Dallas Police & Fire Pension System

CHEIRON
Classic Values, Innovative Advice

Independent Actuarial Analysis Recommendations

Preliminary Recommendations Based on 2023 Actuarial Valuation

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Agenda

Background

Primary Recommendations

- Adopt an Actuarially Determined Contribution
- Reduce Employee Contributions as Funded Status Improves
- Provide Some COLA Earlier

Questions

Appendix

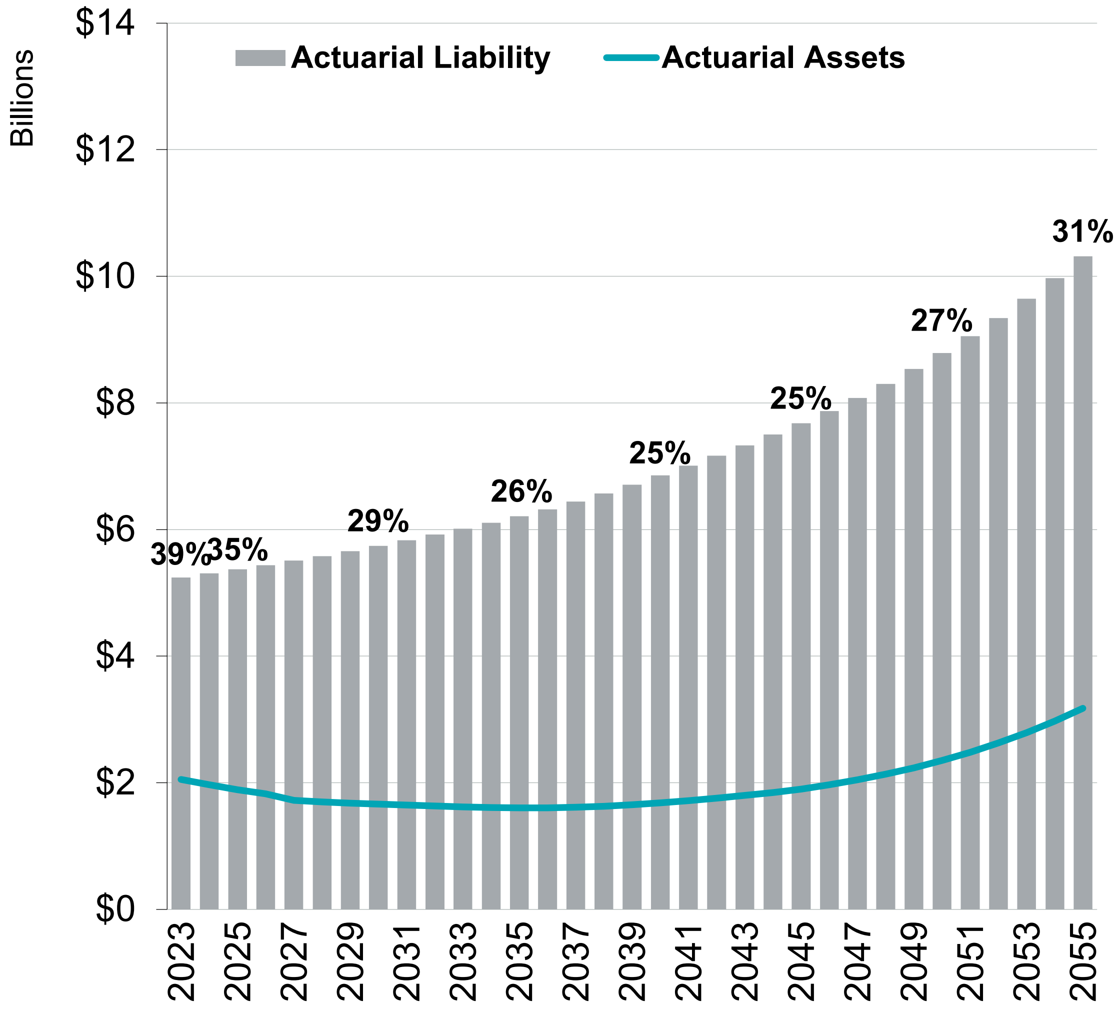
Independent Actuarial Analysis

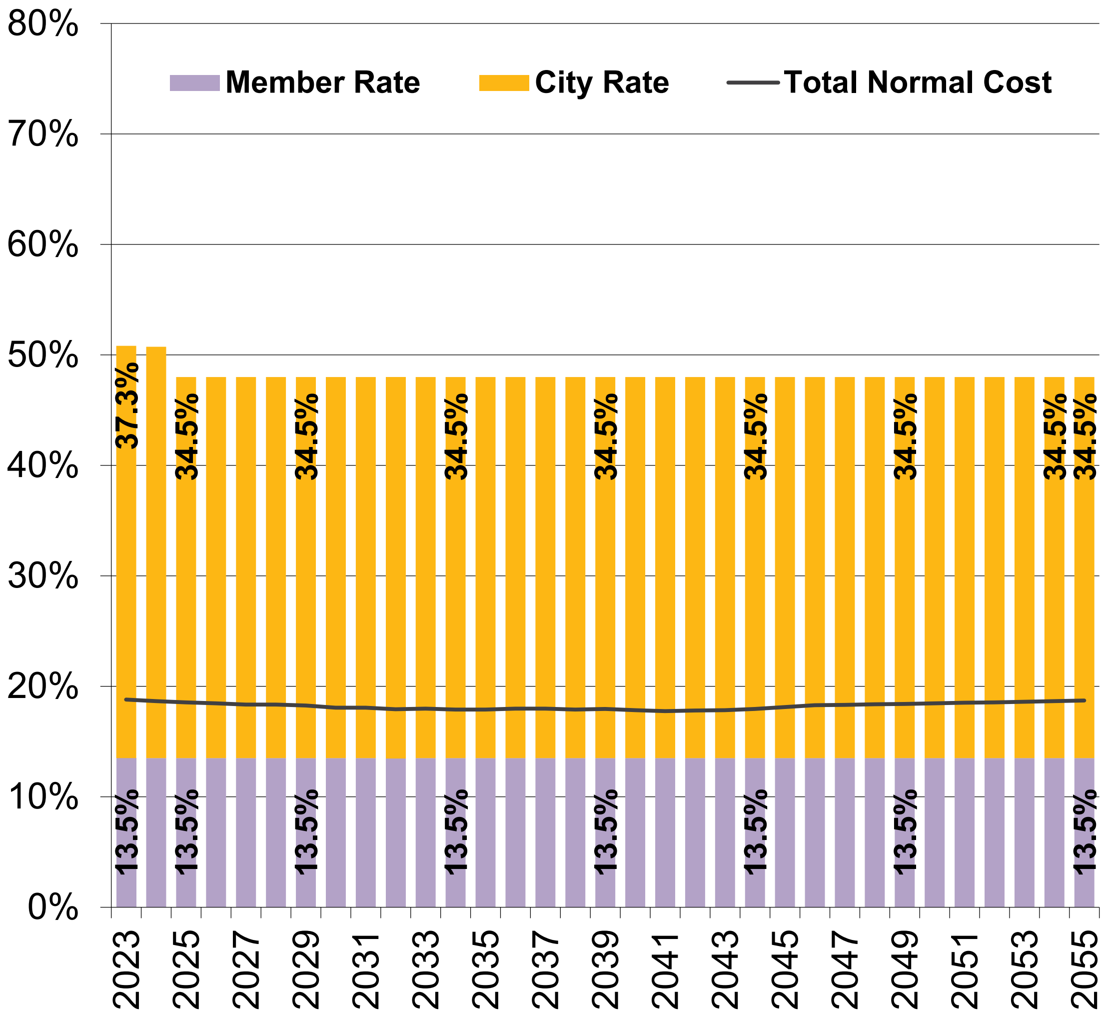
- Pension Review Board selected Cheiron as the Independent Actuary
- Analysis required
  - Does system meet funding guidelines of Chapter 802 of Texas Government Code?
    - Funding period achieved and maintained <= 30 years
  - Make recommendations regarding:
    - Changes to benefits
    - Changes to member contributions
    - Changes to City contributions
- Board action by 11/1/2024
  - Complying with funding requirements of Chapter 802
  - Taking into consideration recommendations of Independent Actuary

Process

- ✓ Replicate 2022 Valuation Performed by Segal
- ✓ Build Interactive Models
- ✓ Develop Alternative Contribution/Benefit Scenarios (At least 3)
- ✓ Draft Report and Presentation Based on 2022 Actuarial Valuation
  - Presented to Board, City, and Pension Review Board
  - Refinement of Options
- ✓ Replicate 2023 Valuation Performed by Segal
- Preliminary Report and Presentation Based on 2023 Actuarial Valuation
  - Feedback from Board
  - Final refinements
- Final Report
  - Texas Pension Review Board
  - Dallas Police & Fire Pension System Board
  - City of Dallas

Baseline Projections – 2023 Valuation





Primary Recommendations

Adopt an Actuarially Determined Contribution

- Contribution amounts adjust to circumstances
- Always comply with funding guidelines
- Start contributions effective either 10/1/2024 or 1/1/2025 based on 1/1/2023 valuation

Reduce Employee Contribution Rate as Funding Improves

- Current rate is high compared to competitors and as proportion of benefit cost
- As funding improves, grade employee rate down to 50% of normal cost rate

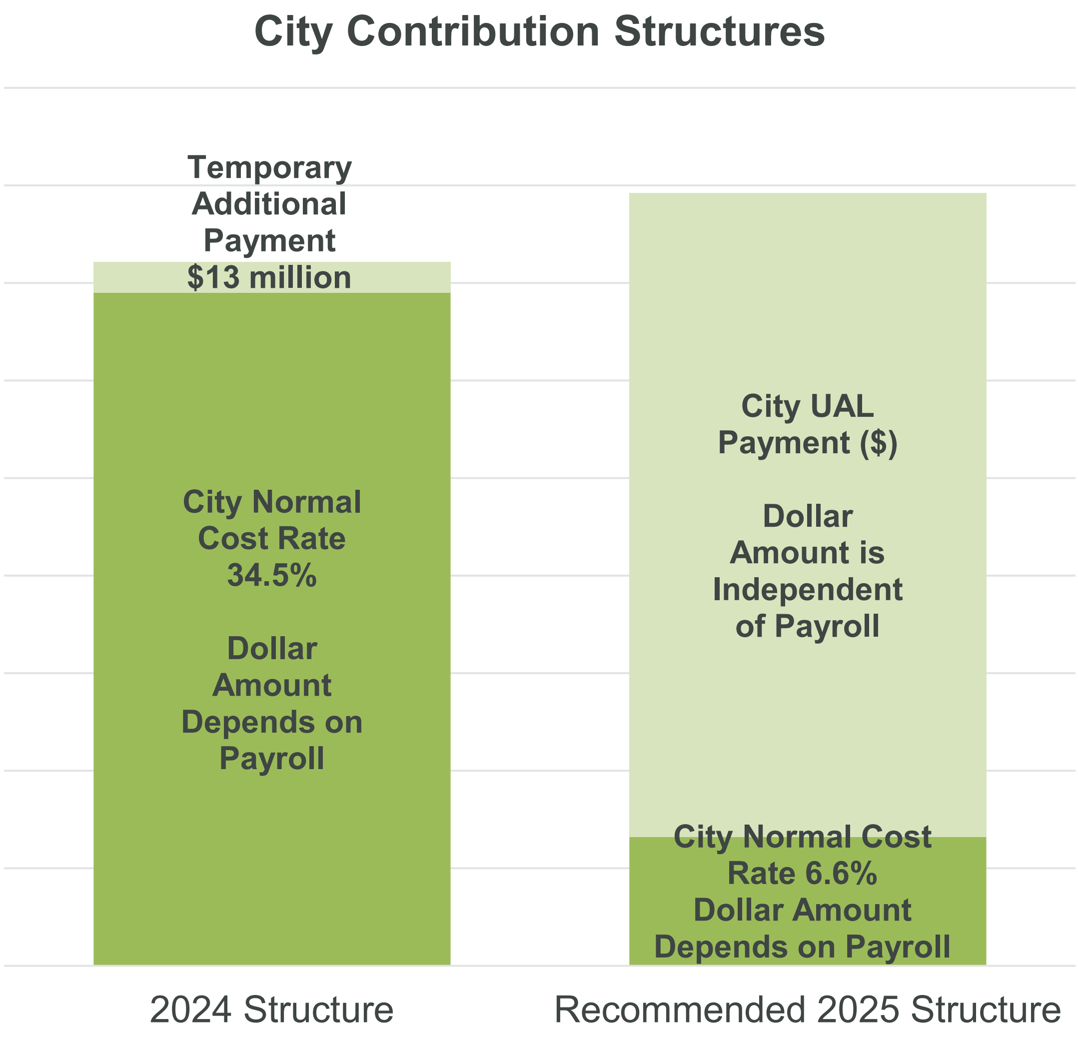
Provide Some COLA Earlier Than Current Provisions Permit

- Members are not covered by Social Security, so they have no inflation protection in retirement
- Lack of COLA is likely to create a recruitment and retention issue

Adopt an Actuarially Determined Contribution

Actuarially Determined Contribution (ADC)

- Current fixed rate implicitly pays:
  - City's normal cost
    - City's expected cost of benefits attributable to the current year of service
  - Administrative expenses
  - An amount towards the Unfunded Actuarial Liability (UAL)
    - UAL payment is thus the excess of fixed rate over the City's normal cost rate and administrative expenses
    - UAL payment is independent of actual UAL
- Proposed ADC consists of:
  - City's normal cost rate
    - Designed to be a percentage of pay
  - Administrative expenses - a dollar amount
  - UAL payment - a dollar amount based on an amortization schedule
    - Designed to pay off UAL over a specified period
    - Independent of actual payroll



Timeline of Actuarially Determined Contribution

1/1/2023
Valuation Date

1/1/2024
2023 Valuation Complete
& ADC Known

10/1/2024 or 1/1/2025
City Begins Contributing ADC From
2023 Valuation

1/1/2024
Valuation Date

1/1/2025
2024 Valuation Complete
& ADC Known

10/1/2025 or 1/1/2026
City Begins Contributing ADC From
2024 Valuation

Key Amortization Principles Applied

Best Practice	• Transition to 20-year layered amortization
Budget Accommodations	• At beginning of amortization, payments step up to ultimate level over a short period to ease budget transition to higher contribution levels • At end of period, amortization payments step down to ease budget transition to lower contribution levels
Layered Amortization	• Payments scheduled to increase no faster than expected inflation (except during step up or down) • Gain layers amortized over period no shorter than remaining period on initial amortization
Meets Pension Review Board Funding Guidelines	• Fully amortized within 30 years

Modeled Amortization Options

Most Preferred — All Are Reasonable — Least Preferred

Traditional

- Single initial 30-year amortization layer for entire UAL
  - 2.5% annual increase in payments
  - No step up or down in payments

3-Year Step Up/Down

- 30-year base amortization layer approximating current contribution rate for 2024
  - 2.5% annual increase in payments
- 30-year amortization layer for remainder of UAL
  - Payments step up over 3 years to full payment level
  - 2.5% annual increase in payments once at full payment level
  - Payments step down over 3 years at end of amortization

5-Year Step Up/Down

- 30-year base amortization layer approximating current contribution rate for 2024
  - 2.5% annual increase in payments
- 30-year amortization layer for remainder of UAL
  - Payments step up over 5 years to full payment level
  - 2.5% annual increase in payments once at full payment level
  - Payments step down over 5 years at end of amortization

