San José Police & Fire Department Retirement Plan

CHEIRON

Classic Values, Innovative Advice

Final Valuation Results

January 7, 2021
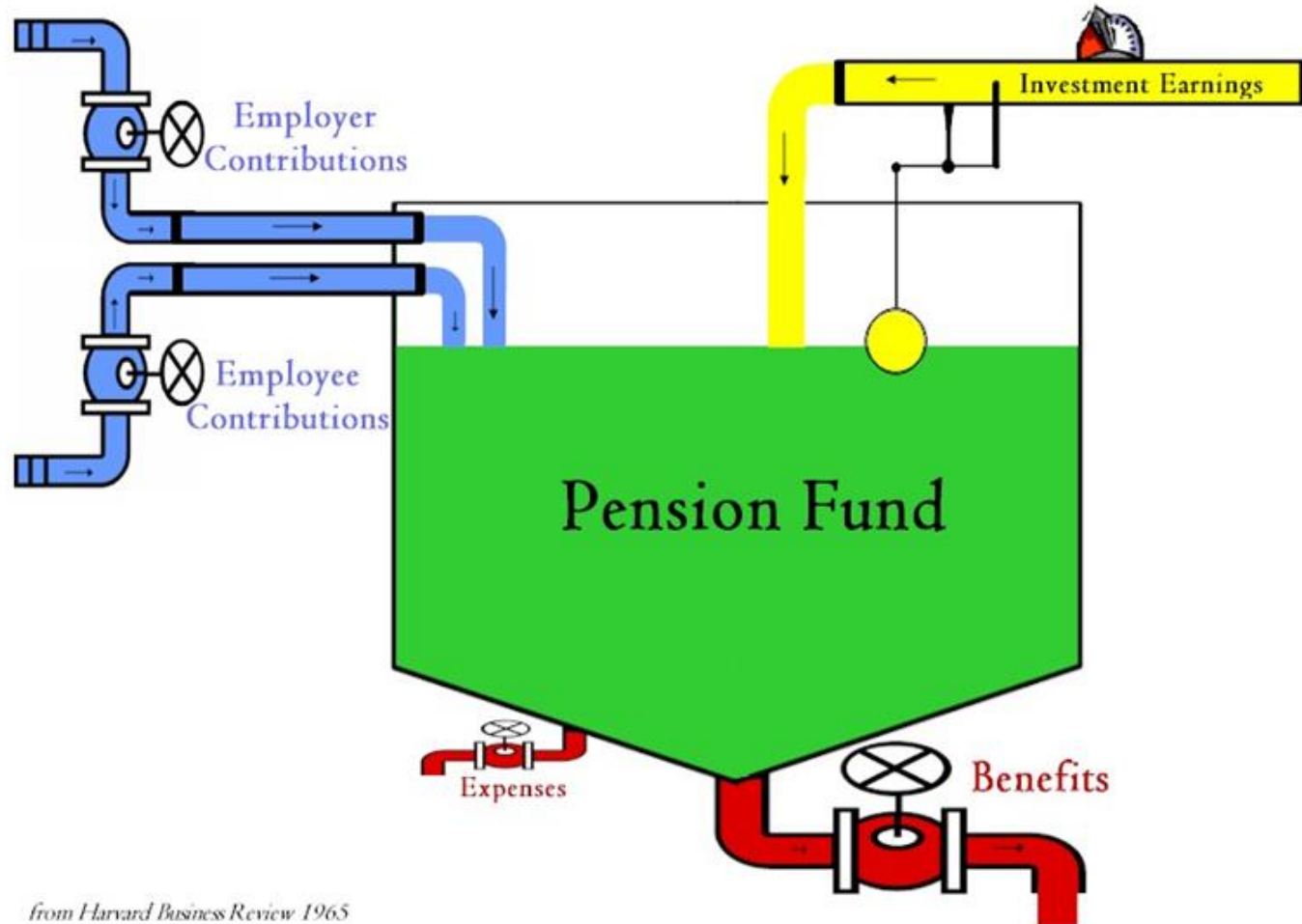
Bill Hallmark, ASA, EA, FCA, MAAA

Anne Harper, FSA, EA, MAAA

- Summary of Key Results

- Changes in UAL

- Expected Contributions and Funding Progress
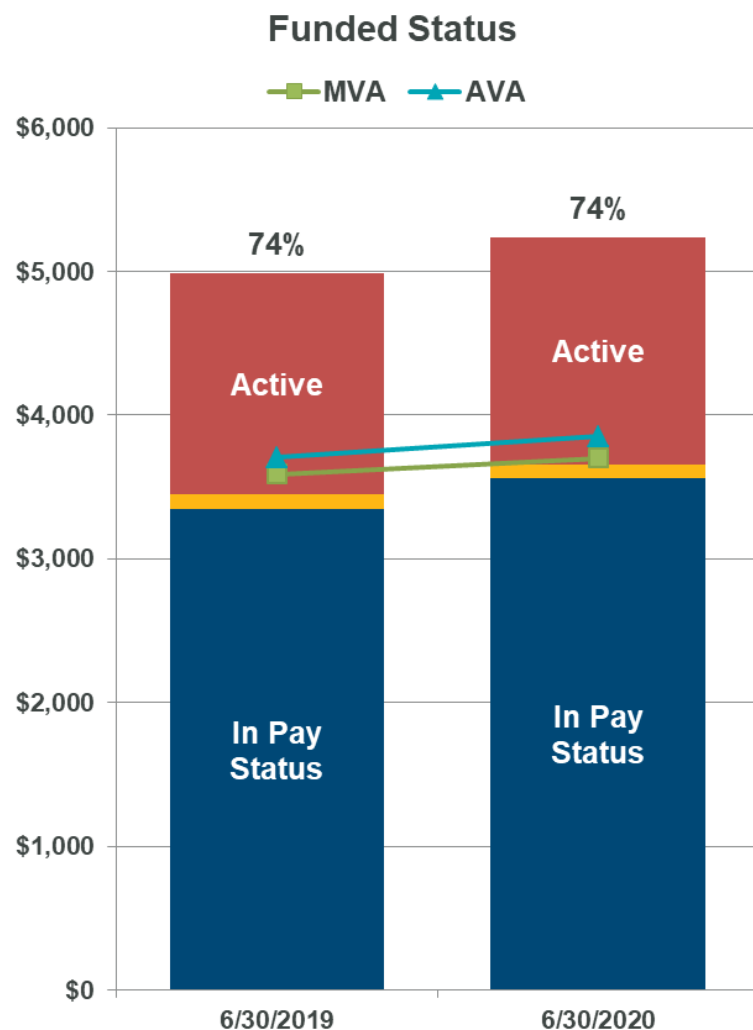
- Plan Maturity

- Risk Assessments

- Appendix

Contributions + Investments =

from Harvard Business Review 1965

Expenses + Benefits

Summary of Key Results

Funded Status

Funded Status By Tier			
	6/30/2019	6/30/2020	Change
Tier 1			
Actuarial Liability	$4,957.7	$5,187.9	4.6%
AVA	3,675.8	3,802.5	3.4%
UAL-AVA Basis	1,282.0	1,385.5	8.1%
AVA Funded Ratio	74.1%	73.3%	-0.8%
MVA	3,558.5	3,653.9	2.7%
UAL-MVA Basis	1,399.3	1,534.1	9.6%
MVA Funded Ratio	71.8%	70.4%	-1.3%
Tier 2			
Actuarial Liability	$ 30.7	$ 47.4	54.5%
AVA	30.5	49.5	62.1%
UAL-AVA Basis	0.2	(2.1)	-1490.8%
AVA Funded Ratio	99.5%	104.4%	4.9%
MVA	29.9	48.2	60.8%
UAL-MVA Basis	0.7	(0.8)	-201.2%
MVA Funded Ratio	97.6%	101.6%	4.0%

Amounts in millions

Summary of Key Results

Contribution Rates

FYE 2021 — Total City 84.6%
- UAL Principal 21.3%
- Int on UAL 36.7%
- City NC 26.6%
- Member 12.3%

FYE 2022 — Total City 87.4%
- UAL Principal 22.6%
- Int on UAL 38.5%
- City NC 26.3%
- Member 12.6%

Contribution Amounts (Millions)

