



## MEMORANDUM

TO: Mayor and City Council  
FROM: Tom Crawford, Interim City Administrator  
DATE: March 19, 2020  
SUBJECT: Response to Resolution R-19-314 – Aon Consulting, Inc. for Advisory Services Related to De-Risking City's Pension System

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This memorandum is provided in response to approved Council Resolution [R-19-314](#) – Resolution to Approve an Agreement with Aon Consulting, Inc. for Advisory Services Related to De-Risking the City's Pension System (\$38,500.00) (8 Votes Required). Aon Consulting was engaged as a consultant to evaluate the feasibility and cost for the City to purchase an annuity to pay its pension benefits. The purchase of an annuity would in essence sell the City's pension liability to a third party (anticipated to be an insurance company) thereby eliminating the volatility of future City contributions related to fluctuations in financial markets. Additionally, the City requested other alternatives it could explore to eliminate the City's financial exposure for all or a portion of the plan members.

The attached report was completed prior to the recent increase in financial volatility related to COVID-19. The report indicates there would be a significant increase in required city contributions in order to purchase an annuity. It considers some alternatives to reduce this cost by borrowing funds at existing low rates and assuming investment returns greater than borrowing costs. In addition, it noted that the city has already implemented a number of strategies to reduce its risk, but it has not changed its criteria for retirement eligibility.

Attachments: Aon Final Pension De-Risking Discussion

cc: J Fournier  
S Higgins  
M Horning



# Final Pension De-Risking Discussion

## City of Ann Arbor

January 28, 2020

Prepared by Aon  
Proprietary & Confidential

**AON**  
Empower Results®

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## Pension De-Risking



# Executive Summary

## Background and Purpose

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Aon was notified in late-May that it was selected as the winning firm for the City of Ann Arbor (“City”) RFP Number 19-09 to assist the City with the evaluation and execution of an annuity purchase and other de-risking options.

The contract was finalized on July 29, 2019 with Aon agreeing to conduct the project in two, potentially three, phases:

- Phase 1 focuses on identifying the target group of pensioners for annuitization, evaluating long-term financial impact using estimated annuity purchase rates and identifying alternative sources of funding.
- Phase 2 is focused on developing and delivering a RFP to the insurance market to gauge their interest and potential pricing for this transaction.
- Optional: Project Phase 3 is the Fiduciary implementation phase of the project, including insurer negotiations and selection. While this was not specifically requested in the RFP, it will be the natural next step if the City decides to move forward after Phase 2. The third and final phase is contingent upon the results of the first two phases and you selecting us to execute your transaction

This document summarizes our methodology, findings and conclusions for Phase 1 and is intended for the exclusive use of Ann Arbor’s review of the associated issues, and its use may not be appropriate for other purposes.

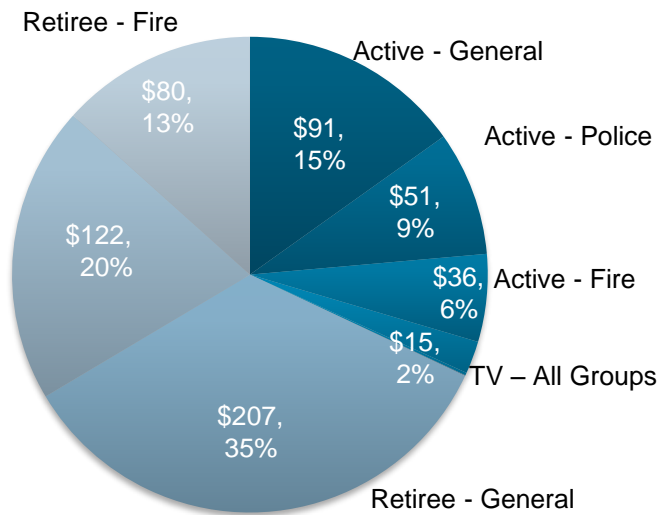
This material includes a summary of possible settlement and de-risking alternations for City of Ann Arbor’s pension plan. Our estimates were prepared using streamlined calculation techniques and are intended to provide an “order of magnitude” indication of the impact of the changes contemplated.

# Introduction

The City is exploring the possibility of transferring some or all of its pension liabilities through a group annuity contract from an insurance company.

- Transferring liabilities would eliminate administrative and financial responsibility for transferred participants, and reduce the volatility of required annual contributions.
- The retiree liability accounts for over 2/3<sup>rd</sup> of the City’s total liability and would be the easiest group to settle.

**Allocation of Actuarial Accrued Liability  
“AAL” (\$M)**



AAL (\$M)	Active	TV	Retiree
General	\$91	\$13	\$207
Police	51	1	122
Fire	36	1	80
<b>Total \$</b>	<b>\$178</b>	<b>\$15</b>	<b>\$409</b>
<b>Total %</b>	<b>30%</b>	<b>2%</b>	<b>68%</b>
Ease to Settle	Difficult	Easier	Easiest

# Annuity Purchase – Basic Math

The City purchases annuities to transfer obligations and future administration and risk to an insurance company in exchange for a single premium group annuity contract

Annuity purchase costs are based on an open marketplace with insurers bidding competitively:

- Insurers typically price liabilities in-line with investment-grade corporate bond yields with current retiree annuity pricing based on effective discount rates of ~2.5%.
- This results in a significant premium to the City's ongoing liabilities that are determined at a 7.0% discount rate.
- This results in an average premium of 155% across benefit groups (i.e., it cost the City \$1.55 to purchase annuities for \$1.00 dollar of liability settled).

## City

Pays a premium to cover annuities for retirees at a 2.5% discount rate. City's obligation is reduced by liabilities at a 7% discount rate.

Retiree Group	Annuity Cost	Liability Reduction
General	\$327M	\$207M
Police	\$205M	\$122M
Fire	\$129M	\$80M

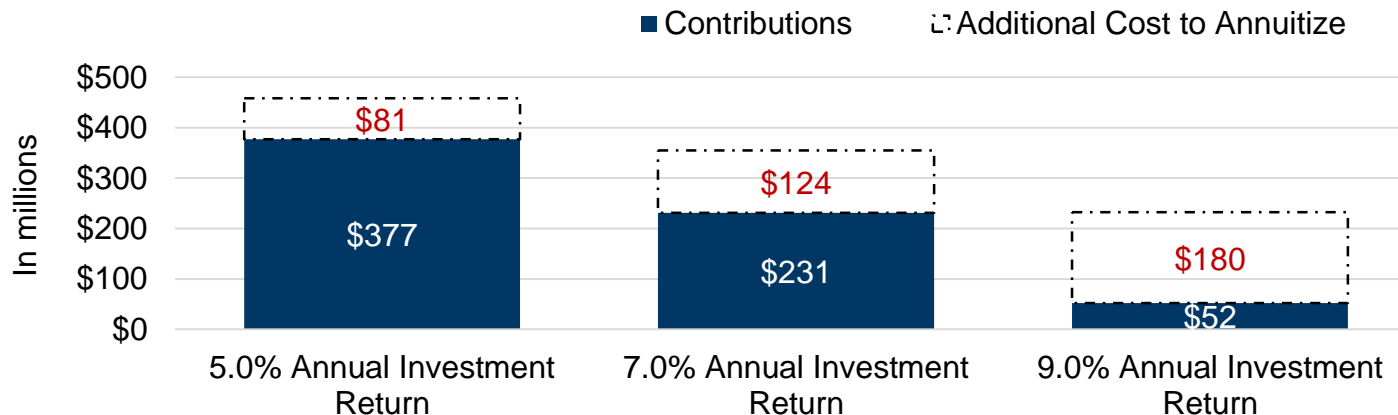
## Insurer

Assumes ongoing monthly payments for all retirees. Risks (investment, longevity, etc.) and administrative requirements are transferred to insurer.

## Annuity Purchase – Financial Impact

The following table shows the present value of the City’s contributions over the next 30 years under various annual investment return scenarios if annuities are purchased for \$200 million of retiree liability.

- The ultimate cost of purchasing annuities, or “Lift-out”, also depends on the annual investment return of the pension plan.
- If the City purchases annuities and the plan earns significantly less than the assumed rate of return (currently 7.0%), then the City would receive some benefit by shifting the liability out of the pension plan and onto the insurer. The converse applies if the plan earns more than the assumed rate of return and the City purchases annuities.



Contributions = Present value of annual contributions plus Unfunded/Overfunded at the end of 30 years (if applicable); discounted at 7.0%.

- The City pays about \$125 million, or about 55%, more over the next 30 years by purchasing annuities if all assumptions are met (i.e., 7.0% annual investment return).
- However, the City would only pay about \$80 million, or about 20%, more over the next 30 years by purchasing annuities if the annual investment return is 5.0% (2.0% less than assumed).



# Borrowing-to-Fund Combined with an Annuity Purchase

As requested in the scope of the project, Aon analyzed the impact of alternative funding sources, including a borrowing-to-fund approach.

- Issuing debt to fund the pension plan can lower cost, but has risk and must be carefully considered.
- The typical risk inherent in borrowing-to-fund approach are mitigated if the funds are immediately used to purchase annuities.
- The following graph shows the financial impact of borrowing to fund an annuity purchase for the General retirees:

Annual Investment Rate of Return	Cost* (in millions)			
	(A)	(B)	(C)	(D)
	Baseline	Retiree Lift Out	Retiree Lift Out and Borrow-to-Fund	Retiree Lift Out, Borrow-to-Fund, and Increase EROA
5.0%	\$377	\$458	\$402	\$332
7.0%	\$231	\$355	\$255	\$209
9.0%	\$52	\$232	\$34	\$48

- The savings from the POB are based on the actual annual investment rate of return.
- In Column (D), the City is able to transfer approximately \$200M in liabilities and reduce both estimated contributions and the volatility of contributions by funding an annuity purchase with a combination of the existing bonds in the plan and borrowing-to-fund via a POB

\* Cost = Present value of annual contributions plus Unfunded/Overfunded at the end of 30 years (if applicable); discounted at 7.0%.

