

State of Alaska

Department of Administration

Division of Retirement and Benefits

Presentation to the Senate Finance Committee

- Defined Benefit Versus Defined Contribution Comparison
 - Public Employees' Retirement System (PERS)
 - Teachers' Retirement System (TRS)
- Ajay Desai, Director
- Mindy Voigt, Sr. Pension Manager
- February 23, 2023



Defined Benefit v/s Defined Contributions

- **Defined Benefit (DB) plan**

- Is 'defined' in the sense that the “benefit” formula is defined.
- Employer contributions (Normal Cost and Past Service payment) will fluctuate annually based on the actuarial valuation.*
- Benefit calculated on set formulas such as the multiplier (percentage), salary history, and duration of employment.
- Provide a fixed, guaranteed benefit for employees at retirement based on the formula.
- Benefits can be paid as monthly payments for a lifetime.

- **Defined Contribution (DC) plan**

- Is 'defined' in the sense that the “contributions” are defined.
- Contributions are maintained in an individual account.
- These contributions are invested on the employee's behalf.
- Provide an account balance that will fluctuate due to the changes in the value of the investments. The employee will ultimately receive the balance in their account based on contributions plus or minus investment gains or losses.
- Benefits can be a lump sum, rollover to another retirement plan, or conversion to annuity payments.

* Actuarial valuation: A retirement plan estimates a plan's financial position at a specific point in time.



Chronology

- **PERS**

- **Defined Benefit Tiers**

- January 1961: Established
- July 1986: Tier II established
- July 1996: Tier III established

- **Defined Contribution Tier**

- July 2006: Tier IV established
- July 2008: Cost Share with 22% employer contribution rate

- **TRS**

- **Defined Benefit Tiers**

- March 1945: Established
- July 1990: Tier II established

- **Defined Contribution Tier**

- July 2006: Tier III established
- July 2008: Cost Share with 12.56% employer contribution rate



Contributions Rates

PERS: Defined Benefit Tier III	PERS: Defined Contribution Tier IV
<ul style="list-style-type: none"> ○ Employee – <ul style="list-style-type: none"> ○ 6.75% - All other ○ 7.50% - Peace Officer/Firefighter ○ 9.60% - School District Alternate Option 	<ul style="list-style-type: none"> ○ Employee - 8.00%
<ul style="list-style-type: none"> ○ Employer* – Normal Cost 	<ul style="list-style-type: none"> ○ Employer – 5.00%

TRS: Defined Benefit Tier II	TRS: Defined Contribution Tier III
<ul style="list-style-type: none"> ○ Employee – 8.65% 	<ul style="list-style-type: none"> ○ Employee - 8.00%
<ul style="list-style-type: none"> ○ Employer* – Normal Cost 	<ul style="list-style-type: none"> ○ Employer – 7.00%

Supplemental Annuity Plan (Supplemental Benefits System (SBS))
<ul style="list-style-type: none"> ○ Employee – 6.13%
<ul style="list-style-type: none"> ○ Employer – 6.13%

* *Total employer contributions for PERS is 22% due to Cost-Share effective July 2008, and for TRS is 12.56%, including Normal and Past Service costs.*



Comparison

- What are we comparing?
 - DB Plans provides fixed monthly benefits based on the pre-defined formulas, where the benefit does not fluctuate
 - DC Plan account balance will fluctuate due to the changes in the value of the investments

- Is it a true or fair comparison?
 - These comparisons are illustrated based on DC account balances calculated assuming the long-term average rate of returns and also assuming the average interest rate for annuity payouts
 - It may derive lower or higher account balances and possibly lower or higher converted annuity payments based on the actual rate of return and the prevailing interest rate



Formulas and Assumptions

- Defined Benefit Plan Formulas:

	PERS			TRS	
	Tier I	Tier II	Tier III	Tier I	Tier II
Normal Retirement Age	55	60	60	55	60
Highest Average Salary (All Others) (Peace Officer/Firefighters)	3 Years	3 Years	5 Years	3 Years	3 Years
Multipliers (All Others)	2.00% for the first 10 Years, Plus 2.25% for the years over 10 to 20, Plus 2.50% for the years over 20			2.00% for the first 20 years, Plus 2.50% for the years over 20	
(Peace Officer/Firefighters)	2.00% for the first 10 years, Plus 2.50% for the years over 10				

- Defined Contribution Plan Assumptions:

- Entry-Level Salary for a respective group
- 2.75% Annual Wage Increases for each year
- 7.00% Annual Rate of Return
- Average Life Expectancy of age 85
- 5.89% Annuity Payout Rate @ Retirement using the Periodic Payment option

Per Buck's suggestion for illustrative purposes: Used historical 10-year constant maturity U.S. Treasury yields. For the purposes of these illustrations, a conversion interest rate of 5.89% was used. The use of a different conversion interest rate would produce different results. As the conversion interest rate goes down, the annuity amount decreases (and vice versa).