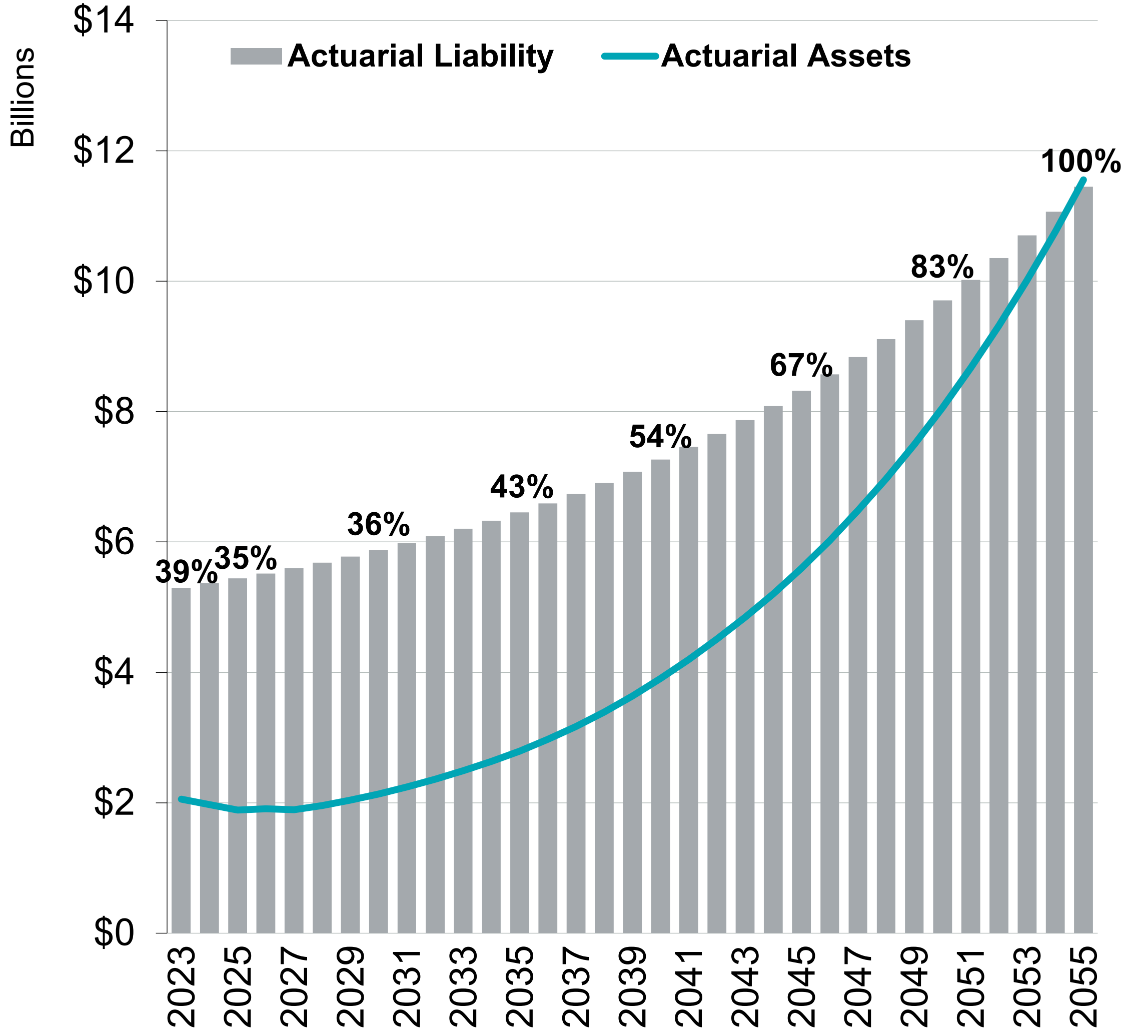
3-Year Step Up

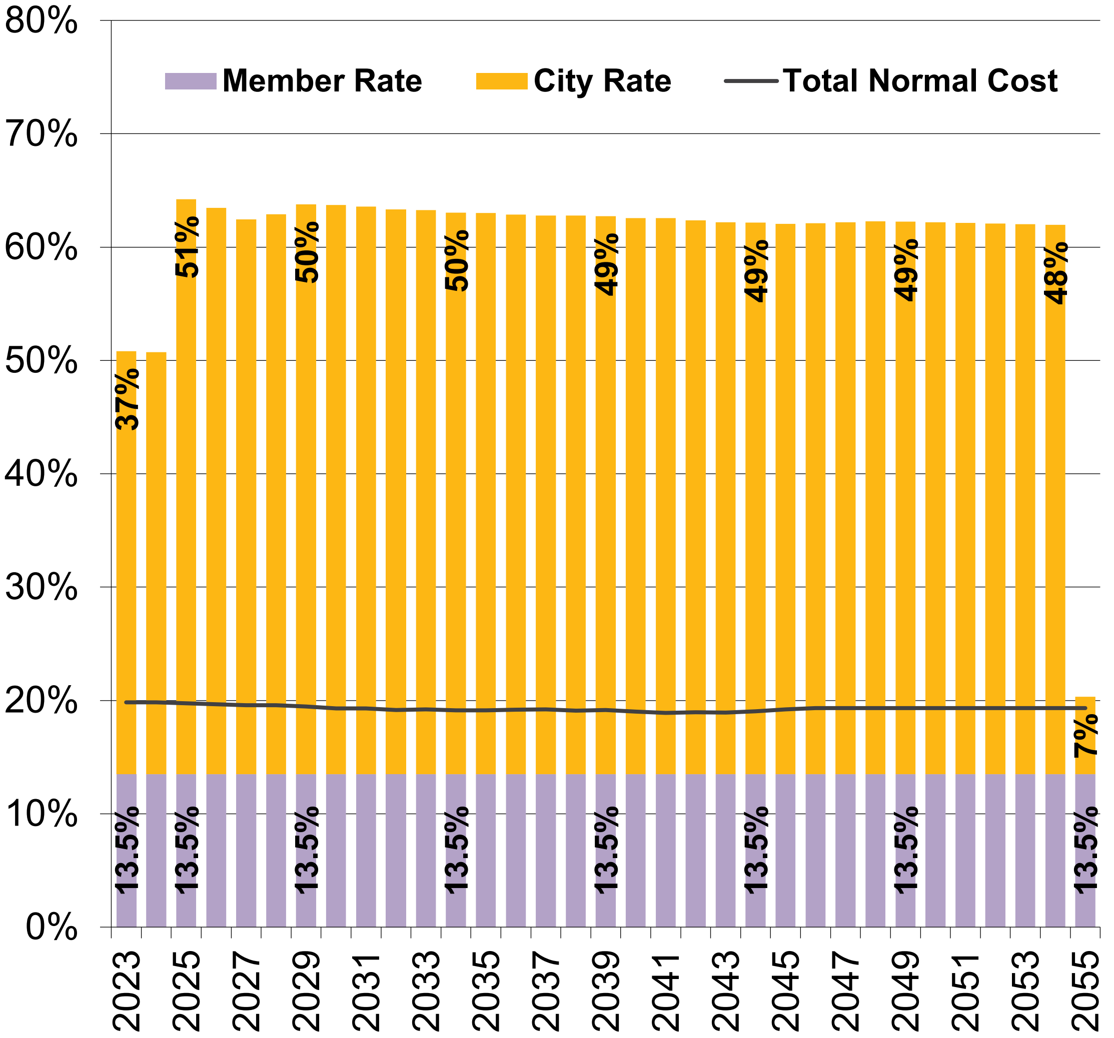
- 30-year base amortization layer approximating current contribution rate for 2024
  - 2.5% annual increase in payments
- 30-year amortization layer for remainder of UAL
  - Payments step up over 3 years to full payment level
  - 2.5% annual increase in payments once at full payment level
  - No step down at end of amortization

5-Year Step Up

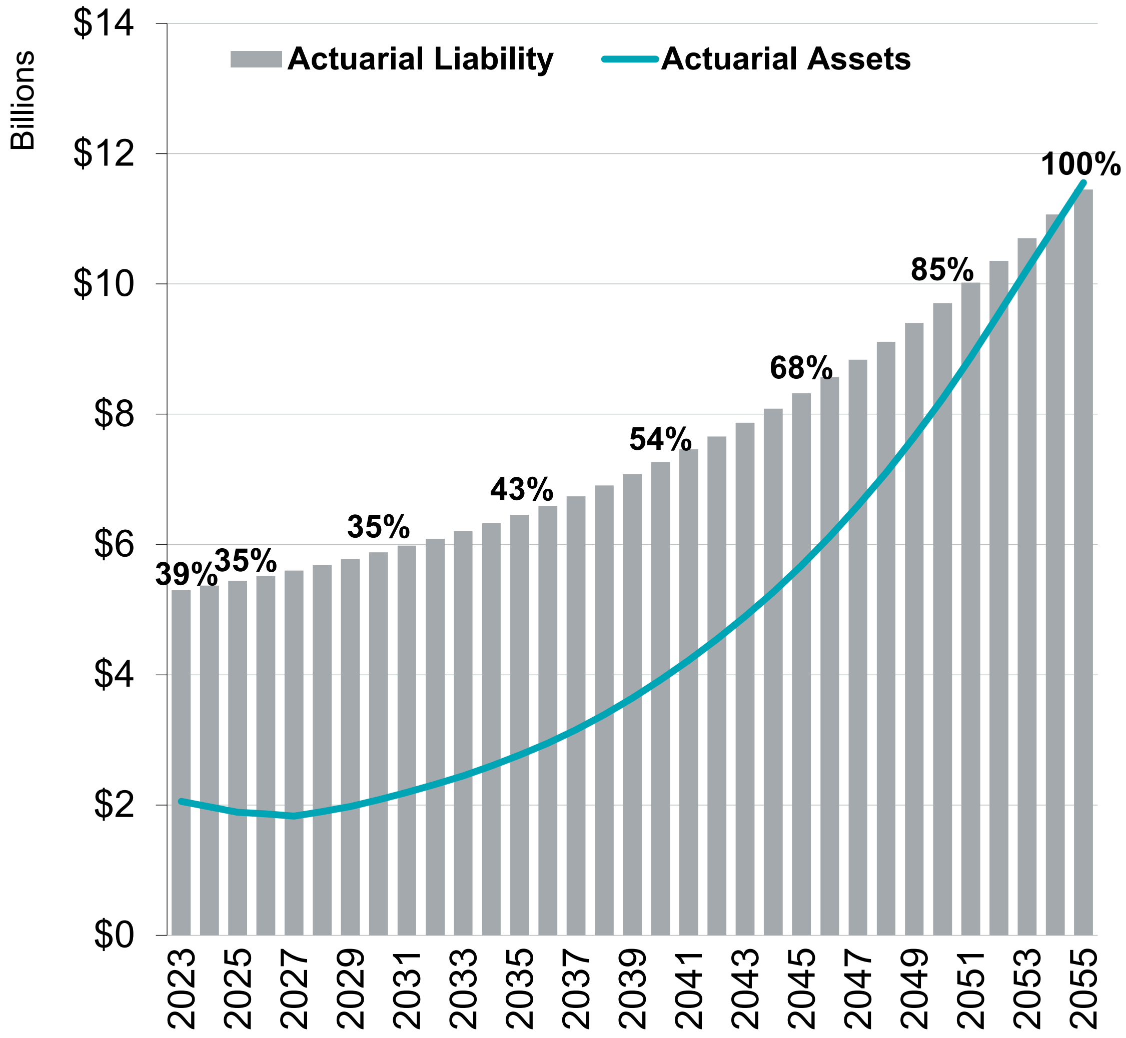
- 30-year base amortization layer approximating current contribution rate for 2024
  - 2.5% annual increase in payments
- 30-year amortization layer for remainder of UAL
  - Payments step up over 5 years to full payment level
  - 2.5% annual increase in payments once at full payment level
  - No step down at end of amortization

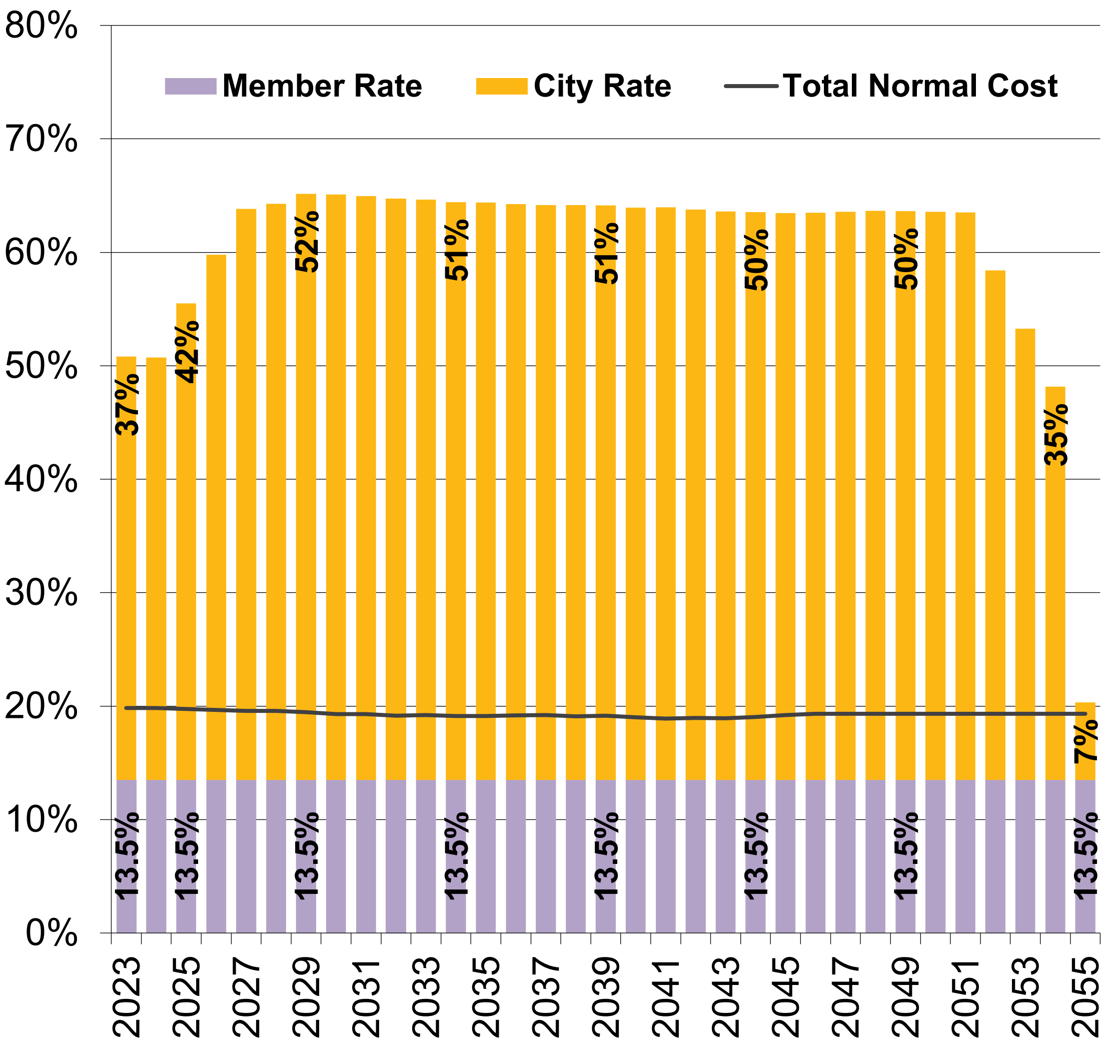
Option 1A – Traditional ADC



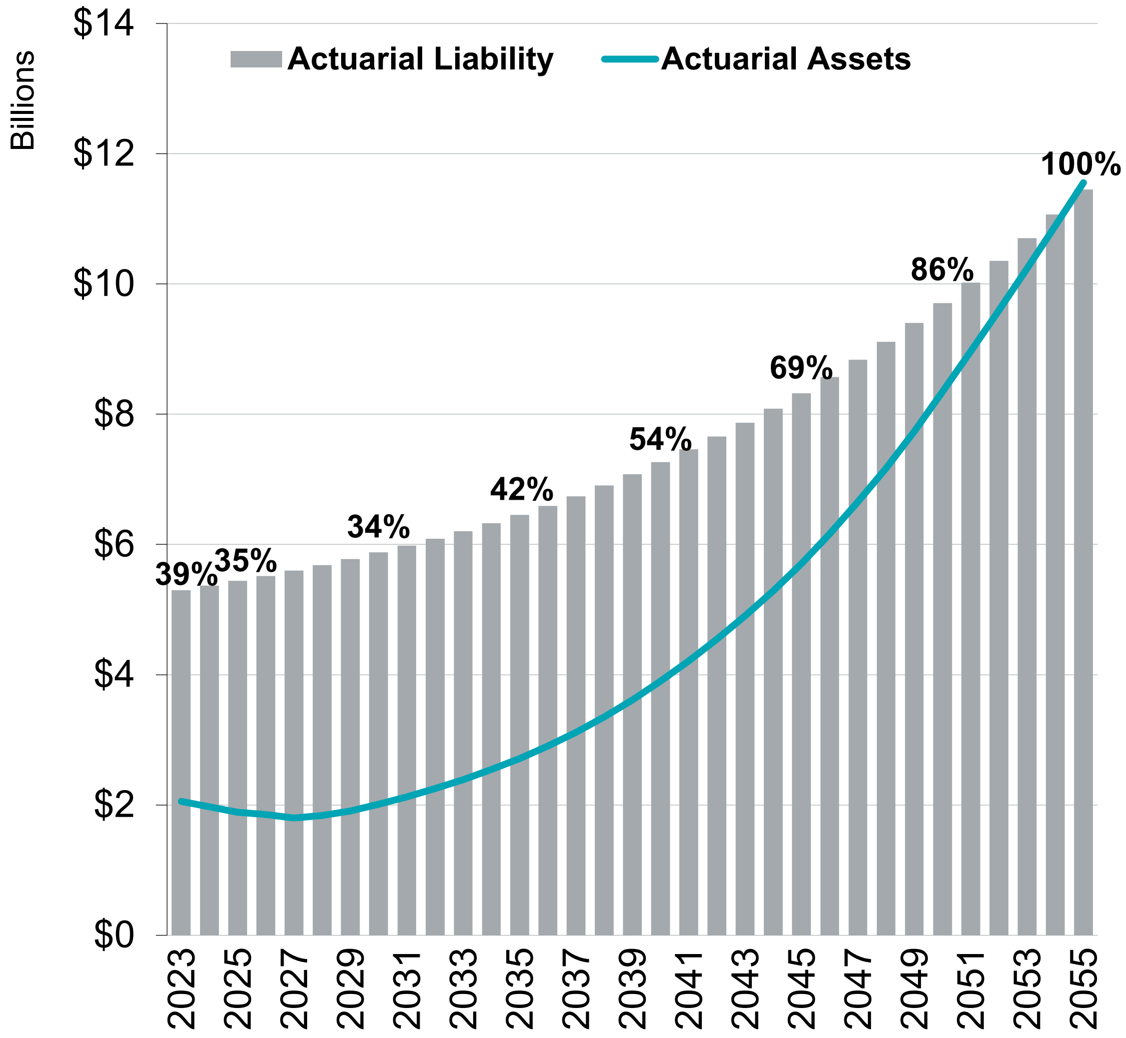


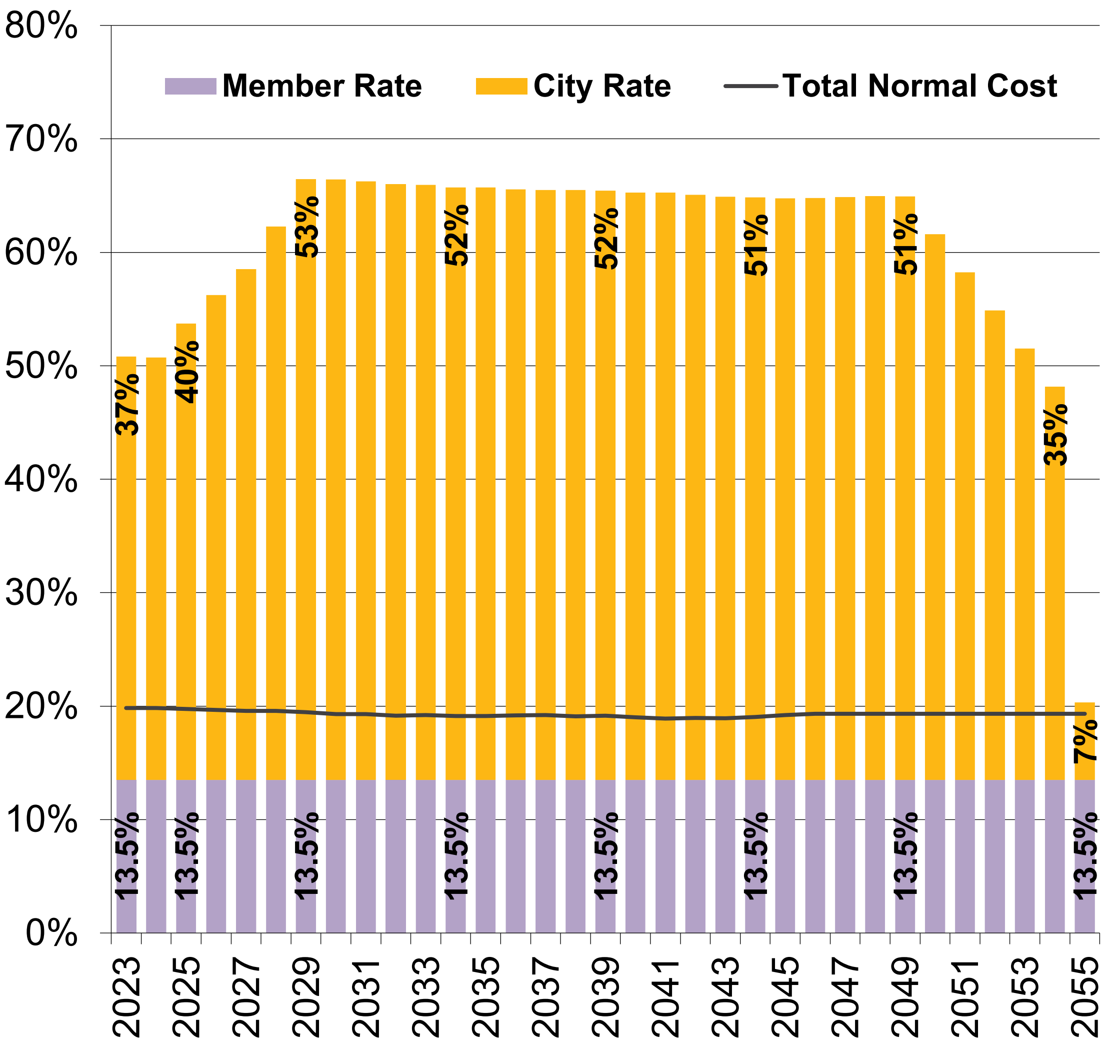
Option 1B – 3-Year Step Up/Step Down ADC