FYE 2021 — Total City $206.0
- UAL Principal $51.9
- Int on UAL $89.4
- City NC $64.7
- Member $29.9

FYE 2022 — Total City $216.9
- UAL Principal $56.1
- Int on UAL $95.6
- City NC $65.1
- Member $31.2
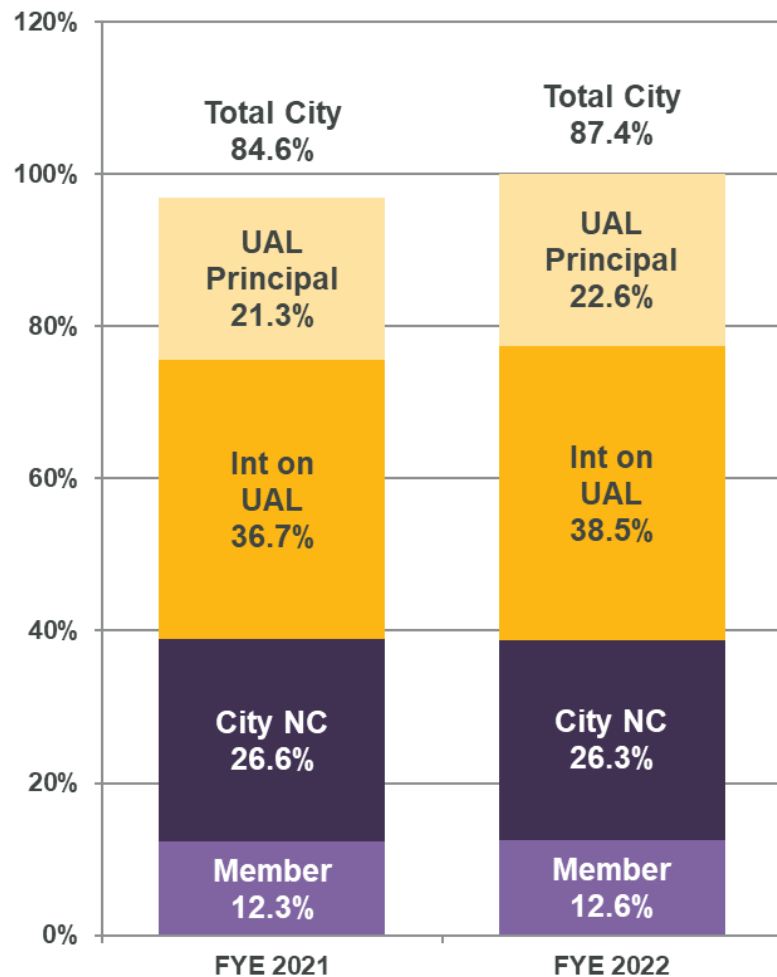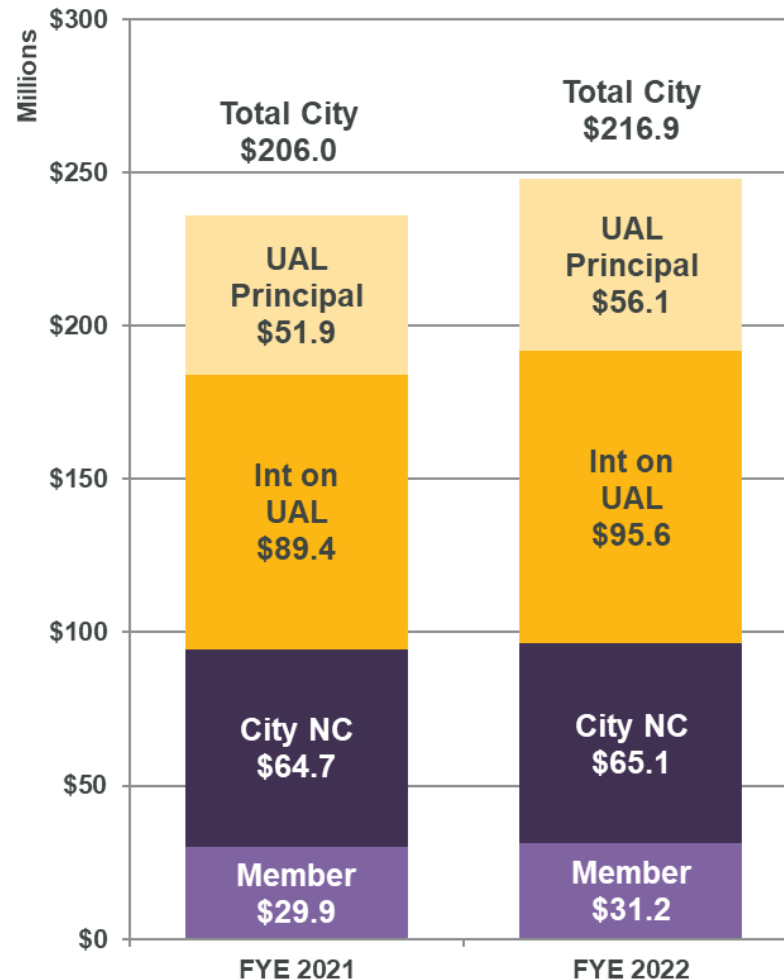
City Contribution Changes

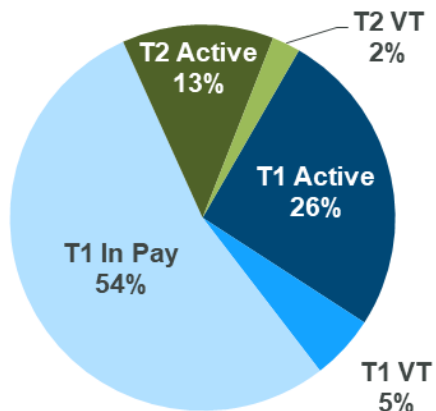|	City Rate	City Amount
FYE 2021	84.6%	$ 205,963
Expected FYE 2022	85.8%	$ 215,744
FYE 2022 Baseline with No Changes	86.7%	$ 216,331
FYE 2022 with Assumption/Amortization Changes	87.4%	$ 216,856

Amounts in thousands

- Based on the 2019 valuation, the City's contribution was expected to increase for FYE 2022 due to deferred investment losses

- Actual experience during the year further increased the City's contribution
  - Additional investment losses
  - Offset by some liability gains

- Method and assumption changes further increased the City's contribution
  - Economic assumption changes increased expected costs (discount rate, wage inflation, and price inflation)
  - Extension of 2005 amortization bases by one year offset much of cost impact of the assumption changes for FYE 2022, shifting it to FYE 2023
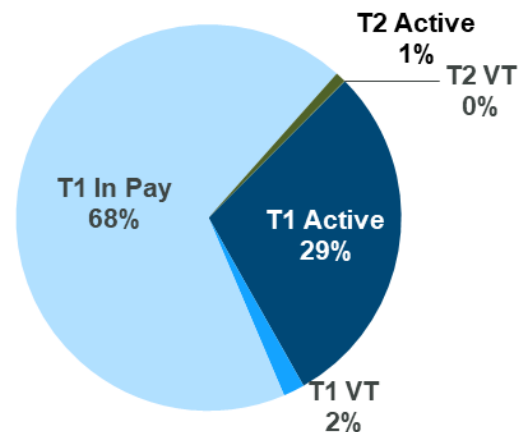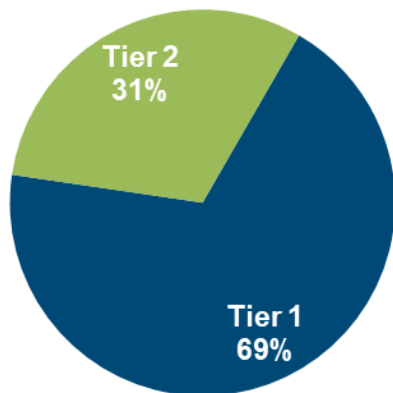
Tier Comparisons