PERS - Tier III and Tier IV Comparison

All Other Members

PERS - Tier III (DB) versus Tier IV (DC)						
All Other Members						
Entry salary:		\$57,949.00				
Wage Increase Rate:		2.75%				
			Tier III (DB)		Tier IV (DC)	
Employee Contributions:		6.75%		8.00%		
Employer Contributions:		Normal Cost		5.00%		
Annual Rate of return (ROR):				7.00%		
Normal Retirement Age:		60		60		
Average Life Expectancy:				85		
Annuity Payout Rate:				5.89%		
Annuity to be Paid For Years:				25		
All Other Members				Tier III (DB)		
A	B	C	D: Salary	Tier IV (DC)		
Total Service	Projected Last Salary	Total Annual Benefit	Replacement Ratio (C/B)	E: Projected Account Balance	F: Converted to Annuity	G: Salary Replacement Ratio (F/B)
5	64,591.19	6,122.51	9.48%	48,796.36	3,715.24	5.75%
10	73,974.57	14,023.88	18.96%	124,324.60	9,465.77	12.80%
15	84,721.10	25,095.60	29.62%	238,375.48	18,149.33	21.42%
20	97,028.81	39,088.19	40.29%	407,635.78	31,036.40	31.99%
25	111,124.52	57,933.33	52.13%	655,680.92	49,921.96	44.92%
30	127,267.95	81,428.93	63.98%	1,015,772.85	77,338.49	60.77%

Annual benefits for the DB calculations are based on the plan formula using projected salaries. While DC account balances are projected based on the 7% annual rate of return with a 5.89% annuity payout rate.



PERS - Tier III and Tier IV Comparison

Peace Officers/Firefighters

PERS - Tier III (DB) versus Tier IV (DC) Peace Officers/Firefighters						
Entry salary:		\$80,435.47				
Wage Increase Rate:		2.75%				
			Tier III (DB)	Tier IV (DC)		
Employee Contributions:		7.50%		8.00%		
Employer Contributions:		Normal Cost		5.00%		
Annual Rate of return (ROR):				7.00%		
Normal Retirement Age:		60		60		
Average Life Expectancy:				85		
Annuity Payout Rate:				5.89%		
Annuity to be Paid For Years:				25		
Peace Officers/Firefighters				Tier III (DB)		
A	B	C	D: Salary	Tier IV (DC)		
Total Service	Projected Last Salary	Total Annual Benefit	Replacement Ratio (C/B)	E: Projected Account Balance	F: Converted to Annuity	G: Salary Replacement Ratio (F/B)
5	89,655.08	8,727.70	9.73%	67,731.25	5,156.89	5.75%
10	102,679.58	19,991.20	19.47%	172,567.38	13,138.86	12.80%
15	117,596.18	37,205.00	31.64%	330,874.45	25,191.98	21.42%
20	134,679.78	58,998.31	43.81%	565,814.35	43,079.74	31.99%
25	154,245.16	86,338.42	55.97%	910,110.67	69,293.63	44.92%
30	176,652.87	120,376.98	68.14%	1,409,932.30	107,348.84	60.77%

Annual benefits for the DB calculations are based on the plan formula using projected salaries. While DC account balances are projected based on the 7% annual rate of return with a 5.89% annuity payout rate.



TRS - Tier II and Tier III Comparison

Teachers

TRS - Tier II (DB) versus Tier III (DC)						
Teachers						
Entry salary:		\$59,581.00				
Wage Increase Rate:		2.75%				
			Tier II (DB)		Tier III (DC)	
Employee Contributions:		8.65%		8.00%		
Employer Contributions:		Normal Cost		7.00%		
Annual Rate of return (ROR):				7.00%		
Normal Retirement Age:		60		60		
Average Life Expectancy:				85		
Annuity Payout Rate:				5.89%		
Annuity to be Paid For Years:				25		
Teachers				Tier II (DB)		
A	B	C	D: Salary	Tier III (DC)		
Total Service	Projected Last Salary	Total Annual Benefit	Replacement Ratio (C/B)	E: Projected Account Balance	F: Converted to Annuity	G: Salary Replacement Ratio (F/B)
5	66,410.25	6,464.87	9.73%	57,889.15	4,407.54	6.64%
10	76,057.89	14,808.09	19.47%	147,491.44	11,229.64	14.76%
15	87,107.07	25,438.96	29.20%	282,794.74	21,531.31	24.72%
20	99,761.41	38,846.09	38.94%	483,595.27	36,819.78	36.91%
25	114,254.08	58,392.32	51.11%	777,861.54	59,224.50	51.84%
30	130,852.15	82,797.83	63.28%	1,205,053.56	91,749.87	70.12%

Annual benefits for the DB calculations are based on the plan formula using projected salaries. While DC account balances are projected based on the 7% annual rate of return with a 5.89% annuity payout rate.



Actual Plan Data (as of 2/1/2023)

- **1st Group: Comparable Salaries**
 - Closest match with the projected wage increases with 2.75% at the respective year of comparison
- **2nd Group: All Salaries**
 - All comparable salaries plus all salaries higher than hypothetical projected salaries
- **3rd Group: Account Balances higher than the projected balances**
 - Actual account balances for those that are equal to or higher than the projected with the 7.00% Rate of Return

Note: For all groups above, the member's minimum account balance must equal or exceed the account balance projected with a 0.0% Annual Rate of Return.