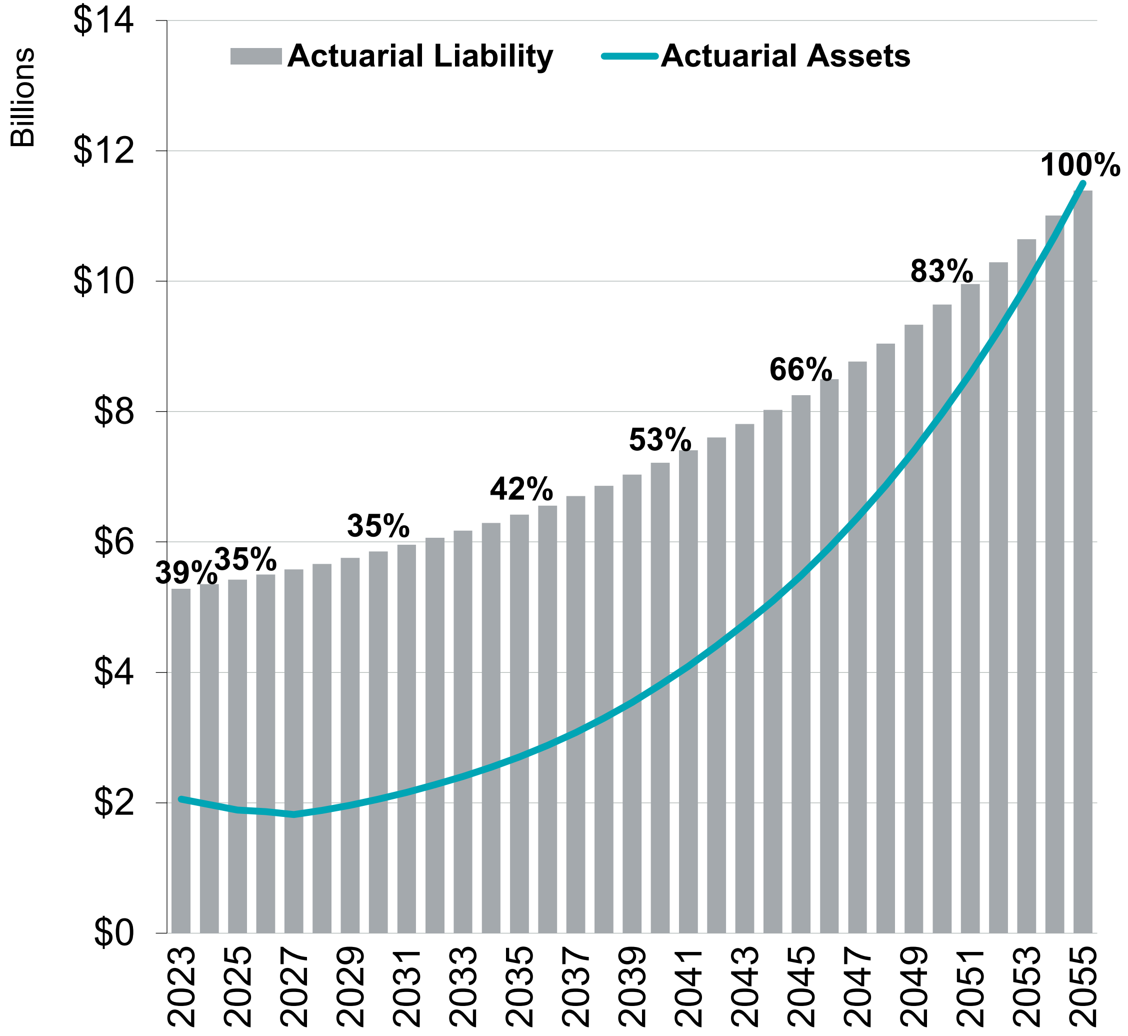


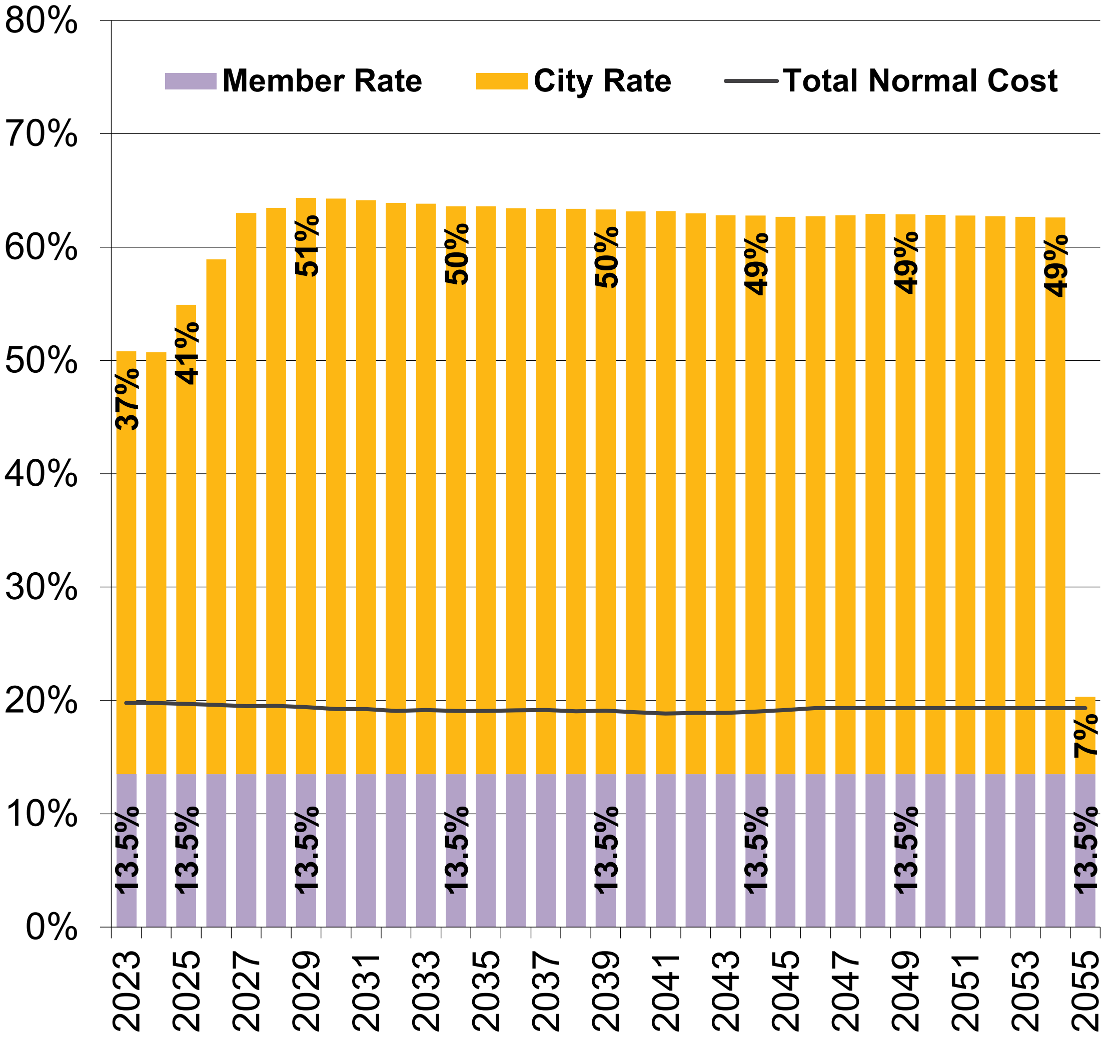
Option 1C – 5-Year Step Up / Step Down ADC



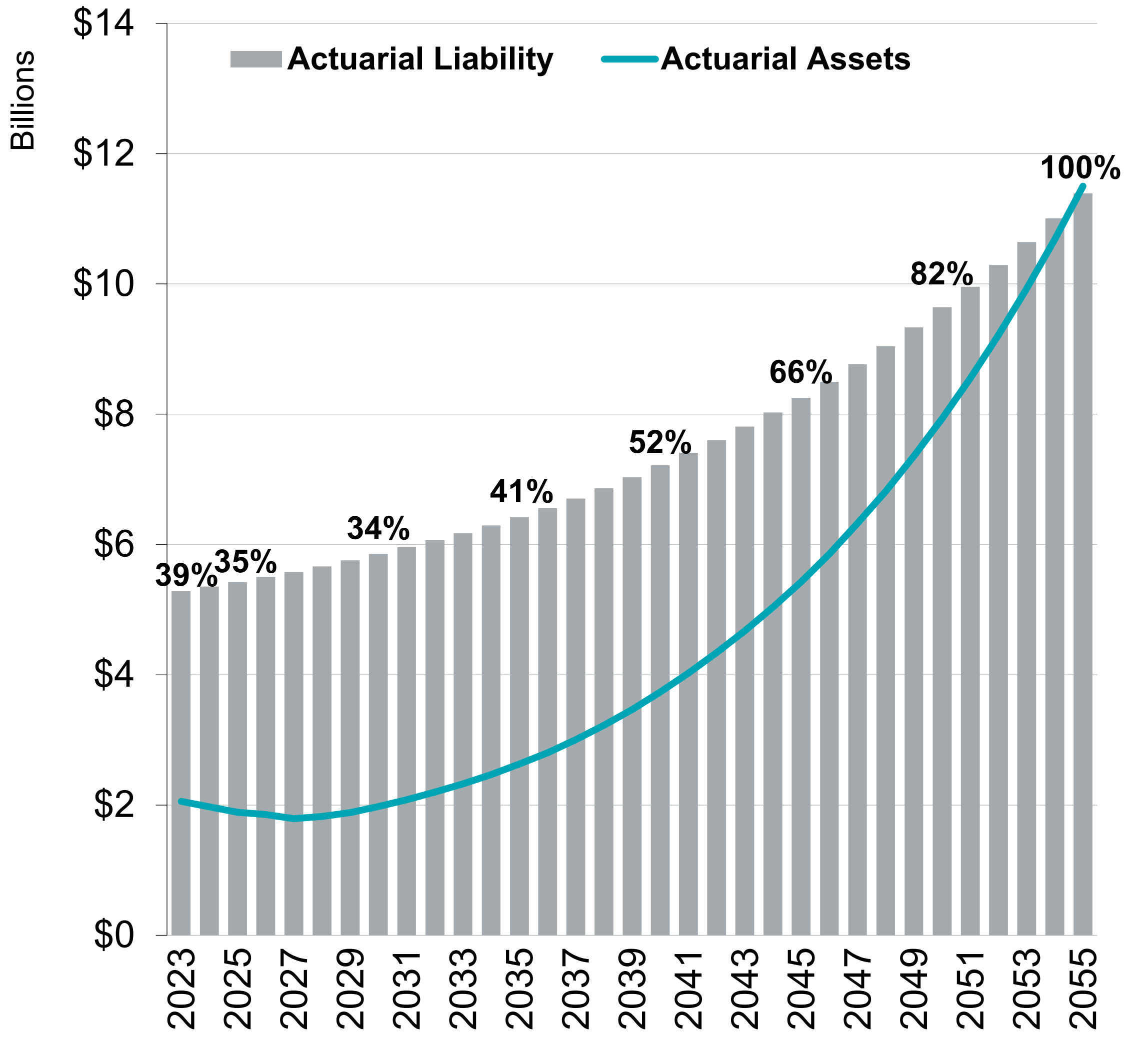


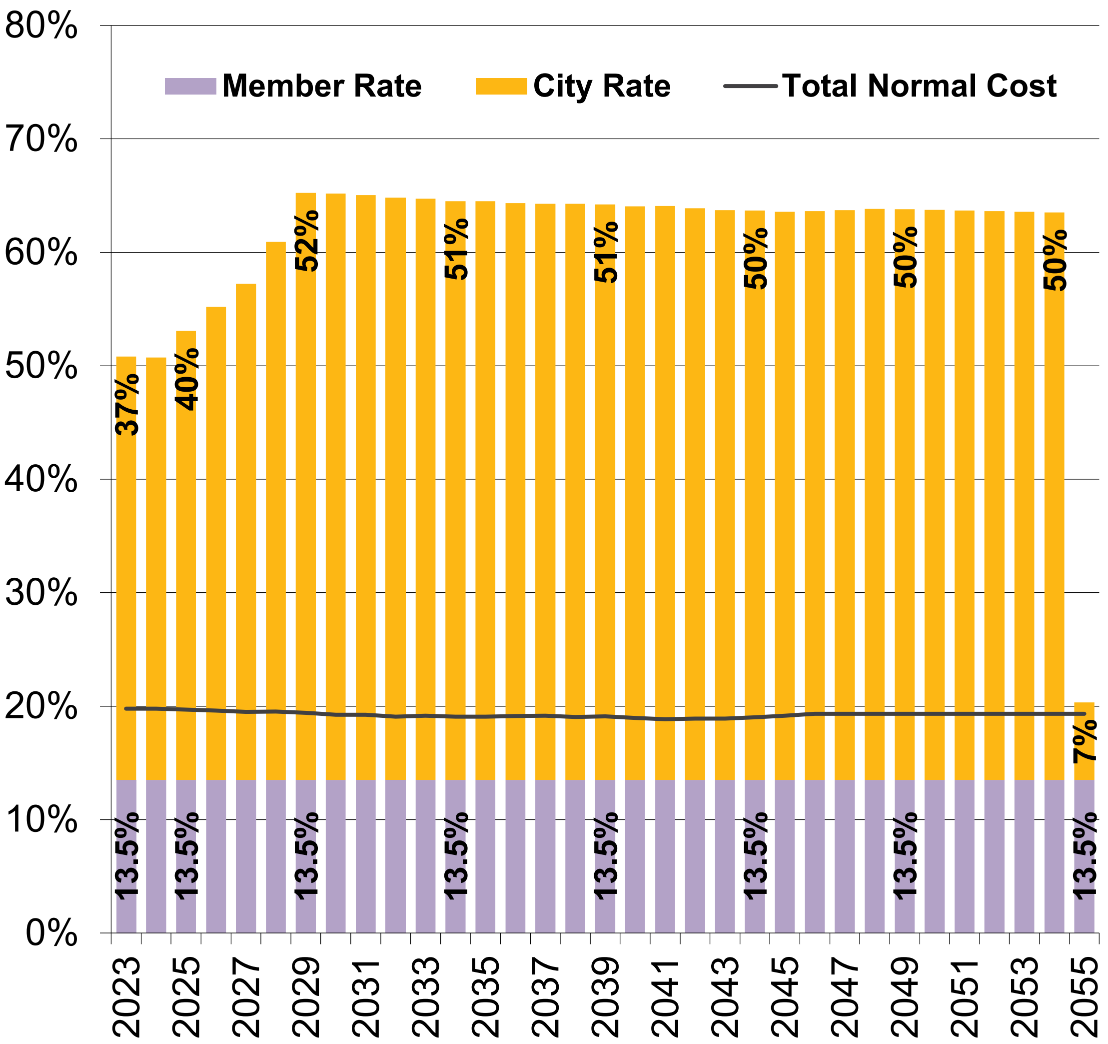
Option 1D – 3-Year Step Up ADC





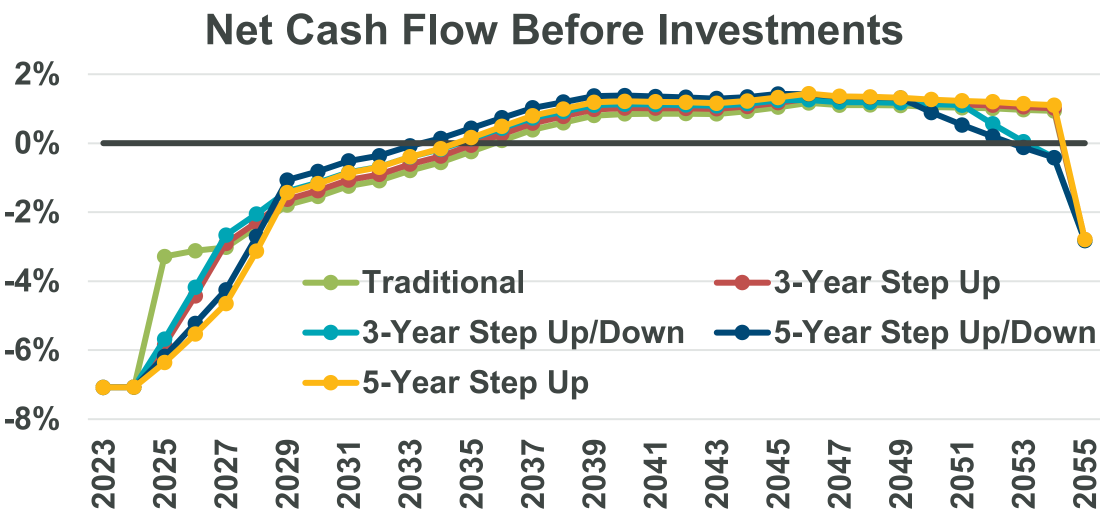
Option 1E – 5-Year Step Up ADC

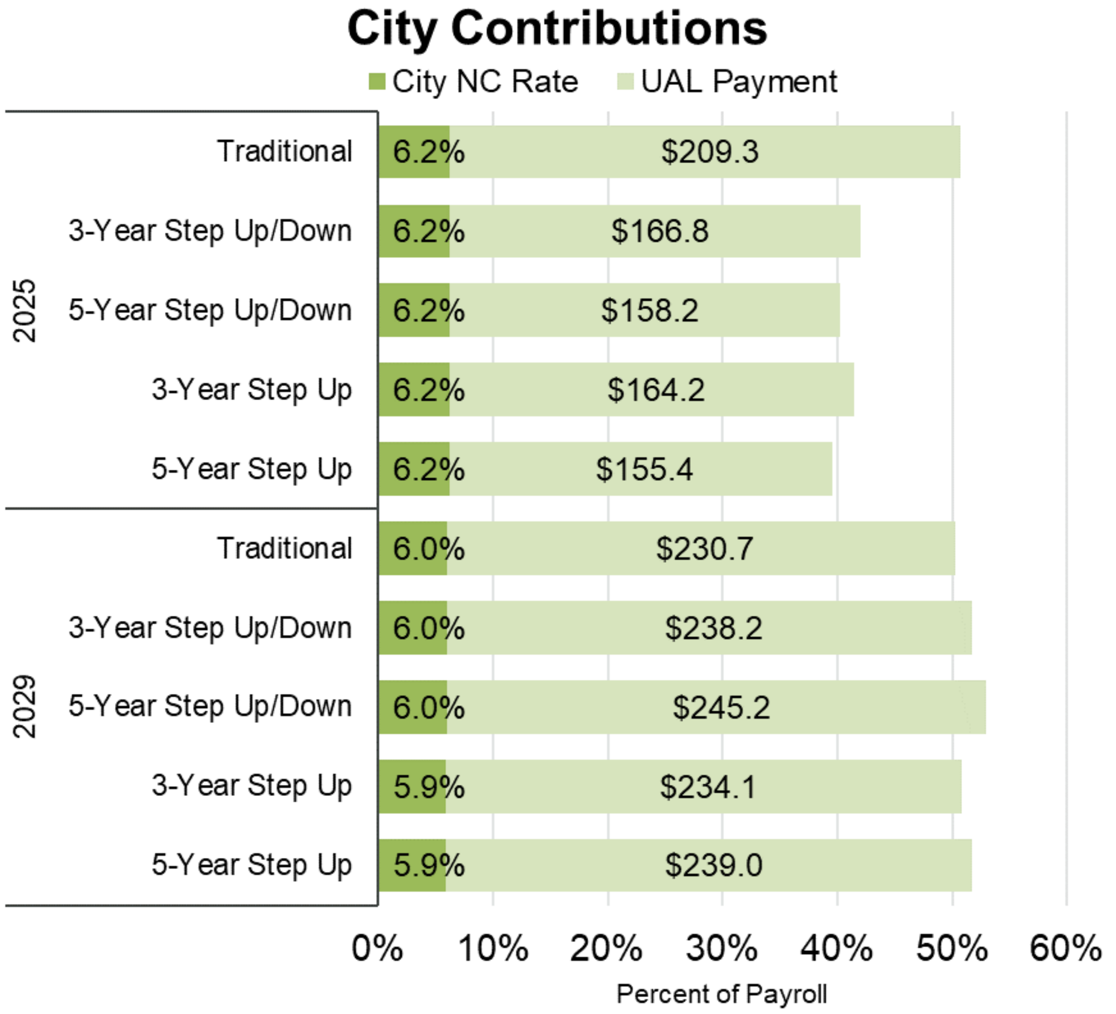




Comparison of ADC Options

ADC	Minimum Expected Funded Percentage	Year Reach 70% Funded
Traditional	34%	2047
3-Year Step Up/Down	32%	2046
5-Year Step Up/Down	32%	2046
3-Year Step Up	32%	2047
5-Year Step Up	32%	2047





Observations/Rationale for Recommendations

- All ADC options are reasonable:
  - Meet the PRB's funding guidelines
  - Adjust contributions as circumstances change so funding guidelines are always satisfied
  - Improve cash flow
  - Expect to achieve 70% funding in 2046 or 2047
  - Expect to achieve 100% funding by 1/1/2055
- Given the current funded status, we prefer higher contributions as soon as possible
  - Lump sum contributions would reduce future actuarially determined contributions
- To manage the change to a higher level of contributions, we prefer the step up / step down options
  - Step up provides time for the City's budget to adjust to higher contribution levels while automatically adjusting for experience during the step-up period
  - Step down provides some time to adjust City's budget to lower contribution levels
    - Most entities facing a significant drop in contribution levels have elected to step them down instead, often extending the amortization period to do so
    - Better to plan for the step down in advance