Member Counts

- T2 VT 2%
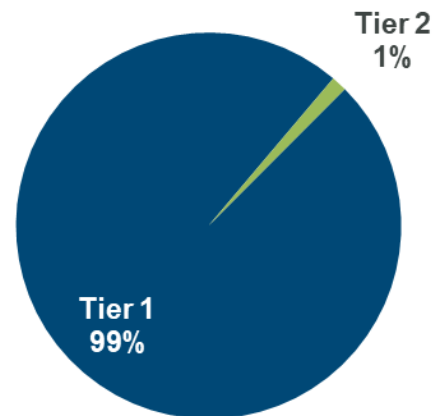- T2 Active 13%
- T1 Active 26%
- T1 In Pay 54%
- T1 VT 5%

Actuarial Liability

- T2 Active 1%
- T2 VT 0%
- T1 In Pay 68%
- T1 Active 29%
- T1 VT 2%

Payroll

- Tier 2 31%
- Tier 1 69%

Market Value of Assets

- Tier 2 1%
- Tier 1 99%

Contributions by Tier
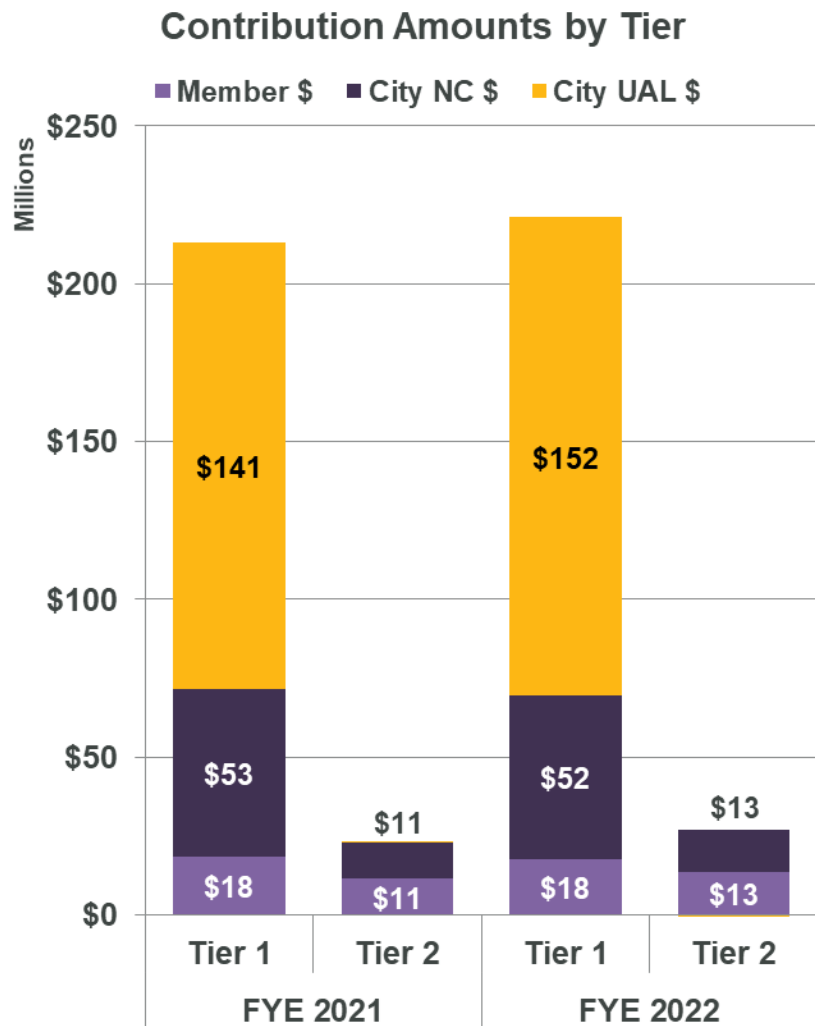

Contribution Amounts by Tier

- ## Tier 1
  - Member and City normal cost contributions remained relatively constant
  - Tier 1 City UAL payments increased about $11 million

- ## Tier 2
 - City and member contributions increased, primarily reflecting the growth of Tier 2

| Contribution Rates and Amounts (Throughout the Year)						
	Fire		**Police**		**Total**	
	FYE 2021	**FYE 2022**	**FYE 2021**	**FYE 2022**	**FYE 2021**	**FYE 2022**
Member Rates						
Tier 1	11.7%	11.9%	10.8%	10.9%	11.2%	11.4%
Tier 2	<u>15.5%</u>	<u>15.3%</u>	<u>14.2%</u>	<u>14.4%</u>	<u>14.5%</u>	<u>14.7%</u>
Aggregate	12.6%	12.7%	12.1%	12.3%	12.3%	12.6%
City Contributions						
Tier 1 UAL	$ 61,213	$ 70,887	$ 79,984	$ 80,921	$ 141,198	$ 151,808
Tier 1 Normal Cost + Admin Expenses	$ 23,634 33.2%	$ 24,192 33.7%	$ 29,649 31.8%	$ 27,396 32.5%	$ 53,283 32.4%	$ 51,589 33.0%
Tier 2 Contribution	$ 3,204 15.5%	$ 3,749 15.3%	$ 8,279 14.2%	$ 9,711 14.4%	$ 11,482 14.5%	$ 13,460 14.7%
Aggregate	$ 88,051 95.9%	$ 98,828 102.6%	$117,912 77.8%	$118,028 77.8%	$ 205,963 84.6%	$ 216,856 87.4%

Dollar amounts in thousands

Changes in UAL
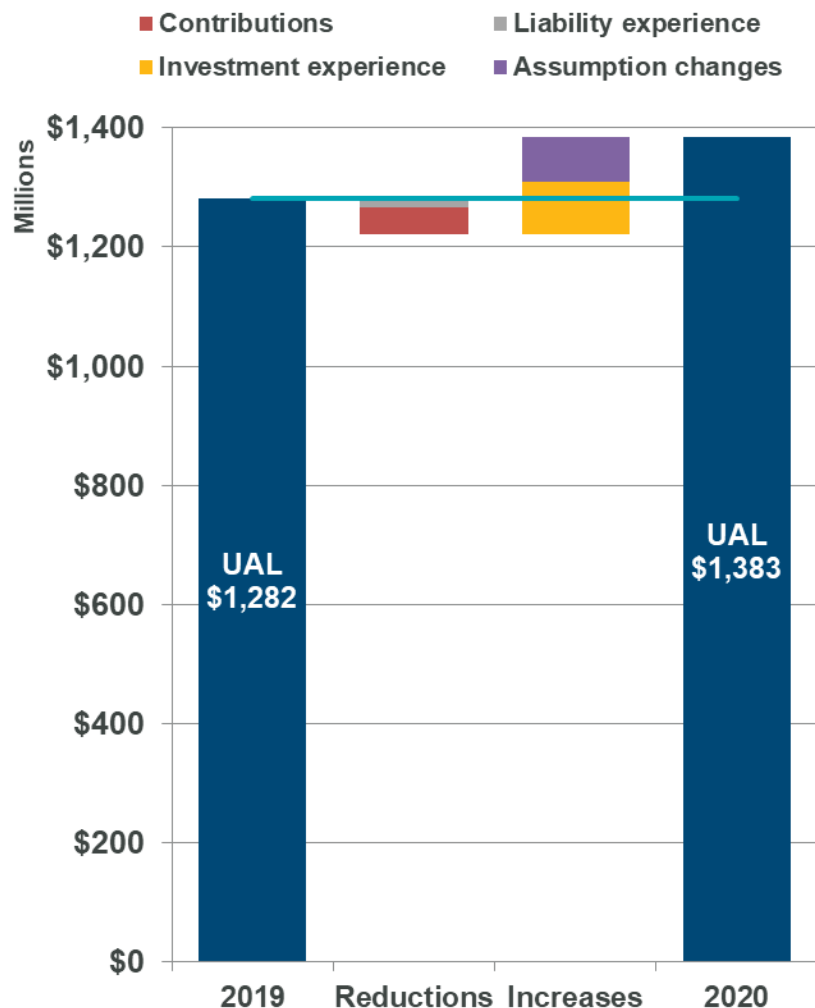
- During FYE 2020, the UAL based on the Actuarial Value of Assets increased by about $101 million

- Reductions include:
  - Contributions ($46)
  - Liability experience ($15)
    - Salaries ($14)
    - Disability ($7)