PERS - Tier III and Tier IV Comparison

All Other Members

(From Slide# 7)

Hypothetical Salaries			V/S	Actual Salaries as of 2022					
PERS All Other	DB Plan	DC Plan	Actual Plan Data (as of 2/1/2023)						
		(Projected ROR=7%)	Comparable Salaries		All Salaries		RoR >= 7% Projection		
Total Service	A: Salary Replacement Ratio	B: Salary Replacement Ratio	Members	C: Salary Replacement Ratio	Members	D: Salary Replacement Ratio	Members	E: Salary Replacement Ratio	
5	9.48%	5.75%	23	5.29%	296	5.27%	48	6.44%	
6	11.37%	7.05%	25	6.53%	480	6.22%	53	8.46%	
7	13.27%	8.40%	28	7.65%	445	7.39%	56	9.22%	
8	15.17%	9.81%	24	9.34%	448	8.73%	59	11.46%	
9	17.06%	11.27%	21	9.71%	419	9.91%	56	12.42%	
10	18.96%	12.80%	28	11.68%	402	11.06%	56	13.97%	
11	21.09%	14.38%	10	13.58%	324	12.84%	47	16.21%	
12	23.22%	16.04%	18	13.96%	303	14.25%	55	17.63%	
13	25.36%	17.76%	12	16.40%	215	15.80%	42	19.28%	
14	27.49%	19.55%	10	16.69%	214	16.65%	27	21.20%	
15	29.62%	21.42%	10	19.22%	207	17.96%	20	23.55%	
16	31.75%	23.37%	5	20.11%	138	18.67%	8	25.84%	
17	33.89%	25.39%	0		10	20.98%	1	25.99%	
Total Actual Members:>			214		3,901		528		



Additional details for the analysis are shown in the appendix (Slides 21 and 22)

PERS - Tier III and Tier IV Comparison

Peace Officers/Firefighters

(From Slide# 8)

Hypothetical Salaries			V/S	Actual Salaries as of 2022					
PERS PO/FF	DB Plan	DC Plan (Projected ROR=7%)		Actual Plan Data (as of 2/1/2023)					
	A: Salary Replacement Ratio	B: Salary Replacement Ratio		Comparable Salaries		All Salaries		RoR >= 7% Projection	
Total Service				Members	C: Salary Replacement Ratio	Members	D: Salary Replacement Ratio	Members	E: Salary Replacement Ratio
5	9.73%	5.75%		1	4.92%	48	4.90%	1	5.80%
6	11.68%	7.05%		3	6.16%	87	5.72%	3	7.71%
7	13.63%	8.40%		2	6.95%	81	6.58%	1	8.69%
8	15.58%	9.81%		1	7.81%	75	8.08%	7	10.54%
9	17.52%	11.27%		2	9.80%	67	8.98%	2	11.80%
10	19.47%	12.80%		4	10.27%	55	10.09%	3	14.49%
11	21.90%	14.38%		5	12.06%	56	12.21%	8	16.41%
12	24.34%	16.04%		3	15.14%	51	14.17%	12	17.32%
13	26.77%	17.76%		1	14.31%	22	14.24%	1	18.12%
14	29.20%	19.55%		1	18.39%	31	15.19%	2	19.76%
15	31.64%	21.42%		1	19.08%	65	16.87%	5	22.29%
16	34.07%	23.37%		2	19.17%	31	16.99%	2	24.78%
17	36.51%	25.39%		0		3	18.91%	0	
Total Actual Members:>				26		672		47	



Additional details for the analysis are shown in the appendix (Slides 23 and 24)

TRS - Tier II and Tier III Comparison

Teachers

(From Slide# 9)

Hypothetical Salaries			V/S	Actual Salaries as of 2022					
TRS	DB Plan	DC Plan	Actual Plan Data (as of 2/1/2023)						
		(Projected ROR=7%)	Comparable Salaries		All Salaries		RoR >= 7% Projection		
Total Service	A: Salary Replacement Ratio	B: Salary Replacement Ratio	Members	C: Salary Replacement Ratio	Members	D: Salary Replacement Ratio	Members	E: Salary Replacement Ratio	
5	9.73%	6.64%	2	6.28%	35	5.77%	2	7.44%	
6	11.68%	8.13%	14	6.93%	226	6.66%	14	9.22%	
7	13.63%	9.69%	28	8.18%	214	7.93%	7	10.92%	
8	15.58%	11.31%	21	9.52%	252	9.49%	19	12.45%	
9	17.52%	13.00%	18	11.22%	198	10.76%	8	14.21%	
10	19.47%	14.76%	25	13.21%	196	12.48%	10	15.91%	
11	21.42%	16.60%	22	15.03%	152	14.05%	10	18.12%	
12	23.36%	18.51%	15	17.03%	153	15.90%	13	19.58%	
13	25.31%	20.49%	8	19.05%	124	17.64%	8	22.46%	
14	27.26%	22.56%	16	20.16%	149	19.25%	9	26.26%	
15	29.20%	24.72%	15	19.59%	120	19.78%	3	27.09%	
16	31.15%	26.96%	19	21.99%	109	21.08%	1	27.36%	
17	33.10%	29.30%	12	23.70%	60	22.30%	1	29.89%	
Total Actual Members:>			215		1,988		105		



Additional details for the analysis are shown in the appendix (Slides 25 and 26)

Supplemental Annuity Plan

(Supplemental Benefits System (SBS)) - All Other Members

Entry salary:	\$57,949.00	Employee Contributions:	6.13%	Annual Rate of return:	7.00%
Wage Increase Rate:	2.75%	Employer Contributions:	6.13%	Annuity Payout Rate:	5.89%

Hypothetical Salaries	
PERS All Other	SBS (Projected ROR=7%)
	A: Salary Replacement Ratio
Total Service	
5	5.42%
6	6.65%
7	7.92%
8	9.25%
9	10.63%
10	12.07%
11	13.57%
12	15.13%
13	16.75%
14	18.44%
15	20.20%
16	22.04%
17	23.95%

