	1.25% Future DB Plan Multiplier with 5.0% Employee contributions* + 6.0% DC Plan (split 50/50 between City/Employee)	1.25% Future DB Plan Multiplier with 5.0% Employee contributions* + 6.0% DC Plan (split 50/50 between City/Employee)	Same as Gen/F&P
<b>Defined Benefit Option (“Modified DB” Option)</b> – Modified Defined Benefit (DB)	2.25% Modified DB Plan* Multiplier	2.25% Modified DB Plan* Multiplier	Same as Gen/F&P

\* Includes extending Final Average Earnings period from 3 to 5 years, removing free 75% Joint-and-Survivor annuity, lowering refund of contributions interest to 3.0% and removing subsidized early retirement

# Pension Plan Options

## *Ancillary Benefits*

---

The following are other key considerations if the City desires to adopt the Mayor's Plan and switch to a Defined Contribution plan for NonVesteds and future hires:

### ➤ **Disability benefits**

- The current DB plan provides benefits to participants in the event of a disability
- Disability benefits are a function of the pension benefit and payable for life in the event of total and permanent disability
- If participants are switched to a DC plan then the City needs to decide if it wishes to continue providing additional disability benefits to future hires in addition to payment of the participant's DC account balance.
- If the City wishes to continue providing additional disability benefits, then it can market the new disability plan during the Procurement of its other benefits to maximize competitive pricing.

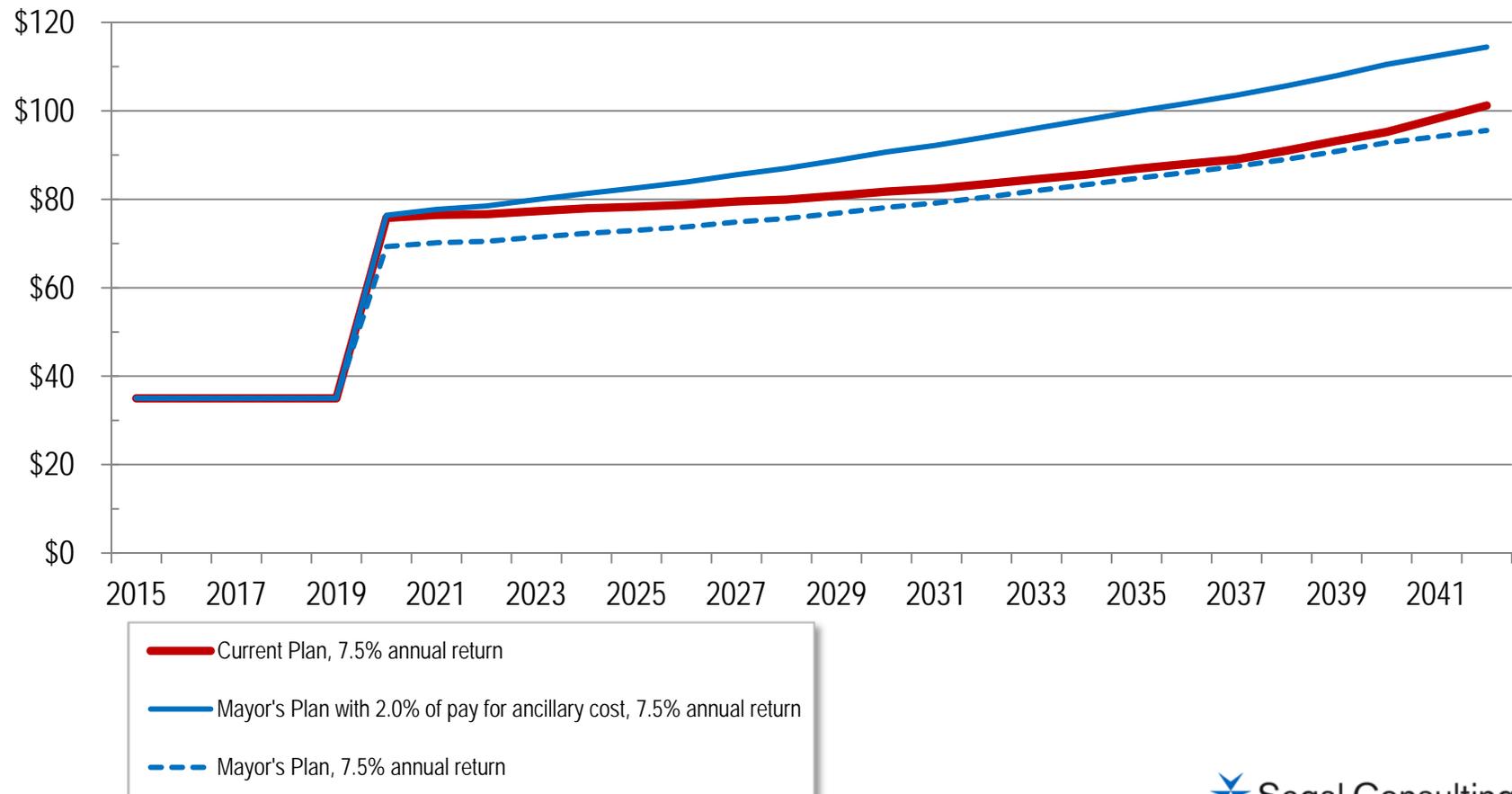
### ➤ **Death benefits**

- The current DB plan provides benefits to participants in the event of a death
- Death benefits are a function of the pension benefit, employee contributions and form of payment elected in the event of death
- If participants are switched to a DC plan then the City needs to decide if it wishes to continue providing additional death benefits to participants in addition to payment of the participant's DC account balance.
- If the City wishes to continue providing additional death benefits, then it can market the new death benefit during the Procurement of its other benefits to maximize competitive pricing.