# Key Findings

The following are key findings from this phase of the study:

## Annuity costs are based on market interest rates

- Insurers price using 2.5% discount rate vs. 7.0% discount rate for plan
- Results in about 55% premium over current plan cost if all assumptions are met
- City pays \$1.55 for every \$1.00 of liability settled

## Purchasing annuities increases expected costs but reduces risk

- Reducing the size of the liability reduces contribution volatility
- The increase in cost, or premium, to purchase annuities declines from about 55% to about 10% if the plan earns less than the assumed rate of return
- The annuity cost premium would be lower if the City waited until market interest rates were higher and at less of a gap from the plan's 7% discount rate



## Combining annuity purchase with borrowing-to-fund can result in similar or lower cost as current arrangement

- Borrowing at 3.25% after-tax rate
- Results in savings relative to a standalone annuity purchase
- A combination of funding the annuity with the Plan's current bonds plus borrowing can result in expected costs that are lower than the current arrangement

## Other De-risking Opportunities

- One-time Lump Sum Window
  - Terminated Vested liability only 2% of plan liability. Retiree liability 68% of plan liability
  - Flexibility to select the interest rate and life expectancy assumptions used to calculate the lump sum
- Retiree Medical Plan Design: EGWP or HRA/Private Exchange may present cost savings and risk reduction opportunities

# Pension Settlement Objectives: Ranking The City's Objectives



## Financial impact

- Level of cost
- Magnitude
- Cash funding
- Funded status
- GASB expense



## Participant impact and public perception

- Payer and protection
- Lifetime income
- Familiarity
- Participant reaction
- Public perception



## Execution

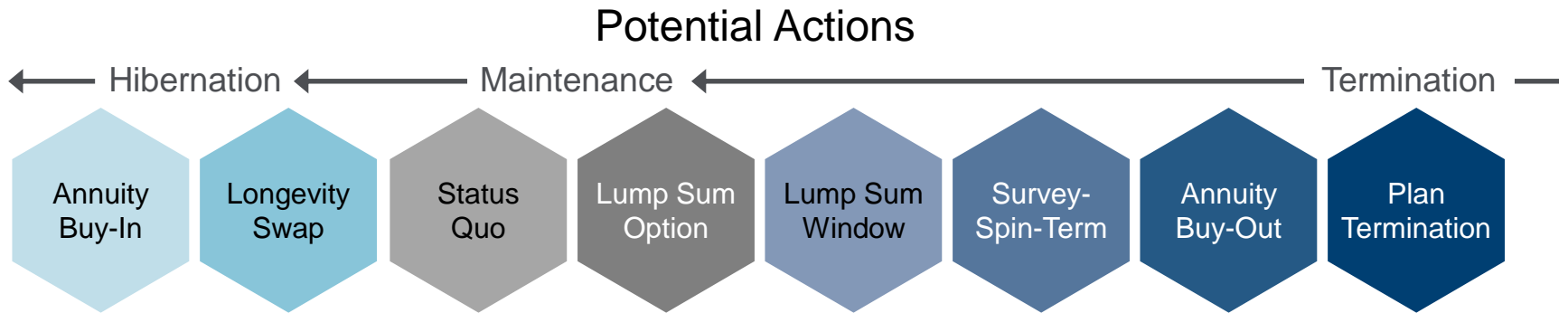
- Data quality/Staffing
- Labor Contracts
- Legal Review
- Timing
- Fiduciary duty
- Communication

**Which objectives are of greatest concern?**

# Potential Pension Settlement Approaches: High-Level Pros & Cons

Impact to City:	Annuity Lift out	Annuity Lift out + Borrowing	Annuity Lift out + Borrowing + Increased Expected Return	Retiree Lump Sum Window
Reduces Expected Future Costs	Significant Increase in Expected Cost	Moderate Increase in Expected Cost	Reduces Expected Costs	Can be designed to be cost neutral or savings
Reduces Ongoing Investment Risk	Yes	Moderately	Moderately	Yes
Provides Benefit Security to Retirees	Yes	Yes	Yes	No
Level of Complexity	Medium	High	High	Medium
Potential Difficulty Implementing	Medium	High	High	Medium
Public Perception	?	?	?	?

# Pension Liability Settlement Spectrum



## Reasons to maintain obligations\*

- Avoid any potential upfront cash outlay
- Do not want to pay annuity premium that is calculated at a lower discount rate than the liability discount rate (7%)
- Wait for more favorable economic environment, notably interest rate levels
- Pension data needs cleaning
- Cannot dedicate resources to settlement projects
- Avoid potential negative press
- Minimal leakage from retirement system

\*These are general considerations and are not specific to Ann Arbor

## Reasons to settle obligations\*

- Remove the associated obligation from balance sheet
- Reduce volatility of pension costs
- Streamline benefit operations and administrative requirements
- Eliminate or reduce regulatory risk
- Relieve City of many compliance and fiduciary responsibilities with pension plan



# Retiree Annuity Purchase

# Retiree Annuity Buy-Out—Background

## What is it?

Purchase annuities to cover the benefits due to all former participants currently in pay status and their beneficiary, if applicable

## Advantages

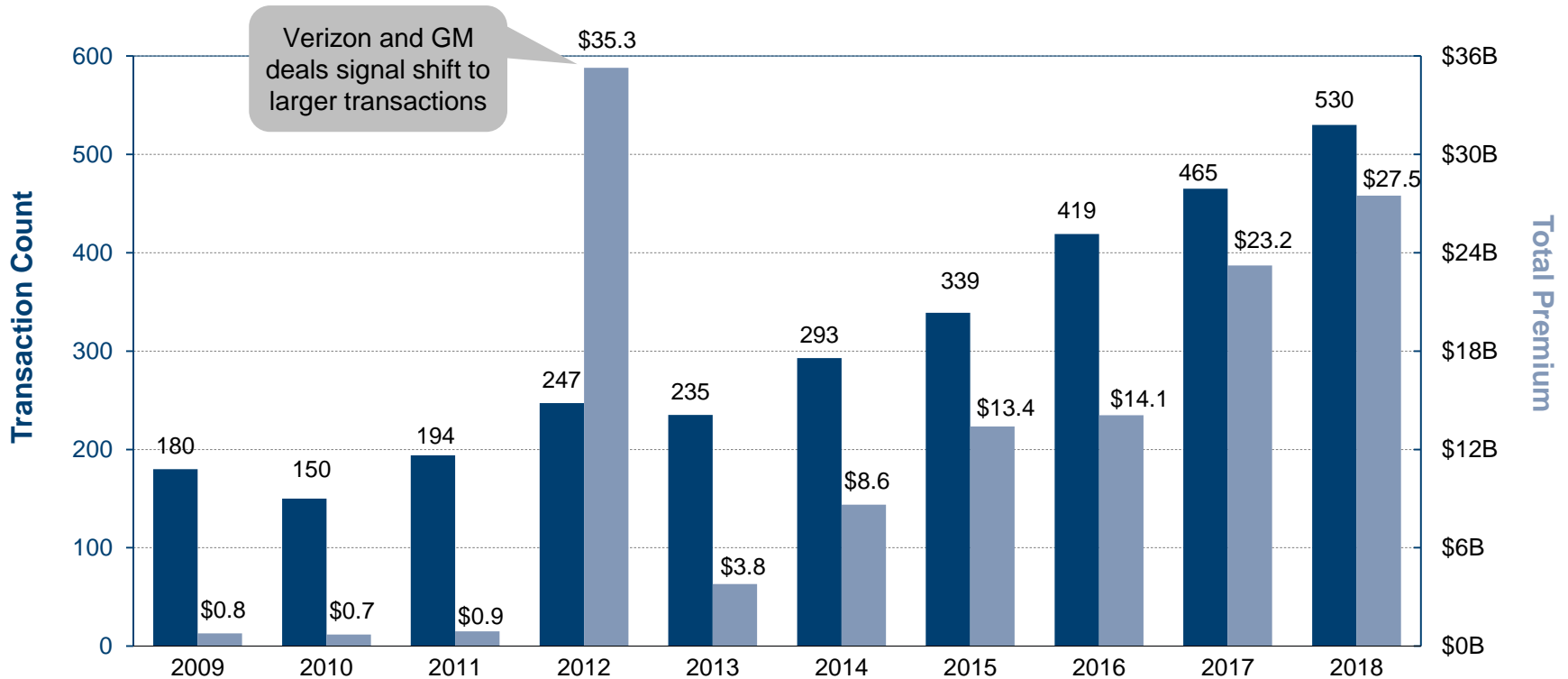
- “Easiest” option to remove large portion of liability from balance sheet
- Reduce the volatility associated with the pension plan
- Retiree annuities have best insurance pricing (premium above the ongoing liability is typically larger for active or terminated vested participants)

Retiree  
Annuity  
Buy-Out

## Additional Considerations

- Results in higher expected future funding costs in exchange for a risk reduction
- Very few public sector plans have executed a retiree annuity purchase
- Potential legal or CBA considerations
- Fiduciary responsibility for decision on carveout approach, selection of insurer, and structure of contracts
  - Safest available insurer
  - State insurance guaranty
  - In-kind asset transfers

# Private Sector: Annuity Plan Settlement Transactions<sup>1</sup>



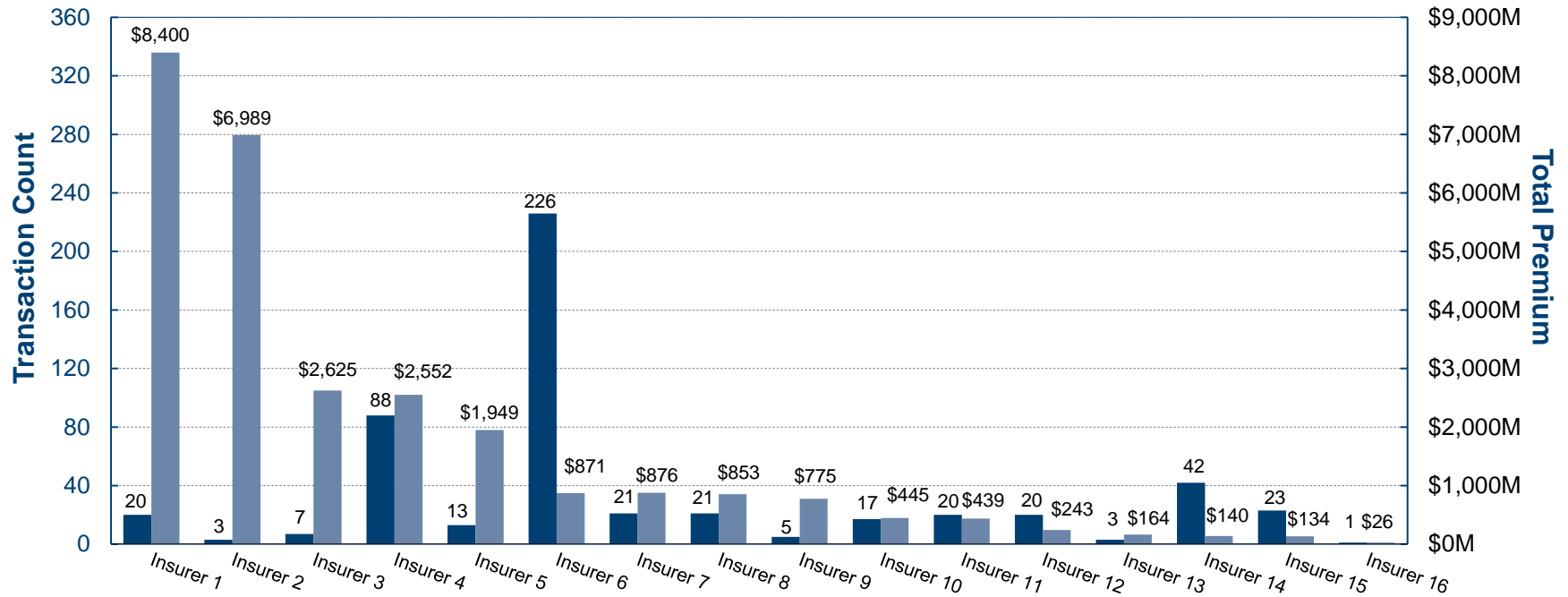
Source: Year-end 2018, as reported in insurer responses to Aon Consulting's survey of the most significant U.S. insurers.