V/S

Actual Salaries as of 2022					
Actual Plan Data (as of 2/1/2023)					
Comparable Salaries		All Salaries		RoR >= 7% Projection	
Members	B: Salary Replacement Ratio	Members	C: Salary Replacement Ratio	Members	D: Salary Replacement Ratio
11	5.25%	170	5.12%	22	6.90%
16	6.71%	248	6.15%	34	9.07%
15	7.39%	232	7.25%	26	11.39%
9	9.89%	249	8.18%	28	11.40%
10	9.99%	253	9.40%	21	13.76%
18	12.12%	260	10.55%	26	15.66%
7	15.19%	217	12.28%	24	17.75%
11	12.92%	209	13.35%	23	17.55%
10	15.22%	145	14.44%	13	19.07%
5	15.22%	136	15.66%	11	22.60%
3	19.29%	125	16.64%	5	24.05%
3	19.42%	82	17.75%	2	24.82%
0		6	18.29%	0	
Total Actual Members:>		118	2,332	235	



Supplemental Annuity Plan

(Supplemental Benefits System (SBS)) - Peace Officers/Firefighters

Entry salary:	\$80,435.47	Employee Contributions:	6.13%	Annual Rate of return:	7.00%
Wage Increase Rate:	2.75%	Employer Contributions:	6.13%	Annuity Payout Rate:	5.89%

Hypothetical Salaries	
PERS PO/FF	SBS (Projected ROR=7%)
	A: Salary Replacement Ratio
Total Service	
5	5.42%
6	6.65%
7	7.92%
8	9.25%
9	10.63%
10	12.07%
11	13.57%
12	15.13%
13	16.75%
14	18.44%
15	20.20%
16	22.04%

V/S

Actual Salaries as of 2022					
Actual Plan Data (as of 2/1/2023)					
Comparable Salaries		All Salaries		RoR >= 7% Projection	
	B: Salary Replacement Ratio		C: Salary Replacement Ratio		D: Salary Replacement Ratio
Members	Ratio	Members	Ratio	Members	Ratio
1	5.13%	6	4.75%	1	6.75%
1	6.55%	20	5.16%	1	8.00%
1	6.39%	26	5.65%	0	0.00%
0		24	7.36%	1	10.59%
0		30	7.91%	1	11.41%
4	8.92%	29	9.34%	1	13.75%
4	10.46%	27	9.79%	0	
0		22	11.74%	1	17.94%
1	12.40%	13	12.98%	0	
0		20	12.27%	0	
0		28	13.55%	0	
2	17.04%	20	15.08%	0	
Total Actual Members:>		265		6	



PERS - Tier III and Tier IV Comparison

All Other Members – with Increased Employer Contribution Rates

All Other Members

Entry-Level Hypothetical Salary:	\$57,949.00
Wage Increase Rate:	2.75%
Employee Contributions:	8.00%
Employer Contributions (ER):	5.00%
Annual Rate of return:	7.00%
Normal Retirement Age:	60
Average Life Expectancy:	85
Annuity Payout Rate:	5.89%
Annuity to be Paid For Years:	25.00

6.00%

7.00%

	Tier III (DB)		Tier IV (DC)	
A Total Service	B Projected Last Salary	C: Salary Replacement Ratio (C/B)	D: Projected Account Balance	E: Salary Replacement Ratio
5	64,591.19	9.48%	48,796.36	5.75%
10	73,974.57	18.96%	124,324.60	12.80%
15	84,721.10	29.62%	238,375.48	21.42%
20	97,028.81	40.29%	407,635.78	31.99%
25	111,124.52	52.13%	655,680.92	44.92%
30	127,267.95	63.98%	1,015,772.85	60.77%

w/6% ER Contribution Rate	
F: Projected Account Balance	G: Salary Replacement Ratio
52,549.93	6.19%
133,888.03	13.78%
256,712.05	23.07%
438,992.38	34.45%
706,117.92	48.38%
1,093,909.23	65.44%

w/7% ER Contribution Rate	
H: Projected Account Balance	I: Salary Replacement Ratio
56,303.50	6.64%
143,451.46	14.76%
275,048.63	24.72%
470,348.98	36.91%
756,554.91	51.84%
1,172,045.60	70.12%



PERS - Tier III and Tier IV Comparison

Peace Officers/Firefighters – with Increased Employer Contribution Rates

Peace Officers/Firefighters

Entry-Level Hypothetical Salary:	\$80,435.47
Wage Increase Rate:	2.75%
Employee Contributions:	8.00%
Employer Contributions (ER):	5.00%
Annual Rate of return:	7.00%
Normal Retirement Age:	60
Average Life Expectancy:	85
Annuity Payout Rate:	5.89%
Annuity to be Paid For Years:	25.00

6.00%

7.00%

A Total Service	Tier III (DB)		Tier IV (DC)	
	B Projected Last Salary	C: Salary Replacement Ratio (C/B)	D: Projected Account Balance	F: Salary Replacement Ratio
5	89,655.08	9.73%	67,731.25	5.75%
10	102,679.58	19.47%	172,567.38	12.80%
15	117,596.18	31.64%	330,874.45	21.42%
20	134,679.78	43.81%	565,814.35	31.99%
25	154,245.16	55.97%	910,110.67	44.92%
30	176,652.87	68.14%	1,409,932.30	60.77%

w/6% ER Contribution Rate	
E: Projected Account Balance	G: Salary Replacement Ratio
72,941.35	6.19%
185,841.80	13.78%
356,326.33	23.07%
609,338.53	34.45%
980,119.18	48.38%
1,518,388.63	65.44%

w/7% ER Contribution Rate	
E: Projected Account Balance	G: Salary Replacement Ratio
78,151.45	6.64%
199,116.21	14.76%
381,778.21	24.72%
652,862.71	36.91%
1,050,127.69	51.84%
1,626,844.96	70.12%