# Mayor's Plan

## *Projected Pension Cost (in Dollars)—7.50% Annual Return*

- The following graph shows the City's total retirement plan contributions under the Mayor's Plan and the Current Plan:
  - The Mayor's Plan appears to save relative the Current Plan. However, when death and disability benefit are considered the Mayor's plan costs more than the Current Plan.
  - Note that 2.0% of pay is included for ancillary cost for death and disability benefits



# Retirement Plan Design Options

## *Breakdown of Future Cost for Options*

	Plan				
	Current Plan	Mayor's Plan*	Hybrid Plan #1**	Hybrid Plan #2	Modified DB Plan
	2.25% DB Plan	16.0% DC Plan	Social Security + 6.0% DC Plan	1.25% DB Plan + 6.0% DC Plan	2.25% DB Plan with adjustments
<b>A. Total Contribution Rate</b> – Includes both Employee and City contributions as percentage of payroll	14.0%	18.0%***	18.6%	13.8%	13.0%
<b>B. Employee Contribution Rate</b> – Employee contributions as percentage of payroll	8.0%	8.0%	9.3%	8.0%	8.0%
<b>C. City Contribution Rate [ (A) (B) ]</b> – City contributions as percentage of payroll	6.0%	10.0%	9.3%	5.8%	5.0%
<b>D. Employee % of Total [ (B) / (A) ]</b> – Employee contributions as percentage of total cost	~57%	~44%	50%	~58%	~62%

\* Includes ancillary cost

\*\* Hybrid plan #1 same as Hybrid plan #2 for F&P

\*\*\* Includes 2.0% for ancillary disability and death benefits

# Retirement Plan Design Options

## *Projections Disclosure*

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The projections shown in this report are to be used solely for the purpose of comparing alternative designs for the City of Memphis. 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 a full replication of the City's valuation results by Segal Consulting. Therefore, the results may vary somewhat from projections produced by PriceWaterhouseCoopers (PwC).**
- Segal used the information provided by PriceWaterhouseCoopers (PwC), the Plan's actuary, to estimate the impact of the City's future pension cost under various scenarios.
  - The projections provided by PwC broke down the Plan's liability for Vested, Non-Vested and future hires under the current plan using the "agreed" upon assumptions.
- Segal estimated the impact of assumption changes in future years by adjusting the Normal Cost and Actuarial Accrued Liability provided by PwC based on a factor.

# Retirement Plan Design Options

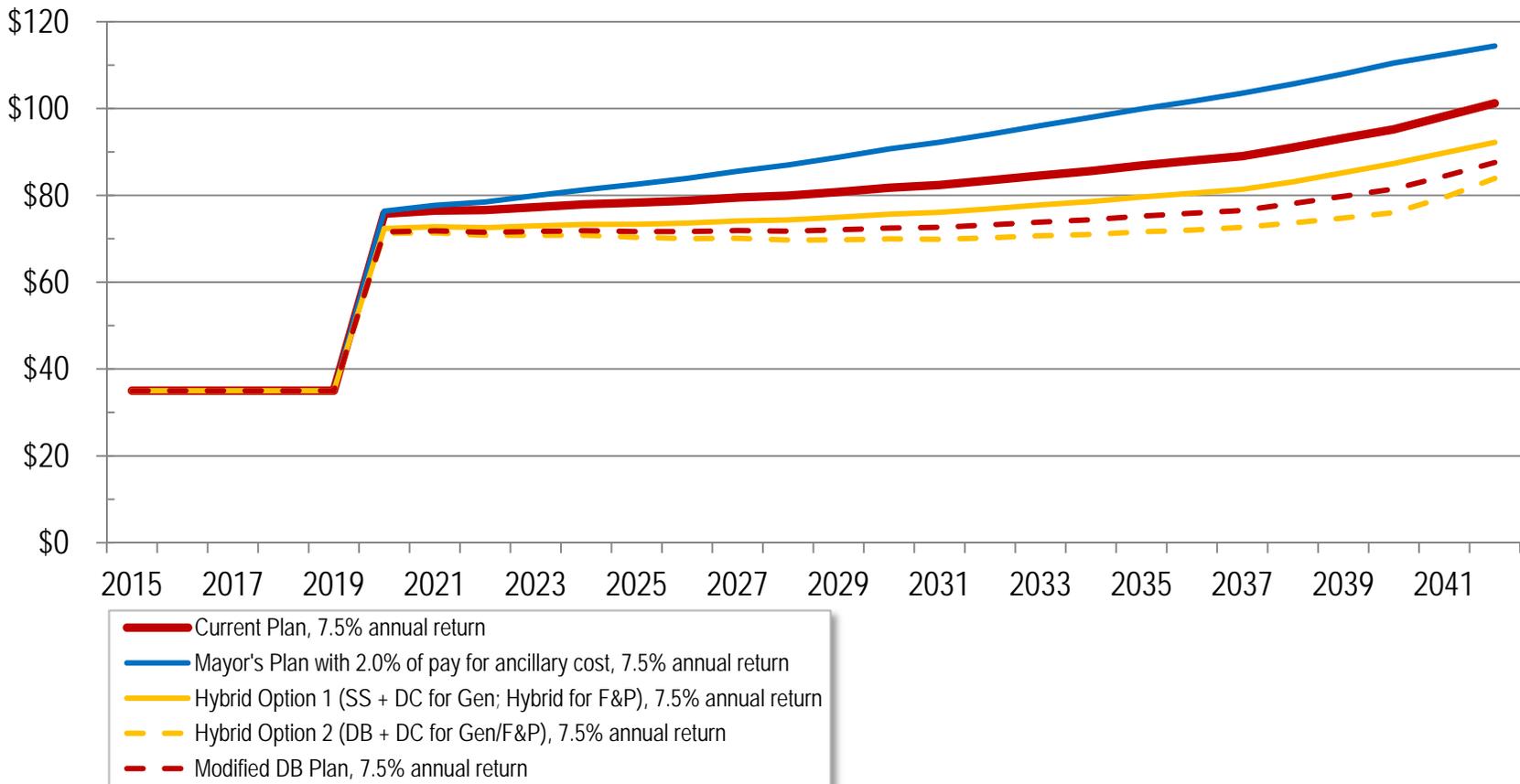
## *Projection Assumptions and Methodology*

<b>Projection Methodology:</b>	Segal used the 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; data adjusted to July 1, 2014 per PwC)																																																																																																			
<b>Discount Rate:</b>	7.50% (per July 1, 2013 valuation)																																																																																																			
<b>Annual Investment Return:</b>	7.50%, 8.25%, 6.75%																																																																																																			
<b>Market Value of Assets:</b>	\$2,209.6 million as of March 31, 2014, projected to \$2,169.3 million as of June 30, 2014 (up from \$2,040.1 million as of July 1, 2013)																																																																																																			
<b>Actuarial Value of Assets:</b>	5-year smoothing of investment gains/losses retroactively (\$2,032.5 million as of July 1, 2014; \$1,923.7 million as of July 1, 2013)																																																																																																			
<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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<b>Funding Method:</b>	Entry Age Normal (Traditional)																																																																																																			

# Pension Plan Options

## *Projected Pension Cost (in Dollars)—7.50% Annual Return*

- The following graph shows the City's total retirement plan contributions under various options:
  - The Mayor's plan, including the ancillary cost for death and disability benefits, cost more than the Current plan. The Mayor's plan cost about \$3.5 million more annually, in today's dollars or present value, above the Current plan
  - Note that both the Hybrid and Modified DB plans save about \$3 - \$4 million, in today's dollars or present value, compared to the Current plan