**530 deals totaling \$27.5B in 2018 compared to 465 deals totaling \$23.2B in 2017**

<sup>1</sup> Settlement transactions include both annuity lift outs and plan terminations



# Annuity Transactions by Largest 15 Insurers in 2018



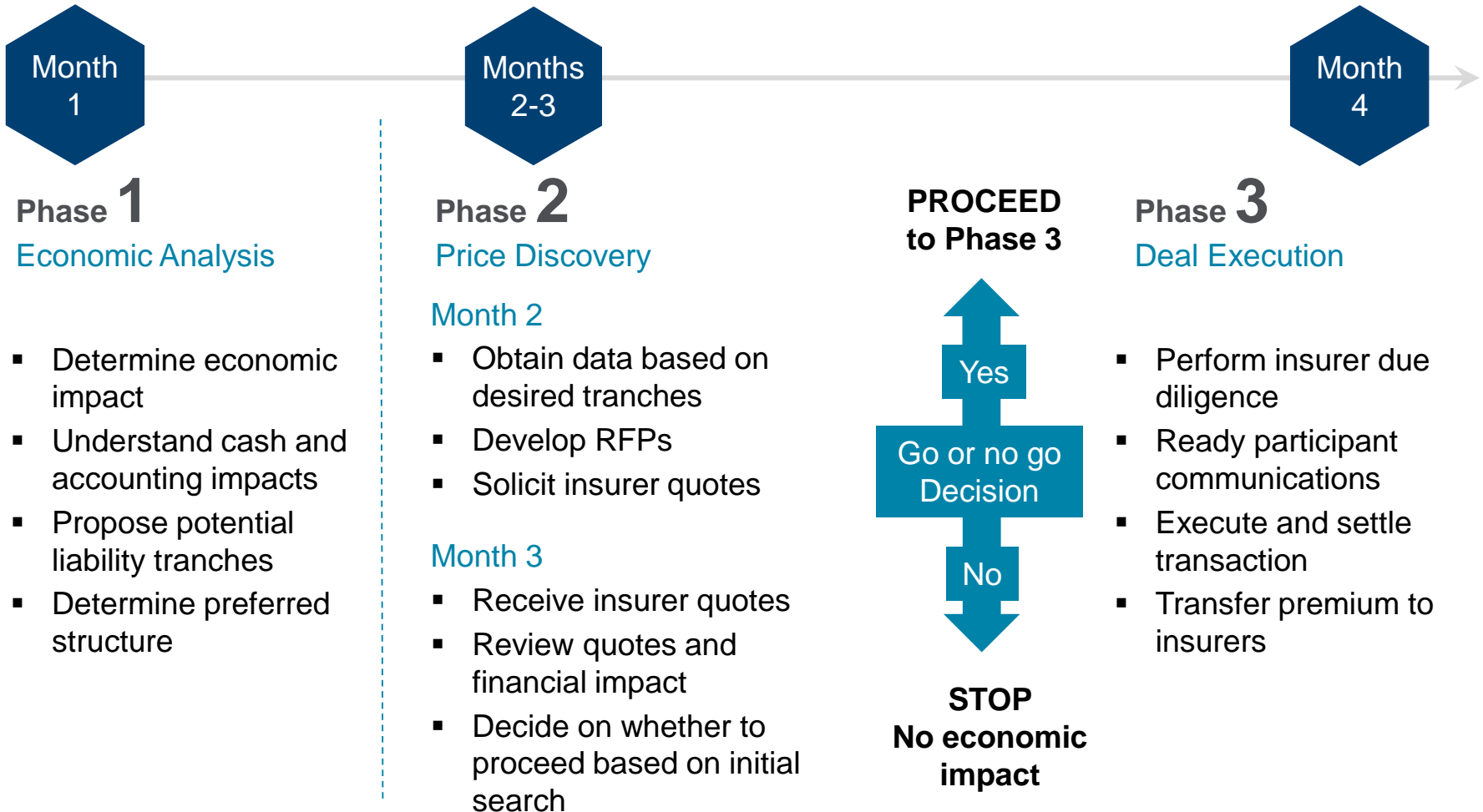
## Insurers Included<sup>1</sup>

American General	Banner Life (L&G)	Great American	MetLife	Mutual of America	OneAmerica	Principal	United of Omaha
Athene	CUNA Mutual	MassMutual	Minnesota Life (Securian)	New York Life	Pacific Life	Prudential	Western-Southern

Source: Year-end 2018, as reported in insurer responses to Aon Hewitt Investment Consulting's survey of the most significant U.S. insurers

<sup>1</sup> Insurer figures above are not correlated with the order of the insurers included below

# Deal Execution: Retiree Annuity Purchase High-Level Timeline<sup>1</sup>



<sup>1</sup> Focuses on settlement only. Timeline does not include transition management timing  
Not all client experiences are the same and implementation periods may vary significantly from those presented based on a client's specific circumstances

# Deal Execution: Bid Process

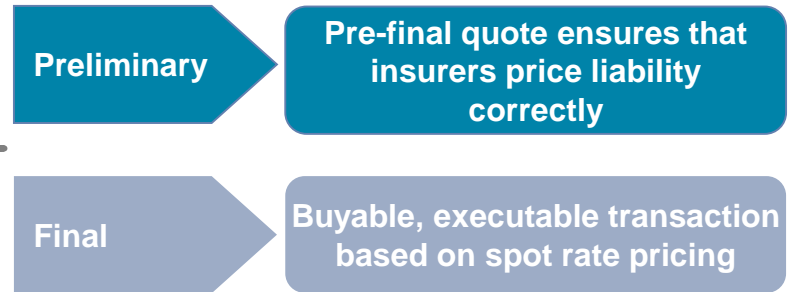
## Aon's Bid Specifications



## Insurers

- American General
- American United
- Athene
- Banner Life
- CUNA
- Great American
- MassMutual
- Metropolitan Life
- Mutual of America
- New York Life
- Pacific Life
- Principal
- Prudential
- Securian
- United of Omaha
- Western-Southern

## Types of Bids



Data consistency and understanding of plan risks = optimal competitive pricing

# Deal Execution: Participant Protections

## State Guaranty Association Structure

State Insurance Commissioners	Established a statutory framework providing a prescribed level of financial protection to policyholders upon an insurance company failure
State Insurance Regulators	Determine if an insurer is insolvent – the mechanism used to protect policyholders is the State Guaranty Association
Coverage Limits	Summarized below and are for all annuity contracts per individual. Pension risk transfer annuities provide participants with certificates of coverage and, as such, would be considered “allocated annuities” eligible for guaranty association coverage

## Current State Guaranty Association Coverage Levels<sup>1</sup>

Current coverage limit for annuities is generally \$250,000 (present value of annuity benefits), including Michigan. Coverage is dependent on the annuitant’s state of residence at time of insolvency

Present Value of Annuity Benefits	Number of States Immediate Annuitants	Number of States Deferred Annuitants
\$100,000	1	1
\$250,000	37	38
\$300,000	9	9
\$410,000	1	0
\$500,000	4	4
Total <sup>2</sup>	52	52

## Participant Counts by Annuity Value

Estimates based on Aon’s present value calculations:

Present Value of Annuity Benefits	# of Lives <sup>3</sup>
<\$100,000	150
\$100,000-\$250,000	253
\$250,000-\$300,000	83
\$300,000-\$500,000	292
>\$500,000	289

\*Approximately 664 out of 1,069 retirees on the 2018 data have a liability over \$250,000. This includes 375 out of 693 retirees in the General group<sup>3</sup>

<sup>1</sup> Subject to change based upon individual state laws – Information as of August 2018