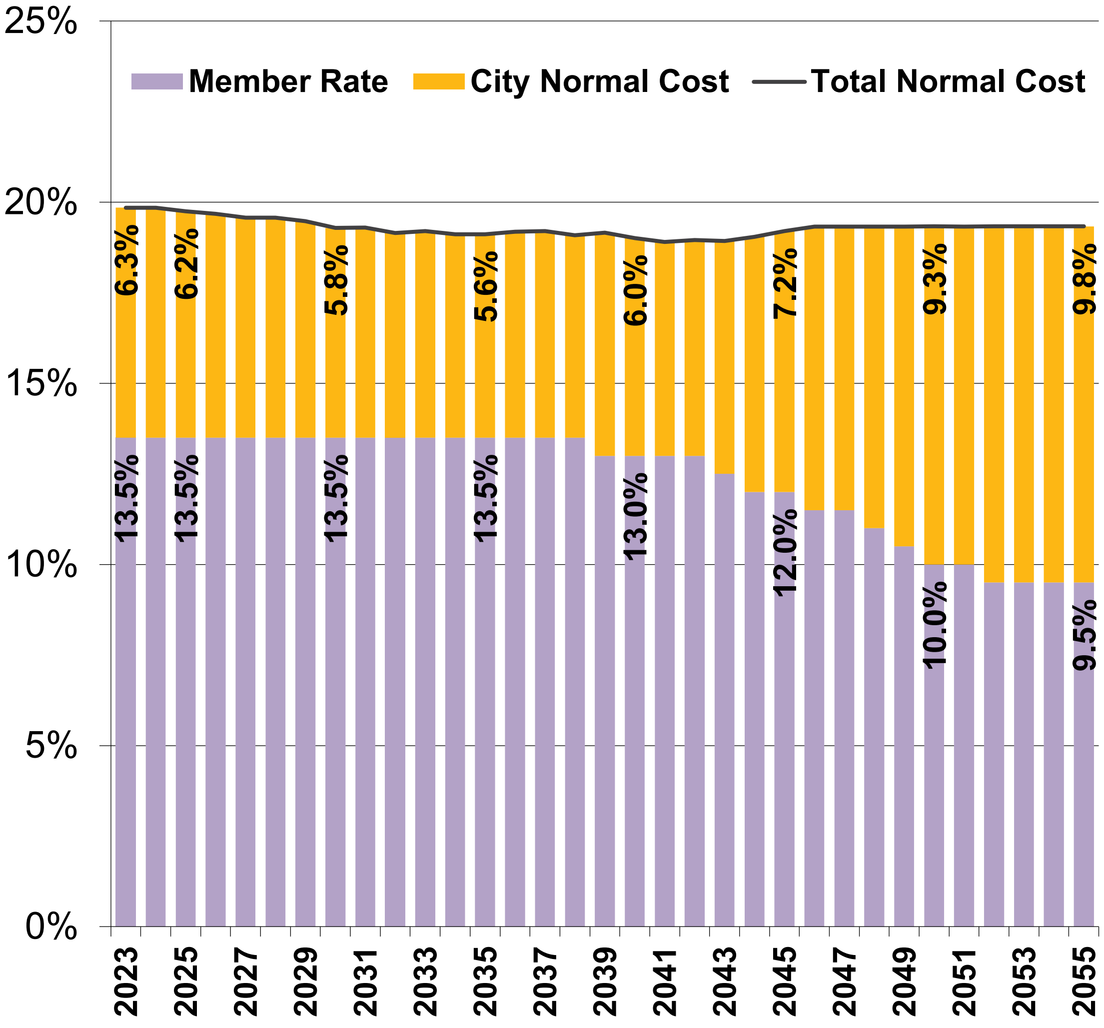
Reduce Employee Contribution Rate as Funding Improves

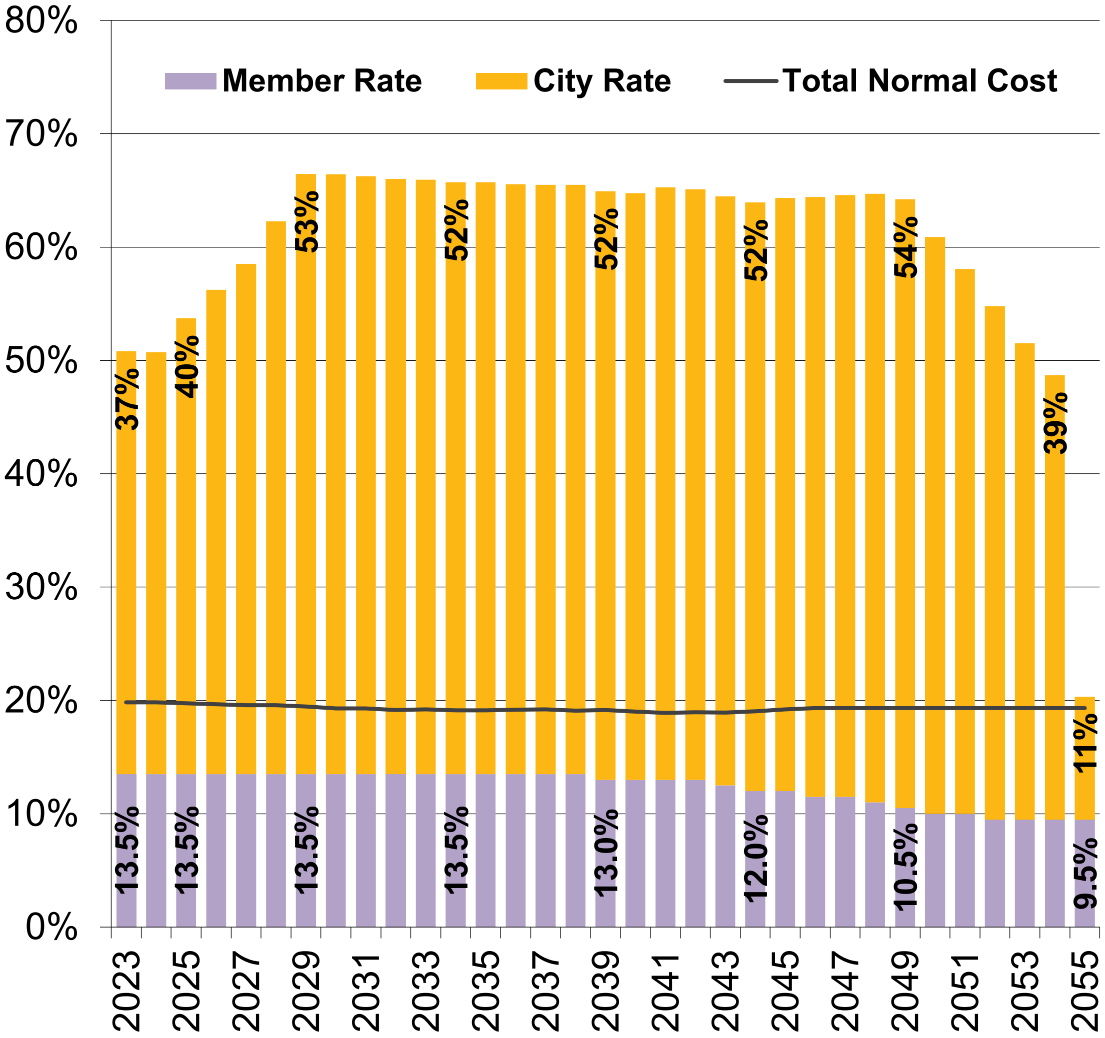
Scenario 2 – Adjustable Employee Contribution Rate

- Set base employee contribution rate to 50% of the normal cost rate applicable for members hired on/after March 1, 2011
  - Similar to current law once System is fully funded
  - Round to nearest 0.5%
  - 9.5% for this scenario
- Add adjustment designed to maintain current 13.5% contribution rate initially, with rate decreases as the System becomes better funded
- Adjustments proposed for this scenario shown in the table below:

Funded Ratio	<50%	50-59%	60-64%	65-69%	70-74%	75-79%	80-84%	85-89%	90%+
EE Rate Adjustment	4.0%	3.5%	3.0%	2.5%	2.0%	1.5%	1.0%	0.5%	0%

Scenario 2 – Adjustable EE Rate with 5-Yr Step Up/Dn ADC





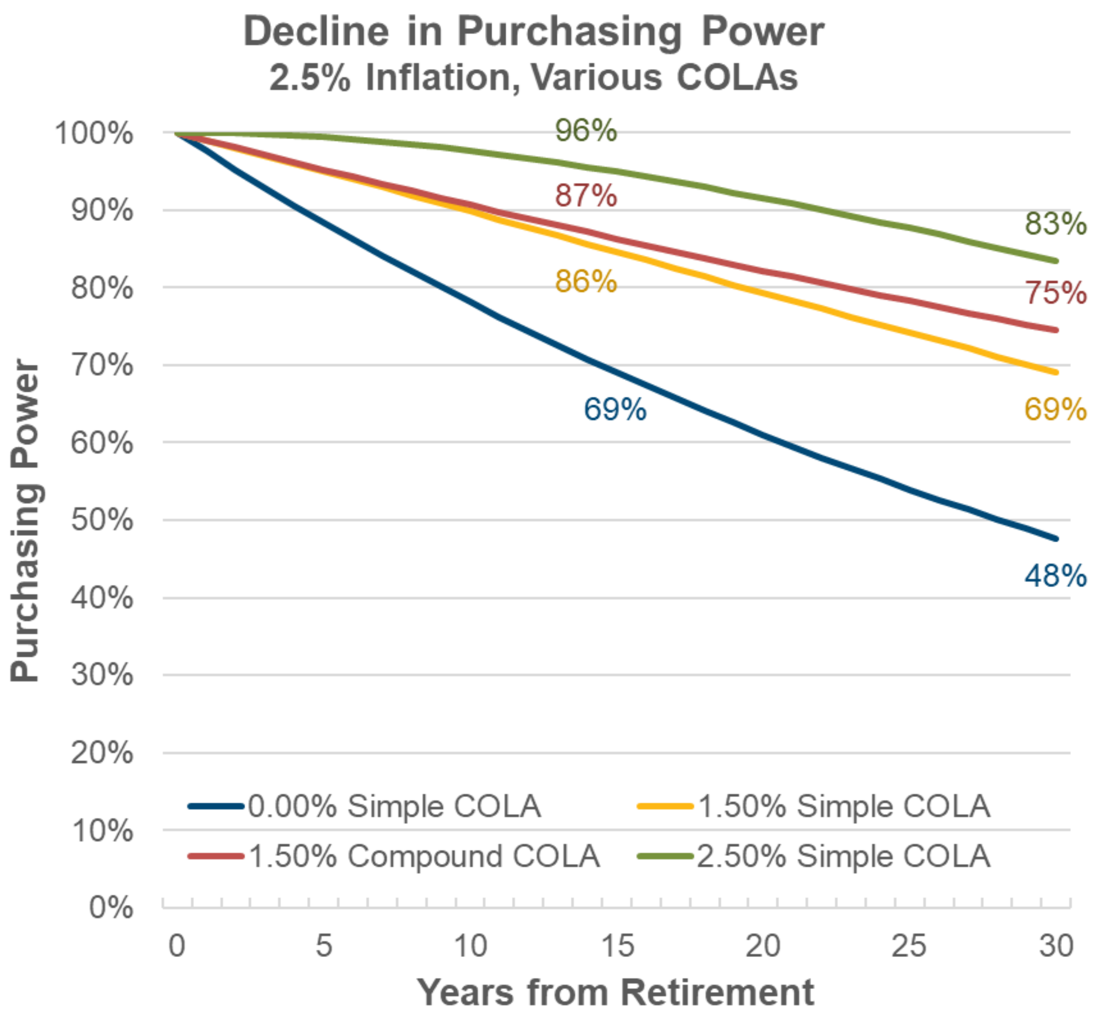
Provide Some COLA Earlier

COLA Background

- Prior to HB 3158
  - Automatic 4% Simple COLA if hired prior to 1/1/2007
  - Ad Hoc Simple COLA up to 4% if hired after 12/31/2006
- After HB 3158
  - Ad Hoc Simple COLA that depends on investment returns (not inflation)
    - 5-year average return minus 5%
    - Maximum of 4%
  - COLA can only be granted if funded percentage > 70%
    - 2023 valuation projects first COLA in 2073
    - With revised funding plan, first COLA expected to be paid about 2046

COLA Provides Purchasing Power Protection

- DPFP members are not covered by Social Security
  - Social Security benefits are fully indexed to inflation
- Over time, COLAs that don't keep up with inflation erode the retiree's purchasing power
- COLAs are expensive



Why Consider Improving the COLA Now?

- Arguments against improving COLAs
  - System is already poorly funded without improved COLAs
  - COLAs will require additional contributions to fully fund the System
  - Natural response is to exclude consideration of any COLA improvements until funding improves
- However, can Dallas maintain its Police and Fire workforce while offering no COLA for the next 20+ years?
  - No Social Security coverage to provide inflation protection in retirement
  - Remainder of Dallas' workforce receives annual COLAs up to 3.0% (5.0% if hired prior to 2017)
- If COLAs will be needed within the next 20 years
  - Costs should be included in the budget plan now
  - Ignoring or deferring these costs may lead to inadequate funding
  - Options outlined in the presentation provide a spectrum to illustrate the cost/benefit trade-offs, but are not exhaustive of all options available

COLA Design Choices

CPI vs. Investment Return Basis

- Retirees living expenses vary with CPI
- Resources to pay for COLA depend on investment returns

Simple vs. Compound

- Inflation compounds
- Compound COLAs are more expensive than simple COLAs
- Difference is minimal in years shortly after retirement but grows as retirees age
- Savings from simple COLAs come at the expense of the oldest retirees

Funded Status Requirement

- Automatically reduces or eliminates COLA when plan is not well funded
- Reduces plan costs when the plan most needs it
- May force retirees to go without any COLA for many years, resulting in a significant decline in purchasing power

Purchasing Power Protection

- Sets a floor (e.g., 70%) for each retiree's decline in purchasing power, providing compound COLAs equal to inflation once a retiree's benefit reaches the floor
- Purchasing power protection limits risk to retirees when COLA is:
  - Simple,
  - Based on investment return, or
  - Subject to funded status requirements

Expected and Maximum Amounts

- COLAs are usually designed to provide an expected amount with some level of variability
- To control costs, there is often a cap on the amount of any single COLA
- Some plans allow retirees to "bank" any excess amount to use in a future year if the CPI increase exceeds the maximum COLA

COLA Background

Dallas Police & Fire Pension System

- After HB 3158 (Effective 9/1/2017)
  - Ad Hoc
  - Simple COLA that depends on investment returns (not inflation)
    - 5-year average return minus 5%
    - Expected 1.5% COLA
      - 6.5% expected return – 5.0% = 1.5%
    - Maximum of 4%
  - Can only be granted if funded percentage > 70%
    - 2023 valuation projects first COLA in 2073
    - With revised funding plan, first COLA expected to be paid about 2046

Dallas Employees Retirement Fund

- Hired prior to January 1, 2017
  - Automatic
  - Simple COLA equal to CPI
  - Maximum = 5.0%
- Hired after December 31, 2016
  - Automatic
  - Simple COLA equal to CPI
  - Maximum = 3.0%

Modeled COLA Options

	Current	Dallas Employees Retirement Fund COLA	Immediate Partial COLA	Current + 70% PP	Current + 80% PP	Current Immediate + 80% PP	Compound Current Immediate + 80% PP
CPI vs. Investment	Investment	**CPI**	Investment	Investment / **CPI**	Investment / **CPI**	Investment / **CPI**	Investment / **CPI**
Simple vs. Compound	Simple	Simple	Simple	Simple / **Compound**	Simple / **Compound**	Simple / **Compound**	**Compound**
Funded Status	70%	**0%**	**0%**	70%	70%	**0%**	**0%**
Purchasing Power (PP) Protection	None	None	None	**70% of 2024 PP**	**80% of 2024 PP**	**80% of 2024 PP**	**80% of 2024 PP**
Expected Amount / Maximum	1.5% / 4.0%	**2.5% / 3.0%**	**1.5% times Funded %** / 4.0%	1.5% / 4.0%	1.5% / 4.0%	1.5% / 4.0%	1.5% / 4.0%