- Increases include:
  - Investments +$90
  - Assumptions +$74

Changes in UAL

Changes in Unfunded Actuarial Liability
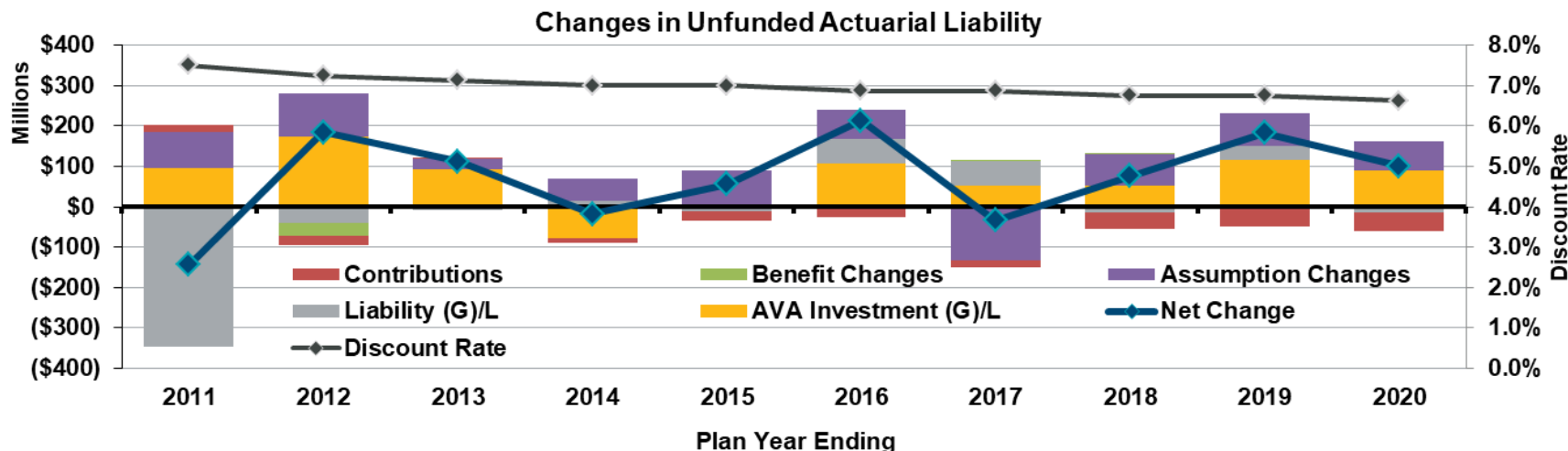
Changes in Unfunded Actuarial Liability											
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
Discount Rate Source	7.50%	7.25%	7.13%	7.00%	7.00%	6.875%	6.875%	6.75%	6.75%	6.625%	
AVA (G)/L	$ 96.5	$ 172.8	$ 91.3	$ (78.5)	$ (2.8)	$ 106.8	$ 50.9	$ 53.6	$ 116.2	$ 89.5	**$ 696.3**
Liability (G)/L	(346.1)	(39.4)	(9.9)	14.7	(7.3)	61.3	61.8	(15.1)	35.1	(15.4)	**(260.4)**
Assumptions	89.1	107.7	28.2	56.3	90.0	72.7	(131.8)	76.4	80.9	73.5	**543.0**
Benefit Changes	0.0	(32.5)	0.0	0.0	0.0	0.0	4.3	0.2	0.0	0.0	**(28.1)**
Contributions	17.1	(24.6)	2.2	(9.9)	(23.4)	(27.0)	(19.6)	(39.7)	(49.8)	(46.5)	**(221.2)**
Total UAL Change	**$(143.5)**	**$ 184.0**	**$ 111.9**	**$ (17.4)**	**$ 56.5**	**$ 213.7**	**$ (34.4)**	**$ 75.4**	**$ 182.3**	**$ 101.3**	**$ 729.6**

Columns and rows may not add due to rounding

Dollar amounts in millions

Tier 1 City Amortization Payments

Legend: Assumptions, Benefits, Gain/Loss, Total
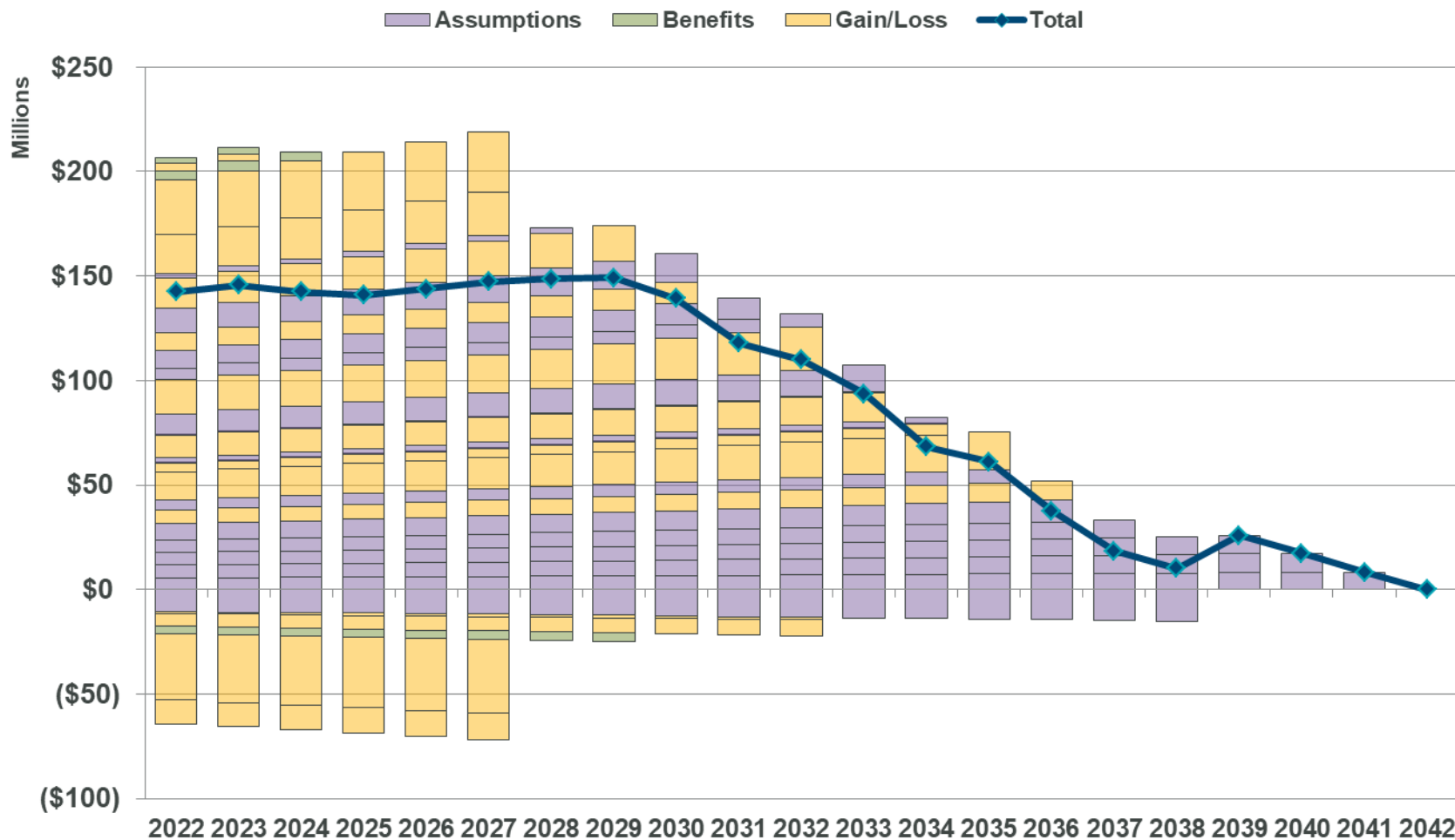
Historical and Projected Assets and Liabilities
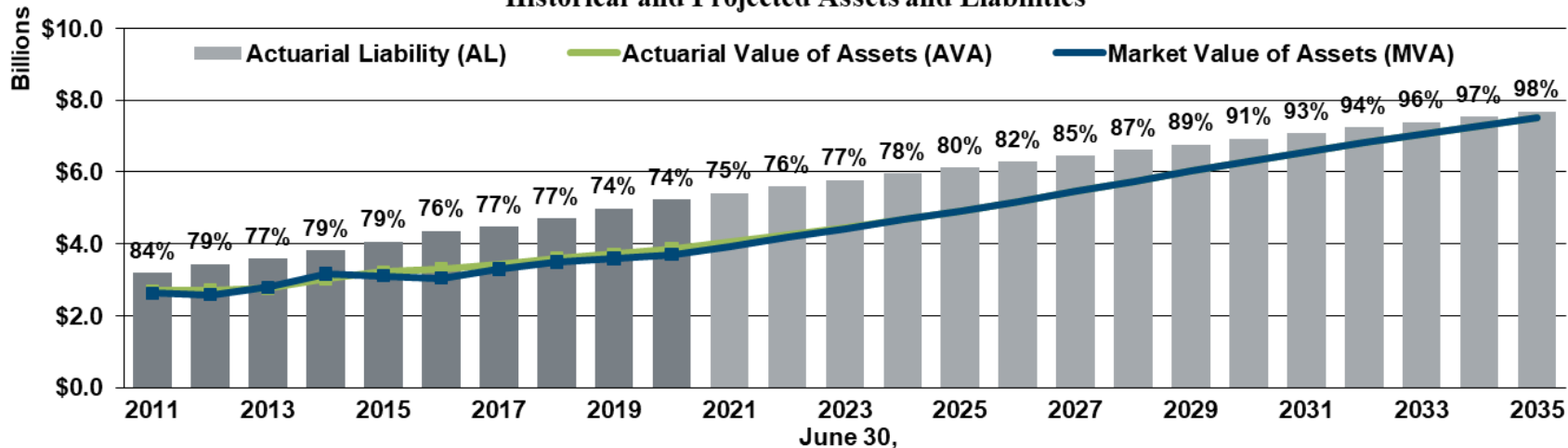
Reflects initial amortization adjustment option