# Pension Plan Options

## Projected Pension Savings (in Dollars)—7.50% Annual Return

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

Fiscal Year	Current Plan	Change from Current Plan				
		Mayor's Plan (before ancillary cost)	Mayor's Plan (with ancillary cost)	Social Security Option	Hybrid Plan	Modified DB Plan
2015	35.0	0.0	0.0	0.0	0.0	0.0
2016	35.0	0.0	0.0	0.0	0.0	0.0
2017	35.0	0.0	0.0	0.0	0.0	0.0
2018	35.0	0.0	0.0	0.0	0.0	0.0
2019	35.0	0.0	0.0	0.0	0.0	0.0
2020	75.8	(6.5)	0.6	(3.4)	(4.5)	(4.2)
2021	76.5	(6.3)	1.2	(3.7)	(5.1)	(4.6)
2022	76.6	(6.1)	1.9	(4.0)	(5.8)	(5.1)
2023	77.3	(5.9)	2.6	(4.3)	(6.5)	(5.6)
2024	78.0	(5.6)	3.4	(4.6)	(7.1)	(6.1)
2025	78.3	(5.3)	4.2	(5.0)	(8.0)	(6.6)
2026	78.8	(5.0)	5.1	(5.2)	(8.7)	(7.1)
2027	79.5	(4.6)	6.0	(5.4)	(9.4)	(7.6)
2028	79.9	(4.3)	7.1	(5.6)	(10.2)	(8.2)
2029	80.8	(3.9)	8.0	(5.8)	(11.0)	(8.7)
2030	81.7	(3.6)	8.9	(6.1)	(11.7)	(9.2)
2031	82.4	(3.2)	9.8	(6.3)	(12.5)	(9.7)
2032	83.5	(3.0)	10.6	(6.6)	(13.2)	(10.3)
2033	84.6	(2.6)	11.5	(6.8)	(13.9)	(10.7)
2034	85.6	(2.3)	12.4	(7.0)	(14.6)	(11.2)
2035	86.9	(2.2)	13.0	(7.3)	(15.3)	(11.7)
2036	88.0	(1.9)	13.7	(7.5)	(16.0)	(12.1)
2037	89.0	(1.6)	14.5	(7.7)	(16.4)	(12.5)
2038	91.0	(2.0)	14.6	(7.9)	(17.3)	(12.9)
2039	93.2	(2.3)	14.8	(7.9)	(18.4)	(13.4)
2040	95.2	(2.4)	15.3	(7.9)	(19.2)	(13.7)
<b>Total</b>	<b>\$1,917.5</b>	<b>(\$80.7)</b>	<b>\$179.3</b>	<b>(\$125.8)</b>	<b>(\$244.9)</b>	<b>(\$191.3)</b>
<b>Present Value @ 5.0%</b>	<b>\$969.6</b>	<b>(\$43.2)</b>	<b>\$71.6</b>	<b>(\$56.0)</b>	<b>(\$104.3)</b>	<b>(\$82.8)</b>

# Pension Plan Options

## Projected Pension Savings (in Dollars)—8.25% Annual Return

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

Fiscal Year	Current Plan	Change from Current Plan				
		Mayor's Plan (before ancillary cost)	Mayor's Plan (with ancillary cost)	Social Security Option	Hybrid Plan	Modified DB Plan
2015	35.0	0.0	0.0	0.0	0.0	0.0
2016	35.0	0.0	0.0	0.0	0.0	0.0
2017	35.0	0.0	0.0	0.0	0.0	0.0
2018	35.0	0.0	0.0	0.0	0.0	0.0
2019	35.0	0.0	0.0	0.0	0.0	0.0
2020	70.5	(6.4)	0.7	(3.4)	(4.5)	(4.2)
2021	69.5	(6.1)	1.4	(3.6)	(5.1)	(4.6)
2022	67.8	(5.8)	2.2	(3.9)	(5.7)	(5.1)
2023	66.7	(5.4)	3.1	(4.2)	(6.4)	(5.6)
2024	65.4	(5.0)	4.1	(4.4)	(7.0)	(6.1)
2025	63.7	(4.5)	5.2	(4.6)	(7.7)	(6.6)
2026	62.0	(3.8)	6.4	(4.7)	(8.3)	(7.1)
2027	60.5	(3.1)	7.7	(4.7)	(8.9)	(7.6)
2028	58.5	(2.3)	9.2	(4.7)	(9.6)	(8.1)
2029	56.8	(7.6)	10.6	(4.7)	(10.2)	(8.6)
2030	55.0	(4.3)	6.3	(4.7)	(10.7)	(9.1)
2031	41.5	10.5	21.7	(0.8)	(7.7)	(8.5)
2032	42.7	10.8	22.6	(1.0)	(8.4)	(9.0)
2033	44.0	11.3	23.5	(1.1)	(9.0)	(9.4)
2034	45.2	11.7	24.5	(1.3)	(9.7)	(9.9)
2035	46.6	11.9	25.3	(1.5)	(10.4)	(10.4)
2036	47.9	12.3	26.0	(1.6)	(11.0)	(10.9)
2037	49.1	12.7	26.9	(1.7)	(11.5)	(11.3)
2038	51.2	12.4	27.2	(1.8)	(12.4)	(11.8)
2039	53.6	12.1	27.4	(1.9)	(13.5)	(12.4)
2040	55.8	12.0	27.9	(2.0)	(14.4)	(13.0)
<b>Total</b>	<b>\$1,349.0</b>	<b>\$63.2</b>	<b>\$310.0</b>	<b>(\$62.2)</b>	<b>(\$191.9)</b>	<b>(\$179.3)</b>
<b>Present Value @ 5.0%</b>	<b>\$735.2</b>	<b>\$8.5</b>	<b>\$119.3</b>	<b>(\$32.7)</b>	<b>(\$84.9)</b>	<b>(\$78.5)</b>