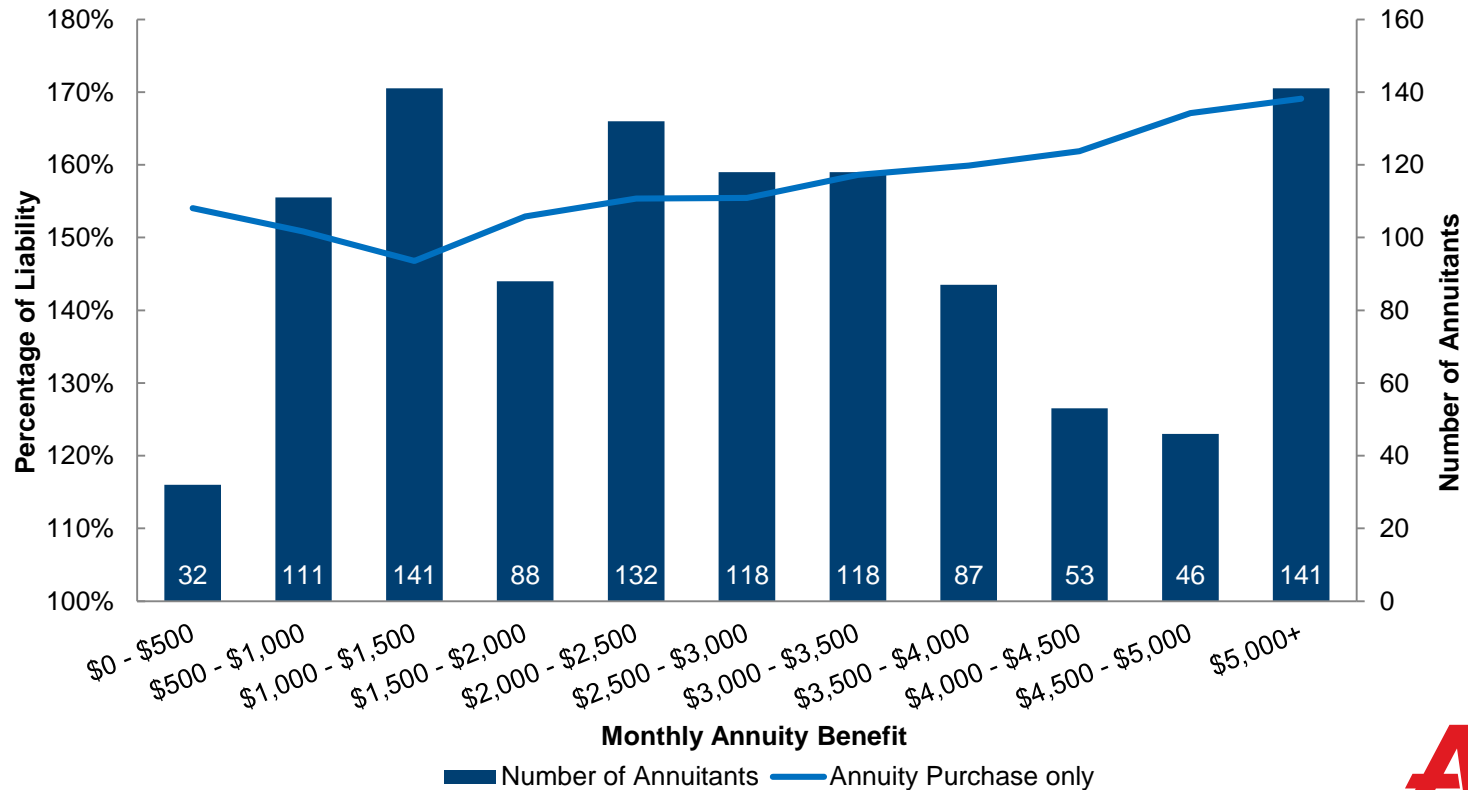
<sup>2</sup> Total includes Puerto Rico & the District of Columbia

<sup>3</sup> Based on June 30, 2018 data file

# Annuity Purchase – Estimated Annuity Premiums by Monthly Benefit

The following graph shows the estimated percentage of the liability, or premium, to purchase an annuity based on the January 1, 2018 retiree census data:

- The premiums vary by the different benefit amounts due to using the actual census data and participant ages.
- The estimated annuity premium averages about 155% across benefit groups (i.e., it cost the City \$1.55 to purchase annuities for \$1.00 dollar of liability).



# Financial Analysis of Potential Retiree Annuity Purchase: General Retirees Only

## Lift Out the General Retiree Population Only:

- Removes approximately 700 retirees and \$207M in liability
- Estimated annuity purchase premium is 58% or \$120M higher than ongoing liability (i.e. pay \$327M to insurer to release \$207M of the City's liabilities)
  - Based on annuity purchase rate of 2.5%
- Assumes all liabilities continue to be discounted based on long-term asset return of 7%.
  - *Fluctuations in the actual asset return significantly impact outcomes – we have shown three deterministic scenarios. However, modeling additional scenarios or stochastic modeling may be appropriate prior to the City making a final decision*
- Net present value based on a 7% discount rate

## Observations from Projections of Future Funding Requirements:

- Leads to substantial increase in present value of future contributions at most reasonable forward-looking asset returns

Present Value of Contributions + (Over)/Under Funding (in millions)			
Asset Return	No Lift Out	Retiree Lift Out	Increased Cost Due to Lift Out
5.0%	\$377	\$458	\$81
7.0%	\$231	\$355	\$124
9.0%	\$52	\$232	\$181

## Investment Strategy and Asset Allocation Considerations

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- If an Annuity Purchase is completed, the asset allocation for the remaining plan assets should be revisited. A higher ongoing expected return assumption may be possible which would offset the annuity cost
  - Ongoing plan would have lower liquidity needs and a longer average investment horizon if fewer retirees remain in the plan
  - Could use current investment grade fixed income assets to pay for most of the annuity purchase, which have a low expected rate of return
  - Also could consider a higher allocation to less liquid assets with a higher expected return
  - In combination, the above could be used to achieve a higher expected rate of return on assets (e.g. 7.5% or 8.0%), thus lowering potential future contribution requirements
  
- Annuity purchase costs may be slightly reduced if assets are transferred in-kind
  - Insurers are willing to take bonds in-kind and it may result in a small discount (0% - 2%) on the annuity purchase price
  - Insurers typically prefer longer duration investment grade bonds



# Borrowing to Fund

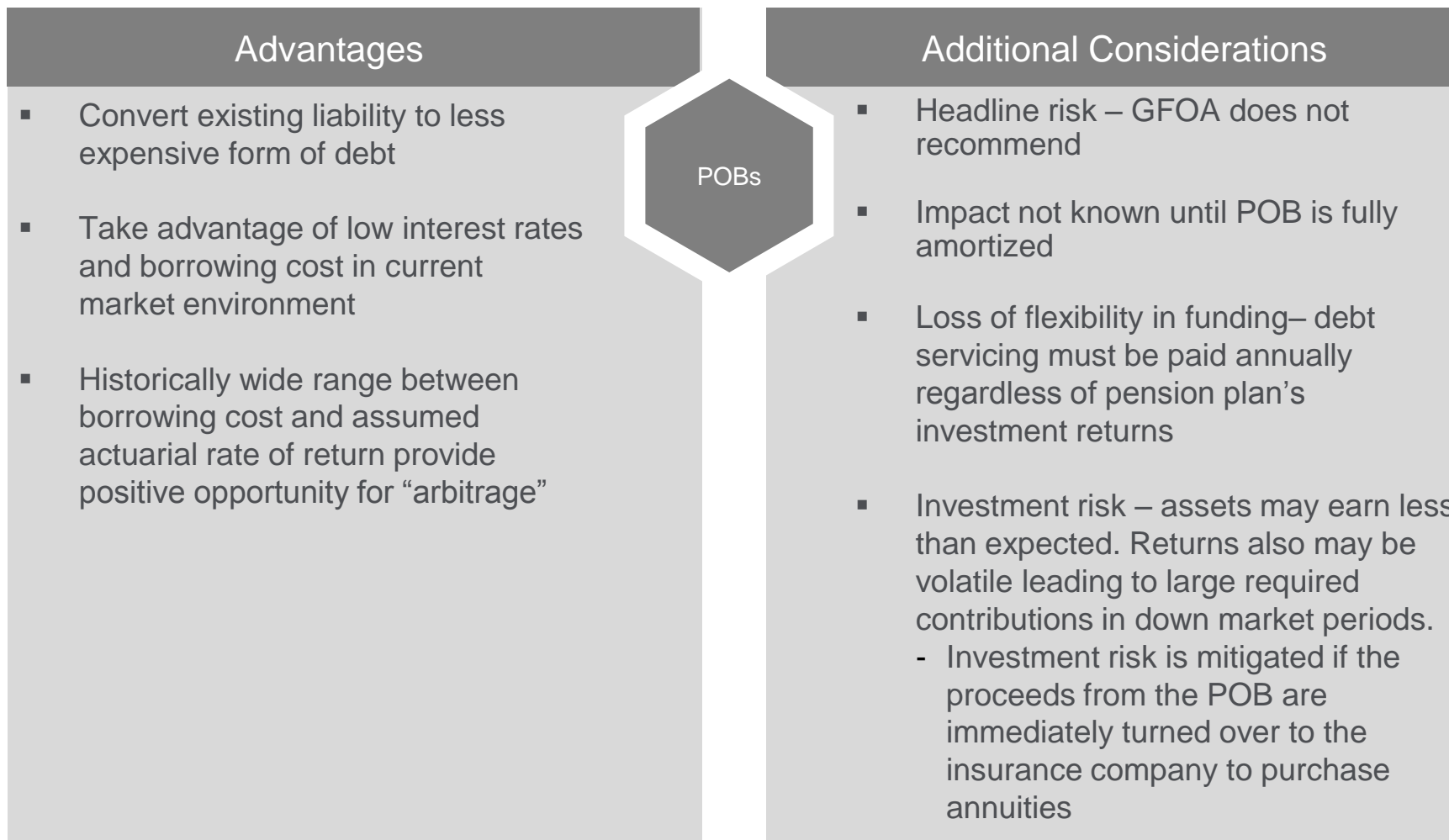


# Pension Obligation Bonds – Intro

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- What is a Pension Obligation Bond (“POB”)?
  - Taxable bond used to finance of portion of retirement plan cost
  - Proceeds must be deposited into **pension fund and cannot be used for other purposes**
  - **City’s responsibility to make unfunded** liability payments partially replaced with principal and interest payments to bondholders (i.e., debt-servicing).
  - City’s responsibility to its retirement plan does not change – City will continue to pay Normal Cost plus payments toward Unfunded
  - Net effect is restructuring of the City’s annual pension cost
  
- Issuing a POB would increase the City’s leverage and may be viewed as increasing the City’s risk, but they offer pros and cons that must be carefully weighed
  - The typical motivation behind issuing a POB is to take advantage of a potential “arbitrage” opportunity that exists between the borrowing rate and the investment rate of return (i.e. borrow at a low rate and invest in the pension plan to earn a higher expected return).
  - If assumptions are not met and the actual rate of return is significantly lower than expected, the presumptive arbitrage no longer exists.
  - However, investment risk is mitigated as the proceeds from the POB would be immediately turned over to the insurance company to purchase annuities

# Pension Obligation Bonds: Advantages and Considerations



# Alternative Approach 1: Financial Analysis of Potential Retiree Annuity Purchase with Borrowing to Fund: General Retirees Only