Option 3A - Current COLA – Purchasing Power Impact

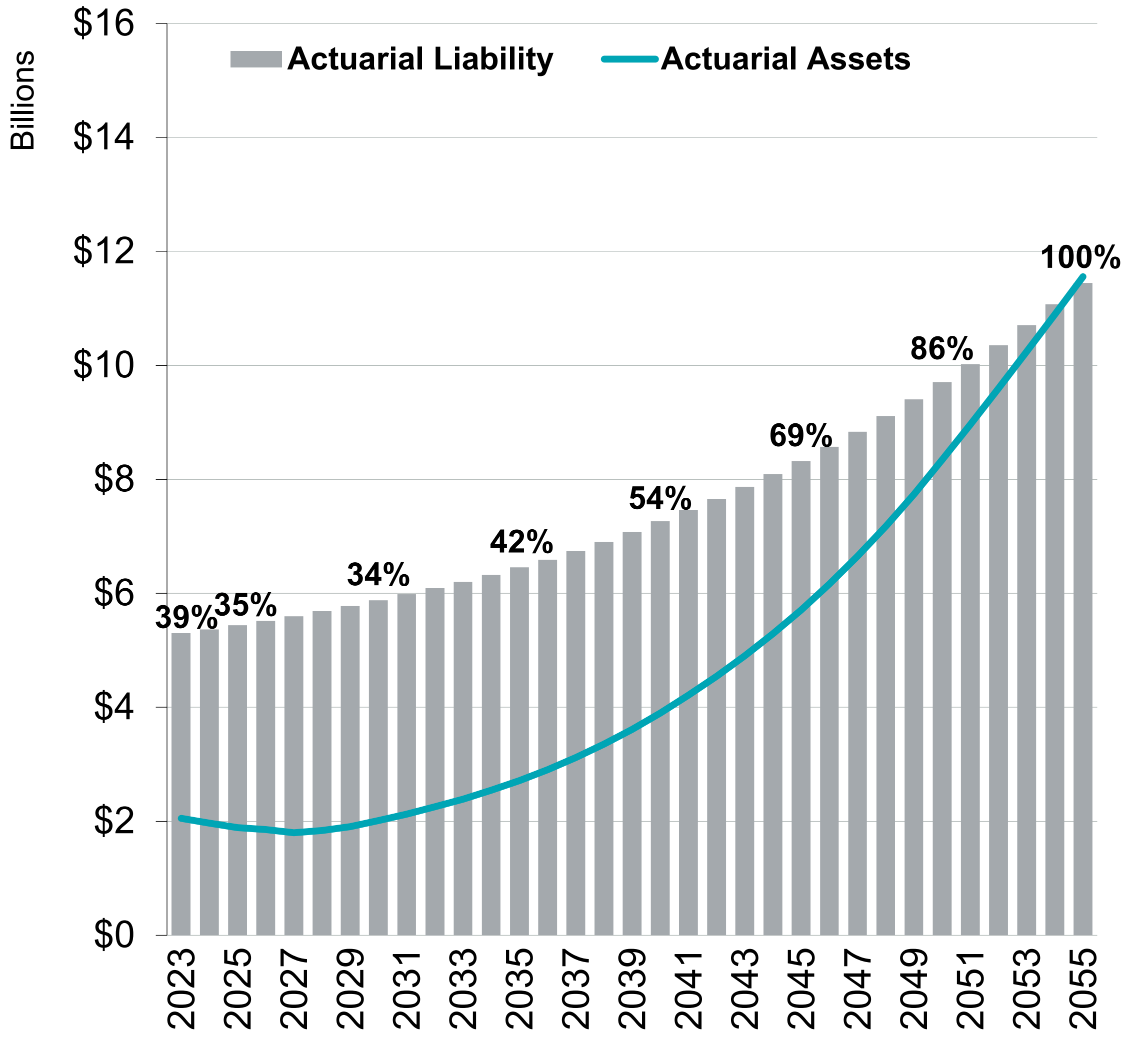
Purchasing Power

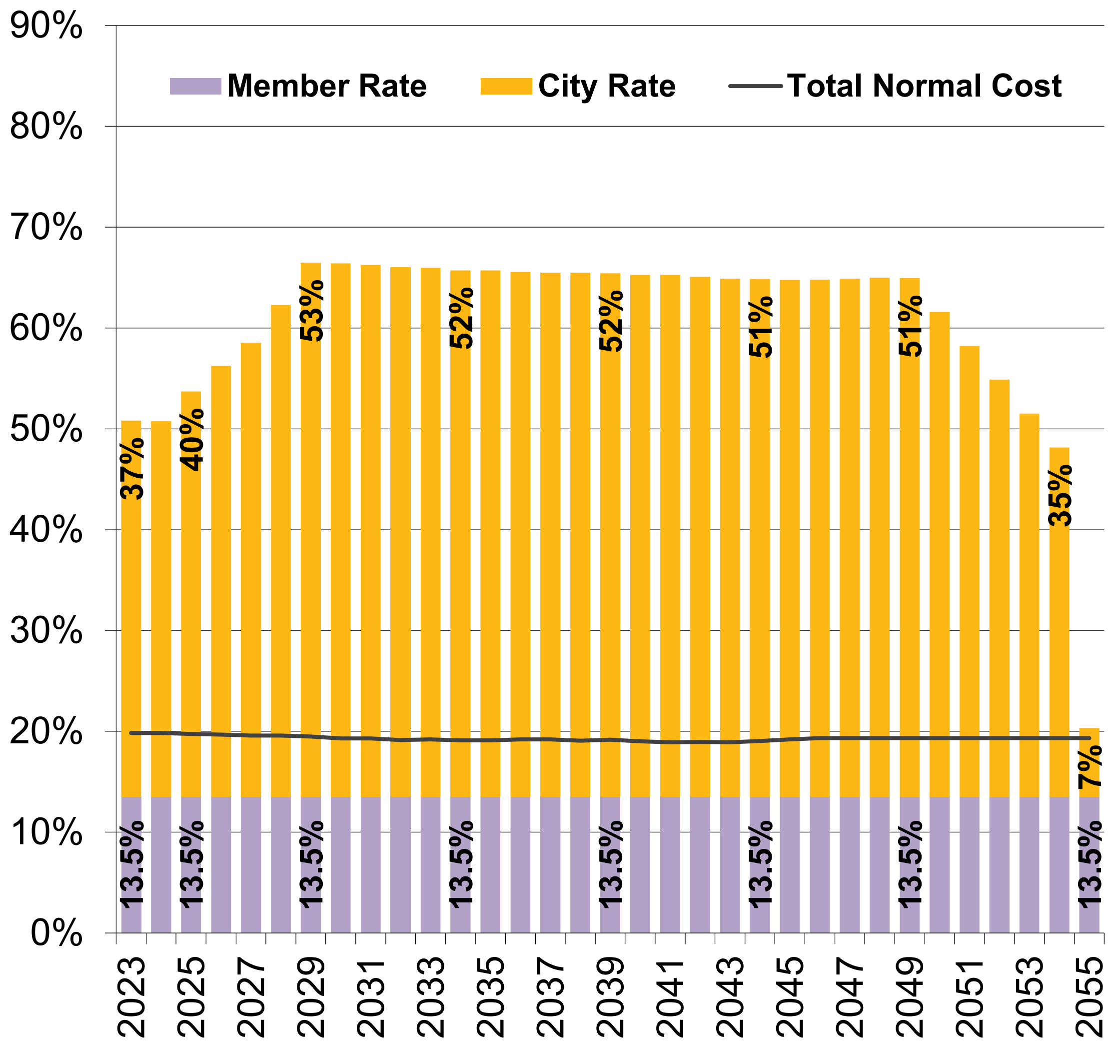
Retirement Year	2024	2029	2034	2039	2044	2049	2054
2023	100%	88%	78%	69%	63%	60%	56%
2022	96%	85%	75%	66%	60%	57%	54%
2021	88%	77%	68%	60%	55%	52%	49%
2020	83%	73%	65%	57%	52%	49%	47%
2019	82%	73%	64%	57%	52%	49%	46%
2018	81%	71%	63%	56%	51%	48%	45%
2017	79%	70%	61%	54%	49%	47%	44%
2016	76%	67%	60%	53%	48%	45%	43%
2015	78%	69%	61%	54%	49%	46%	43%
2010	86%	76%	67%	59%	54%	50%	47%
2005	93%	83%	73%	65%	58%	54%	50%
2000	94%	83%	73%	65%	58%	54%	
1995	92%	82%	72%	64%	57%		
1990	90%	79%	70%	62%			
1985	84%	75%	66%				
1980	70%	62%					

- Chart shows purchasing power in each year compared to purchasing power at time of retirement
- Future inflation = 2.5%
- Past COLAs
  - 4% simple through 2016
  - 0% 2017 - 2023
- Future COLAs
  - COLAs re-start once plan achieves 70% funding (~2046)
  - Expected COLA = 1.5% Simple

Option 3A – Current COLA

With 5-Year Step Up / Step Down ADC





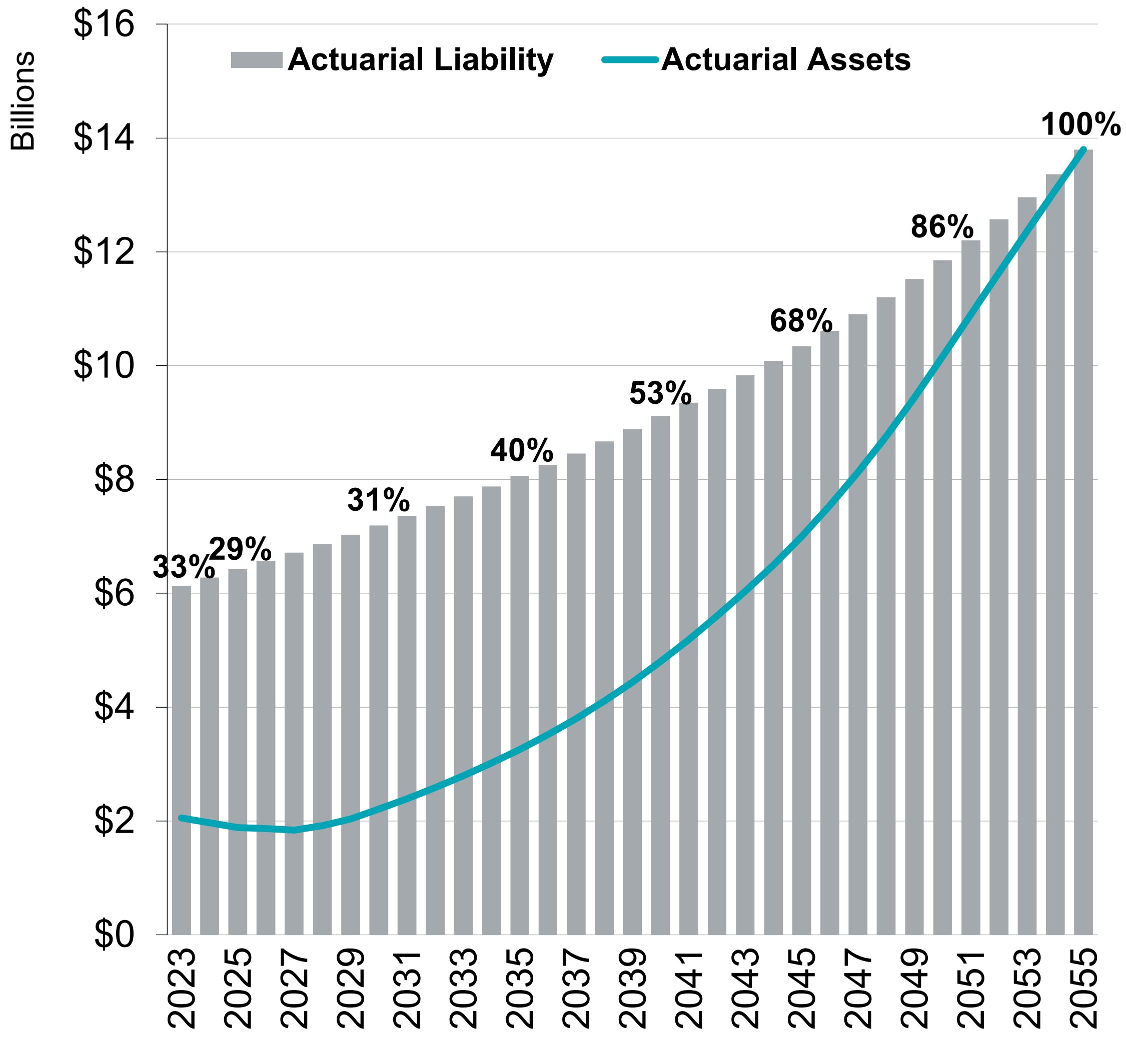
Option 3B – Current Employees Retirement Fund COLA
Purchasing Power Impact

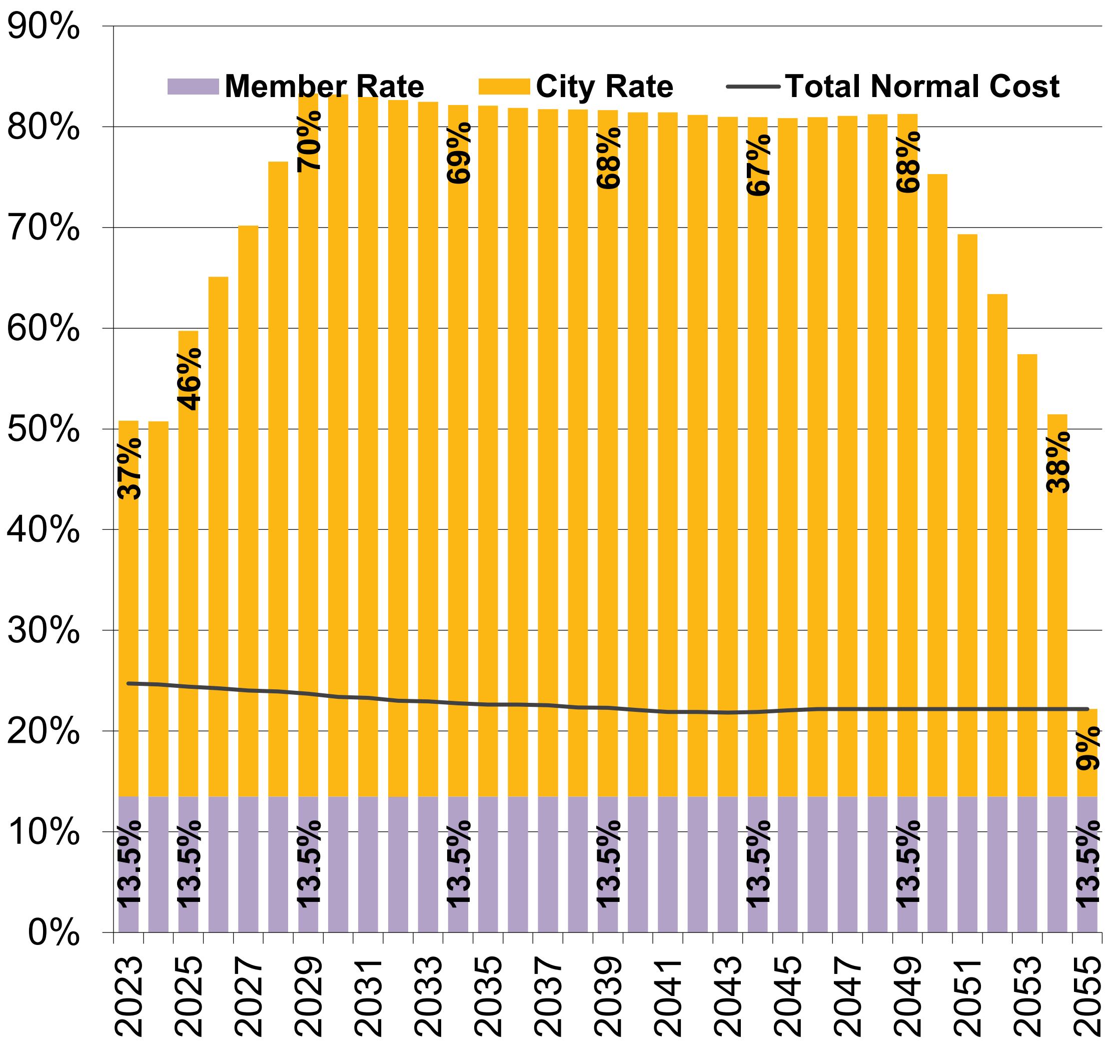
Purchasing Power

Retirement Year	2024	2029	2034	2039	2044	2049	2054
2023	100%	99%	98%	95%	92%	88%	83%
2022	96%	95%	93%	91%	88%	84%	80%
2021	88%	87%	86%	83%	80%	77%	73%
2020	83%	82%	81%	79%	76%	72%	69%
2019	82%	82%	80%	78%	75%	72%	69%
2018	81%	80%	79%	77%	74%	71%	67%
2017	79%	78%	77%	75%	72%	69%	66%
2016	76%	76%	74%	72%	70%	67%	64%
2015	78%	77%	75%	73%	70%	67%	64%
2010	86%	84%	81%	77%	74%	70%	66%
2005	93%	90%	86%	81%	77%	72%	68%
2000	94%	89%	85%	80%	75%	70%	
1995	92%	87%	82%	77%	72%		
1990	90%	84%	79%	73%			
1985	84%	79%	73%				
1980	70%	65%					

- ERF COLA is expected to better maintain retirees purchasing power
  - 2.5% assumed inflation
  - COLA equals CPI up to a maximum of 3.0% (Tier B)
- Retirees' purchasing power declines gradually due to simple COLA vs. compound inflation
- Implementing the ERF COLA for DPFP would increase costs significantly

Option 3B – Current Employees Retirement Fund COLA
With 5-Year Step Up / Step Down ADC





Option 3D – Current COLA with 70% 2024 PP Protection

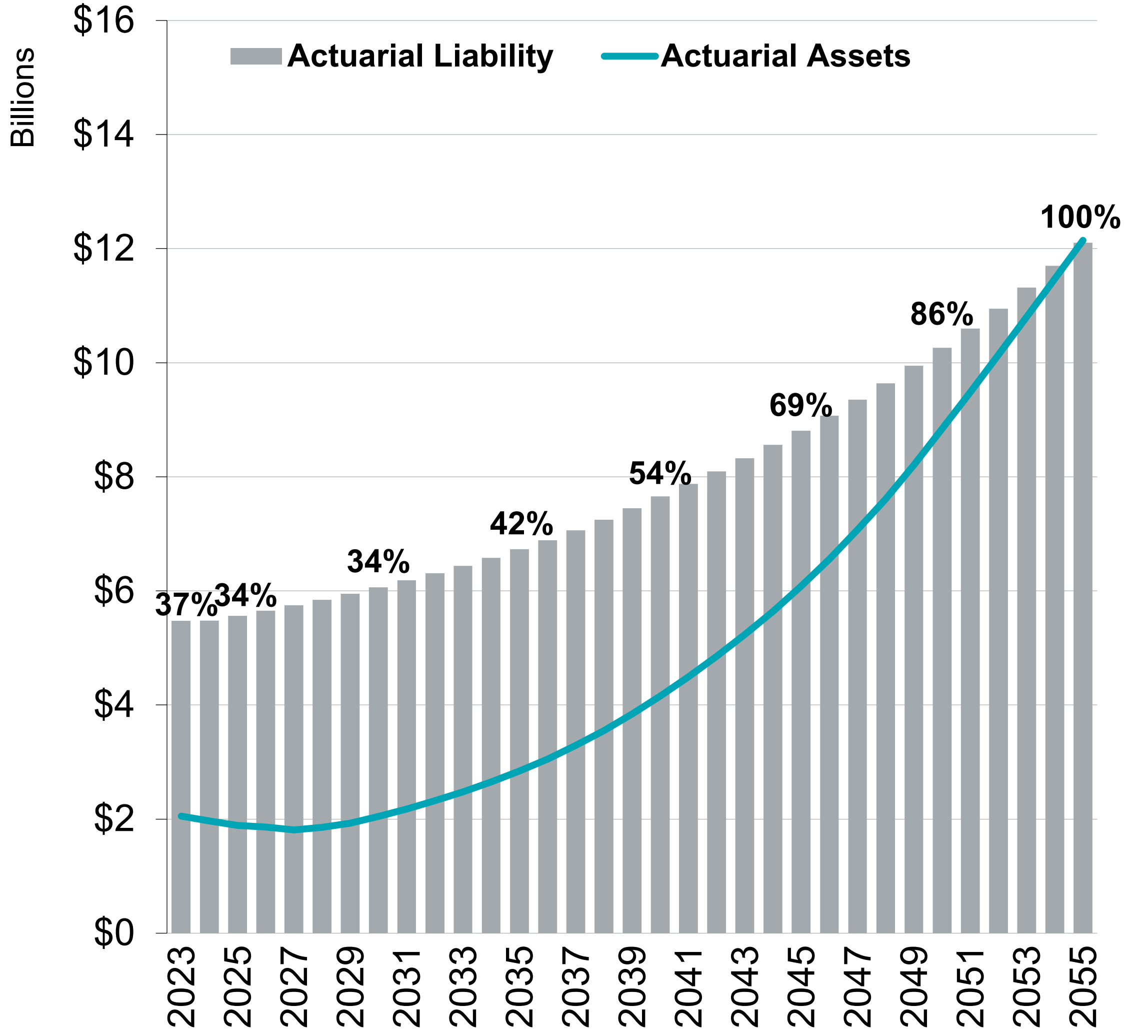
Purchasing Power Impact

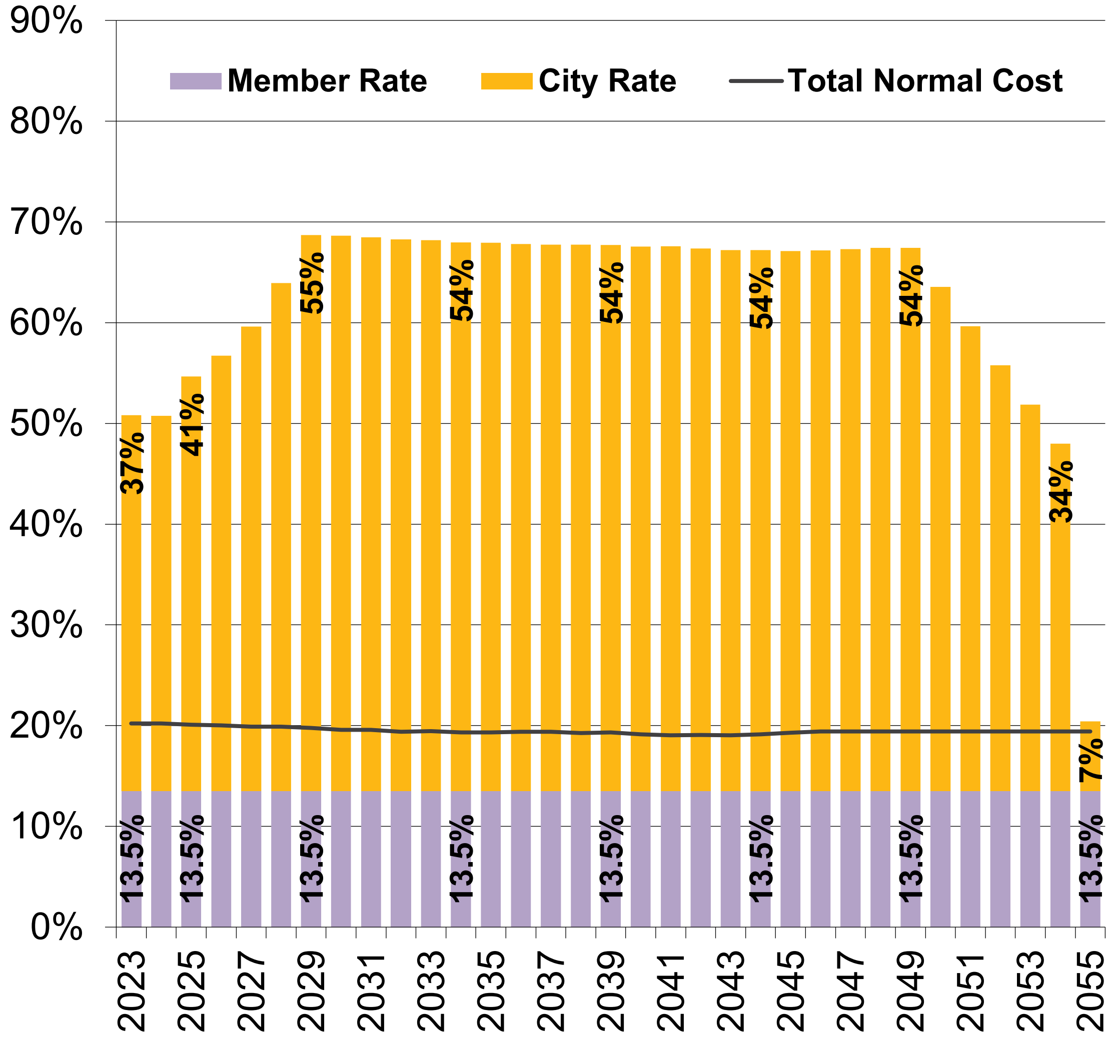
Purchasing Power

Retirement Year	2024	2029	2034	2039	2044	2049	2054
2023	100%	88%	78%	70%	70%	70%	70%
2022	96%	85%	75%	67%	67%	67%	67%
2021	88%	77%	68%	61%	61%	61%	61%
2020	83%	73%	65%	58%	58%	58%	58%
2019	82%	73%	64%	58%	58%	58%	58%
2018	81%	71%	63%	56%	56%	56%	56%
2017	79%	70%	61%	55%	55%	55%	55%
2016	76%	67%	60%	53%	53%	53%	53%
2015	78%	69%	61%	54%	54%	54%	54%
2010	86%	76%	67%	60%	60%	60%	60%
2005	93%	83%	73%	65%	65%	65%	65%
2000	94%	83%	73%	66%	66%	66%	
1995	92%	82%	72%	65%	65%		
1990	90%	79%	70%	63%			
1985	84%	75%	66%				
1980	70%	62%					