# Pension Plan Options

## Projected Pension Savings (in Dollars)—6.75% Annual Return

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

Fiscal Year	Current Plan	Change from Current Plan				
		Mayor's Plan (before ancillary cost)	Mayor's Plan (with ancillary cost)	Social Security Option	Hybrid Plan	Modified DB Plan
2015	35.0	0.0	0.0	0.0	0.0	0.0
2016	35.0	0.0	0.0	0.0	0.0	0.0
2017	35.0	0.0	0.0	0.0	0.0	0.0
2018	35.0	0.0	0.0	0.0	0.0	0.0
2019	35.0	0.0	0.0	0.0	0.0	0.0
2020	84.4	(6.7)	0.4	(3.5)	(4.6)	(4.2)
2021	87.8	(6.6)	0.9	(3.8)	(5.2)	(4.6)
2022	90.6	(6.6)	1.3	(4.2)	(6.0)	(5.1)
2023	94.1	(6.6)	1.9	(4.6)	(6.7)	(5.6)
2024	97.6	(6.6)	2.3	(5.1)	(7.5)	(6.1)
2025	100.9	(6.7)	2.7	(5.6)	(8.4)	(6.7)
2026	104.5	(6.8)	3.1	(6.0)	(9.3)	(7.2)
2027	108.4	(7.0)	3.5	(6.4)	(10.2)	(7.7)
2028	112.2	(7.3)	3.8	(6.9)	(11.3)	(8.3)
2029	116.5	(7.8)	3.9	(7.6)	(12.4)	(8.9)
2030	121.1	(8.4)	3.8	(8.2)	(13.5)	(9.5)
2031	125.6	(9.2)	3.6	(9.0)	(14.7)	(10.0)
2032	130.7	(10.2)	3.0	(9.8)	(15.9)	(10.6)
2033	136.1	(11.4)	2.4	(10.8)	(17.2)	(11.2)
2034	141.6	(12.8)	1.5	(11.8)	(18.6)	(11.8)
2035	146.2	(14.0)	0.8	(12.7)	(19.8)	(12.4)
2036	148.8	(14.4)	0.9	(13.2)	(20.7)	(12.8)
2037	149.5	(13.8)	2.0	(13.2)	(21.0)	(13.2)
2038	149.1	(12.9)	3.3	(12.9)	(21.5)	(13.5)
2039	146.7	(11.0)	5.8	(11.8)	(21.5)	(13.8)
2040	143.8	(8.3)	9.0	(10.3)	(21.1)	(14.0)
<b>Total</b>	<b>\$2,711.1</b>	<b>(\$195.2)</b>	<b>\$59.8</b>	<b>(\$177.4)</b>	<b>(\$286.9)</b>	<b>(\$197.0)</b>
<b>Present Value @ 5.0%</b>	<b>\$1,300.0</b>	<b>(\$86.9)</b>	<b>\$25.9</b>	<b>(\$75.6)</b>	<b>(\$120.2)</b>	<b>(\$84.9)</b>

# Pension Plan Options

## *Replacement Ratio Introduction*

---

- To compare the impact of various plan designs on employees, we considered how well the pension plan option performs in replacing employee income upon retirement:
  - **A retirement income replacement ratio (“replacement ratio”)** is a common approach used to compare retirement programs. It measures the relative income provided by the retirement plan as a percentage of the employee’s final salary prior to retirement.
  - A replacement ratio allows for an “apples-to-apples” comparison of retirement benefits since the benefits provided by employers vary. A replacement ratio normalizes Defined Benefit (DB) and Defined Contribution (DC) plans by converting DC account balances to a stream of lifetime income.
- The sources of income generally considered in retirement income studies include: (a) Social Security benefits, (b) Employer-provided benefits, and (c) Personal savings:
  - Employer-provided benefits primarily include defined benefit and defined contribution retirement plans.
  - Personal savings are estimated assuming each participant contributes a given percentage of salary among all sources.

# Pension Plan Options

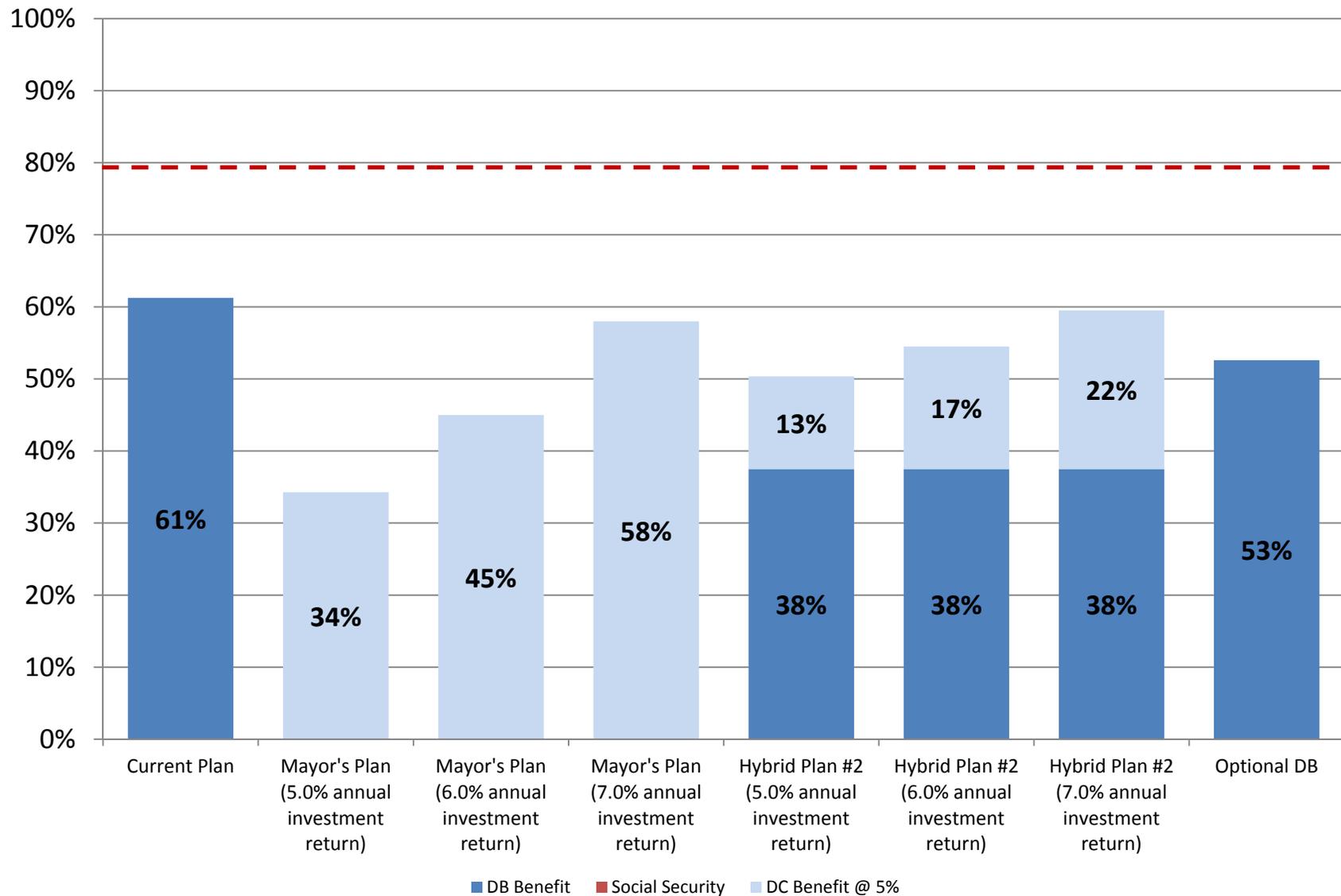
## *Replacement Ratio Assumptions and Methodology*