## Lift Out the General Retiree Population Only While Also Borrowing to Fund the Annuity Purchase:

- Removes approximately 700 retirees and \$207M in liability
- Estimated annuity purchase premium is 58% or \$120M higher than ongoing liability (i.e. pay \$327M to insurer to release \$207M of the City's liabilities)
  - Based on annuity purchase rate of 2.5%
- Borrow \$327M through pension obligation bonds
  - Assumes 25-year borrowing rate of 3.25% and 1.5% in up front debt-issuance fees
- Assumes POB proceeds are used to fund the annuity purchase, leaving a funded ratio of 129% for the remaining plan
- Assumes all liabilities continue to be discounted based on long-term asset return of 7%. *Fluctuations in the actual asset return significantly impact outcomes*
- Net present value based on a 7% discount rate

## Observations from Projections of Future Funding Requirements:

- A liability transfer for the General group only is nearly cost neutral when borrowing to fund under the baseline assumptions
- If asset returns are lower than expected, additional required contributions plus bond payments at 3.25% surpass what required contributions would have been if all assets remained in the plan
- If asset returns are greater than expected, there are less required contributions but bond payments are still required

Asset Return	Present Value of Contributions + (Over)/Under Funding (\$m)*		Increased (Reduced) Cost Due to Borrow to Fund Lift Out
	No Lift Out	Borrow to Fund Lift Out	
5.0%	\$377	\$402	\$25
7.0%	\$231	\$255	\$24
9.0%	\$52	\$34	\$(18)

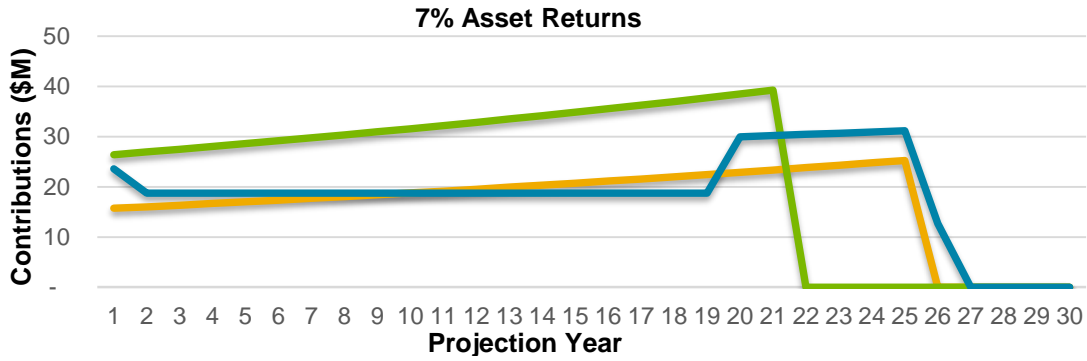
\*Present value of contributions over 30-year projection period at discount rate of 7%

# 30-Year Projection: 7% Assumed Investment Return Scenario

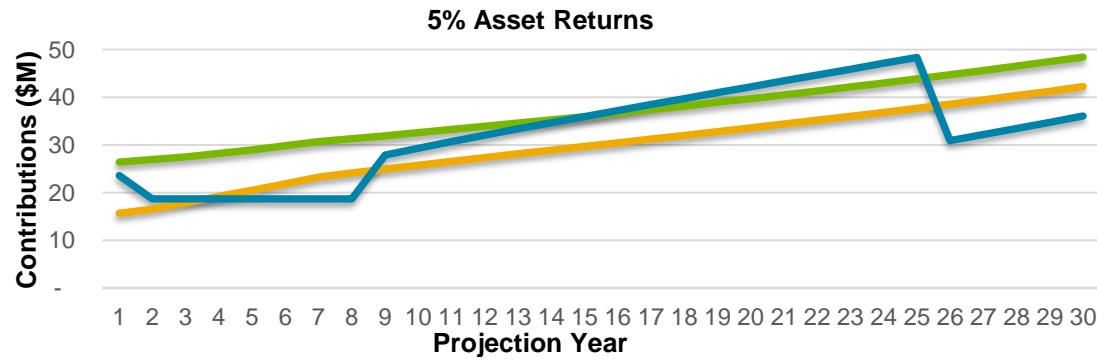
No change Fully funded by 2040					Transfer to insurer \$207M in liabilities and \$327M in assets				Liabilities reduced by \$207M and assets remain whole 25-Year bond payments of \$19M and initial estimated \$5M bond issuance fee added to cash flows							
No Lift Out					Lift Out				Borrow to Fund Lift Out							
Year	Liability	Assets	Contribution	Funded Ratio	Liability	Assets	Contribution	Funded Ratio	Liability	Assets	Contribution	Bond Issuance Fee	Bond Payments	Total Cash Flows	Funded Ratio	
2019	601	514	15	85%	601	514	15	85%	601	514	15	-	-	15	85%	
2020	614	525	16	85%	407	198	26	49%	407	525	-	5	19	24	129%	
2021	626	541	16	86%	424	222	27	52%	424	545	-	-	19	19	128%	
2022	638	553	16	87%	441	243	27	55%	441	560	-	-	19	19	127%	
2023	649	565	17	87%	458	263	28	58%	458	575	-	-	19	19	126%	
2024	659	577	17	88%	474	285	29	60%	474	589	-	-	19	19	124%	
2025	669	589	17	88%	489	308	29	63%	489	603	-	-	19	19	123%	
2026	678	601	18	89%	505	331	30	65%	505	617	-	-	19	19	122%	
2027	687	613	18	89%	521	354	30	68%	521	630	-	-	19	19	121%	
2028	696	625	18	90%	536	379	31	71%	536	642	-	-	19	19	120%	
2029	705	637	19	90%	551	405	32	73%	551	655	-	-	19	19	119%	
2030	714	650	19	91%	568	433	32	76%	568	668	-	-	19	19	118%	
2031	724	664	20	92%	584	462	33	79%	584	680	-	-	19	19	116%	
2032	734	678	20	92%	602	494	34	82%	602	693	-	-	19	19	115%	
2033	744	694	20	93%	620	528	34	85%	620	706	-	-	19	19	114%	
2034	756	712	21	94%	639	564	35	88%	639	719	-	-	19	19	113%	
2035	768	730	21	95%	658	602	36	91%	658	733	-	-	19	19	111%	
2036	782	751	22	96%	679	644	36	95%	679	747	-	-	19	19	110%	
2037	796	773	22	97%	701	688	37	98%	701	761	-	-	19	19	108%	
2038	811	796	22	98%	724	736	38	102%	724	775	-	-	19	19	107%	
2039	827	821	23	99%	747	786	38	105%	747	788	11	-	19	30	106%	
2040	844	848	23	101%	771	799	39	109%	771	802	12	-	19	30	106%	
2041	861	877	24	102%	796	813	-	113%	796	816	12	-	19	30	106%	
2042	880	907	24	103%	822	838	-	111%	822	829	12	-	19	31	106%	
2043	900	915	25	104%	849	865	-	110%	849	855	12	-	19	31	106%	
2044	921	935	25	106%	877	892	-	109%	877	882	12	-	19	31	106%	
2045	943	957	-	107%	906	920	-	107%	906	909	13	-	-	13	106%	
2046	967	979	-	106%	936	949	-	106%	936	938	-	-	-	-	106%	
2047	991	1,003	-	105%	968	980	-	105%	968	967	-	-	-	-	104%	
2048	1,017	1,028	-	104%	1,000	1,011	-	103%	1,000	998	-	-	-	-	103%	
2049	1,045	1,054	-	102%	1,033	1,043	-	102%	1,033	1,029	-	-	-	-	101%	
Net Present Value (NPV) of Contributions and Under/(Over) Funding				<b>\$231</b>	NPV of Contributions and Under/(Over) Funding				<b>\$355</b>	NPV of Contributions and Under/(Over) Funding						<b>\$255</b>

Assumes voluntary contributions when over 100% funded to remain 100% funded over the 30-year projection period

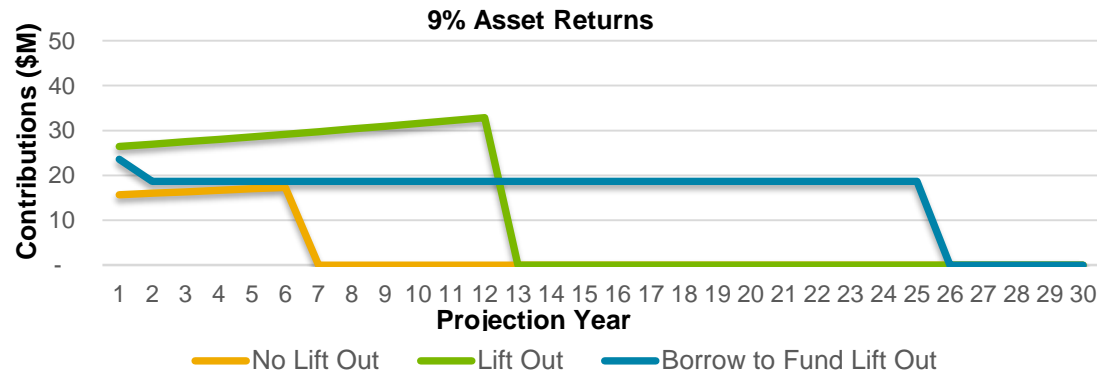
# Asset Returns Significantly Impact Outcomes (30-Year Projection)



Net Present Value Of	No Lift Out	Lift Out	Borrow to Fund Lift Out
Contributions + Bond Fees	234	358	257
Under/(Over) Funding	(3)	(3)	(2)
<b>Total</b>	<b>231</b>	<b>355</b>	<b>255</b>



Net Present Value Of	No Lift Out	Lift Out	Borrow to Fund Lift Out
Contributions + Bond Fees	339	441	372
Under/(Over) Funding	38	17	30
<b>Total</b>	<b>377</b>	<b>458</b>	<b>402</b>



Net Present Value Of	No Lift Out	Lift Out	Borrow to Fund Lift Out
Contributions + Bond Fees	84	247	238
Under/(Over) Funding	(32)	(15)	(204)
<b>Total</b>	<b>52</b>	<b>232</b>	<b>34</b>