PERS - Tier III and Tier IV Comparison

Teachers – with Increased Employer Contribution Rates

Teachers

Entry-Level Hypothetical Salary:	\$59,581.00
Wage Increase Rate:	2.75%
Employee Contributions:	8.00%
Employer Contributions (ER):	7.00%
Annual Rate of return:	7.00%
Normal Retirement Age:	60
Average Life Expectancy:	85
Annuity Payout Rate:	5.89%
Annuity to be Paid For Years:	25.00

8.00%

9.00%

A Total Service	Tier II (DB)		Tier III (DC)	
	B Projected Last Salary	C: Salary Replacement Ratio (C/B)	D: Projected Account Balance	F: Salary Replacement Ratio
5	66,410.25	9.73%	57,889.15	6.64%
10	76,057.89	19.47%	147,491.44	14.76%
15	87,107.07	29.20%	282,794.74	24.72%
20	99,761.41	38.94%	483,595.27	36.91%
25	114,254.08	51.11%	777,861.54	51.84%
30	130,852.15	63.28%	1,205,053.56	70.12%

w/8% ER Contribution Rate	
E: Projected Account Balance	G: Salary Replacement Ratio
61,748.43	7.08%
157,324.20	15.75%
301,647.72	26.37%
515,834.96	39.37%
829,718.97	55.29%
1,285,390.47	74.79%

w/9% ER Contribution Rate	
E: Projected Account Balance	G: Salary Replacement Ratio
65,607.71	7.52%
167,156.96	16.73%
320,500.70	28.01%
548,074.64	41.83%
881,576.41	58.75%
1,365,727.37	79.47%



Department of Administration
Championing improvement in the State's performance and results.



For more information, please contact Ken Truitt at Ken.Truitt@alaska.gov

Appendix

PERS - Tier III and Tier IV Comparison

All Other Members

All Other Members			Tier III (DB)	Tier IV (DC)			Actual Data: Actual Salary Comparable to the Projected Salary				
A Total Service	B Projected Last Salary	C Total Annual Benefit	D: Salary Replacement Ratio (C/B)	E: Projected Account Balance	F Converted to Annuity	G: Salary Replacement Ratio (F/B)	H Comparable Members	I Average Salary	J: Average Account Balance	K Converted to Annuity	L: Salary Replacement Ratio (K/I)
5	64,591.19	6,122.51	9.48%	48,796.36	3,715.24	5.75%	23	65,116.01	45,272.45	3,446.93	5.29%
6	66,367.45	7,549.05	11.37%	61,443.82	4,678.18	7.05%	25	67,048.29	57,465.66	4,375.30	6.53%
7	68,192.55	9,049.42	13.27%	75,230.47	5,727.87	8.40%	28	68,874.04	69,154.37	5,265.25	7.65%
8	70,067.84	10,626.61	15.17%	90,243.04	6,870.89	9.81%	24	70,540.70	86,541.24	6,589.04	9.34%
9	71,994.71	12,283.69	17.06%	106,574.52	8,114.33	11.27%	21	72,641.54	92,598.37	7,050.22	9.71%
10	73,974.57	14,023.88	18.96%	124,324.60	9,465.77	12.80%	28	74,436.68	114,198.07	8,694.77	11.68%
11	76,008.87	16,030.61	21.09%	143,600.15	10,933.37	14.38%	10	76,765.33	136,959.90	10,427.80	13.58%
12	78,099.11	18,137.11	23.22%	164,515.75	12,525.83	16.04%	18	78,435.55	143,810.75	10,949.40	13.96%
13	80,246.84	20,347.34	25.36%	187,194.18	14,252.51	17.76%	12	80,806.76	173,991.22	13,247.27	16.40%
14	82,453.62	22,665.41	27.49%	211,767.08	16,123.43	19.55%	10	83,100.55	182,251.30	13,876.17	16.69%
15	84,721.10	25,095.60	29.62%	238,375.48	18,149.33	21.42%	10	85,371.71	215,363.03	16,397.22	19.22%
16	87,050.93	27,642.30	31.75%	267,170.54	20,341.72	23.37%	5	87,888.48	232,295.65	17,686.43	20.11%
17	89,444.83	30,310.09	33.89%	298,314.26	22,712.93	25.39%	214				
18	91,904.56	33,103.70	36.02%	331,980.18	25,276.17	27.50%	<div style="border: 1px solid black; padding: 10px;"> <p>Actual Plan Data Criteria:</p> <p>Actual Account Balance equal to or greater than the account balance projected with a 0.0% Rate of Return.</p> </div>				
19	94,431.94	36,028.04	38.15%	368,354.28	28,045.60	29.70%					
20	97,028.81	39,088.19	40.29%	407,635.78	31,036.40	31.99%					
21	99,697.11	42,525.65	42.65%	450,038.16	34,264.82	34.37%					
22	102,438.78	46,122.61	45.02%	495,790.06	37,748.26	36.85%					
23	105,255.84	49,885.25	47.39%	545,136.45	41,505.37	39.43%					
24	108,150.38	53,819.95	49.76%	598,339.72	45,556.14	42.12%					
25	111,124.52	57,933.33	52.13%	655,680.92	49,921.96	44.92%					
26	114,180.44	62,232.24	54.50%	717,461.09	54,625.75	47.84%					
27	117,320.40	66,723.79	56.87%	784,002.63	59,692.07	50.88%					
28	120,546.71	71,415.31	59.24%	855,650.86	65,147.19	54.04%					
29	123,861.75	76,314.40	61.61%	932,775.59	71,019.28	57.34%					
30	127,267.95	81,428.93	63.98%	1,015,772.85	77,338.49	60.77%					