Historical and Projected Contribution Rates
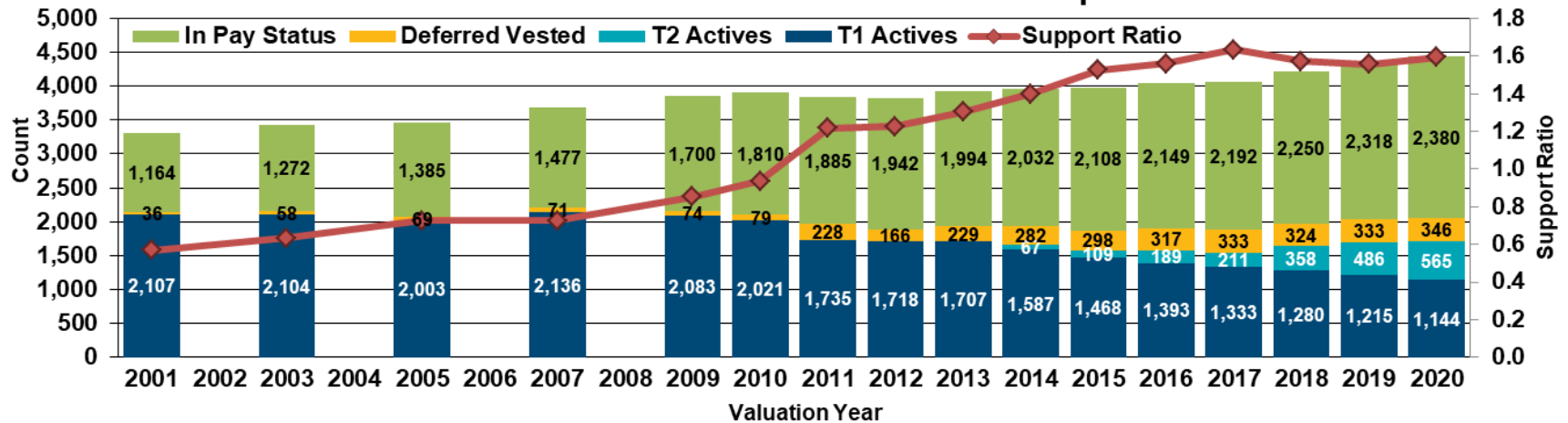
Historical and Projected Contribution Amounts
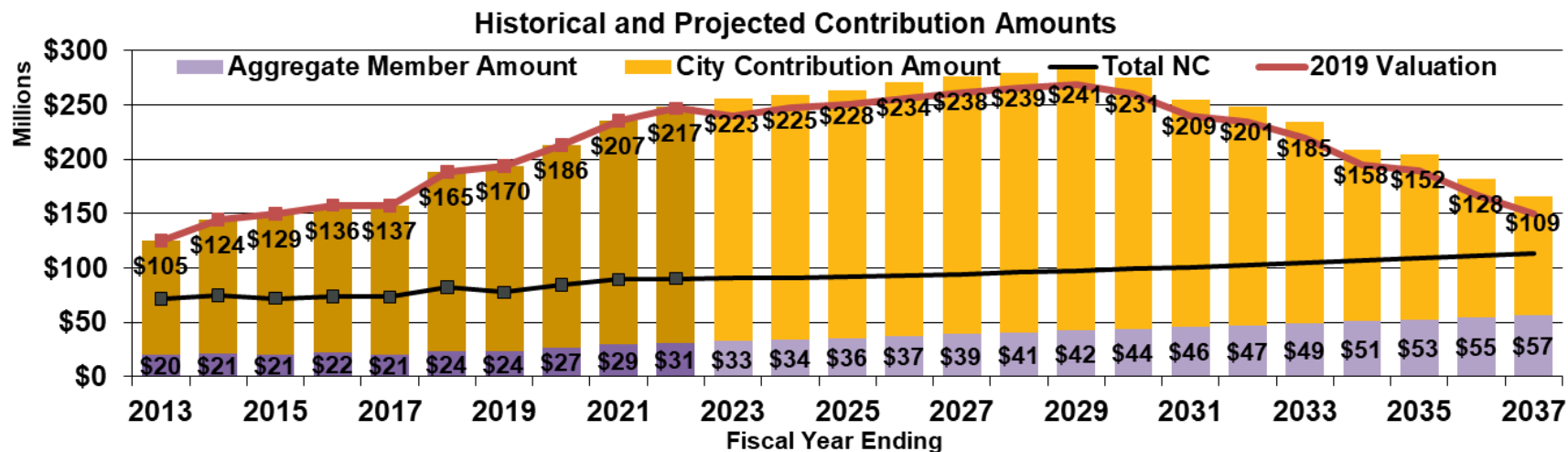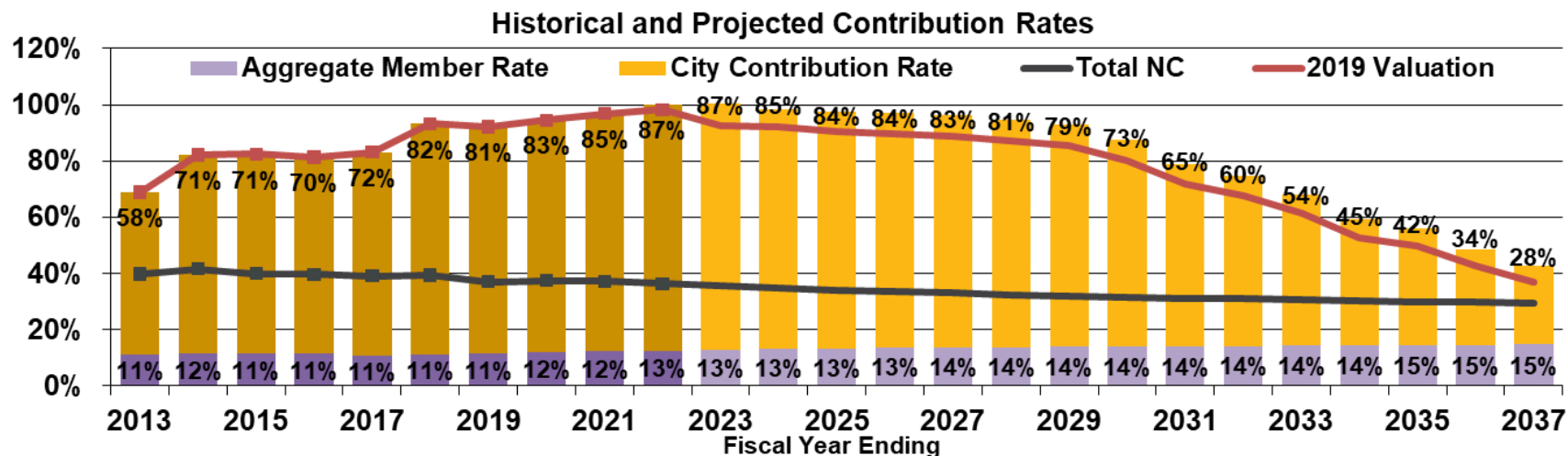
Plan Maturity – Support Ratio