— No Lift Out    — Lift Out    — Borrow to Fund Lift Out

# 30-Year Projection: 7% Assumed Investment Return Scenario

## No Voluntary Contributions While Over 100% Funded

No change Fully funded by 2040					Transfer to insurer \$207M in liabilities and \$327M in assets				Liabilities reduced by \$207M and assets remain whole 25-Year bond payments of \$19M and initial estimated \$5M bond issuance fee added to cash flows							
No Lift Out					Lift Out				Borrow to Fund Lift Out							
Year	Liability	Assets	Contribution	Funded Ratio	Liability	Assets	Contribution	Funded Ratio	Liability	Assets	Contribution	Bond Issuance Fee	Bond Payments	Total Cash Flows	Funded Ratio	
2019	601	514	15	85%	601	514	15	85%	601	514	15	-	-	15	85%	
2020	614	525	16	85%	407	198	26	49%	407	525	-	5	19	24	129%	
2021	626	541	16	86%	424	222	27	52%	424	545	-	-	19	19	128%	
2022	638	553	16	87%	441	243	27	55%	441	560	-	-	19	19	127%	
2023	649	565	17	87%	458	263	28	58%	458	575	-	-	19	19	126%	
2024	659	577	17	88%	474	285	29	60%	474	589	-	-	19	19	124%	
2025	669	589	17	88%	489	308	29	63%	489	603	-	-	19	19	123%	
2026	678	601	18	89%	505	331	30	65%	505	617	-	-	19	19	122%	
2027	687	613	18	89%	521	354	30	68%	521	630	-	-	19	19	121%	
2028	696	625	18	90%	536	379	31	71%	536	642	-	-	19	19	120%	
2029	705	637	19	90%	551	405	32	73%	551	655	-	-	19	19	119%	
2030	714	650	19	91%	568	433	32	76%	568	668	-	-	19	19	118%	
2031	724	664	20	92%	584	462	33	79%	584	680	-	-	19	19	116%	
2032	734	678	20	92%	602	494	34	82%	602	693	-	-	19	19	115%	
2033	744	694	20	93%	620	528	34	85%	620	706	-	-	19	19	114%	
2034	756	712	21	94%	639	564	35	88%	639	719	-	-	19	19	113%	
2035	768	730	21	95%	658	602	36	91%	658	733	-	-	19	19	111%	
2036	782	751	22	96%	679	644	36	95%	679	747	-	-	19	19	110%	
2037	796	773	22	97%	701	688	37	98%	701	761	-	-	19	19	108%	
2038	811	796	22	98%	724	736	-	102%	724	775	-	-	19	19	107%	
2039	827	821	23	99%	747	747	11	99%	747	788	-	-	19	19	106%	
2040	844	848	-	101%	771	769	12	99%	771	802	-	-	19	19	104%	
2041	861	852	13	99%	796	793	12	99%	796	816	-	-	19	19	102%	
2042	880	870	13	99%	822	817	13	99%	822	829	-	-	19	19	101%	
2043	900	888	13	99%	849	843	13	99%	849	843	13	-	19	32	99%	
2044	921	908	14	99%	877	869	13	99%	877	869	13	-	19	32	99%	
2045	943	929	14	99%	906	897	14	99%	906	897	14	-	-	14	99%	
2046	967	951	15	98%	936	925	14	99%	936	926	14	-	-	14	99%	
2047	991	975	15	98%	968	955	15	99%	968	955	15	-	-	15	99%	
2048	1,017	1,000	15	98%	1,000	986	15	99%	1,000	986	15	-	-	15	99%	
2049	1,045	1,026	16	98%	1,033	1,018	15	99%	1,033	1,018	15	-	-	15	99%	
Net Present Value (NPV) of Contributions and Under/(Over) Funding				<b>\$233</b>	NPV of Contributions and Under/(Over) Funding				<b>\$358</b>	NPV of Contributions and Under/(Over) Funding						<b>\$257</b>

Assumes **no** voluntary contributions when over 100% funded to remain 100% funded over the 30-year projection period. Contributions are only made when the plan falls below 100% funded. Present value of contributions is the approximately the same as the scenario with voluntary contributions to remain 100% funded over the 30-year period.

# Alternative Approach 2: Use Fixed Income Assets to Fund Lift-Out, Borrow to Fund the Rest, Increase Expected Return on Remaining Assets

Same scenario as that on slide 26, with the following key differences:

- Use assets currently invested in investment grade bonds and TIPS to fund the lift out (approximately \$110M)
- Borrow to fund the remaining premium to the insurer (approximately \$217M)
- Rebalance remaining plan assets to have a higher allocation to higher expected return assets (e.g. equities, real estate, private assets) and lower allocation to investment grade bonds and TIPS, so the ongoing plan discount rate is assumed to increase to 8%

## Observations from Projections of Future Funding Requirements:

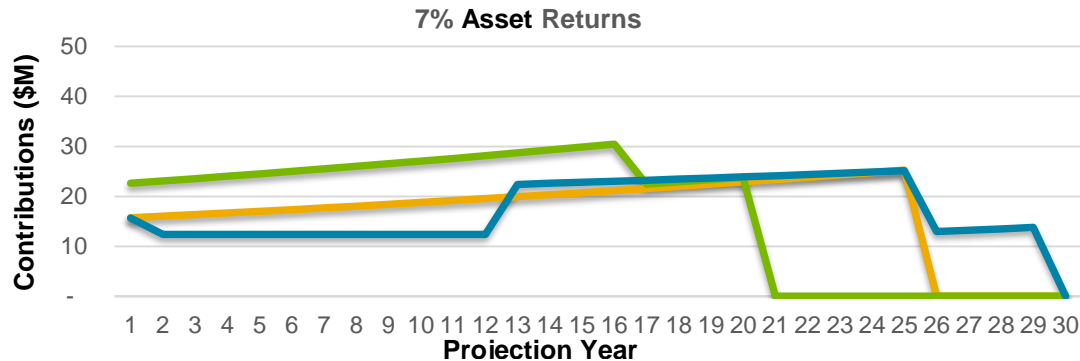
- A liability transfer for the General group can generate savings when using current fixed income assets to fund the lift-out, borrowing to fund the remaining premium, and “re-risking” the remaining assets in the plan
- **Savings under this scenario are driven by increasing the assumed return on assets and are not certain. Aon recommends the City complete additional asset/liability analysis including stochastic modeling of a range of future economic scenarios if this option is of serious interest**
- Note the asset allocation still needs to comply with the requirements of PA 314

No Lift Out			Alternative Approach 2: Lift Out, Borrow to Fund, and Increase EROA			Increased (Reduced) Cost Due to Alternative Approach 2
Long-Term Asset Return	Discount Rate	Present Value of Contributions + (Over)/Under Funding (\$m)*	Long-Term Asset Return	Discount Rate	Present Value of Contributions + (Over)/Under Funding (\$m)*	
5%	7%	\$377	6%	8%	\$332	\$(45)
7%	7%	\$231	8%	8%	\$209	\$(22)
9%	7%	\$52	10%	8%	\$48	\$(4)

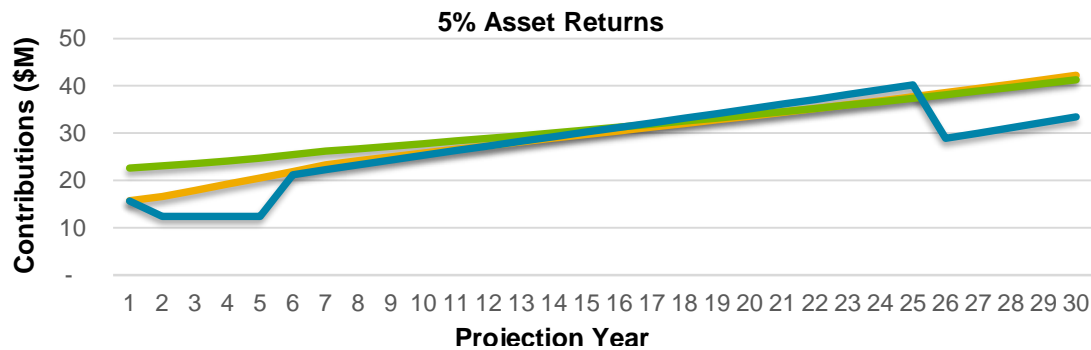
\*Present value of contributions over 30-year projection period at discount rate of 7%

# Asset Returns Significantly Impact Outcomes

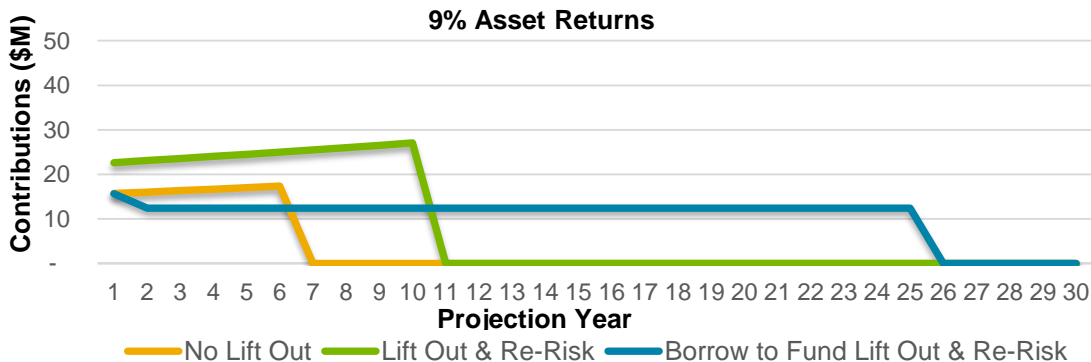
## Alternative Approach 2: 30-Year Projection



Net Present Value Of	No Lift Out	Lift Out Only & Increase EROA	Borrow to Fund Lift Out & Increase EROA
Contributions + Bond Fees	234	287	211
Under/(Over) Funding	(3)	0	(2)
<b>Total</b>	<b>231</b>	<b>287</b>	<b>209</b>



Net Present Value Of	No Lift Out	Lift Out Only & Increase EROA	Borrow to Fund Lift Out & Increase EROA
Contributions + Bond Fees	339	376	313
Under/(Over) Funding	38	12	19
<b>Total</b>	<b>377</b>	<b>388</b>	<b>332</b>



Net Present Value Of	No Lift Out	Lift Out Only & Increase EROA	Borrow to Fund Lift Out & Increase EROA
Contributions + Bond Fees	84	184	157
Under/(Over) Funding	(32)	(9)	(109)
<b>Total</b>	<b>52</b>	<b>175</b>	<b>48</b>