Additional details for the analysis are summarized in slides 7 and 11

PERS - Tier III and Tier IV Comparison

All Other Members

All Other Members			Tier III (DB)	Tier IV (DC)			Actual Data: All Salary Ranges					ROR >= Projected 7%			
A Total Service	B Projected Last Salary	C Total Annual Benefit	D: Salary Replacement Ratio	E: Projected Account Balance	F Converted to Annuity	G: Salary Replacement Ratio	H Comparable Members	I Average Salary	J: Average Account Balance	K Converted to Annuity	L: Salary Replacement Ratio	M Comparable Members	N: Salary Replacement Ratio		
5	64,591.19	6,122.51	9.48%	48,796.36	3,715.24	5.75%	296	86,414.84	59,613.98	4,538.86	5.27%	48	6.44%		
6	66,367.45	7,549.05	11.37%	61,443.82	4,678.18	7.05%	480	92,209.97	74,896.62	5,702.45	6.22%	53	8.46%		
7	68,192.55	9,049.42	13.27%	75,230.47	5,727.87	8.40%	445	95,402.85	92,105.37	7,012.68	7.39%	56	9.22%		
8	70,067.84	10,626.61	15.17%	90,243.04	6,870.89	9.81%	448	93,472.85	106,670.37	8,121.62	8.73%	59	11.46%		
9	71,994.71	12,283.69	17.06%	106,574.52	8,114.33	11.27%	419	99,908.16	128,763.72	9,803.76	9.91%	56	12.42%		
10	73,974.57	14,023.88	18.96%	124,324.60	9,465.77	12.80%	402	98,959.12	142,854.59	10,876.60	11.06%	56	13.97%		
11	76,008.87	16,030.61	21.09%	143,600.15	10,933.37	14.38%	324	104,268.99	175,366.40	13,351.97	12.84%	47	16.21%		
12	78,099.11	18,137.11	23.22%	164,515.75	12,525.83	16.04%	303	104,150.46	194,166.25	14,783.35	14.25%	55	17.63%		
13	80,246.84	20,347.34	25.36%	187,194.18	14,252.51	17.76%	215	105,463.68	217,306.63	16,545.20	15.80%	42	19.28%		
14	82,453.62	22,665.41	27.49%	211,767.08	16,123.43	19.55%	214	106,397.85	232,111.54	17,672.41	16.65%	27	21.20%		
15	84,721.10	25,095.60	29.62%	238,375.48	18,149.33	21.42%	207	110,570.63	259,354.83	19,746.65	17.96%	20	23.55%		
16	87,050.93	27,642.30	31.75%	267,170.54	20,341.72	23.37%	138	117,612.90	284,519.83	21,662.65	18.67%	8	25.84%		
17	89,444.83	30,310.09	33.89%	298,314.26	22,712.93	25.39%	10	101,900.74	281,277.86	21,415.82	20.98%	1	25.99%		
							3,901								



Additional details for the analysis are summarized in slides 7 and 11

PERS - Tier III and Tier IV Comparison

Peace Officers/Firefighters

Peace Officers/Firefighters			Tier III (DB)	Tier IV (DC)			Actual Data: Actual Salary Comparable to the Projected Salary				
A	B	C	D: Salary Replacement Ratio (C/B)	E: Projected Account Balance	F	G: Salary Replacement Ratio (F/B)	H	I	J: Average Account Balance	K	L: Salary Replacement Ratio (K/I)
Total Service	Projected Last Salary	Total Annual Benefit			Converted to Annuity		Comparable Members	Average Salary	Converted to Annuity		
5	89,655.08	8,727.70	9.73%	67,731.25	5,156.89	5.75%	1	89,909.98	58,058.31	4,420.42	4.92%
6	92,120.60	10,761.25	11.68%	85,286.42	6,493.50	7.05%	3	93,163.80	75,325.80	5,735.12	6.16%
7	94,653.92	12,900.05	13.63%	104,422.82	7,950.50	8.40%	2	94,597.90	86,349.39	6,574.43	6.95%
8	97,256.90	15,148.34	15.58%	125,260.86	9,537.06	9.81%	1	98,699.44	101,292.61	7,712.17	7.81%
9	99,931.46	17,510.54	17.52%	147,929.58	11,263.00	11.27%	2	101,241.49	130,348.56	9,924.42	9.80%
10	102,679.58	19,991.20	19.47%	172,567.38	13,138.86	12.80%	4	102,958.36	138,919.46	10,576.99	10.27%
11	105,503.27	23,108.57	21.90%	199,322.61	15,175.94	14.38%	5	105,963.81	167,905.74	12,783.94	12.06%
12	108,404.61	26,382.29	24.34%	228,354.27	17,386.34	16.04%	3	108,569.74	215,881.34	16,436.68	15.14%
13	111,385.73	29,818.58	26.77%	259,832.82	19,783.04	17.76%	1	111,108.26	208,873.02	15,903.09	14.31%
14	114,448.84	33,423.92	29.20%	293,940.95	22,379.95	19.55%	1	115,343.86	278,555.62	21,208.55	18.39%
15	117,596.18	37,205.00	31.64%	330,874.45	25,191.98	21.42%	1	117,846.64	295,382.17	22,489.68	19.08%
16	120,830.08	41,168.76	34.07%	370,843.13	28,235.10	23.37%	2	121,830.88	306,719.17	23,352.86	19.17%
17	124,152.91	45,322.40	36.51%	414,071.81	31,526.43	25.39%	26				
18	127,567.11	49,673.35	38.94%	460,801.43	35,084.31	27.50%					
19	131,075.21	54,229.32	41.37%	511,290.09	38,928.39	29.70%					
20	134,679.78	58,998.31	43.81%	565,814.35	43,079.74	31.99%					
21	138,383.47	63,988.59	46.24%	624,670.50	47,560.90	34.37%					
22	142,189.01	69,208.71	48.67%	688,175.92	52,396.05	36.85%					
23	146,099.21	74,667.55	51.11%	756,670.64	57,611.07	39.43%					
24	150,116.94	80,374.28	53.54%	830,518.85	63,233.70	42.12%					
25	154,245.16	86,338.42	55.97%	910,110.67	69,293.63	44.92%					
26	158,486.90	92,569.80	58.41%	995,863.94	75,822.67	47.84%					
27	162,845.29	99,078.61	60.84%	1,088,226.20	82,854.91	50.88%					
28	167,323.53	105,875.41	63.28%	1,187,676.74	90,426.84	54.04%					
29	171,924.93	112,971.09	65.71%	1,294,728.87	98,577.53	57.34%					
30	176,652.87	120,376.98	68.14%	1,409,932.30	107,348.84	60.77%					