- Provides floor to protect retirees' purchasing power from declining too far
  - Floor = 70% of the 2024 purchasing power
  - Purchasing power gradually erodes with inflation until it reaches the floor (~15 years)
  - Thereafter, inflationary COLAs are provided to maintain the floor purchasing power level
- Using 2024 purchasing power as the benchmark
  - Limits costs
  - Does not protect all retiree cohorts at the same level

Option 3D – Current COLA with 70% 2024 PP Protection
With 5-Year Step Up / Step Down ADC





Option 3E – Current COLA with 80% 2024 PP Protection

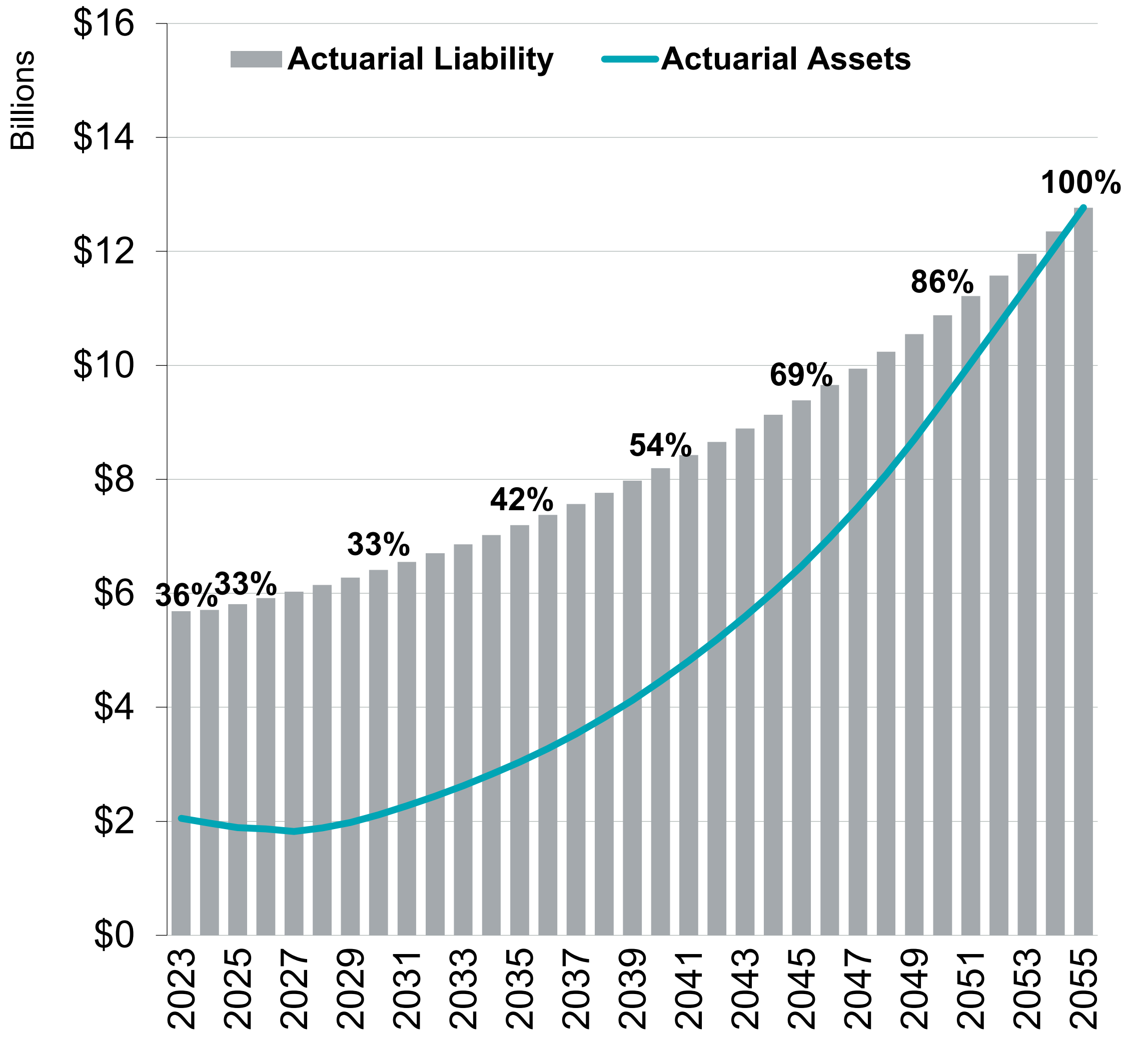
Purchasing Power Impact

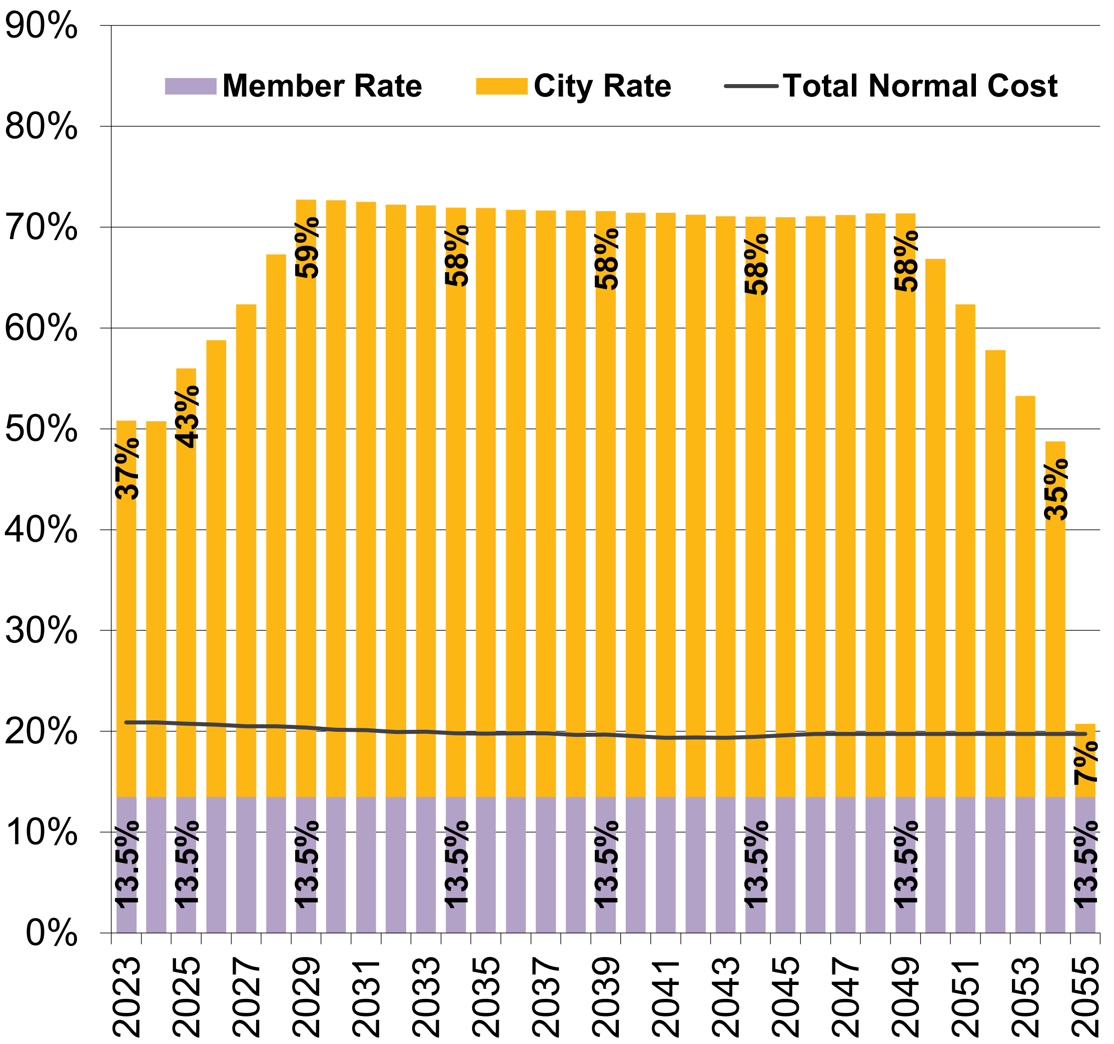
Purchasing Power

Retirement Year	2024	2029	2034	2039	2044	2049	2054
2023	100%	88%	80%	80%	80%	80%	80%
2022	96%	85%	77%	77%	77%	77%	77%
2021	88%	77%	70%	70%	70%	70%	70%
2020	83%	73%	66%	66%	66%	66%	66%
2019	82%	73%	66%	66%	66%	66%	66%
2018	81%	71%	64%	64%	64%	64%	64%
2017	79%	70%	63%	63%	63%	63%	63%
2016	76%	67%	61%	61%	61%	61%	61%
2015	78%	69%	62%	62%	62%	62%	62%
2010	86%	76%	69%	69%	69%	69%	69%
2005	93%	83%	75%	75%	75%	75%	75%
2000	94%	83%	75%	75%	75%	75%	
1995	92%	82%	74%	74%	74%		
1990	90%	79%	72%	72%			
1985	84%	75%	67%				
1980	70%	62%					

- Provides floor to protect retirees' purchasing power from declining too far
  - Floor = 80% of the 2024 purchasing power
  - Purchasing power gradually erodes with inflation until it reaches the floor (~10 years)
  - Thereafter, inflationary COLAs are provided to maintain the floor purchasing power level
- Using 2024 purchasing power as the benchmark
  - Limits costs
  - Does not protect all retiree cohorts at the same level

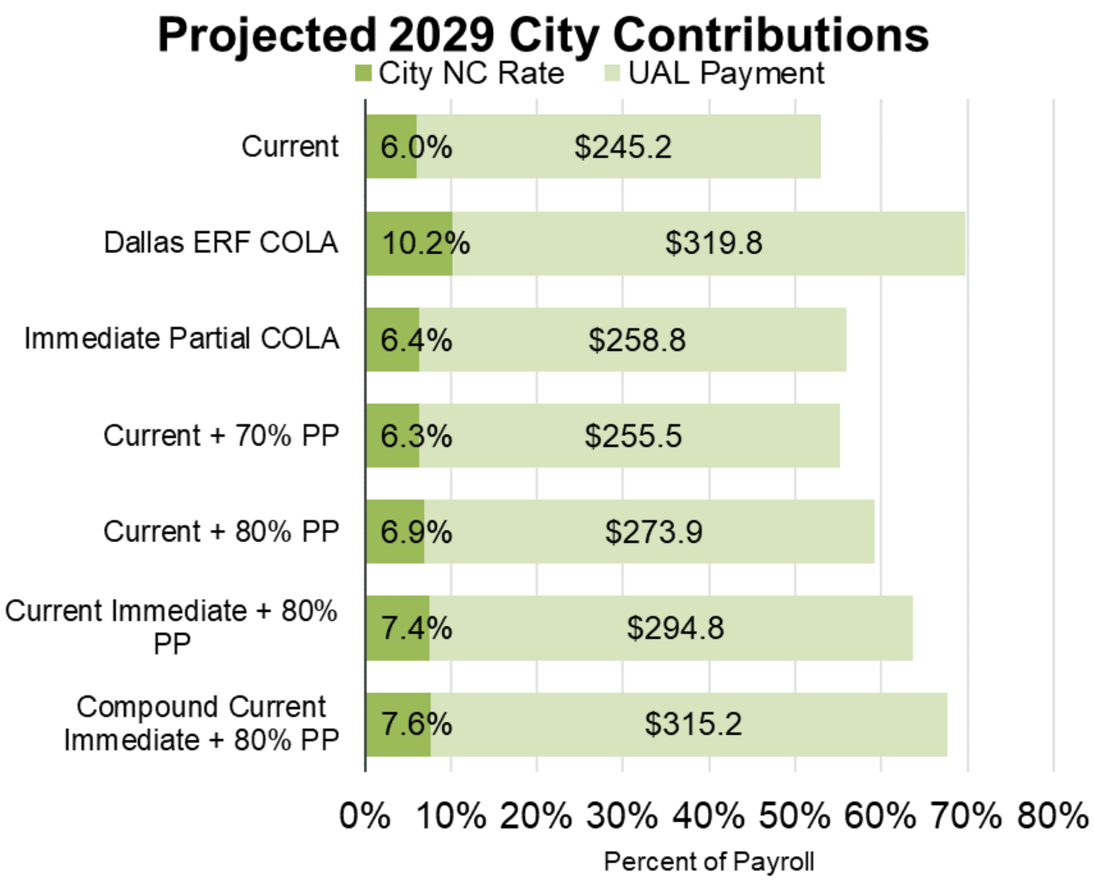
Option 3E – Current COLA with 80% 2024 PP Protection
With 5-Year Step Up / Step Down ADC





Summary of COLA Options

Estimated Cost Impact



Expected Purchasing Power Comparison 2023 Retirees

	Purchasing Power						
COLA Scenario	2024	2029	2034	2039	2044	2049	2054
Current	100%	88%	78%	69%	63%	60%	56%
Dallas ERF COLA	100%	99%	98%	95%	92%	88%	83%
Immediate Partial COLA	100%	89%	81%	74%	69%	64%	60%
Current + 70% PP	100%	88%	78%	70%	70%	70%	70%
Current + 80% PP	100%	88%	80%	80%	80%	80%	80%
Current Immediate + 80% PP	100%	95%	90%	85%	80%	80%	80%
Compound Current Immediate + 80% PP	100%	95%	91%	86%	82%	80%	80%

COLA Scenario	2023 UAL	2023 Funded %
Current	$ 3,244	38.8%
Dallas ERF COLA	$ 4,084	33.5%
Immediate Partial COLA	$ 3,403	37.6%
Current + 70% PP	$ 3,424	37.5%
Current + 80% PP	$ 3,632	36.1%
Current Immediate + 80% PP	$ 3,803	35.1%
Compound Current Immediate + 80% PP	$ 4,020	33.8%

Observations/Rationale for Recommendations

- COLAs are expensive
  - Often first item cut to save costs
- Can Dallas continue to maintain its Police and Fire workforce while offering no COLA for the next 20+ years?
  - Expect significant reduction in purchasing power for retirees
  - No Social Security coverage to provide inflation protection in retirement
  - Remainder of Dallas' workforce receives annual COLAs up to 3.0% (5.0% if hired prior to 2017)
- Rather than waiting and having new COLAs add to plan costs later, we recommend building the costs into the budget plan now
  - Determine COLA provisions needed for the Police and Fire workforce
  - Balance with additional contributions required to pay for COLA
  - Options outlined in presentation provide a spectrum to illustrate the cost/benefit trade-offs, but are not exhaustive of all options available

Primary Recommendations

Adopt an Actuarially Determined Contribution

- Contribution amounts adjust to circumstances
- Always comply with funding guidelines
- Start contributions effective either 10/1/2024 or 1/1/2025 based on 1/1/2023 valuation

Reduce Employee Contribution Rate as Funding Improves

- Current rate is high compared to competitors and as proportion of benefit cost
- As funding improves, grade employee rate down to 50% of normal cost rate

Provide Some COLA Earlier Than Current Provisions Permit

- Members are not covered by Social Security, so they have no inflation protection in retirement
- Lack of COLA is likely to create a recruitment and retention issue

Questions

Certification

The purpose of this presentation is to show the initial independent actuarial analysis providing alternative benefit and contribution scenarios that comply with the requirements of Texas Government Code Section 802 to the Dallas Police and Fire Pension System Board. The initial analysis is based on our replication of the 2023 actuarial valuation performed by Segal.

In preparing our presentation, we relied on information, some oral and some written, supplied by the Dallas Police and Fire Pension System. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. A summary of the data, assumptions, methods, and plan provisions used to prepare our analysis can be found in Segal's 2023 actuarial valuation report supplemented by additional information in the appendix of this presentation.

Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

This presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This presentation was prepared exclusively for the Dallas Police and Fire Pension System Board for the purpose described herein. This presentation is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

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Consulting Actuary

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Consulting Actuary

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Consulting Actuary

Appendix – Basis for Analysis

- The preliminary analysis shown in this presentation is based on the data, assumptions, methods, and plan provisions as summarized in Segal's January 1, 2023 actuarial valuation
- In addition, the following assumptions were used, unless otherwise noted:
  - Investment return for 2023 and thereafter: 6.5%
  - Payroll growth of 2.5% per year
- This analysis would be materially changed if the System receives an adverse result in pending litigation on annual benefit adjustments

Appendix – Models

Cheiron utilizes ProVal actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have a basic understanding of ProVal and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this valuation.

Deterministic projections in this report were developed using *P-Scan*, a proprietary tool used to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the System.

P-Scan uses standard roll-forward techniques that implicitly assume a stable active population. Because *P-Scan* does not automatically capture how changes in one variable affect all other variables, some scenarios may not be consistent.