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<b>Employee Contributions</b>	All scenarios assume employees contributions as shown: 8.0% of pay for all plans except 9.2% Social Security plan
<b>Salary Growth</b>	Varies by age/service; per PwC final “agreed upon” salary assumption (see page 36)
<b>Investment Return</b>	5.0%, 6.0% and 7.0% annual investment return on Defined Contribution (DC) Plan and Personal Retirement Savings
<b>Conversion of DC Balance/Personal Savings to Annual Annuity</b>	Assumes employee balances in Defined Contribution and Savings plans converted to annuity at retirement based on RP-2014 mortality table at 5.0%, 6.0% or 7.0% rate
<b>Social Security</b>	<p>An Early Retirement Social Security benefit at age 62 is worth between 25% and 40% of career-average earnings, based on the 2011 OASDI Trustees Report.</p> <p>The calculations shown assume 35% replacement at age 62.</p>
<b>Other</b>	Replacement ratios are <b>not</b> adjusted to reflect change in purchasing power. However, replacement ratios are adjusted to be equivalent with current plan provisions.

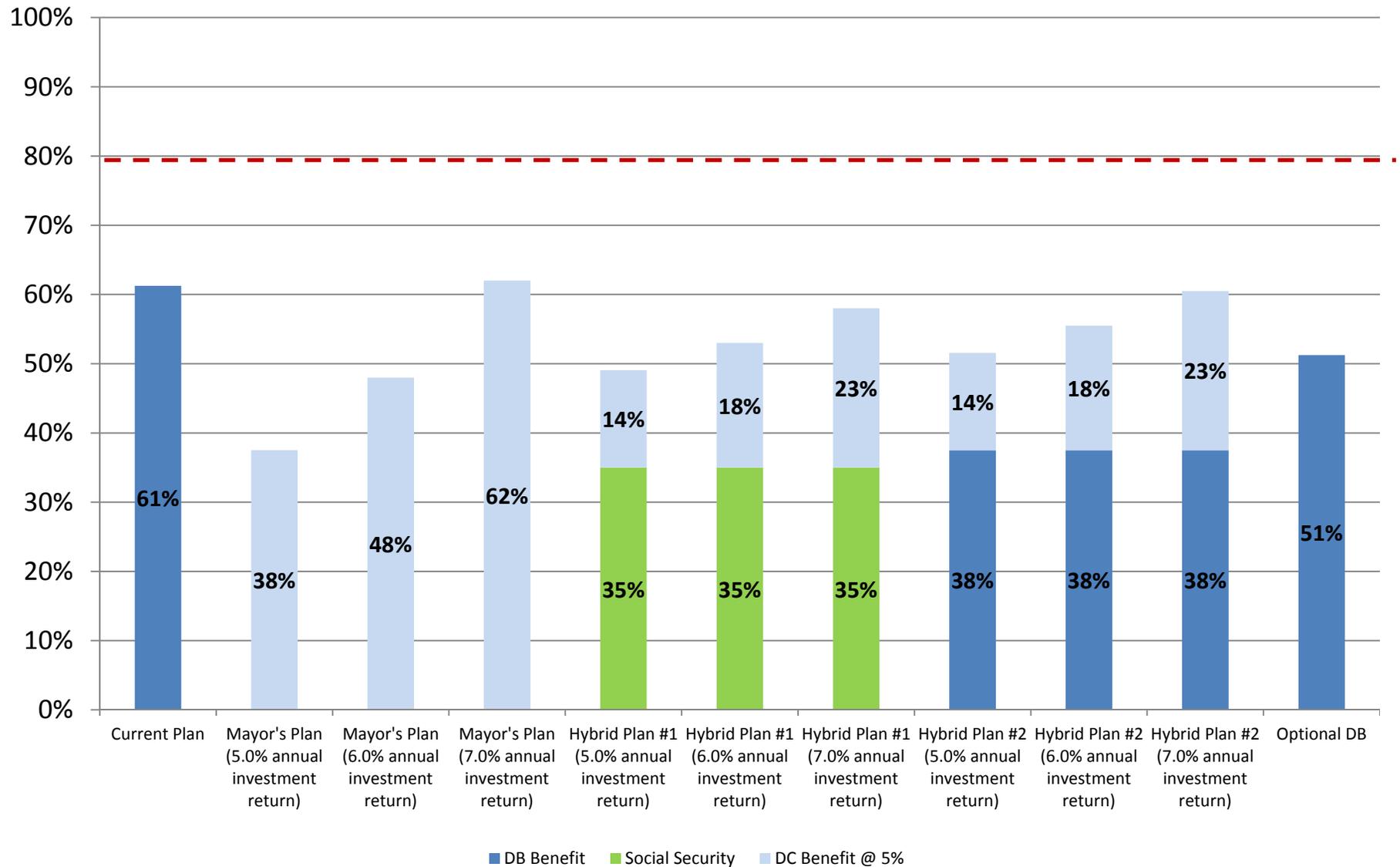
# Pension Plan Options

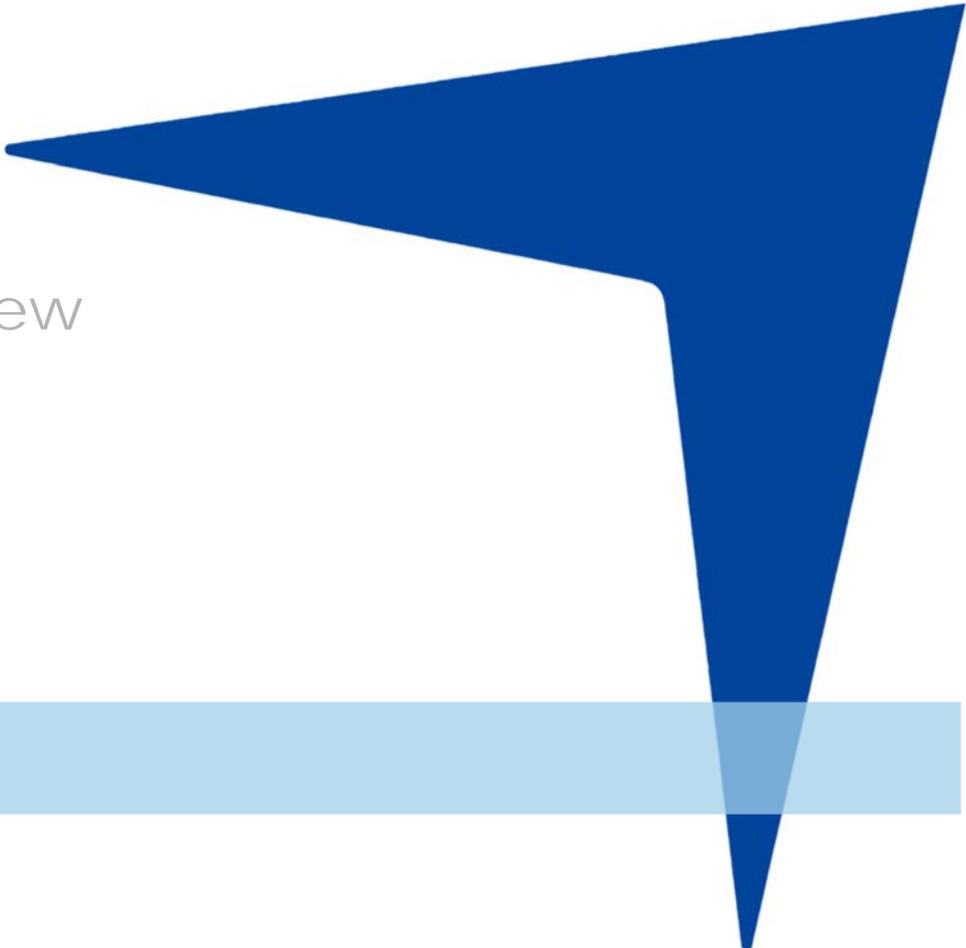
## *Replacement Ratio at Age 55 for F&P Hired at Age 25*



# Pension Plan Options

## *Replacement Ratio at Age 62 for General Hired at Age 32*





I. Retirement Plans Overview

II. Plan Redesign Approach

III. Current Plan Review

IV. Plan Options

**V. Funding Options**

Appendices



# Funding Options

## Overview

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- Segal analyzed the impact of the City paying the Annual Recommended Contribution (ARC) in 2, 3, 4 and 5 years and under various investment return scenarios and plan options.
- The plan option has much less impact of paying the ARC sooner. Therefore, we have shown the impact of paying the ARC sooner under the Current Plan only since the magnitude is about the same.
  - The investment return will impact the future contributions but the overall impact is about the same as the 7.5% investment return scenario until the Plan is fully funded.
- We have analyzed the impact assuming the City does not increase its contribution above the \$35 million until it begins paying the ARC.