Actual Plan Data Criteria:

Actual Account Balance equal to or greater than the account balance projected with a 0.0% Rate of Return.



Additional details for the analysis are summarized in slides 8 and 12

PERS - Tier III and Tier IV Comparison

Peace Officers/Firefighters

Peace Officers/Firefighters			Tier III (DB)	Tier IV (DC)			Actual Data: All Salary Ranges					ROR >= Projected 7%	
A Total Service	B Projected Last Salary	C Total Annual Benefit	D: Salary Replacement Ratio	E Account Balance	F Converted to Annuity	G: Salary Replacement Ratio	H Comparable Members	I Average Salary	J: Average Account Balance	K Converted to Annuity	L: Salary Replacement Ratio	M Comparable Members	N: Salary Replacement Ratio
5	89,655.08	8,727.70	9.73%	67,731.25	5,156.89	5.75%	48	115,478.99	74,024.35	5,636.04	4.90%	1	5.80%
6	92,120.60	10,761.25	11.68%	85,286.42	6,493.50	7.05%	87	118,316.34	88,222.44	6,717.04	5.72%	3	7.71%
7	94,653.92	12,900.05	13.63%	104,422.82	7,950.50	8.40%	81	122,608.58	105,023.55	7,996.24	6.58%	1	8.69%
8	97,256.90	15,148.34	15.58%	125,260.86	9,537.06	9.81%	75	129,587.02	136,467.98	10,390.34	8.08%	7	10.54%
9	99,931.46	17,510.54	17.52%	147,929.58	11,263.00	11.27%	67	127,405.47	149,720.98	11,399.39	8.98%	2	11.80%
10	102,679.58	19,991.20	19.47%	172,567.38	13,138.86	12.80%	55	130,833.91	171,910.68	13,088.86	10.09%	3	14.49%
11	105,503.27	23,108.57	21.90%	199,322.61	15,175.94	14.38%	56	129,195.96	205,239.91	15,626.47	12.21%	8	16.41%
12	108,404.61	26,382.29	24.34%	228,354.27	17,386.34	16.04%	51	138,898.84	256,271.47	19,511.89	14.17%	12	17.32%
13	111,385.73	29,818.58	26.77%	259,832.82	19,783.04	17.76%	22	151,077.68	276,238.01	21,032.09	14.24%	1	18.12%
14	114,448.84	33,423.92	29.20%	293,940.95	22,379.95	19.55%	31	148,877.99	295,138.42	22,471.13	15.19%	2	19.76%
15	117,596.18	37,205.00	31.64%	330,874.45	25,191.98	21.42%	65	156,287.95	342,925.07	26,109.49	16.87%	5	22.29%
16	120,830.08	41,168.76	34.07%	370,843.13	28,235.10	23.37%	31	148,240.38	324,642.92	24,717.53	16.99%	2	24.78%
17	124,152.91	45,322.40	36.51%	414,071.81	31,526.43	25.39%	3	131,905.02	327,295.60	24,919.50	18.91%	0	

672



Additional details for the analysis are summarized in slides 8 and 12

TRS - Tier II and Tier III Comparison

Teachers

Teachers			Tier II (DB)	Tier III (DC)			Actual Data: Actual Salary Comparable to the Projected Salary				
A Total Service	B Projected Last Salary	C Total Annual Benefit	D: Salary Replacement Ratio (C/B)	E: Projected Account Balance	F Converted to Annuity	G: Salary Replacement Ratio (F/B)	H Comparable Members	I Average Salary	J: Average Account Balance	K Converted to Annuity	L: Salary Replacement Ratio (K/I)
5	66,410.25	6,464.87	9.73%	57,889.15	4,407.54	6.64%	2	67,157.76	55,408.61	4,218.68	6.28%
6	68,236.53	7,971.19	11.68%	72,893.36	5,549.92	8.13%	14	68,877.75	62,652.48	4,770.21	6.93%
7	70,113.04	9,555.46	13.63%	89,249.03	6,795.21	9.69%	28	70,390.90	75,638.05	5,758.90	8.18%
8	72,041.14	11,220.84	15.58%	107,059.07	8,151.22	11.31%	21	72,252.65	90,321.24	6,876.84	9.52%
9	74,022.28	12,970.59	17.52%	126,433.78	9,626.36	13.00%	18	74,560.38	109,932.02	8,369.96	11.22%
10	76,057.89	14,808.09	19.47%	147,491.44	11,229.64	14.76%	25	76,769.50	133,191.49	10,140.88	13.21%
11	78,149.48	16,736.84	21.42%	170,358.83	12,970.71	16.60%	22	78,559.57	155,162.03	11,813.66	15.03%
12	80,298.59	18,760.48	23.36%	195,171.87	14,859.91	18.51%	15	80,927.67	181,008.57	13,781.56	17.03%
13	82,506.80	20,882.76	25.31%	222,076.24	16,908.35	20.49%	8	83,126.52	207,835.54	15,824.10	19.05%
14	84,775.74	23,107.57	27.26%	251,228.09	19,127.90	22.56%	16	85,364.73	225,955.31	17,203.69	20.16%
15	87,107.07	25,438.96	29.20%	282,794.74	21,531.31	24.72%	15	87,587.85	225,317.97	17,155.17	19.59%
16	89,502.52	27,881.10	31.15%	316,955.52	24,132.23	26.96%	19	89,983.12	259,874.96	19,786.25	21.99%
17	91,963.84	30,438.32	33.10%	353,902.61	26,945.29	29.30%	12	92,161.56	286,894.59	21,843.46	23.70%
18	94,492.84	33,115.10	35.05%	393,841.89	29,986.17	31.73%	215				
19	97,091.39	35,916.09	36.99%	436,993.99	33,271.67	34.27%	<div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p><u>Actual Plan Data Criteria:</u></p> <p>Actual Account Balance equal to or greater than the account balance projected with a 0.0% Rate of Return.</p> </div>				
20	99,761.41	38,846.09	38.94%	483,595.27	36,819.78	36.91%					
21	102,504.85	42,409.00	41.37%	533,898.97	40,649.78	39.66%					
22	105,323.73	46,138.50	43.81%	588,176.36	44,782.33	42.52%					
23	108,220.13	50,041.05	46.24%	646,718.04	49,239.55	45.50%					
24	111,196.19	54,123.34	48.67%	709,835.29	54,045.14	48.60%					
25	114,254.08	58,392.32	51.11%	777,861.54	59,224.50	51.84%					
26	117,396.07	62,855.16	53.54%	851,153.91	64,804.80	55.20%					
27	120,624.46	67,519.30	55.97%	930,094.91	70,815.18	58.71%					
28	123,941.63	72,392.43	58.41%	1,015,094.19	77,286.82	62.36%					
29	127,350.03	77,482.53	60.84%	1,106,590.46	84,253.12	66.16%					
30	130,852.15	82,797.83	63.28%	1,205,053.56	91,749.87	70.12%					



Additional details for the analysis are summarized in slides 9 and 13

TRS - Tier II and Tier III Comparison

Teachers

Teachers			Tier II (DB)	Tier III (DC)			Actual Data: All Salary Ranges					ROR >= Projected 7%			
A Total Service	B Projected Last Salary	C Total Annual Benefit	D: Salary Replacement Ratio	E: Projected Account Balance	F Converted to Annuity	G: Salary Replacement Ratio	H Comparable Members	I Average Salary	J: Average Account Balance	K Converted to Annuity	L: Salary Replacement Ratio	M Comparable Members	N: Salary Replacement Ratio		
5	66,410.25	6,464.87	9.73%	57,889.15	4,407.54	6.64%	35	84,208.71	63,492.15	4,834.14	5.77%	2	7.44%		
6	68,236.53	7,971.19	11.68%	72,893.36	5,549.92	8.13%	226	83,043.33	72,303.66	5,505.03	6.66%	14	9.22%		
7	70,113.04	9,555.46	13.63%	89,249.03	6,795.21	9.69%	214	84,637.56	87,684.64	6,676.10	7.93%	7	10.92%		
8	72,041.14	11,220.84	15.58%	107,059.07	8,151.22	11.31%	252	84,093.64	104,430.29	7,951.07	9.49%	19	12.45%		
9	74,022.28	12,970.59	17.52%	126,433.78	9,626.36	13.00%	198	87,075.97	122,543.49	9,330.17	10.76%	8	14.21%		
10	76,057.89	14,808.09	19.47%	147,491.44	11,229.64	14.76%	196	87,773.49	143,249.68	10,906.68	12.48%	10	15.91%		
11	78,149.48	16,736.84	21.42%	170,358.83	12,970.71	16.60%	152	91,943.96	168,132.69	12,801.22	14.05%	10	18.12%		
12	80,298.59	18,760.48	23.36%	195,171.87	14,859.91	18.51%	153	93,419.83	194,301.48	14,793.65	15.90%	13	19.58%		
13	82,506.80	20,882.76	25.31%	222,076.24	16,908.35	20.49%	124	96,379.65	222,552.92	16,944.64	17.64%	8	22.46%		
14	84,775.74	23,107.57	27.26%	251,228.09	19,127.90	22.56%	149	97,361.41	244,602.21	18,623.42	19.25%	9	26.26%		
15	87,107.07	25,438.96	29.20%	282,794.74	21,531.31	24.72%	120	98,655.00	255,222.50	19,432.02	19.78%	3	27.09%		
16	89,502.52	27,881.10	31.15%	316,955.52	24,132.23	26.96%	109	100,986.20	278,865.59	21,232.15	21.08%	1	27.36%		
17	91,963.84	30,438.32	33.10%	353,902.61	26,945.29	29.30%	60	105,492.42	306,805.64	23,359.44	22.30%	1	29.89%		
							1,988								



Additional details for the analysis are summarized in slides 9 and 13