Police & Fire Historical Membership Counts

Legend: In Pay Status, Deferred Vested, T2 Actives, T1 Actives, Support Ratio

Valuation Year	In Pay Status	Deferred Vested	T2 Actives	T1 Actives
2001	1,164	36		2,107
2003	1,272	58		2,104
2005	1,385	69		2,003
2007	1,477	71		2,136
2009	1,700	74		2,083
2010	1,810	79		2,021
2011	1,885	228		1,735
2012	1,942	166		1,718
2013	1,994	229		1,707
2014	2,032	282	67	1,587
2015	2,108	298	109	1,468
2016	2,149	317	189	1,393
2017	2,192	333	211	1,333
2018	2,250	324	358	1,280
2019	2,318	333	486	1,215
2020	2,380	346	565	1,144

Support Ratio

Legend: 5th to 25th Percentile, 25th to 50th Percentile, 50th to 75th Percentile, 75th to 95th Percentile, San Jose Police & Fire, San Jose

Survey Data from Public Plans Database as of 12/28/2020

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Asset Leverage Ratio

Legend: 5th to 25th Percentile, 25th to 50th Percentile, 50th to 75th Percentile, 75th to 95th Percentile, San Jose Police & Fire, San Jose

Survey Data from Public Plans Database as of 12/28/2020

Liability Leverage Ratio

Legend: 5th to 25th Percentile, 25th to 50th Percentile, 50th to 75th Percentile, 75th to 95th Percentile, San Jose Police & Fire, San Jose

Survey Data from Public Plans Database as of 12/28/2020

January 7, 2021
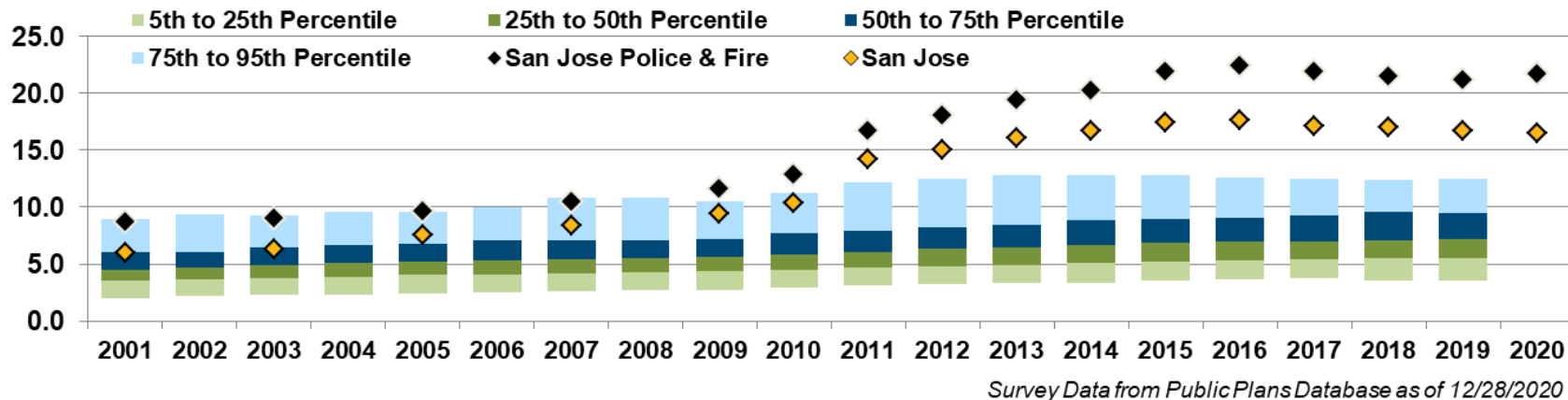
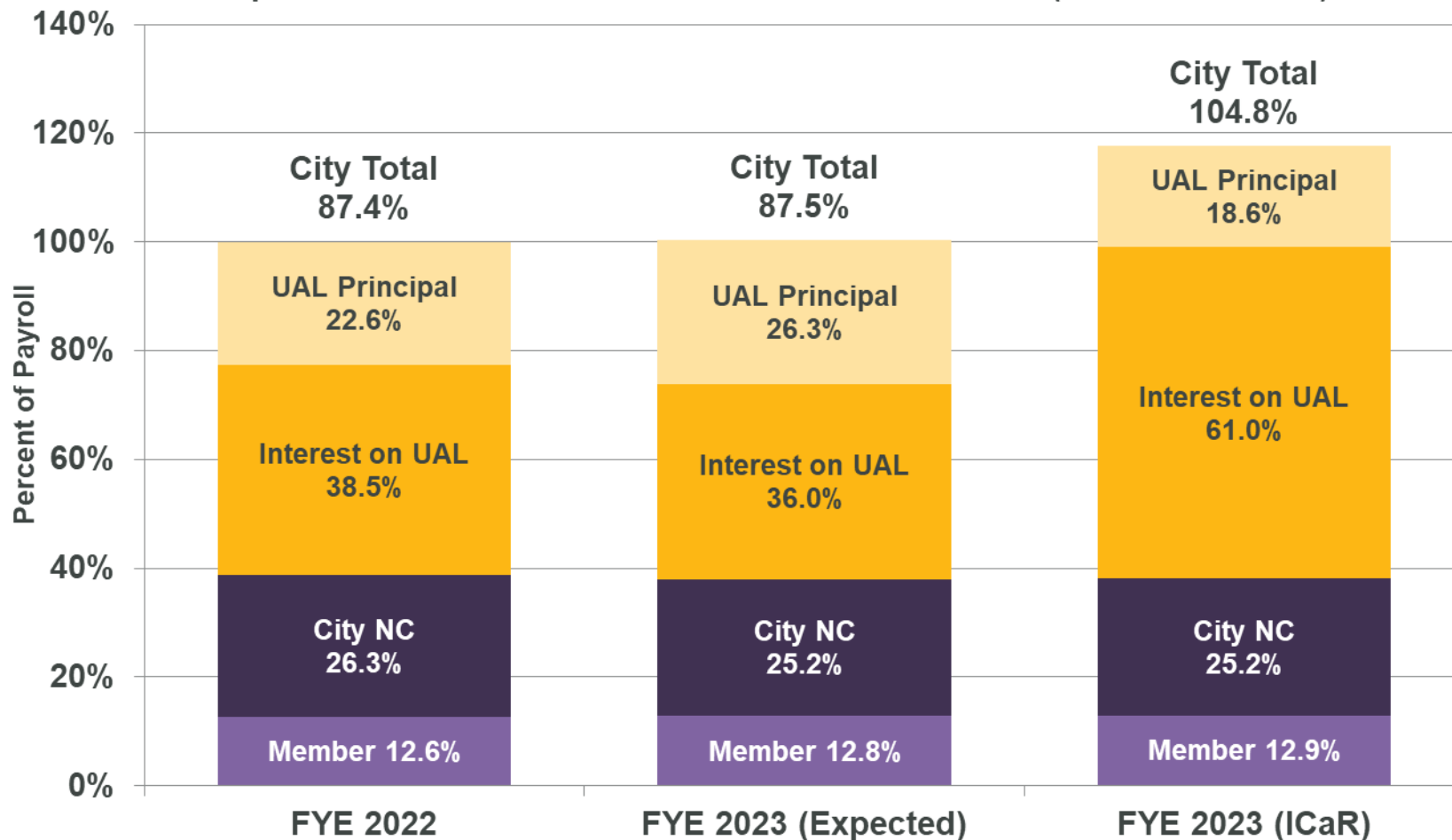**Interest Cost at Risk**
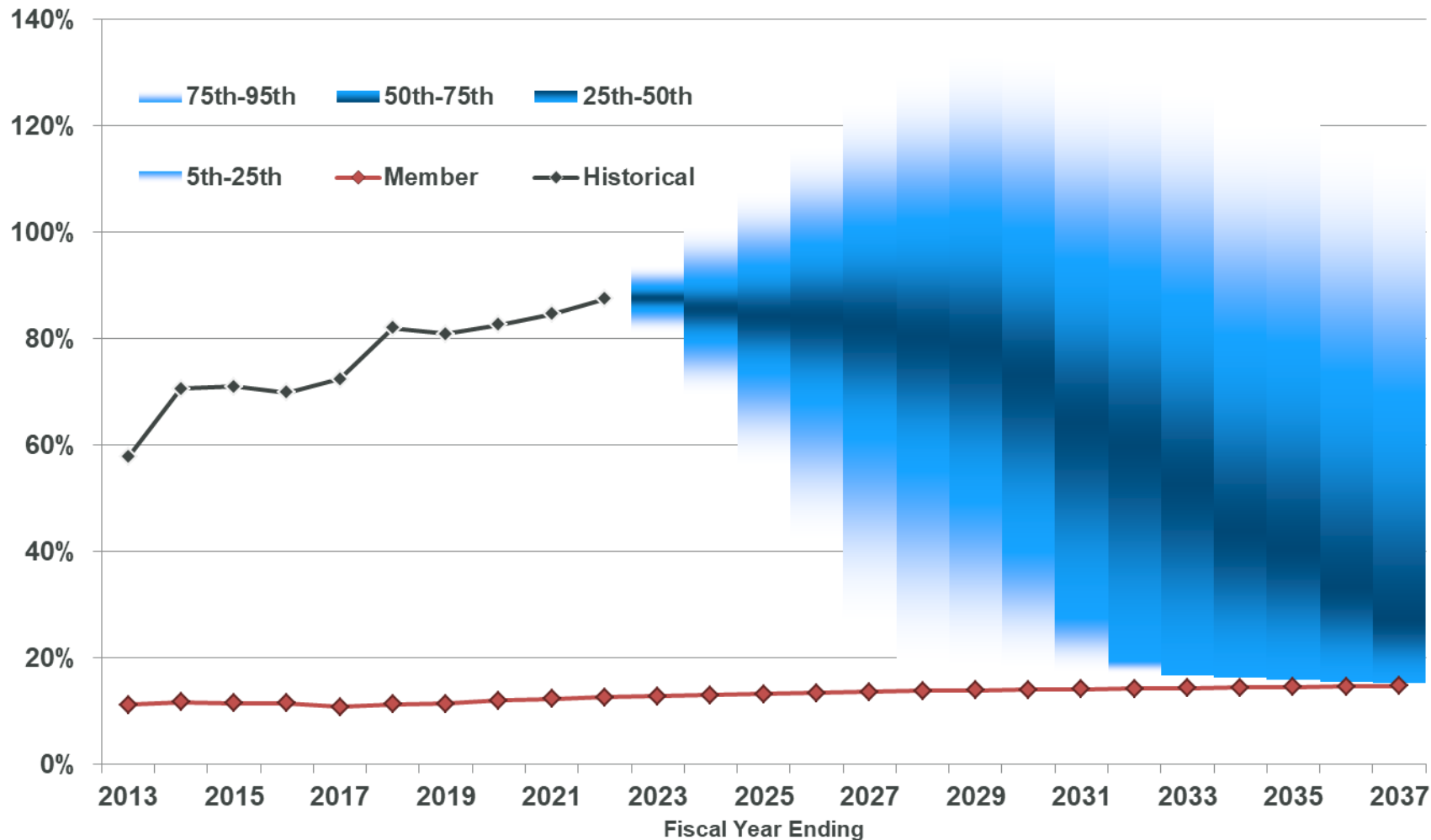Impact of a Two Standard Deviation Investment Loss (-18.775% Return)

Stochastic Risk Assessment

Historical and Projected City Contribution Rates

Stochastic projections are based on a 6.625% geometric return and 12.7% standard deviation

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Tier 1 Historical and Projected Contribution Amounts
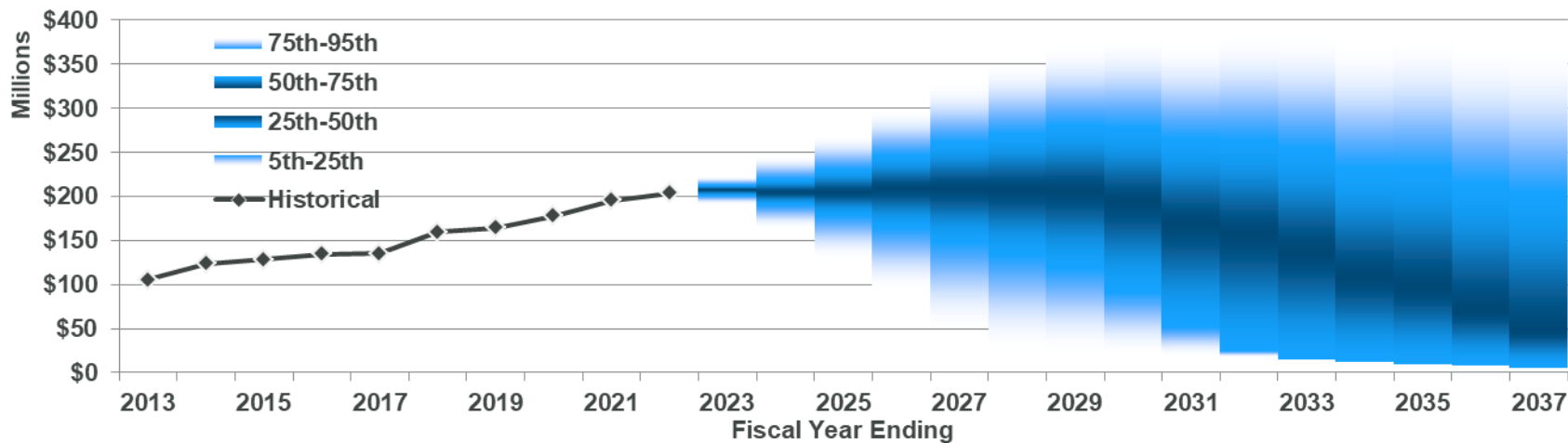
Tier 2 Historical and Projected Contribution Amounts

Stochastic projections are based on a 6.625% geometric return and 12.7% standard deviation

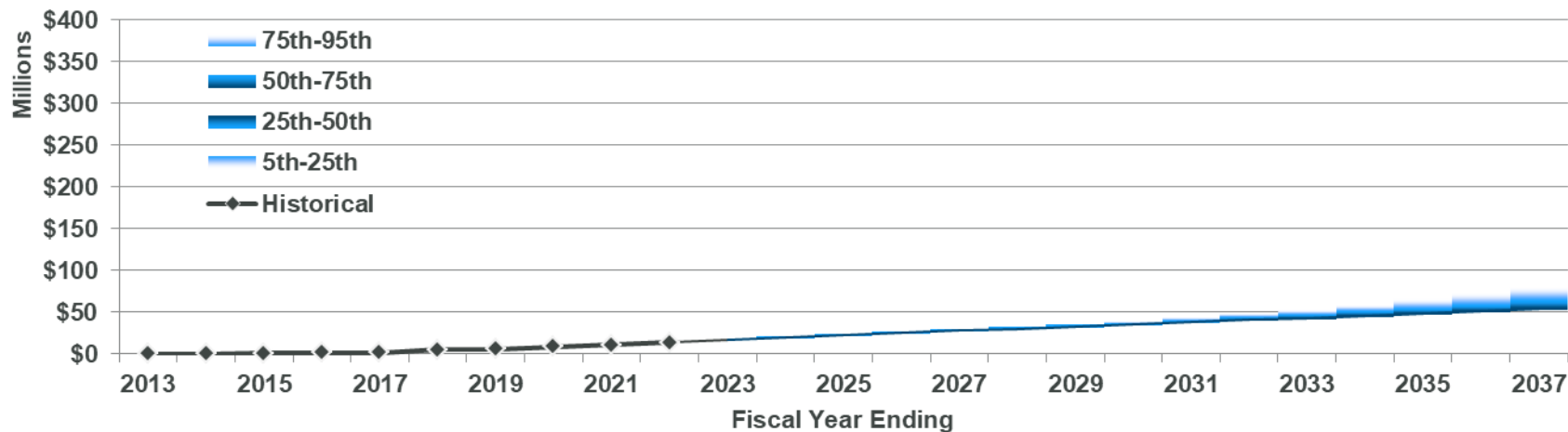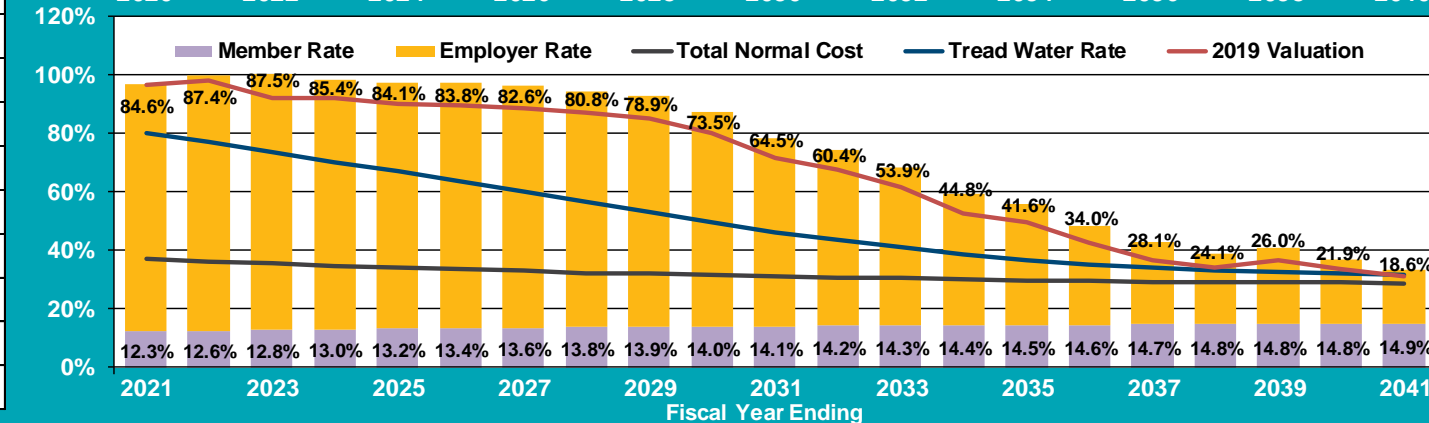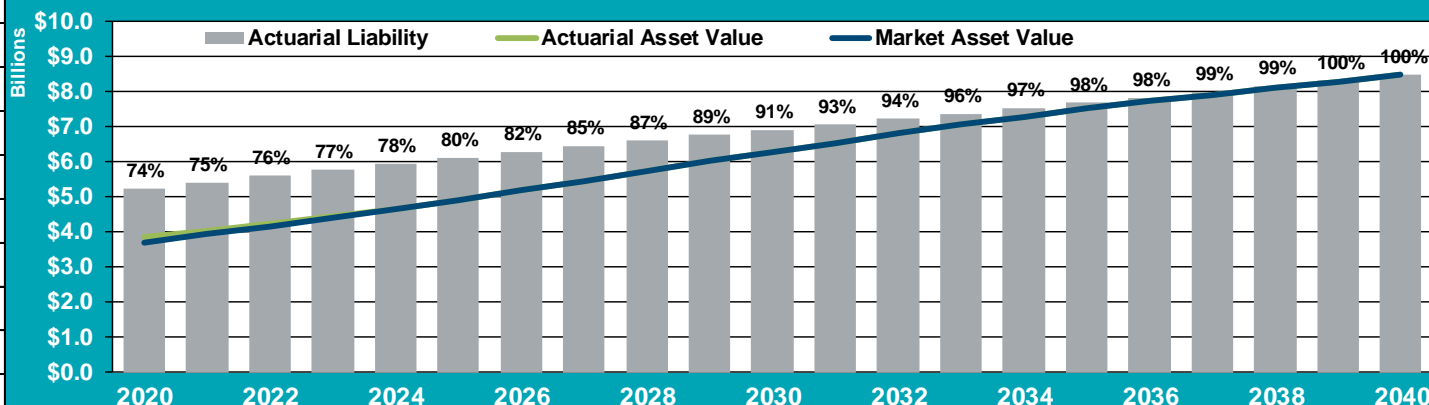# Stress Testing

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Appendix – Certification

- The purpose of this presentation is to present the results of the June 30, 2020 Actuarial Valuation Report for the City of San José Police and Fire Department Retirement Plan.

- In preparing our presentation, we relied on information (some oral and some written) supplied by the City of San José Department of Retirement Services. 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 the valuation results can be found in the June 30, 2020 actuarial valuation report.

- 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 opinion 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 City of San José Police and Fire Department Retirement Plan 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

Anne D. Harper, FSA, EA, MAAA
Principal Consulting Actuary

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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 valuation 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.

- Stochastic projections in this valuation report were developed using R-scan, our proprietary tool for assessing the probability of different outcomes based on a range of potential investment returns. We relied on Cheiron colleagues for the development of the model. The stochastic projections of investment returns assume that each future year's investment return is independent from all other years and is identically distributed according to a lognormal distribution. The standard deviation used in the stochastic projection of investment returns was provided by the System's investment consultant.

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Appendix – 5-Year Projection

Contribution Rates and Amounts (Throughout the Year) Fiscal Year Ending									
		2022		2023		2024		2025	2026
Member Rates									
Police Tier 1		10.85%		10.81%		10.76%		10.77%	10.78%
Police Tier 2		14.43%		14.39%		14.42%		14.45%	14.47%
Fire Tier 1		11.90%		11.90%		11.90%		11.90%	11.90%
Fire Tier 2		15.28%		15.30%		15.33%		15.36%	15.38%
City Contributions									
Police									
Tier 1 UAL	$	80,921	$	83,189	$	81,015	$	84,136	$ 85,299
Tier 1 Normal Cost	$	27,396	$	24,990	$	22,707	$	20,825	$ 19,066
		32.46%		32.80%		33.33%		33.89%	34.66%
Tier 2	$	9,711	$	11,519	$	13,382	$	15,071	$ 16,743
		14.43%		14.39%		14.42%		14.45%	14.47%
Total Police	$	**118,028**	$	**119,697**	$	**117,105**	$	**120,032**	$ **121,108**
		77.81%		**76.61%**		**72.77%**		**72.42%**	**70.94%**
Fire									
Tier 1 UAL	$	70,887	$	76,009	$	80,145	$	80,607	$ 85,467
Tier 1 Normal Cost	$	24,192	$	22,959	$	21,623	$	20,324	$ 19,199
		33.69%		33.85%		34.11%		34.42%	34.72%
Tier 2	$	3,749	$	4,804	$	5,951	$	7,098	$ 8,172
		15.28%		15.30%		15.33%		15.36%	15.38%
Total Fire	$	**98,828**	$	**103,772**	$	**107,718**	$	**108,029**	$ **112,838**
		102.59%		**104.58%**		**105.40%**		**102.62%**	**104.07%**
Aggregate	$	**216,856**	$	**223,469**	$	**224,823**	$	**228,061**	$ **233,946**
		87.43%		**87.48%**		**85.44%**		**84.15%**	**83.81%**

Dollar amounts in thousands

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Tier 1 City Contribution Amounts (Beginning of Year) Fiscal Year Ending				
2022	**2023**	**2024**	**2025**	**2026**
Police				
Tier 1 UAL				
$ 78,367	$ 80,563	$ 78,458	$ 81,480	$ 82,606
Tier 1 Normal Cost				
26,532	24,201	21,991	20,167	18,464
Total Police				
$ 104,898	$ 104,764	$ 100,448	$ 101,648	$ 101,071
Fire				
Tier 1 UAL				
$ 68,649	$ 73,610	$ 77,615	$ 78,062	$ 82,770
Tier 1 Normal Cost				
23,429	22,234	20,940	19,683	18,593
Total Fire				
$ 92,078	$ 95,844	$ 98,555	$ 97,745	$ 101,362
Tier 1 Total				
$ 196,976	$ 200,608	$ 199,004	$ 199,393	$ 202,433

Dollar amounts in thousands