  - We provided the impact assuming gradual contribution increases at the June 10<sup>th</sup> meeting but have not shown the impact based on those contributions since the impact is essentially the same.
  - If the City were to gradually increase its contributions before paying the ARC (as shown in the June 10<sup>th</sup> presentation) then it would save about \$1-3 million less than the amounts shown on the following pages once the ARC is paid.
- **For every year the City begins paying the ARC, the cost is lowered by about \$3 million once the ARC is actually paid.**
  - For example, if the City begins paying the ARC in 4 years instead of 5 years as required it will save about \$3.0 million annually once it begins paying the ARC.
  - If the City begins paying the ARC in 3 years instead of 5 years as required it will save about \$6.0 million annually once it begins paying the ARC

# Funding Options

## Impact of Paying ARC Sooner—Current Plan (7.50% Return)

The following compares the impact of the City's projected pension contributions under various funding options assuming 7.50% annual investment return.

Fiscal Year	Annual Impact of Changing from Current Policy			
	Pay ARC in 4 Years	Pay ARC in 3 Years	Pay ARC in 2 Years	Pay ARC in 1 Year
2015	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	34.0
2017	0.0	0.0	35.3	32.4
2018	0.0	35.5	32.5	29.6
2019	37.0	33.9	30.8	28.0
2020	(3.2)	(6.3)	(9.4)	(12.3)
2021	(3.2)	(6.3)	(9.3)	(12.2)
2022	(3.2)	(6.3)	(9.3)	(12.2)
2023	(3.2)	(6.3)	(9.3)	(12.1)
2024	(3.2)	(6.2)	(9.2)	(12.1)
2025	(3.2)	(6.2)	(9.2)	(12.1)
2026	(3.2)	(6.2)	(9.2)	(12.0)
2027	(3.2)	(6.2)	(9.1)	(12.0)
2028	(3.2)	(6.2)	(9.1)	(11.9)
2029	(3.2)	(6.1)	(9.1)	(11.9)
2030	(3.1)	(6.1)	(9.0)	(11.8)
2031	(3.1)	(6.1)	(9.0)	(11.8)
2032	(3.1)	(6.1)	(9.0)	(11.7)
2033	(3.1)	(6.0)	(8.9)	(11.7)
2034	(3.1)	(6.0)	(8.9)	(11.7)
2035	(3.1)	(6.0)	(8.9)	(11.6)
2036	(3.1)	(6.0)	(8.8)	(11.6)
2037	(3.0)	(5.9)	(8.8)	(11.5)
2038	(3.0)	(5.9)	(8.7)	(11.4)
2039	(3.0)	(5.9)	(8.7)	(11.4)
2040	(3.0)	(5.9)	(8.7)	(11.3)
<b>Total</b>	<b>(\$28.9)</b>	<b>(\$58.9)</b>	<b>(\$91.1)</b>	<b>(\$124.3)</b>
<b>Present Value @ 5.0%</b>	<b>(\$2.7)</b>	<b>(\$6.0)</b>	<b>(\$10.0)</b>	<b>(\$14.5)</b>

# Funding Options

## Current Plan—7.50% Annual Investment Return

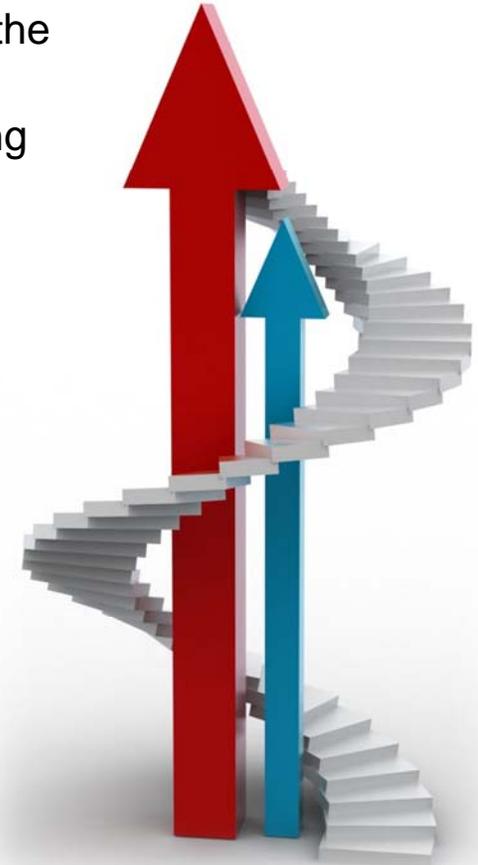
The following compares the projected City pension contributions under the various funding options assuming 7.50% annual investment return.