# 30-Year Projection: 7% & 8% Assumed Investment Return Scenario

## Alt. Approach 2: Increase Expected Asset Return After Lift-Out

No change Fully funded by 2040					Transfer to insurer \$207M in liabilities and \$327M in assets, increase discount rate/asset returns				Transfer \$207M in liabilities and \$110 in Fixed Income Assets to Insurer. 25-Year bond payments of \$12M and initial estimated \$3M bond issuance fee to fund remaining \$217M of lift-out premium added to cash flows							
No Lift Out (7%)					Lift Out Only, Increase EROA (8%)				Borrow to Fund Lift Out, Increase EROA (8%)							
Year	Liability	Assets	Contribution	Funded Ratio	Liability	Assets	Contribution	Funded Ratio	Liability	Assets	Contribution	Bond Issuance Fee	Bond Payments	Total Cash Flows	Funded Ratio	
2019	601	514	15	85%	601	514	15	85%	601	514	15	-	-	15	85%	
2020	614	525	16	85%	353	198	23	56%	353	414	-	3	12	16	117%	
2021	626	541	16	86%	368	220	23	60%	368	431	-	-	12	12	117%	
2022	638	553	16	87%	384	239	24	62%	384	442	-	-	12	12	115%	
2023	649	565	17	87%	398	258	24	65%	398	453	-	-	12	12	114%	
2024	659	577	17	88%	413	277	25	67%	413	463	-	-	12	12	112%	
2025	669	589	17	88%	427	298	25	70%	427	473	-	-	12	12	111%	
2026	678	601	18	89%	441	319	25	72%	441	482	-	-	12	12	109%	
2027	687	613	18	89%	455	341	26	75%	455	490	-	-	12	12	108%	
2028	696	625	18	90%	468	363	27	78%	468	498	-	-	12	12	106%	
2029	705	637	19	90%	482	387	27	80%	482	505	-	-	12	12	105%	
2030	714	650	19	91%	496	413	28	83%	496	512	-	-	12	12	103%	
2031	724	664	20	92%	511	440	28	86%	511	518	-	-	12	12	101%	
2032	734	678	20	92%	527	470	29	89%	527	525	10	-	12	22	100%	
2033	744	694	20	93%	543	501	29	92%	543	542	10	-	12	23	100%	
2034	756	712	21	94%	560	536	30	96%	560	559	10	-	12	23	100%	
2035	768	730	21	95%	578	573	30	99%	578	578	11	-	12	23	100%	
2036	782	751	22	96%	597	613	22	103%	597	598	11	-	12	23	100%	
2037	796	773	22	97%	618	646	23	105%	618	618	11	-	12	23	100%	
2038	811	796	22	98%	638	682	23	107%	638	640	11	-	12	24	100%	
2039	827	821	23	99%	660	721	24	109%	660	662	12	-	12	24	100%	
2040	844	848	23	101%	683	762	-	112%	683	686	12	-	12	24	100%	
2041	861	877	24	102%	706	780	-	110%	706	710	12	-	12	24	101%	
2042	880	907	24	103%	731	799	-	109%	731	735	12	-	12	25	101%	
2043	900	915	25	104%	756	818	-	108%	756	762	12	-	12	25	101%	
2044	921	935	25	106%	783	837	-	107%	783	790	13	-	12	25	101%	
2045	943	957	-	107%	811	857	-	106%	811	819	13	-	-	13	101%	
2046	967	979	-	106%	840	877	-	104%	840	850	13	-	-	13	101%	
2047	991	1,003	-	105%	870	897	-	103%	870	881	14	-	-	14	101%	
2048	1,017	1,028	-	104%	902	917	-	102%	902	915	14	-	-	14	101%	
2049	1,045	1,054	-	102%	935	938	-	100%	935	950	-	-	-	-	102%	
Net Present Value (NPV) of Contributions and Under/(Over) Funding				<b>\$231</b>	NPV of Contributions and Under/(Over) Funding				<b>\$287</b>	NPV of Contributions and Under/(Over) Funding						<b>\$209</b>

Assumes voluntary contributions when over 100% funded to remain 100% funded over the 30-year projection period



## Other Potential Opportunities

# Pension Plan Design Observations

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- The City has amended its pension around 2011-2012 and in 2017 and adopted a Hybrid (DB + DC) structure for future hires to share investment risk.
  - The pension plan changes included cutting the multiplier and employee contribution in half and extending vesting to 10 years
  - Also, the final average compensation was extended from 3 years to 5 years
  
- The National Association of State Retirement Administrators (“NASRA”) released a study in December 2018 of significant pension reforms and the common themes were:
  - Shared risk through Hybrid plan designs;
  - Increased employee contributions and cost sharing;
  - Reduced multipliers and cost-of-living-adjustments (“COLAs”);
  - Extended vesting and retirement eligibility; and
  - More stringent early retirement penalties.
  
- NASRA also conducted a study of plan changes to local governments in May 2019 and found similar plan change themes.
  
- The City has implemented some of those changes, but has not changed its retirement eligibility. General employees have unreduced benefits available at age 50 with 25 yrs/svc or age 60 with 5 or 10 years/svc. Police & Fire have unreduced benefits available with 25 years of service with no age requirement or age 55 with 5 or 10 years/svc).

## Pension Plan Design Trends and Innovations – Risk Sharing

- A few public employers have amended their plans to put in some form of self-adjusting risk sharing features.
  - The following graphic from the NASRA study shows states that have implemented automatic risk-sharing plan design features:

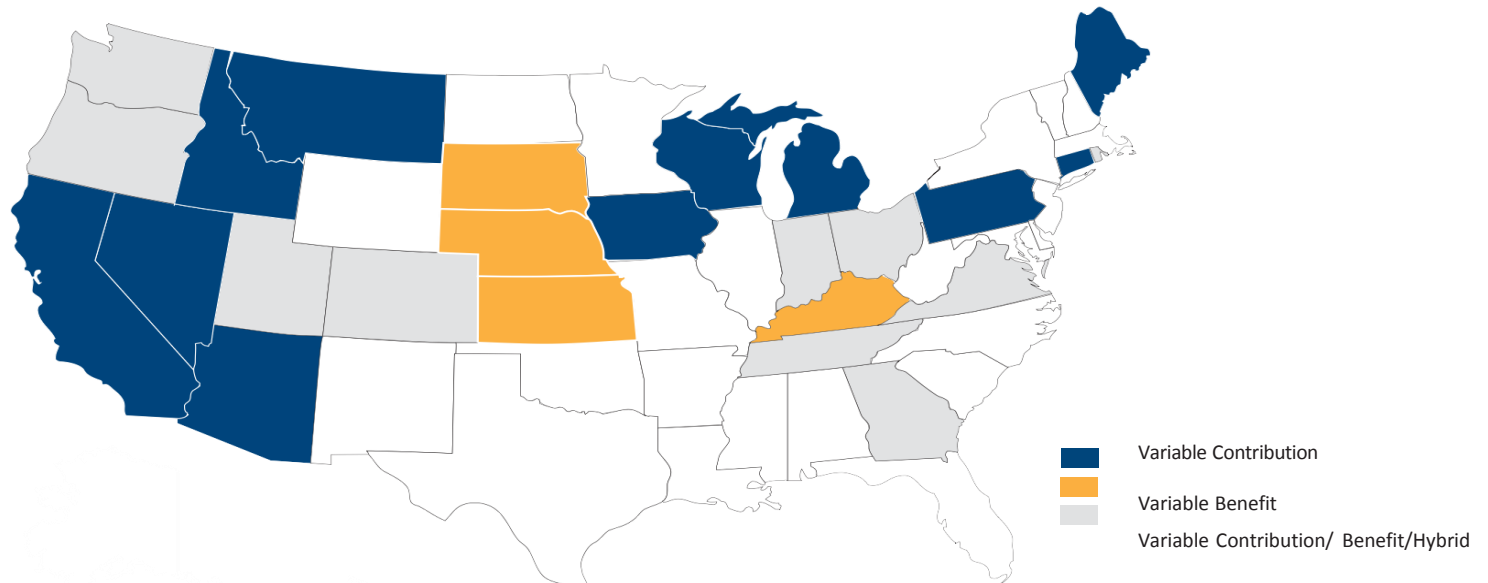
Figure 5. States that implemented automatic risk-sharing plan design features, 2009-2018



- The NASRA study found that plans in worse financial states adopted the most severe changes.

# Pension Plan Design Trends and Innovations – Variable Benefits

- The Center for State and Local Government Excellence released a study in September 2019 titled “Proactive Pension Management” to analyze proactive ways to implement variable benefit and/or variable contribution arrangements.
  - Under such arrangements, a pre-set formula drives occasional adjustments in the plan to maintain long-term stability.
  - The City of Ocala Florida implemented a variable pension benefit design about 5 years ago and many multiemployer pension plans are implementing variable designs including the United Food and Commercial Workers Union Local 663.



# Permanent Lump Sum Option—Background

## What is it?

The plan adds a new permanent benefit payment option so participants who have not yet commenced an annuity (actives and/or terminated vesteds) can take their pension as a lump sum payment

## Advantages

- Voluntary option that provides additional financial flexibility
- Lump sum calculation can be designed so the calculation is close to the ongoing liability value (i.e. calculated using 7% discount rate)
- If so, there would be minimal immediate impact to cash, funded status, and benefit operations
- Reduces liability duration and transfers investment and longevity risk to participants who take the lump sum

Lump Sum  
Option

## Additional Considerations

- More complicated liquidity and cash management requirements
- Would this require union approval?
- Relatively low prevalence for public sector plans
- Potential headline risk, e.g. if participants outlive their lump sum payments
- Consider permanent lump sum option versus periodic lump sum windows

# One-Time Terminated Vested Lump Sum Window—Background

## What is it?

The plan provides a one-time offer so that participants who have terminated and not yet commenced an annuity can take their pension as a lump sum payment (usually during a 1-3 month window)

## Advantages

- Voluntary option that provides additional financial flexibility
- Lump sum calculation can be designed so the calculation is close to the ongoing liability value (i.e. calculated using 7% discount rate)
- If so, there would be minimal immediate impact to cash, funded status, and benefit operations
- Reduces liability duration and transfers investment and longevity risk to participants who take the lump sum

TV Lump  
Sum  
Window

## Additional Considerations

- Very common in private sector with typical election rates of 50% - 60% (based on lower discount rates than 7% producing higher lump sums)
- **Terminated vested population only represents about 2% of the City's pension liabilities**
- Would this require union approval?
- Very few public sector plans have done lump sum windows (ex. State of Illinois)
- Potential headline risk, e.g. if participants outlive their lump sum payments

# One-Time Retiree Vested Lump Sum Window—Background

## What is it?

The plan provides a one-time offer so that participants already in payment of an annuity can take the present value of their monthly pension as a lump sum payment (usually during a 1-3 month window)