Appendix – 2023 Valuation Replication

Present Value of Benefits

	Segal	Cheiron	Percent Difference
Actives			
Hired Before 3/1/2011	$ 1,847	$ 1,854	0.4%
Hired On/After 3/1/2011	643	656	2.0%
Retirees & Beneficiaries	3,566	3,564	-0.1%
Inactive Members	31	31	0.0%
Total	$ 6,088	$ 6,105	0.3%

Actuarial Liability

	Segal	Cheiron	Percent Difference
Actives			
Hired Before 3/1/2011	$ 1,454	$ 1,453	-0.1%
Hired On/After 3/1/2011	198	196	-1.0%
Retirees & Beneficiaries	3,566	3,564	-0.1%
Inactive Members	31	31	0.0%
Total	$ 5,249	$ 5,244	-0.1%

Amounts in Millions

Normal Cost

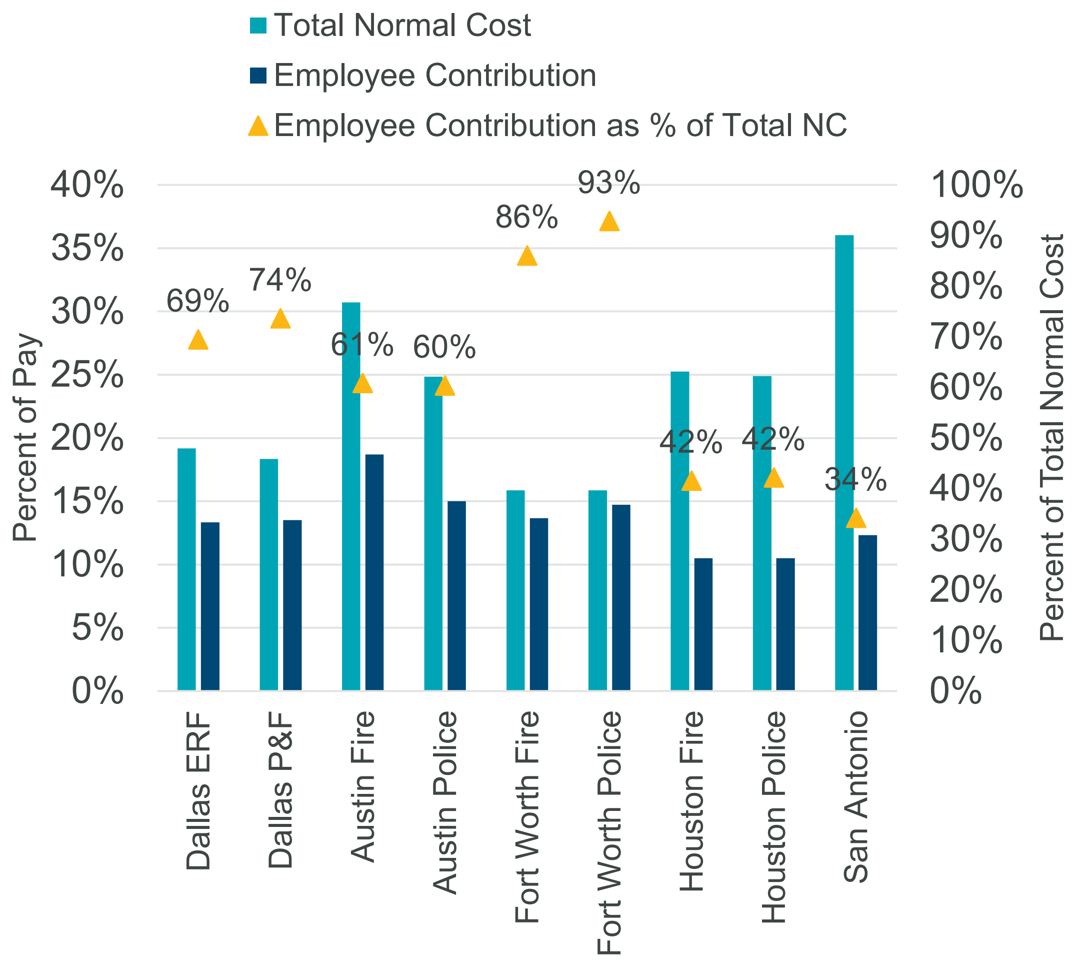
	Segal	Cheiron	Percent Difference
Hired Before 3/1/2011	$ 49.7	$ 50.9	2.3%
Hired On/After 3/1/2011	33.9	33.2	-2.0%
Total Normal Cost	$ 83.7	$ 84.1	0.6%
Total Normal Cost with interest to reflect mid-year contribution timing	$ 86.3	$ 86.8	0.6%
Payroll	$ 462.8	$ 462.8	0.0%
Normal Cost Rate			
Hired Before 3/1/2011	19.7%	20.2%	0.5%
Hired On/After 3/1/2011	17.3%	16.9%	-0.4%
Total Normal Cost Rate	18.7%	18.8%	0.1%

Amounts in Millions

Appendix - Employee Contribution Rates (Most Recent Tiers)

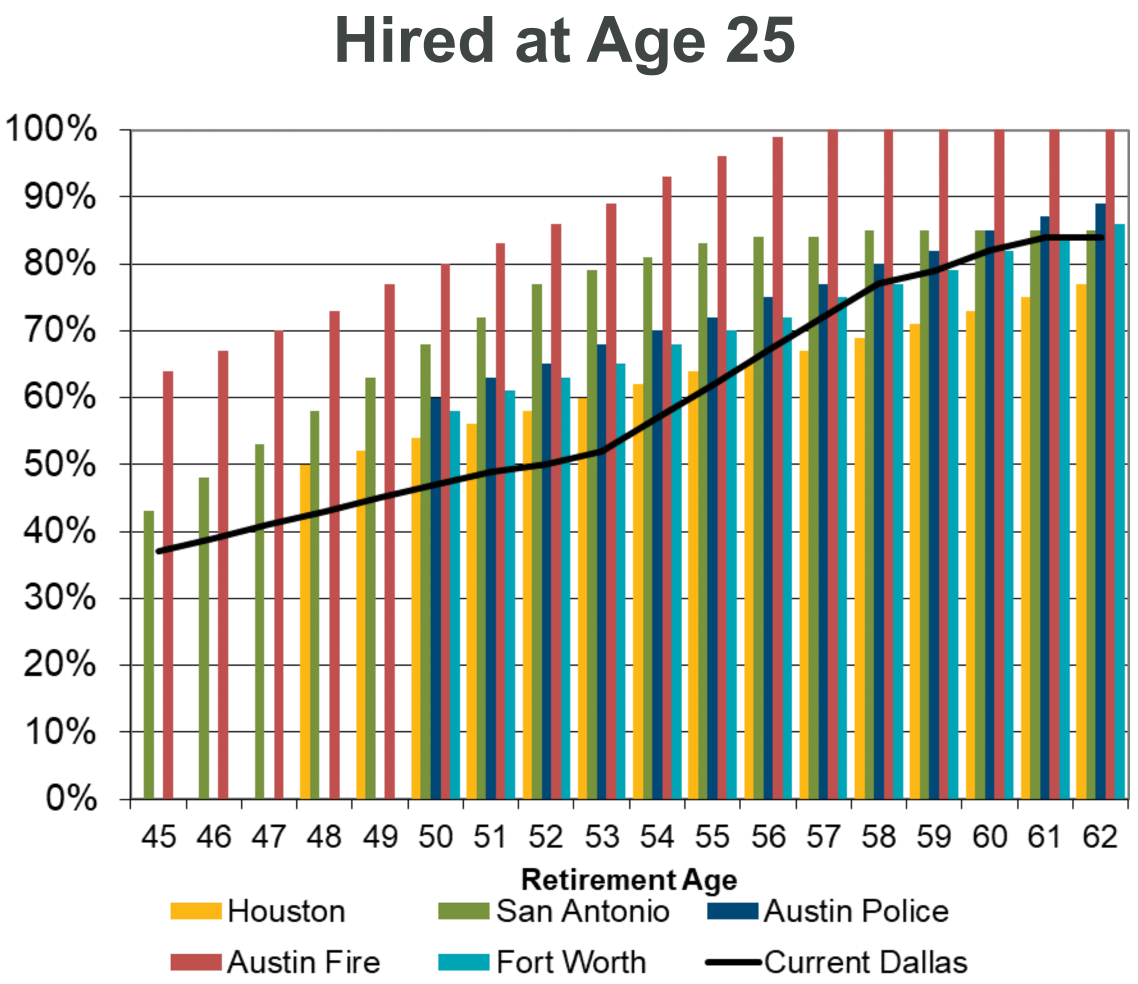
- Current DPFP employee contribution rate is over 70% of the total normal cost
  - Even higher percentage for new employees
  - Highest portion of normal cost in comparison group except for Fort Worth
  - Average of group is about 60%
    - Reflecting current temporary increases due to funded status for some Systems
- Hard to reduce employee contributions until better funded
  - DPFP employee rate reduces to 50% of total normal cost once 100%+ funded
- Consider setting the employee contribution rate equal to 50% of total normal cost plus an additional amount based on funded ratio
  - Current rate remains the same
  - As funding improves, employee contribution rate would gradually decline

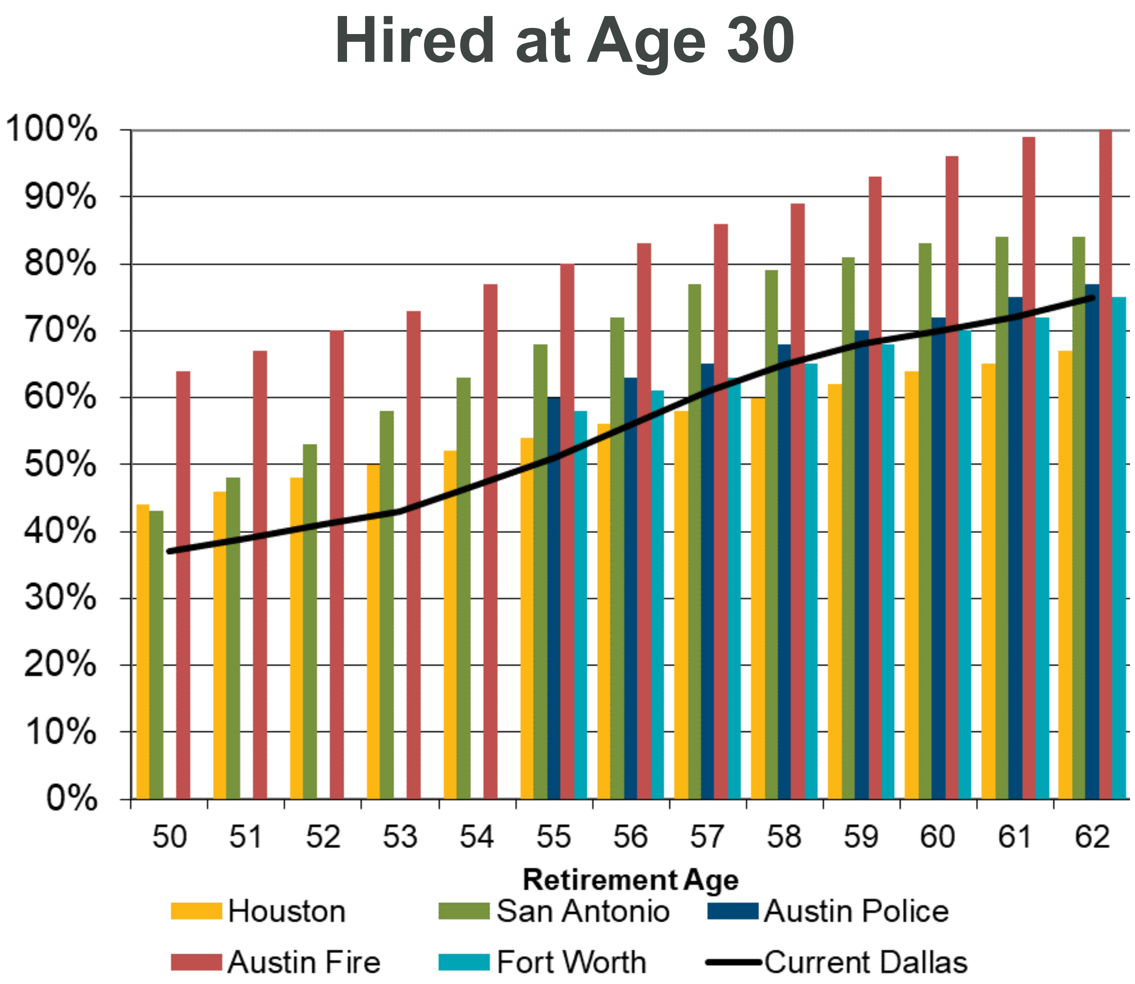
Employee Contributions vs. Normal Cost



Fort Worth valuation doesn't report total normal cost for Police and Fire separate from general employees, but benefits are similar.

Appendix - Income Replacement Ratios* – Most Recent Safety Tiers

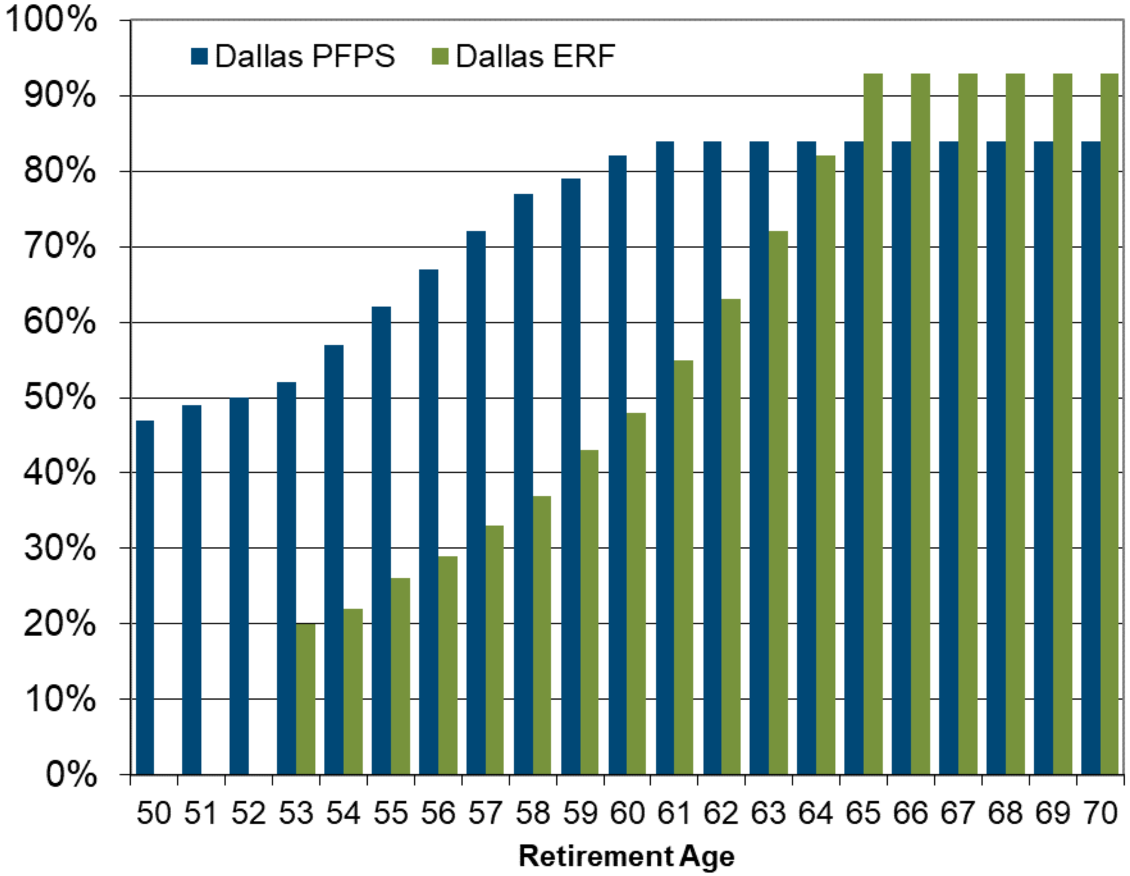




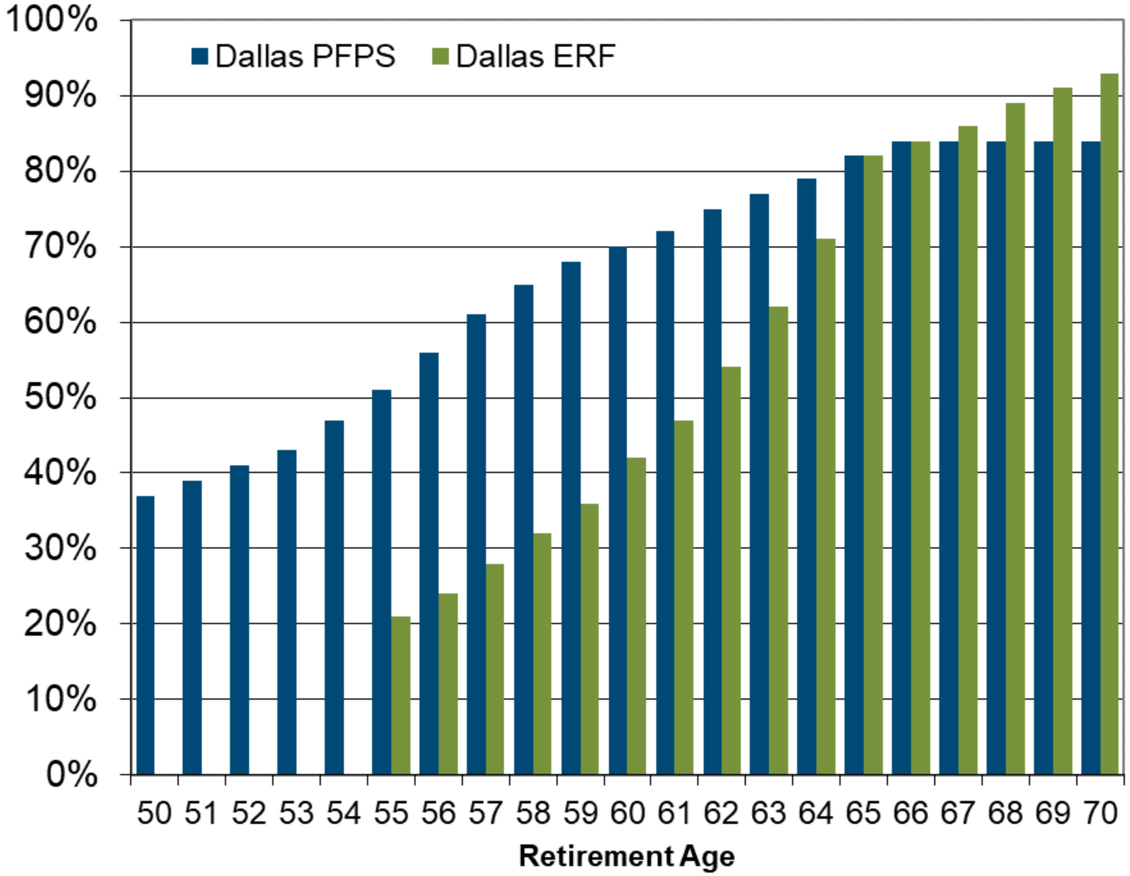
Fort Worth Police can retire after 25 years of service, but Fire must satisfy the Rule of 80

**Income replacement ratios are at retirement and do not reflect COLAs after retirement*

Hired at Age 25



Hired at Age 30



**Income replacement ratios are at retirement and do not reflect COLAs after retirement*

Appendix - Other System COLAs – Most Recent Tier

- Dallas Employees' Retirement Fund
  - Simple CPI up to 3.0%
- Austin
  - Police – no COLAs permissible unless statutes amended by Legislature
  - Fire – ad hoc COLAs based on affordability under Board's COLA policy
- Ft. Worth – no COLA permissible without Legislative action
- Houston
  - Five-year average return minus 4.75%/5.00% (Fire/Police)
    - Minimum = 0.0%
    - Maximum = 4.0%
  - No funded ratio requirement
- San Antonio Fire & Police
  - 75% of CPI
  - Possible additional payments
    - 13th check if five-year average return exceeds assumption by at least 100 basis points
    - 14th check if five-year average return exceeds assumption by at least 300 basis points

Appendix – Recommended UAL Payment Structure

Structure and Initial Layers

- Layered amortizations with 2.5% rate of annual payment increases
  - Separate amortization layer for each year of experience, assumption changes, and plan changes
- Start with two initial layers that add up to the full UAL
  - 30-year base layer approximating the current UAL payment
  - Layer that steps into the full contribution over as short of a period as financially possible and steps back down at the end of 30 years

Future Amortization Layers

- Experience and assumption changes = Maximum of 20 years or remaining period on base layer
  - Prevents any gains from being amortized faster than the base layer
  - Transitions to 20-year layered amortization
- Plan changes
  - Active employees = Average future service of those affected by change or 15 years
  - Retirees = Average remaining lifetime of those affected by change or 10 years
- Lump sum contributions
  - In first four years, first reduce or eliminate any remaining graded increases
  - After four years or after future graded increases have been eliminated, reduce the base layer

Additional COLA Options

Option 3C – Immediate Partial COLA
Purchasing Power Impact

Purchasing Power

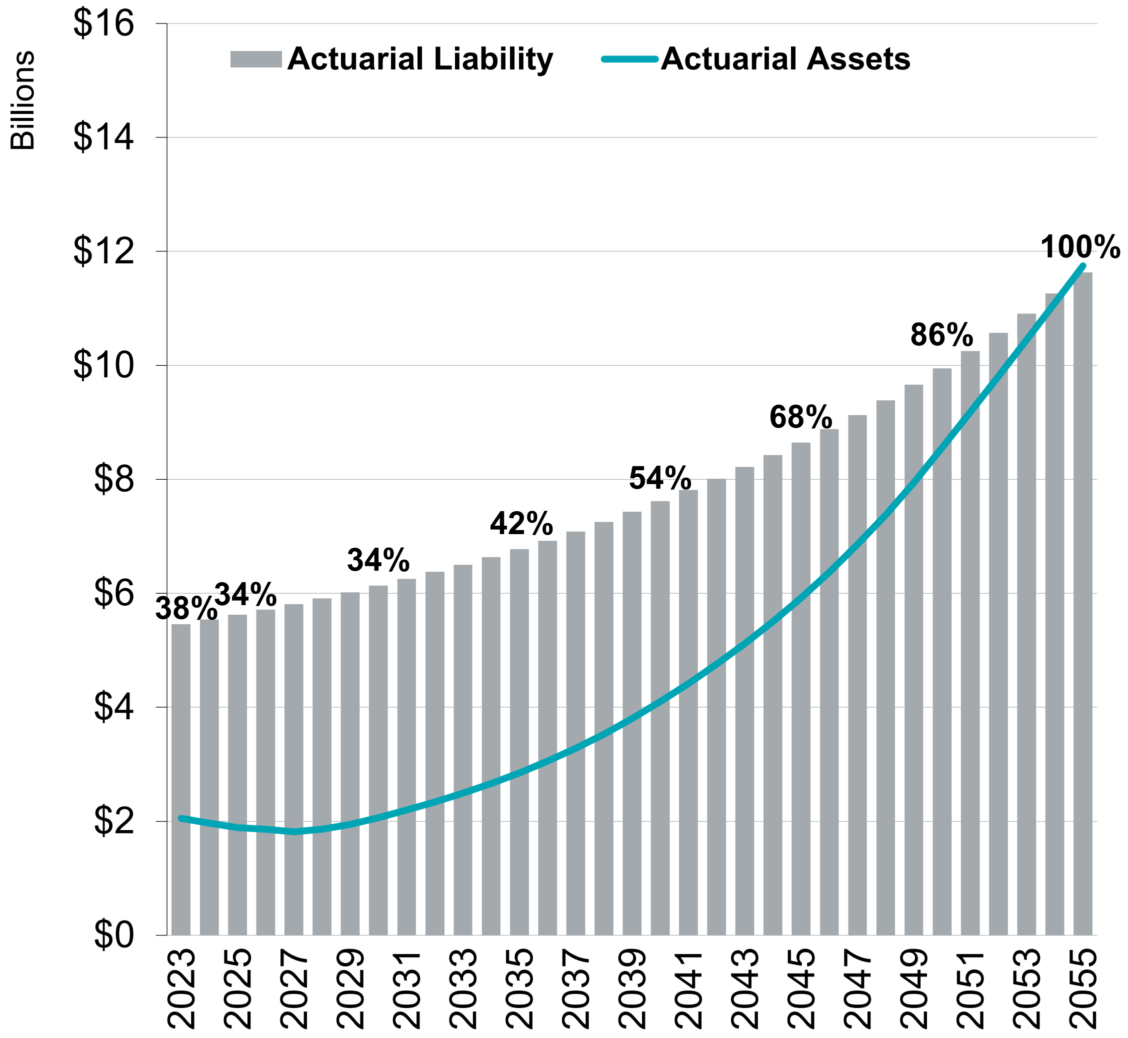
Retirement Year	2024	2029	2034	2039	2044	2049	2054
2023	100%	89%	81%	74%	69%	64%	60%
2022	96%	85%	77%	71%	66%	61%	58%
2021	88%	78%	71%	65%	60%	56%	53%
2020	83%	73%	67%	61%	57%	53%	50%
2019	82%	73%	67%	61%	56%	53%	50%
2018	81%	72%	65%	60%	55%	52%	48%
2017	79%	70%	64%	58%	54%	50%	47%
2016	76%	68%	62%	57%	52%	49%	46%
2015	78%	69%	63%	57%	53%	49%	46%
2010	86%	76%	69%	63%	58%	53%	50%
2005	93%	83%	75%	68%	62%	57%	53%
2000	94%	83%	75%	68%	62%	57%	
1995	92%	82%	73%	66%	60%		
1990	90%	79%	71%	64%			
1985	84%	75%	67%				
1980	70%	62%					

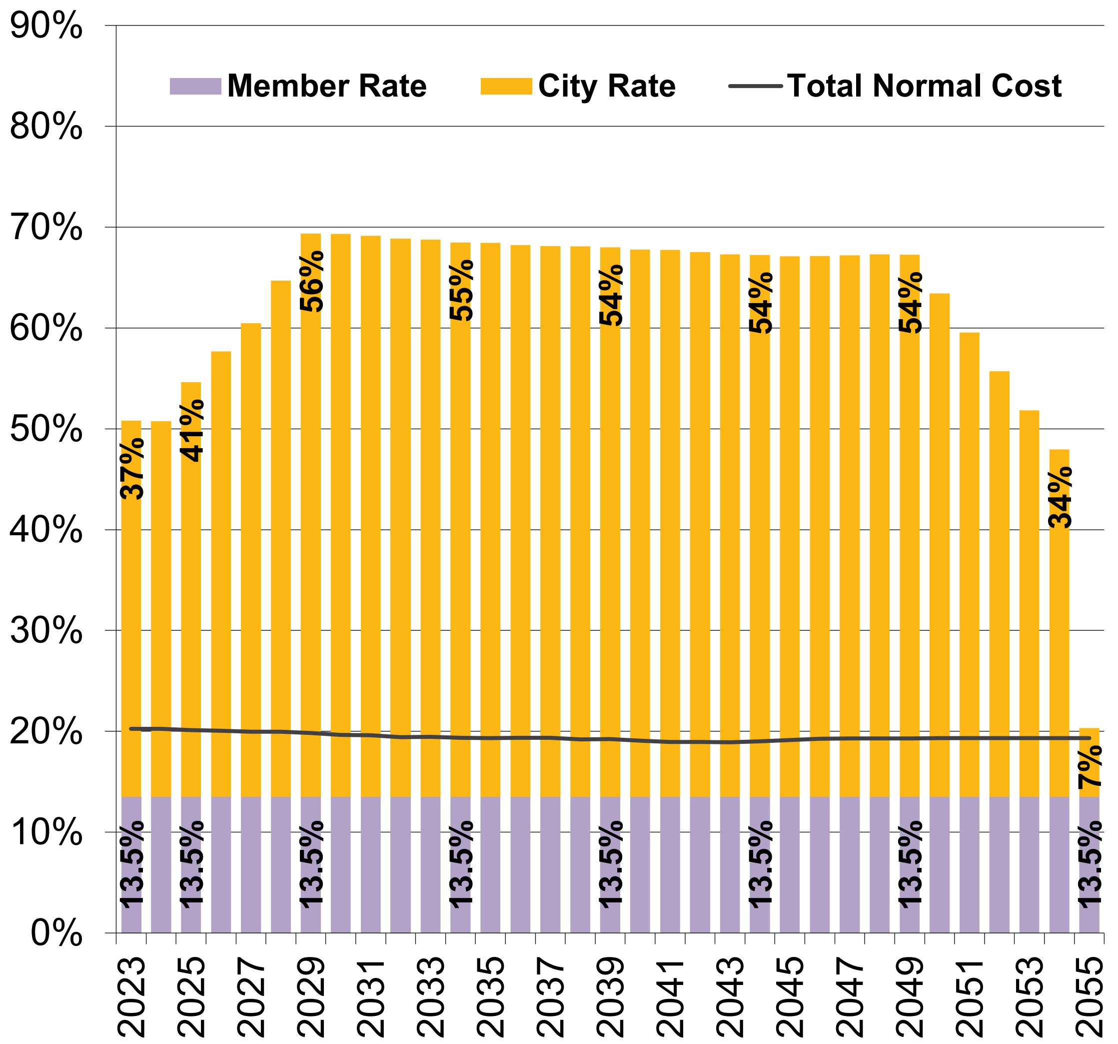
- Partial COLA provides some minor improvement in purchasing power over the next 20 years
- Partial COLA Formula =

  (5-Year Ave Return – 5.0%) x Funded Percentage

  Maximum = 4.0%
- Expected COLA is still substantially lower than assumed inflation

Option 3C – Immediate Partial COLA
With 5-Year Step Up / Step Down ADC





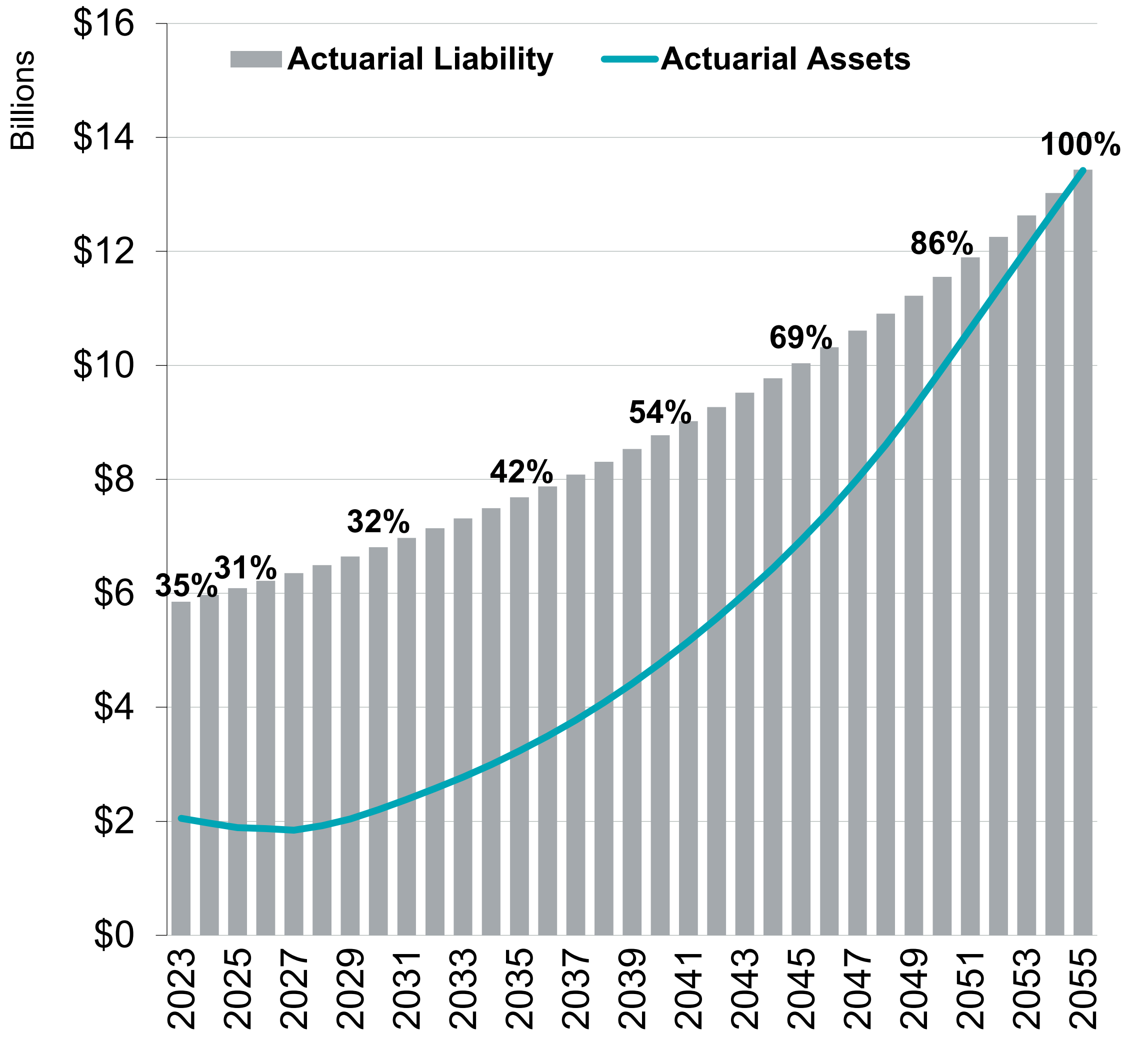
Option 3F – Current COLA, No Funded Status Restriction, and 80% 2024 PP Protection – Purchasing Power Impact

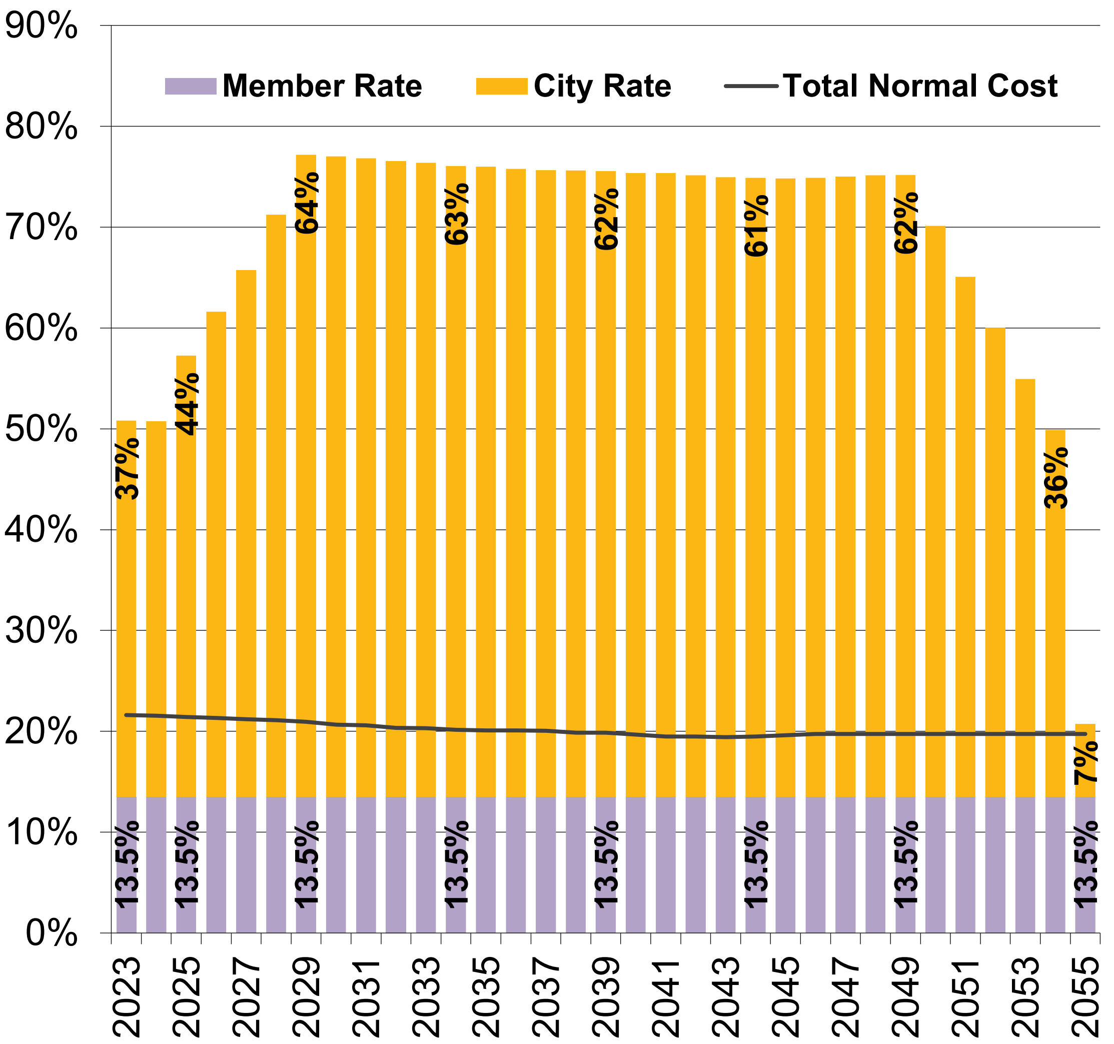
Purchasing Power

Retirement Year	**2024**	**2029**	**2034**	**2039**	**2044**	**2049**	**2054**
2023	100%	95%	90%	85%	80%	80%	80%
2022	96%	91%	86%	81%	77%	77%	77%
2021	88%	83%	79%	74%	70%	70%	70%
2020	83%	79%	74%	70%	66%	66%	66%
2019	82%	78%	74%	70%	66%	66%	66%
2018	81%	77%	72%	68%	64%	64%	64%
2017	79%	75%	71%	67%	63%	63%	63%
2016	76%	72%	69%	65%	61%	61%	61%
2015	78%	74%	69%	65%	62%	62%	62%
2010	86%	81%	75%	70%	69%	69%	69%
2005	93%	87%	81%	75%	75%	75%	75%
2000	94%	87%	80%	75%	75%	75%	
1995	92%	85%	78%	74%	74%		
1990	90%	82%	75%	72%			
1985	84%	77%	70%				
1980	70%	64%					

- Removing funded status restriction provides an expected 1.5% simple COLA immediately
- Investment return based COLA is combined with purchasing power floor to protect retirees from losing too much purchasing power
- Years until purchasing power floor
  - No immediate COLA = ~10 years
  - Immediate 1.5% simple COLA = ~20 years

Option 3F – Current COLA, No Funded Status Restriction, and 80% Purchasing Power Protection With 5-Year Step Up / Step Down ADC





Option 3G – Compound Current COLA, No Funded Status Restriction, and 80% 2024 PP Protection – Purchasing Power Impact

Purchasing Power

Retirement Year	2024	2029	2034	2039	2044	2049	2054
2023	100%	95%	91%	86%	82%	80%	80%
2022	96%	91%	87%	83%	79%	77%	77%
2021	88%	83%	79%	76%	72%	70%	70%
2020	83%	79%	75%	71%	68%	66%	66%
2019	82%	78%	75%	71%	68%	66%	66%
2018	81%	77%	73%	70%	66%	64%	64%
2017	79%	75%	71%	68%	65%	63%	63%
2016	76%	73%	69%	66%	63%	61%	61%
2015	78%	74%	70%	67%	64%	62%	62%
2010	86%	82%	78%	74%	71%	69%	69%
2005	93%	89%	85%	81%	77%	75%	75%
2000	94%	90%	85%	81%	77%	75%	
1995	92%	88%	84%	80%	76%		
1990	90%	85%	81%	77%			
1985	84%	80%	76%				
1980	70%	67%					

- Changes Option 3F COLA from simple to compound
- Years until purchasing power floor
  - No immediate COLA = ~10 years
  - Immediate 1.5% simple COLA = ~20 years
  - Immediate 1.5% compound COLA = ~25 years

Option 3G – Compound Current COLA, No Funded Status Restriction and 80% 2024 PP Protection With 5-Year Step Up / Step Down ADC