Fiscal Year	Annual City Contributions (in millions)				
	Pay ARC in 5 years	Pay ARC in 4 Years	Pay ARC in 3 Years	Pay ARC in 2 Years	Pay ARC in 1 Year
2015	35.0	35.0	35.0	35.0	35.0
2016	35.0	35.0	35.0	35.0	<b>69.0</b>
2017	35.0	35.0	35.0	<b>70.3</b>	67.4
2018	35.0	35.0	<b>70.5</b>	67.5	64.6
2019	35.0	<b>72.0</b>	68.9	65.9	63.0
<b>2020</b>	<b>75.8</b>	72.5	69.5	66.4	63.5
2021	76.5	73.2	70.2	67.1	64.3
2022	76.6	73.4	70.3	67.3	64.4
2023	77.3	74.1	71.0	68.0	65.2
2024	78.0	74.8	71.7	68.7	65.9
2025	78.3	75.1	72.1	69.1	66.3
2026	78.8	75.6	72.6	69.6	66.8
2027	79.5	76.3	73.3	70.4	67.5
2028	79.9	76.8	73.8	70.8	68.0
2029	80.8	77.6	74.6	71.7	68.9
2030	81.7	78.6	75.6	72.7	69.9
2031	82.4	79.3	76.3	73.4	70.6
2032	83.5	80.3	77.4	74.5	71.7
2033	84.6	81.5	78.5	75.6	72.9
2034	85.6	82.5	79.6	76.7	73.9
2035	86.9	83.8	80.9	78.0	75.3
2036	88.0	84.9	82.0	79.2	76.4
2037	89.0	86.0	83.1	80.2	77.5
2038	91.0	88.0	85.1	82.3	79.6
2039	93.2	90.1	87.3	84.5	81.8
2040	95.2	92.2	89.4	86.6	83.9
<b>Total</b>	<b>\$1,917.5</b>	<b>\$1,888.7</b>	<b>\$1,858.7</b>	<b>\$1,826.5</b>	<b>\$1,793.2</b>
<b>Present Value @ 5.0%</b>	<b>\$969.6</b>	<b>\$966.9</b>	<b>\$963.6</b>	<b>\$959.6</b>	<b>\$955.1</b>

## Next Steps

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- This concludes Segal's task outlined in the retainer agreement.
- Now that an agreed-upon set of assumptions have been established and plan options have been provided, the City can begin plotting the path forward.
  - One of the first steps in the path forward is decide on the funding path to reach payment of the full ARC.
  - Then the City should begin to evaluate the various options presented. Once the City gets closer to moving forward with an option it should have PwC model the option to confirm Segal's estimated impact.



# Thank you!

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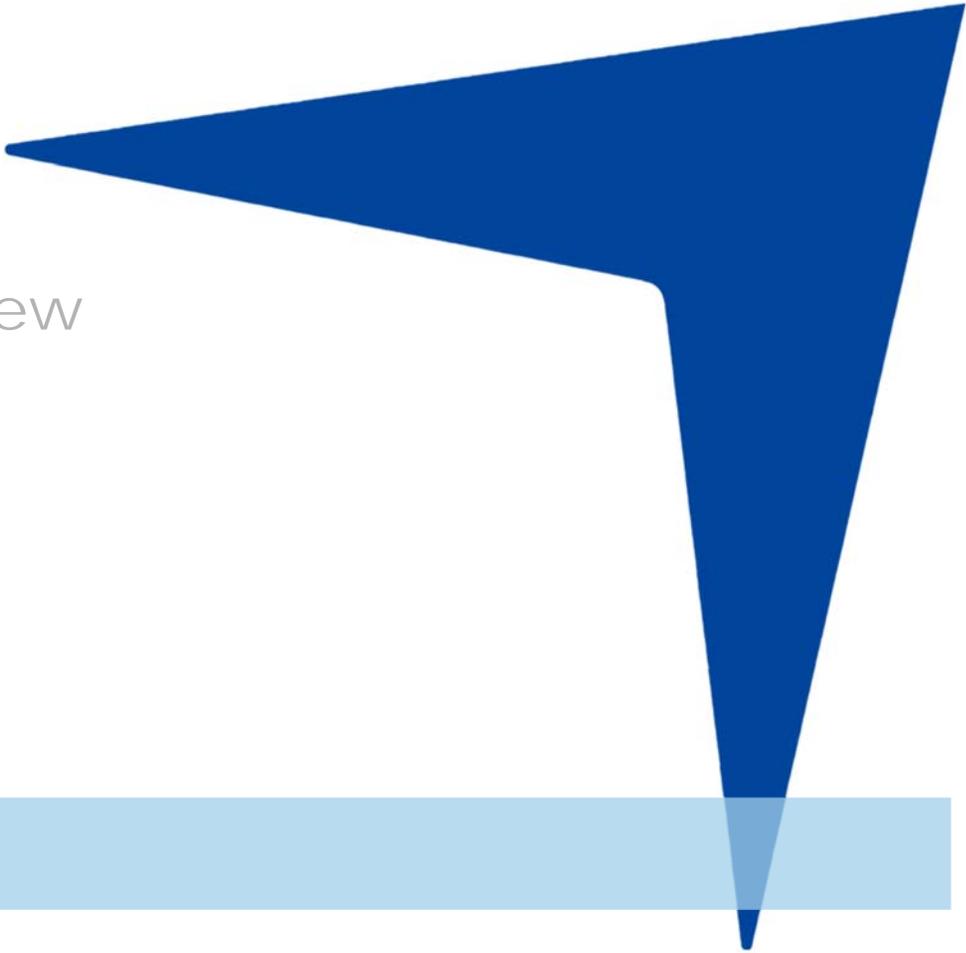
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- I. Retirement Plans Overview
- II. Plan Redesign Approach
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Appendices