## Advantages

- Voluntary option that provides additional financial flexibility
- Lump sum calculation can be designed so the calculation is close to the ongoing liability value (i.e. calculated using 7% discount rate)
- If so, there would be minimal immediate impact to cash, funded status, and benefit operations
- Reduces liability duration and transfers investment and longevity risk to participants who take the lump sum

Retiree  
Lump Sum  
Window

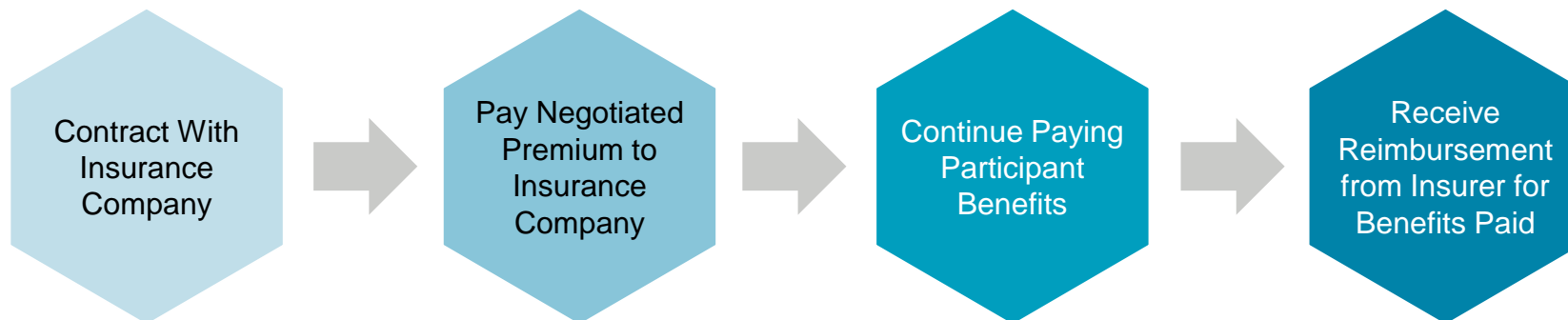
## Additional Considerations

- Recent uptick in private sector due to IRS change with typical election rates of 30% - 40% (based on lower discount rates than 7% producing higher lump sums)
- Potential anti-selection from unhealthy participants taking lump sum
- **Retiree population represents about 68% of the City's pension liabilities**
- Would this require union approval?
- Very few public sector plans have done lump sum windows
- Potential headline risk, e.g. if participants outlive their lump sum payments



# Evolving Risk Mitigation Techniques: Annuity Buy-In and Longevity Swap

## Basic Process of an Annuity Buy-In or Longevity Swap



### Annuity Buy-In

- One-time insurance premium
- Similar pricing to annuity buy-out
- Small handful executed in US



### Longevity Swap

- Annual insurance premium
- Retain interest rate risk
- None executed in US



Either transaction:

The City responsible for insurer insolvency

No reduction in administrative efforts

Much more common in the UK

# Potential Retiree Medical Opportunities

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- Current bifurcated plan structure
  - Closed traditional plans with varying BCBS plans and retiree contributions
  - \$2,500 or \$3,500 per year notional account (HRA) per year of active service
- Opportunities to lower cost or limit growth of OPEB plan
  - Transition to an exchange approach for Medicare-eligible retirees
    - Typically allows for better choice and value for retirees at lower cost than traditional coverage
    - Would provide plan options for retirees under the HRA program
  - Provide medical and/or prescription drug benefits through EGWP program
  - Closure of entire plan to new hires or employees within a given length of time from retirement





# Appendices

# Disclosure

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Our estimates were prepared using streamlined calculation techniques. They are intended to provide an “order of magnitude” indication of the impact of the changes contemplated. Results of more refined calculations may yield different conclusions.

Our pension valuation calculations were based on the participant data as of June 30, 2018 from Findley Davies and other information regarding participant data as of June 30, 2019 in the valuation report issued by GRS.

Unless specifically noted, actuarial assumptions and methods, assets, and plan provisions reflect those in the June 30, 2019 valuation report. Unless specifically noted, our calculations do not reflect changes or events after these dates. Our liability calculations were generally based on prescribed methodology under the Accounting Codification Standards 715. We believe the methodology used in these calculations conforms to the requirements of those laws, regulations, and statements.

We have projected City’s liabilities, assets and contributions under various assumptions and methods.

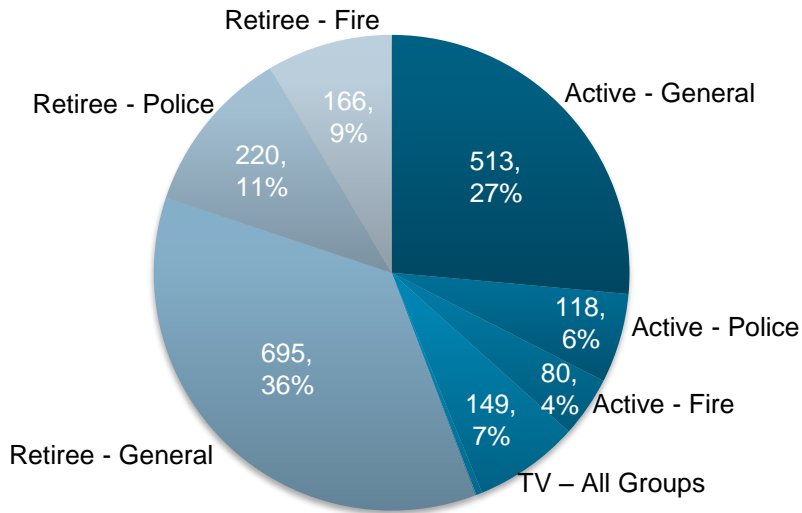
- Projections, by their nature, are not a guarantee of future results. They are intended to serve as estimates of future financial outcomes that are based on assumptions about future experience and the information available at the time of modeling.
- The projections shown assume specific investment return, mortality, turnover, disability and retirement assumptions are met. Actual results may differ due to such variables as demographic experience, the economy, stock market performance, and the regulatory environment.
- A complete description of the assumptions and methods used for this analysis are included in the *Appendices*.
- The calculations included in this presentation were completed under the supervision of Eric Atwater, FSA, EA, Erin Sabo, FSA, EA and Julie Lin, FSA, EA with the assistance of Steve Kowalski.

## Assumptions and Methods

Population	<ul style="list-style-type: none"> <li>▪ Pension participant population as of June 30, 2018 provided by Findley Davies. Liability in 2019 and annuity purchase premiums estimated based 2018 data.</li> </ul>
Projections	<ul style="list-style-type: none"> <li>▪ Projected normal cost was provided by GRS through 2024. Normal cost after 2024 increased 2% per year thereafter</li> <li>▪ Benefit Payments were estimated by Aon by leveraging projections from GRS and benefit payment streams from Findley Davies</li> </ul>
Discount Rate:	<ul style="list-style-type: none"> <li>▪ 7.0%</li> </ul>
Investment Return:	<ul style="list-style-type: none"> <li>▪ Using 7.0% as baseline; also show impact at 5.0% and 9.0% annual investment return</li> </ul>
Mortality (for Annuity Purchase):	<ul style="list-style-type: none"> <li>▪ Gender specific RP-2006 mortality table with a fully generational projection using scale MP-2015 used for projected benefit obligation and economic liability</li> <li>▪ Unisex RP-2006 mortality table with a fully generational projection using scale MP-2015 used for lump sum calculations</li> </ul>
Annuity Premiums	<ul style="list-style-type: none"> <li>▪ Retiree annuity pricing determined using a rate of 2.5%, based on Aon's October 2019 data from insurers</li> </ul>
Administrative Expenses	<ul style="list-style-type: none"> <li>▪ \$700,000 for 2019, increasing 2.5% annually</li> </ul>
Annual Debt-Servings (for POB)	<ul style="list-style-type: none"> <li>▪ Based on 25-year level payment with 3.25% after-tax borrowing rate</li> <li>▪ Net amount of POB deposited into pension fund after 1.5% issuance cost</li> </ul>
Actuarially Determined Contribution (ADC):	<ul style="list-style-type: none"> <li>▪ Based on Entry Age Normal Actuarial Accrued Liability</li> <li>▪ Annual Cost equals Net Normal Cost plus 10 year amortization of Unfunded liability</li> </ul>

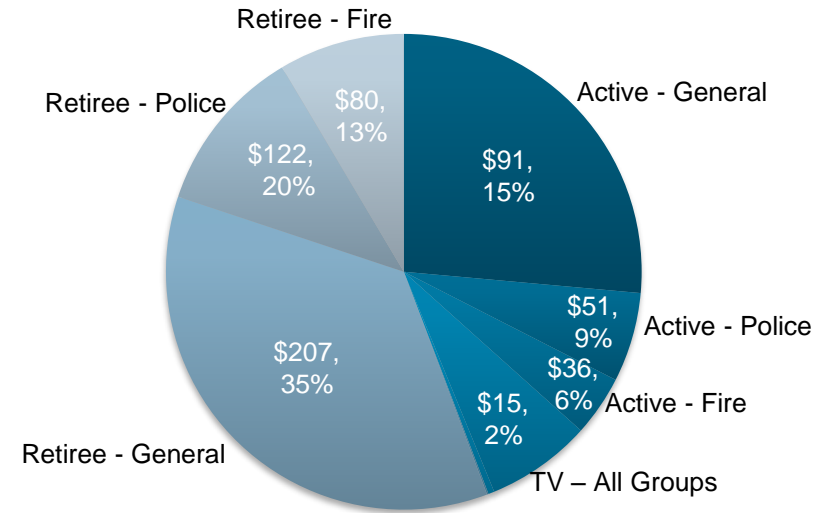
# Headcount and Actuarial Accrued Liability by Group

**Allocation of Headcount**



Headcount	Active	TV	Retiree
General	513	139	695
Police	118	8	220
Fire	80	2	166
Total Count	711	149	1,081
Total %	37%	8%	56%

**Allocation of Actuarial Accrued Liability "AAL" (\$M)**



AAL (\$M)	Active	TV	Retiree
General	\$91	\$13	\$207
Police	51	1	122
Fire	36	1	80
Total \$	\$178	\$15	\$409
Total %	30%	2%	68%
Ease to Settle	Difficult	Easier	Easiest

Headcounts and obligations as of June 30, 2019 based on the GRS valuation report