# 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.

**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.

# Appendices

## Historical Investment Performance

	Period Ending	Beginning MVA	Net Cash Flow	Gain/(Loss)	Ending MVA	% Return
	1996	1,291,734,891	-14,742,714	101,140,788	1,378,132,965	7.89
	1997	1,378,132,965	-34,096,344	234,250,900	1,578,287,521	17.19
	1998	1,578,287,521	-42,268,539	240,063,429	1,776,082,411	15.45
	1999	1,776,082,411	-47,808,437	240,291,082	1,968,565,056	13.18
	2000	1,968,565,056	-64,387,008	7,639,956	1,911,818,004	0.37
	2001	1,911,818,004	-77,481,199	-14,124,868	1,820,211,937	-0.68
	2002	1,820,211,937	-81,528,582	-150,191,752	1,588,491,603	-8.36
	2003	1,588,491,603	-75,424,638	350,796,286	1,863,863,251	22.56
	2004	1,863,863,251	-79,808,593	216,220,232	2,000,274,890	11.93
	2005	2,000,274,890	-90,832,853	173,260,464	2,082,702,500	8.45
	2006	2,082,702,500	-86,039,647	266,362,298	2,263,025,152	13.62
	2007	2,263,025,152	-96,032,638	180,996,824	2,347,989,338	8.34
	2008	2,347,989,338	-105,220,477	-662,432,769	1,580,336,092	-28.95
	2009	1,580,336,092	-102,362,222	337,664,242	1,815,638,112	22.23
	2010	1,815,638,112	-107,649,042	244,403,209	1,952,392,279	14.05
	2011	1,952,392,279	-114,184,563	15,234,082	1,853,441,798	0.72
	2012	1,853,441,798	-65,025,686	206,446,876	1,994,862,988	13.75
	2013	1,994,862,988	-135,972,859	344,728,716	2,203,618,845	17.72
	03/01/2014	2,203,618,845	-30,403,989	36,402,473	2,209,617,328	1.61
<b>Returns over last</b>	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>	<b>7 Years</b>	<b>10 Years</b>	<b>Inception (Oct '82)</b>
	13.06%	9.64%	15.38%	5.33%	6.98%	9.98%

\* Per p.6 of March 31, 2014 Investment Consultant's report

# Appendices

## *Agreed Upon Salary Assumption*

---

➤ 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%

## Appendices

### Reconciliation of Unfunded and ARC with Agreed Upon Assumptions

	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>

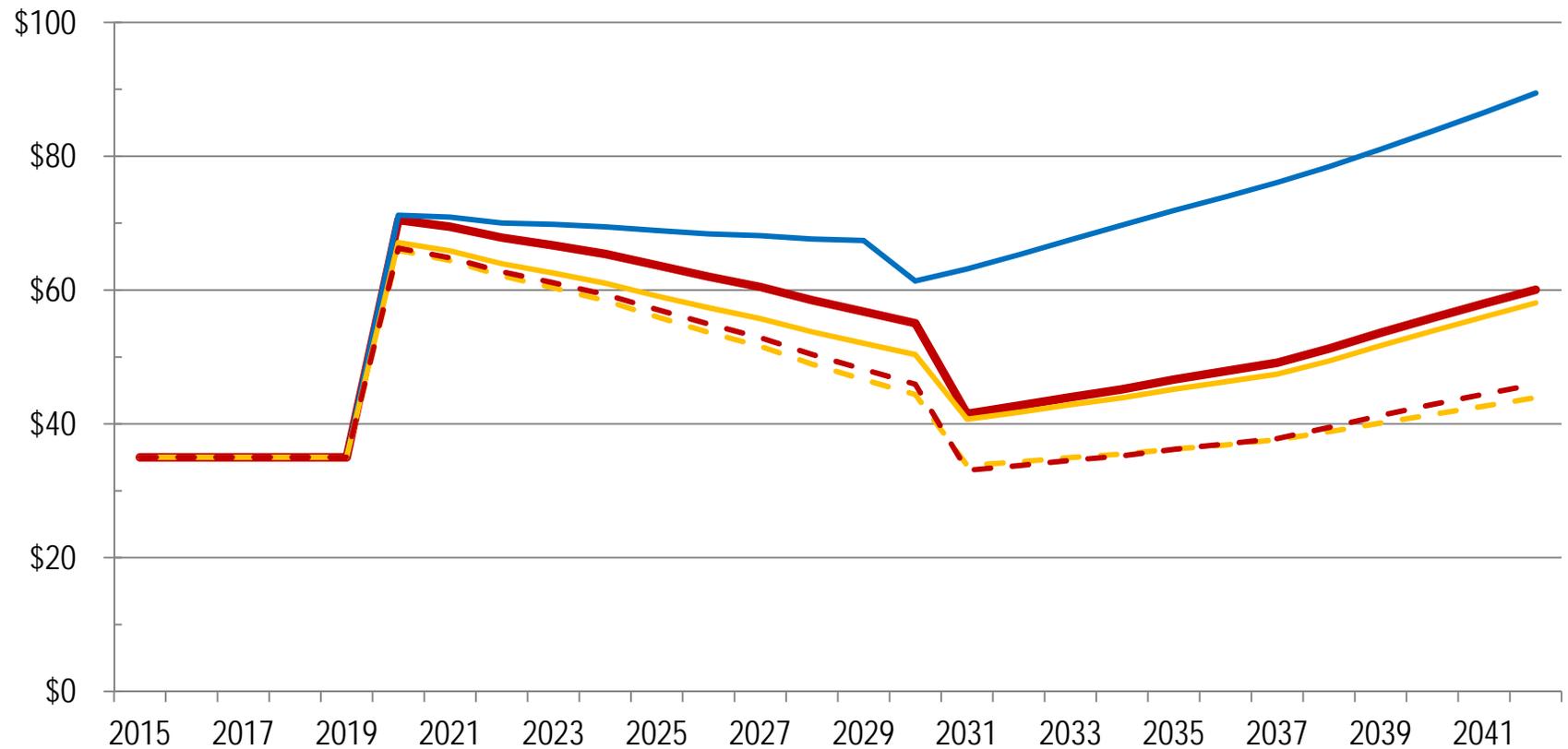
*The agreed upon set of assumptions lowered the liability about 4.5% or about \$117.1 million and the Annual Required Contribution (ARC) about 20% or about \$17.7 million annually.*

\* Total may not add due to rounding

# Appendices

## Projected Contributions – 8.25% Annual Investment Return

➤ The following graph shows the City's total retirement plan contributions under various options:



- Current Plan, 8.25% annual return
- Mayor's Plan with 2.0% of pay for ancillary cost, 8.25% annual return
- Hybrid Option 1 (SS + DC for Gen; Hybrid for F&P), 8.25% annual return
- - Hybrid Option 2 (DB + DC for Gen/F&P), 8.25% annual return
- - Modified DB Plan, 8.25% annual return

# Appendices

## Projected Contributions – 6.75% Annual Investment Return

➤ The following graph shows the City’s total retirement plan contributions under various options:

