



pennsylvania
State Employees' Retirement System

2016 Financial Highlights

Service and stewardship since 1923.

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Changes in Fiduciary Net Position

(\$ millions)

	2016	2015	Change	
			\$	%
Net Position - Beginning	\$ 26,055	\$ 27,338		
Contributions	1,997	1,732	265	15%
Net Investment Income	1,587	88	1,499	1,703%
Less:				
Benefit Payments and Refunds	3,228	3,081	147	5%
Administrative Expenses	23	22	1	5%
Net Increase/(Decrease)	333	(1,283)		
Net Position - End of Year	\$ 26,388	\$ 26,055		

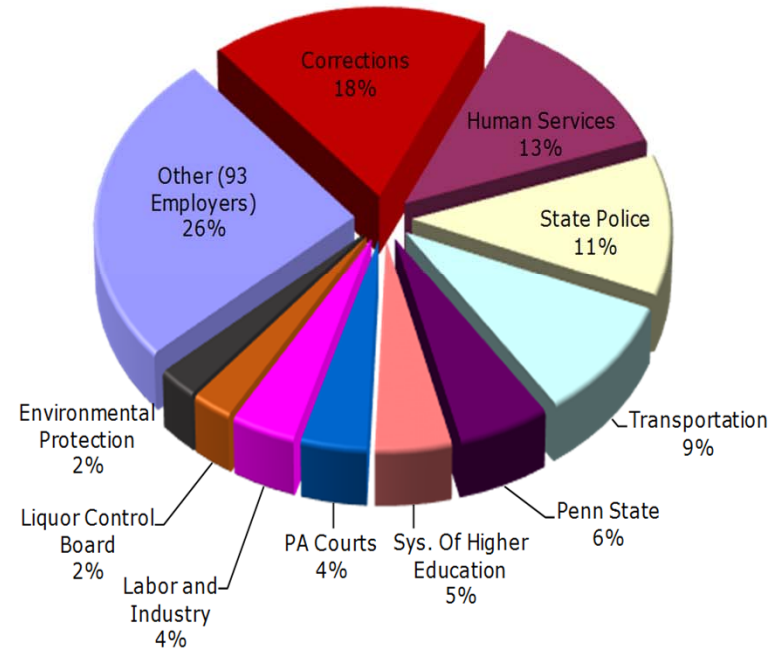
Contribution Highlights

For the Year Ended December 31, 2016

<u>Employer</u>	Employer Contributions (\$ millions)	Active Members
Corrections	\$ 292	15,752
Human Services	208	17,208
State Police	186	6,220
Transportation	153	12,315
Penn State	89	6,368
Sys. Of Higher Education	74	4,988
PA Courts	64	2,007
Labor and Industry	63	4,234
Liquor Control Board	40	4,336
Environmental Protection	39	2,423
Other (93 Employers)	414	28,781
Total Employer	\$ 1,622	104,632

	Member Contributions (\$ millions)
All 103 Employers	\$ 375
Total Contributions	\$ 1,997

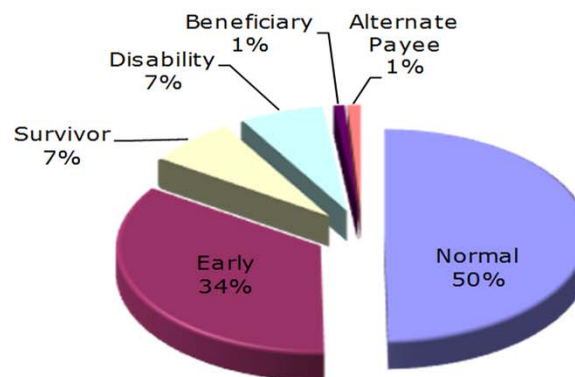
Top 10 Contributing Employers as a Percent of Total Contribution Dollars



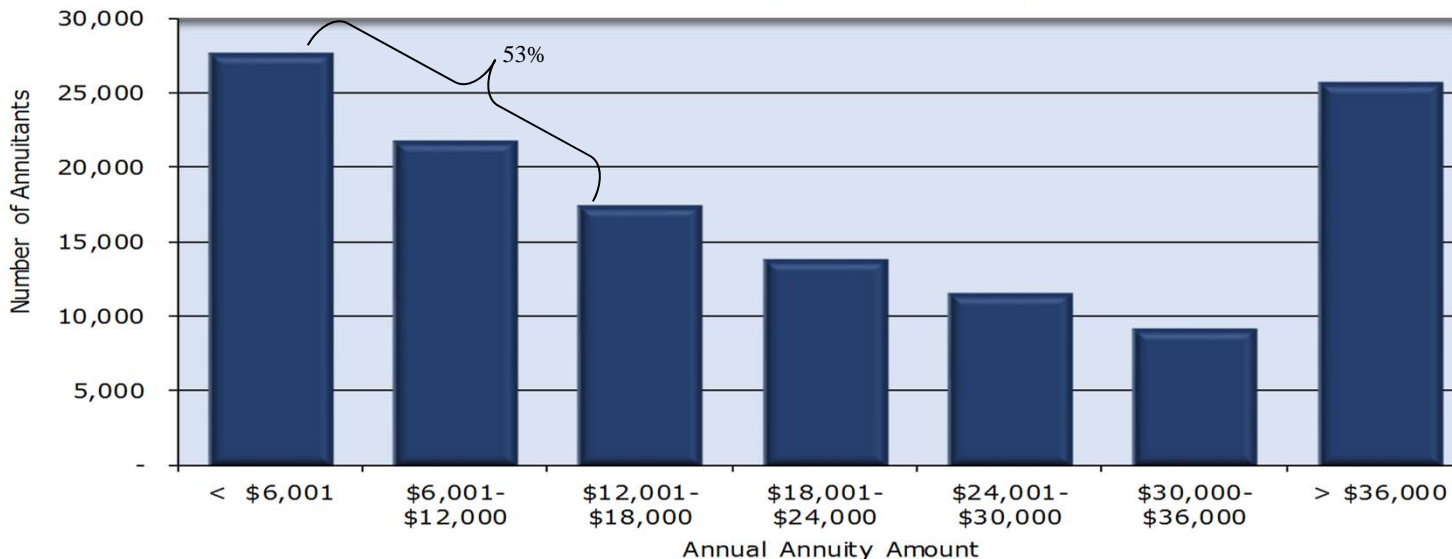
Annuity Payroll

As of December 31, 2016

Retirement Member Types	Number of Annuitants	Average Annual Annuity
Normal	63,315	\$ 27,722
Early	43,974	17,410
Survivor	9,063	12,948
Disability	8,578	15,245
Beneficiary	1,092	11,841
Alternate Payee	1,316	10,005
Total	127,338	\$ 21,949



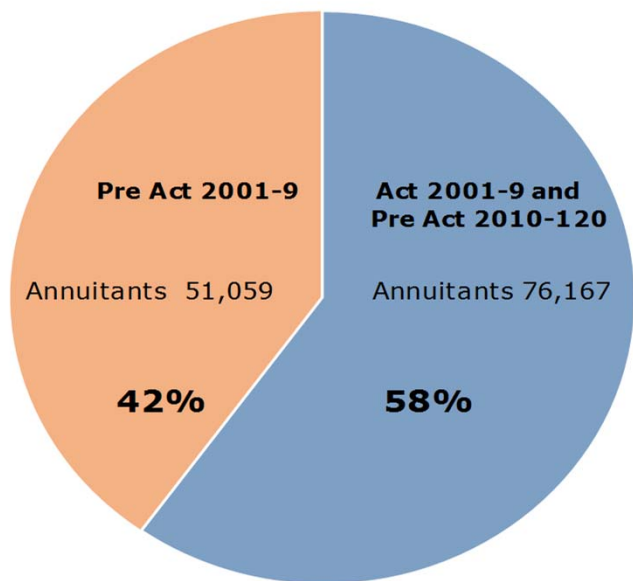
Number of Annuitants by Annual Annuity Size



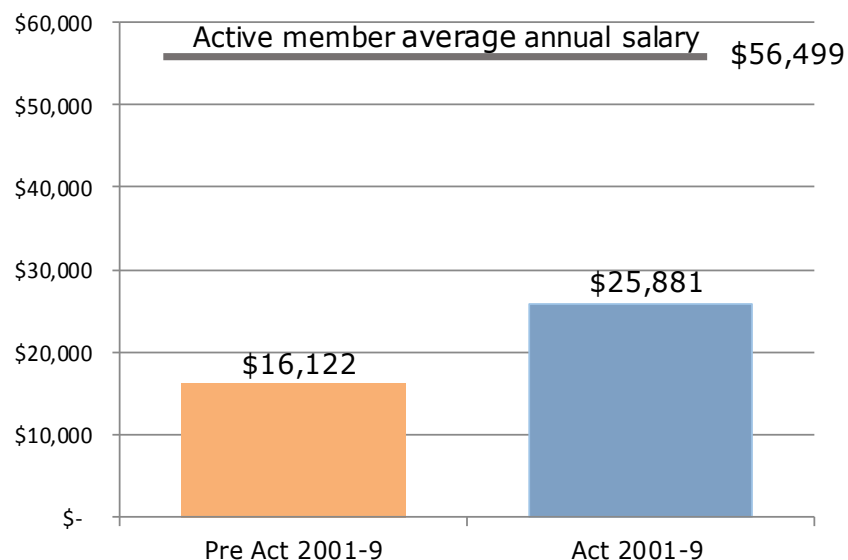
Annuitant Profile

Number of Annuitants by Major Legislative Provision and Average Annual Pension^{1/}

2016 Annuitants
127,226



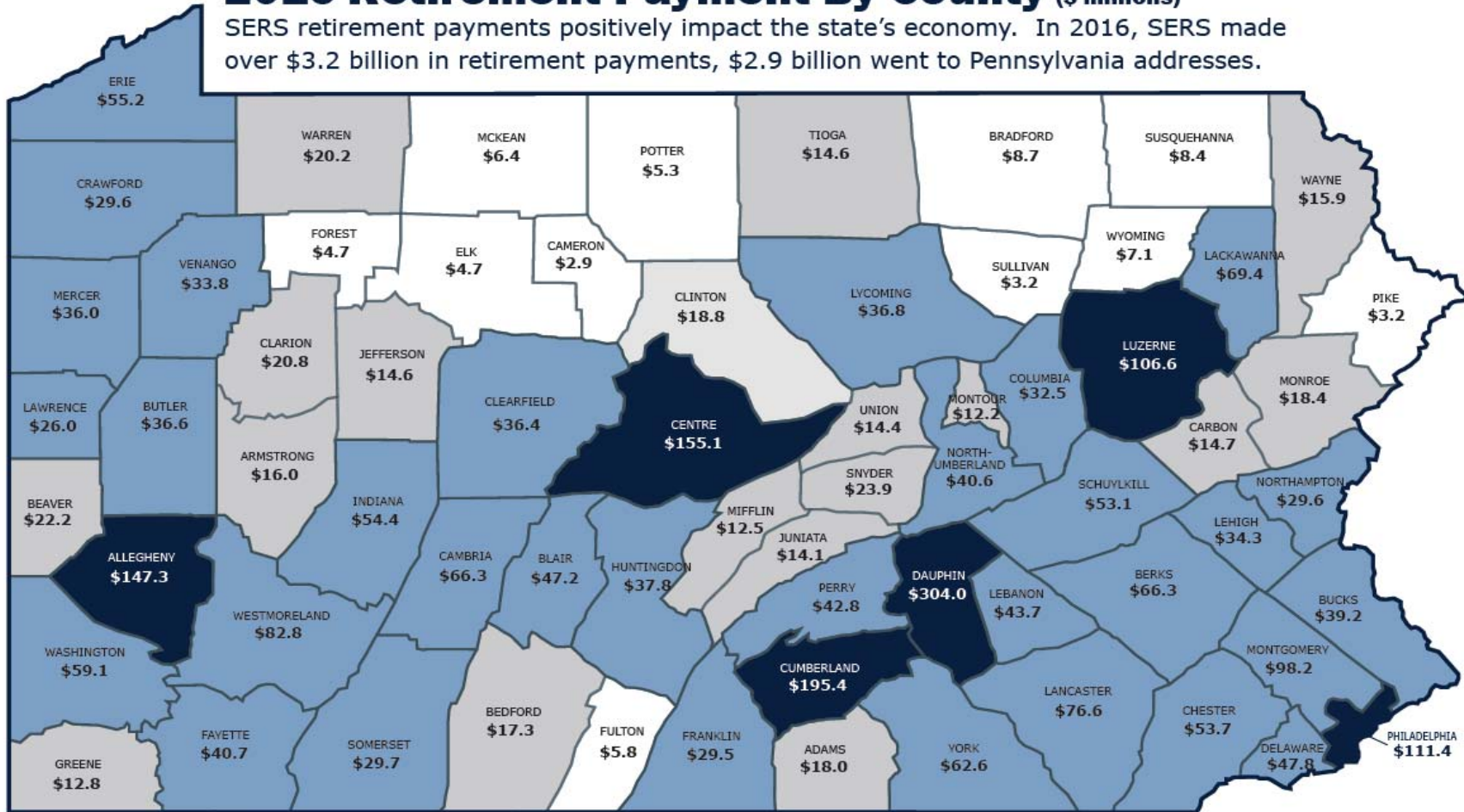
2016 Annual Pension Amount



^{1/} Does not include post Act 2010-120

2016 Retirement Payment By County (\$ millions)

SERS retirement payments positively impact the state's economy. In 2016, SERS made over \$3.2 billion in retirement payments, \$2.9 billion went to Pennsylvania addresses.



White square: \$0 - \$9.9 million

Light grey square: \$10 - \$24.9 million

Blue square: \$25 - \$99.9 million

Dark blue square: \$100 million +

Out of State \$286.9 million

Out of Country \$1.3 million

10 Year Funding and Payment Activity

Funding by Source vs. Benefits and Expenses Paid (\$ billions)



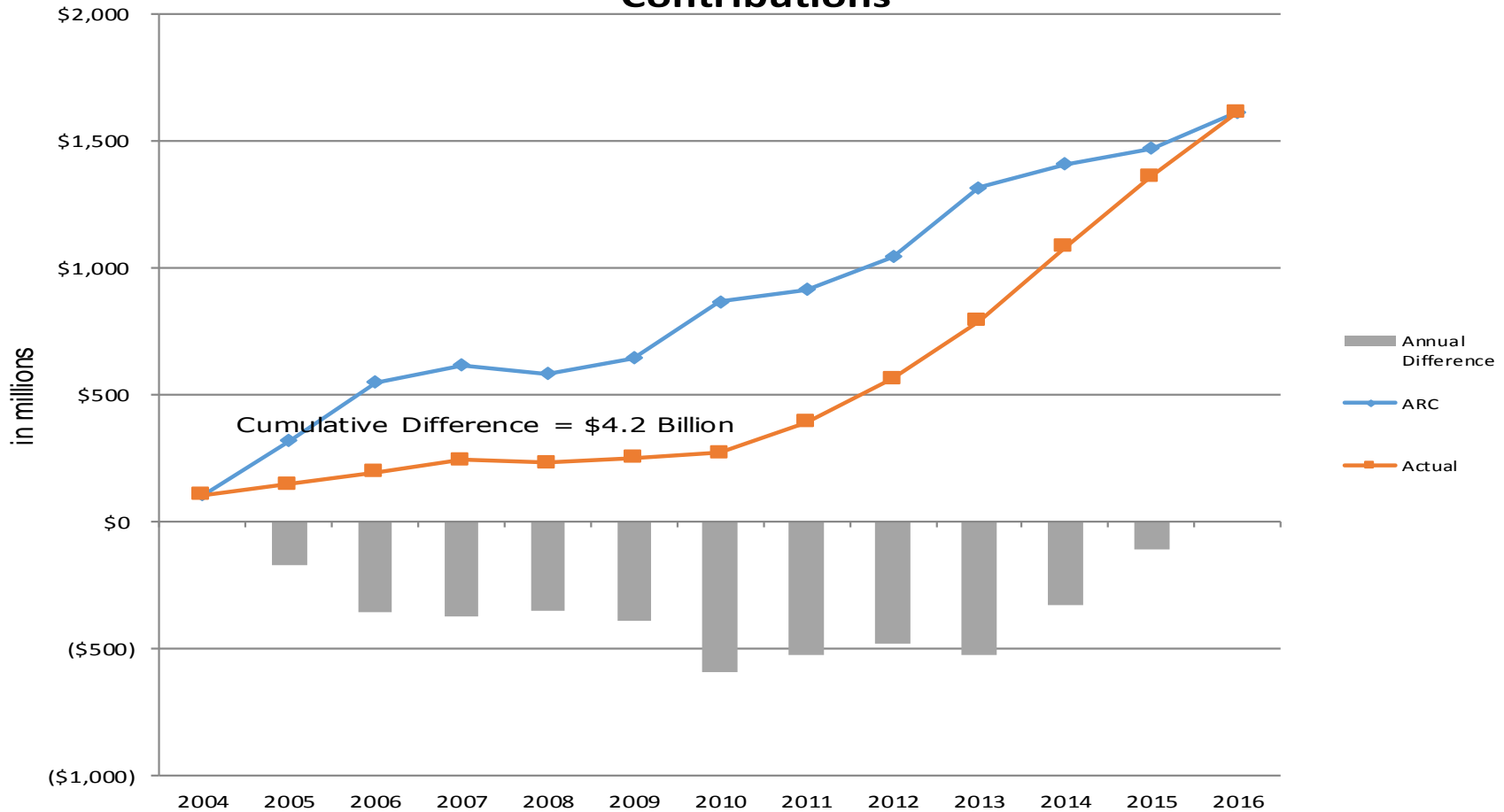
Statement of Change Activity By Year (\$ millions)

Calendar Year	Contributions			Investment Earnings	Benefits and Expenses	Fair Value
	Employer	Member	Total			
2016	\$1,622	\$375	\$1,997	\$1,587	\$(3,251)	\$26,388
2015	\$1,360	\$372	\$1,732	\$88	\$(3,103)	\$26,055
2014	1,084	366	1,450	1,462	(2,968)	27,338
2013	795	352	1,147	3,724	(2,866)	27,394
2012	566	348	914	2,794	(2,696)	25,389
2011	392	351	743	480	(2,732)	24,377
2010	273	349	622	3,076	(2,474)	25,886
2009	253	349	602	3,561	(2,297)	24,662
2008	235	337	572	(11,061)	(2,231)	22,796
2007	244	334	578	5,246	(2,361)	35,516
10 Yr. Total	\$6,824	\$3,533	\$10,357	\$10,957	(\$26,979)	

Annotations: 37.7% Increase in Benefits and Expenses (2007 to 2016); 25.7% Decrease in Fair Value (2007 to 2016); 12.3% change in Fair Value (2015 to 2016); 6.6% change in Fair Value (2007 to 2008).

Contributions

Annual Required Contributions (ARC)^{1/} vs. Actual Contributions



^{1/}ARC calculation is based on methods established by General Accounting Standards Board (GASB) 25, which was superseded by GASB 67 in 2014.

Projected Funding Levels & Contribution Rates

Projected Funding Levels and Contribution Rates^{1/}
(\$ millions)

Valuation Year Ended Dec 31	Funded Ratio	Fiscal Year	Funding Payroll	Employer Normal Cost Rate	Unfunded Liability Rate	Final Employer Contribution Rate ^{3/}	Employer Contribution Dollars
2016	58.1	17/18	6,187	4.91	28.31	33.22	2,055
2017 ^{2/}	58.7	18/19	6,367	4.91	27.92	32.83	2,090
2018	58.7	19/20	6,552	4.91	27.92	32.83	2,151
2019	58.9	20/21	6,742	4.91	27.81	32.72	2,206
2020	59.8	21/22	6,937	4.91	27.25	32.16	2,231
2021	60.8	22/23	7,138	4.91	26.61	31.52	2,250
2022	61.9	23/24	7,345	4.91	25.97	30.88	2,268
2023	63.1	24/25	7,558	4.91	25.33	30.24	2,286
2024	64.2	25/26	7,777	4.91	24.69	29.60	2,302
2025	65.4	26/27	8,003	4.91	24.07	28.98	2,319
2026	66.6	27/28	8,235	4.91	23.47	28.38	2,337
2027	67.8	28/29	8,474	4.91	22.88	27.79	2,355

^{1/}Other than funded ratio, rates and values are for the fiscal year beginning July 1 following the funding valuation year and do not include the Benefits Completion Plan contribution. All information on this page is based on statutory funding requirements.

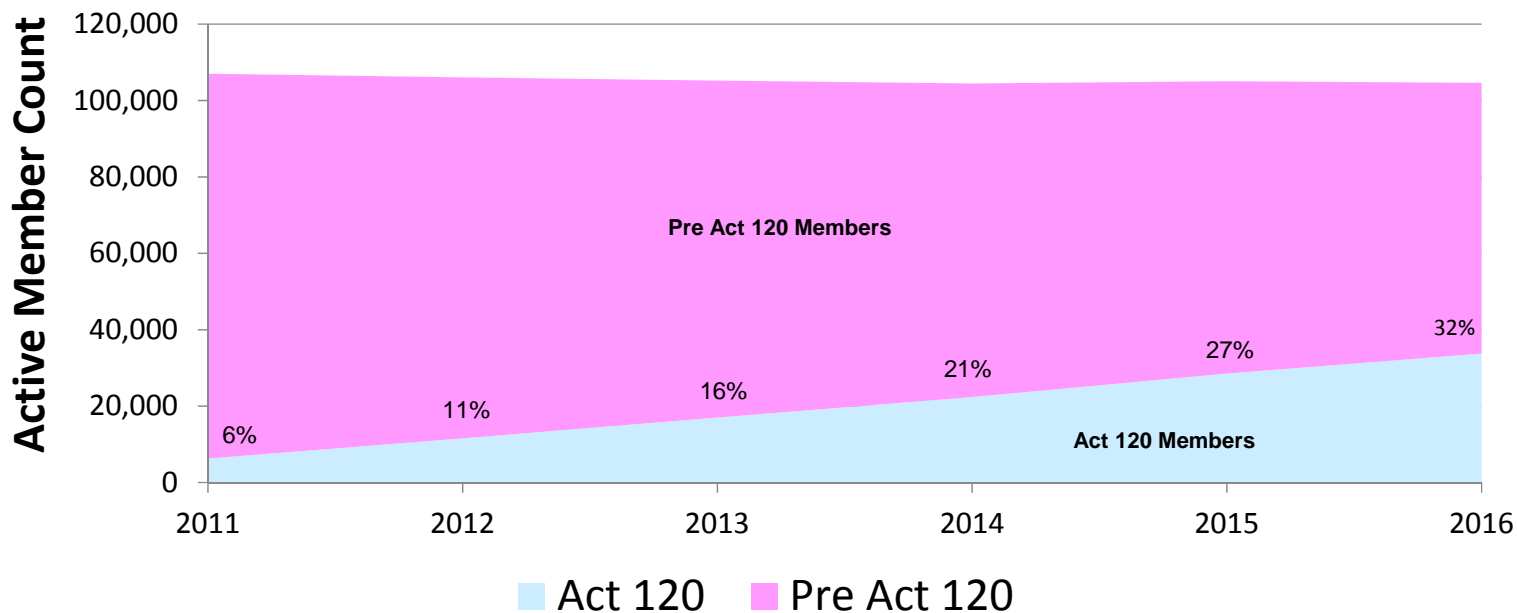
^{2/}Act 2010-120 amended the Retirement Code to place a permanent floor at employer normal cost after collars expire.

^{3/}Does not account for Act 2017-5 in projections of future years.

Active Member Profile

- As of December 31, 2016, total active membership was 104,632.
- Act 2010-120 (Act 120) membership totaled 33,752, or 32% of total active membership.
- Of the total Act 120 members, 4,264 or 13% of Act 120 membership have selected the higher 2.5% benefit accrual, or class A-4 status.

Act 120 Members as a % of Total Membership



GASB 67

- In 2014, SERS implemented the Governmental Accounting Standards Board (GASB) Statement No. 67
- GASB 67 significantly revised financial reporting for pension plans
- Standardized actuarial cost method to be used in calculating the total pension liability and net pension liability
- Standardized asset valuation methods and amortization periods
- Developed stricter guidelines for formulating the discount rate

		As of December 31, 2016	
		(\$ millions)	
GASB 67 - Accounting Valuation		Funding Valuation	
Total Pension Liability (TPL)	\$ 45,648	Actuarial Accrued Liability (AAL)	\$ 47,519
Fiduciary Net Position	\$ 26,388	Actuarial Value of Assets	\$ 27,596
Net Pension Liability (NPL)	\$ 19,260	Unfunded AAL	\$ 19,923
Fiduciary Net Position/TPL	57.8%	Funded Ratio	58.1%

GASB 68

- GASB issued Statement No. 68, which was effective for fiscal years ending on or after June 30, 2015
- GASB 68 revised the required pension reporting of employers who are members of the pension system
- Required employers to report their proportionate share of net pension liability, pension expense, and deferred outflows/inflows related to pensions in the employers' financial statements
- Required the development of a proportionate share or allocation percent, using a methodology consistent with the manner in which contributions are expected to be made to the plan

**Net Pension Liability and Expense
as of December 31, 2016**
(\$ millions)

<u>Employer</u>	<u>Net Pension Liability (NPL)</u>	<u>Pension Expense</u>	<u>Proportionate Share of NPL</u>
Corrections	\$3,475	\$506	18%
Human Services	2,553	373	13%
State Police	1,960	300	10%
Transportation	1,879	270	10%
Penn State	1,103	167	6%
Sys. Of Higher Education	932	131	5%
PA Courts	769	118	4%
Labor and Industry	711	91	4%
Liquor Control Board	495	70	3%
PHEAA	475	80	2%
Remaining Employers	4,908	699	25%
Total Employer	\$19,260	\$2,805	100%

GASB 72

- GASB issued Statement No. 72 (GASB 72), which was effective for fiscal years ending on or after June 15, 2016.
- GASB 72 provides additional information about the methods used to value investments. GASB 72 requires the use of valuation techniques, which are appropriate under the circumstances, and are either a market, cost, or income approach.
- GASB 72 establishes a hierarchy of inputs used to measure fair value consisting of three levels. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, or other than quoted prices that are observable. Level 3 inputs are unobservable inputs used to measure fair value if relevant observable inputs are not available for the asset or liability at the reporting date. In addition to the three levels, there is additional disclosure of investments valued at net asset value (NAV).
- GASB 72 was implemented into the notes of the basic financial statements of SERS as well as the Deferred Compensation Program for the years ended December 31, 2016 and 2015.

Changes in Net Position Available for Benefits

(\$ millions)

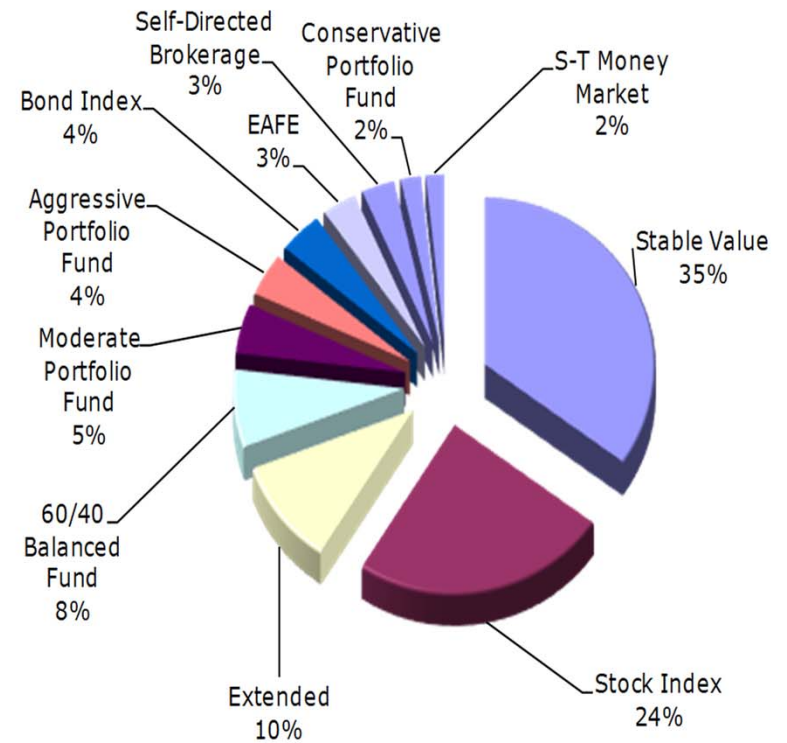
	2016	2015	Change	
			\$	%
Net Position - Beginning	\$ 2,984	\$ 2,960		
Contributions	136	135	1	1%
Net Investment Income	188	11	177	1,609%
Less:				
Benefits, Refunds & Transfers	138	118	20	17%
Third Party and Admin. Expenses	4	4	-	0%
Net Increase	182	24		
Net Position - End of Year	<u>\$ 3,166</u>	<u>\$ 2,984</u>		

Fund Balances & Breakouts

Fund Balances (\$ millions)

	<u>Allocation %</u>			
	<u>2016</u>	<u>2015</u>	<u>2016</u>	<u>2015</u>
Stable Value	\$1,099	\$1,049	35%	35%
Stock Index	763	717	24%	24%
Extended Market	323	294	10%	10%
60/40 Balanced	235	217	8%	7%
Moderate Portfolio	152	142	5%	5%
Aggressive Portfolio	131	121	4%	4%
Bond Index	129	118	4%	4%
EAFE Equity Index	103	105	3%	4%
Self-Directed Brokerage	99	89	3%	3%
Conservative Portfolio	61	57	2%	2%
S-T Money Market	55	47	2%	2%
Total	<u>\$3,150</u>	<u>\$2,956</u>	<u>100%</u>	<u>100%</u>

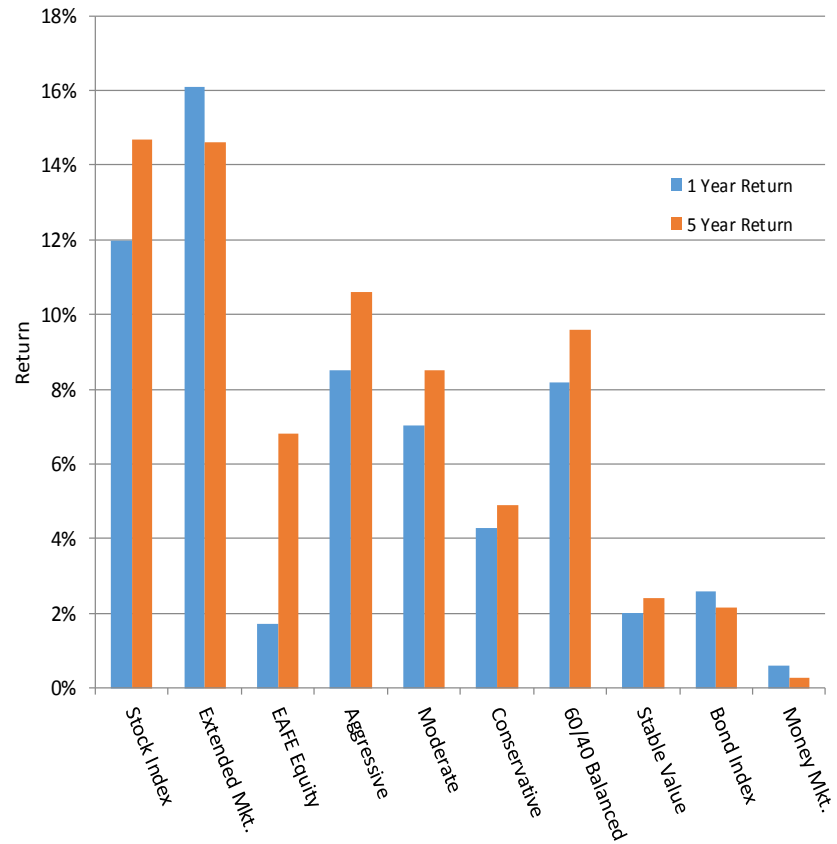
Allocation as of December 31, 2016



Fund Returns

As of December 31, 2016

FUND	1 Year Return	5 Year Average Return	10 Year Average Return
<u>EQUITY</u>			
Stock Index	12.0%	14.7%	7.0%
<i>Large Cap</i>			
Extended Market	16.1%	14.6%	8.1%
<i>Med/Small Cap</i>			
EAFE Equity Index	1.7%	6.8%	1.0%
<i>International</i>			
<u>PROFILE SERIES</u>			
Aggressive	8.5%	10.6%	5.8%
Moderate	7.0%	8.5%	5.6%
Conservative	4.3%	4.9%	4.4%
<u>ASSET ALLOCATION</u>			
60/40 Balanced	8.2%	9.6%	6.3%
<u>FIXED INCOME</u>			
Stable Value	2.0%	2.4%	3.3%
Bond Index	2.6%	2.2%	4.3%
<i>Aggregate Bond</i>			
<u>CASH</u>			
Short Term Money Market	0.6%	0.3%	1.0%

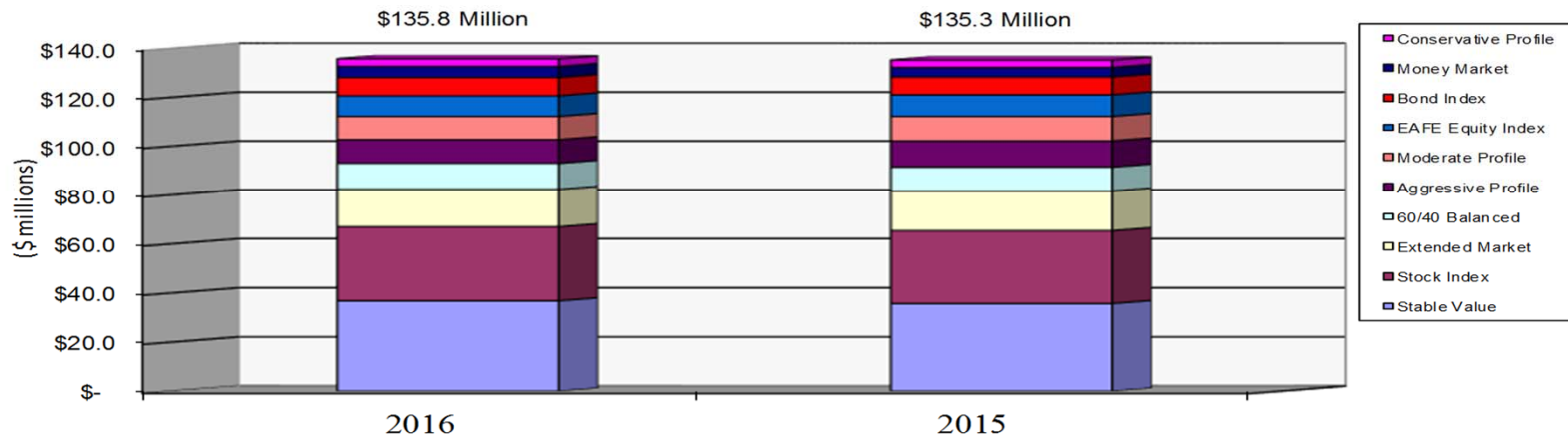


Contributions by Fund

For the Years Ended December 31, 2016 and 2015
(\$ millions)

Fund	2016	2015	Increase/ (Decrease)	% Change
Stable Value	\$ 36.8	\$ 35.7	\$ 1.1	3%
Stock Index	30.2	29.7	0.5	2%
Extended Market	15.3	16.2	(0.9)	-6%
Aggressive Profile	10.7	10.8	(0.1)	-1%
Moderate Profile	9.7	10.0	(0.3)	-3%
60/40 Balanced	9.5	9.8	(0.3)	-3%
EAFE Equity Index	8.4	8.8	(0.4)	-5%
Bond Index	7.5	7.3	0.2	3%
Short Term Money Market	4.5	3.9	0.6	15%
Conservative Profile	3.2	3.1	0.1	3%
Total Contributions	\$ 135.8	\$ 135.3	\$ 0.5	0%

Annual Contributions

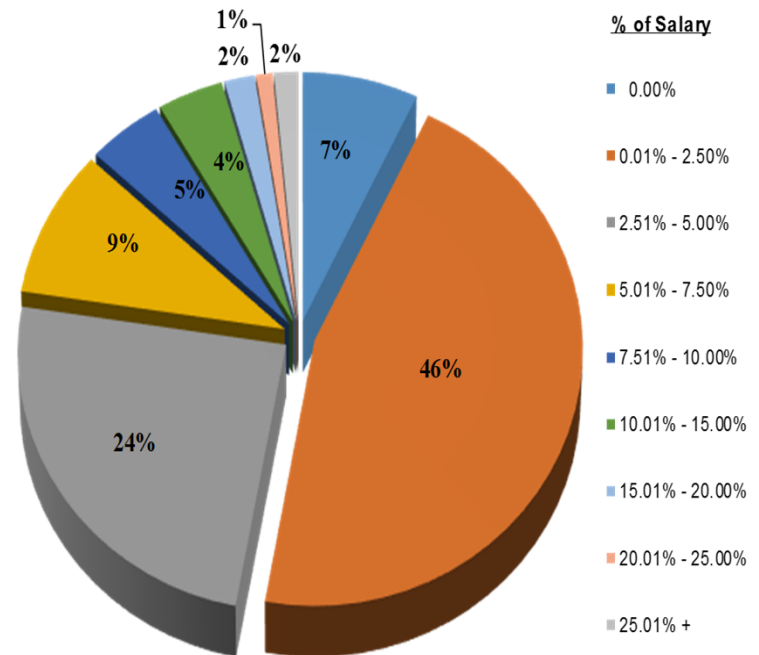


Contribution Levels

Contribution Levels
As of December 31, 2016

<u>% of Salary</u>	<u># of Participants</u>	<u>Percent</u>	<u>Average Annual Contribution</u>
0.00%	2,534	7.20%	\$ -
0.01% - 2.50%	16,078	45.70%	785
2.51% - 5.00%	8,609	24.47%	2,326
5.01% - 7.50%	3,314	9.42%	4,248
7.51% - 10.00%	1,647	4.68%	6,541
10.01% - 15.00%	1,442	4.10%	9,944
15.01% - 20.00%	665	1.89%	14,273
20.01% - 25.00%	360	1.02%	17,328
25.01% +	535	1.52%	21,241
Total Active Participants	35,184		

% of Participants by Contribution Levels

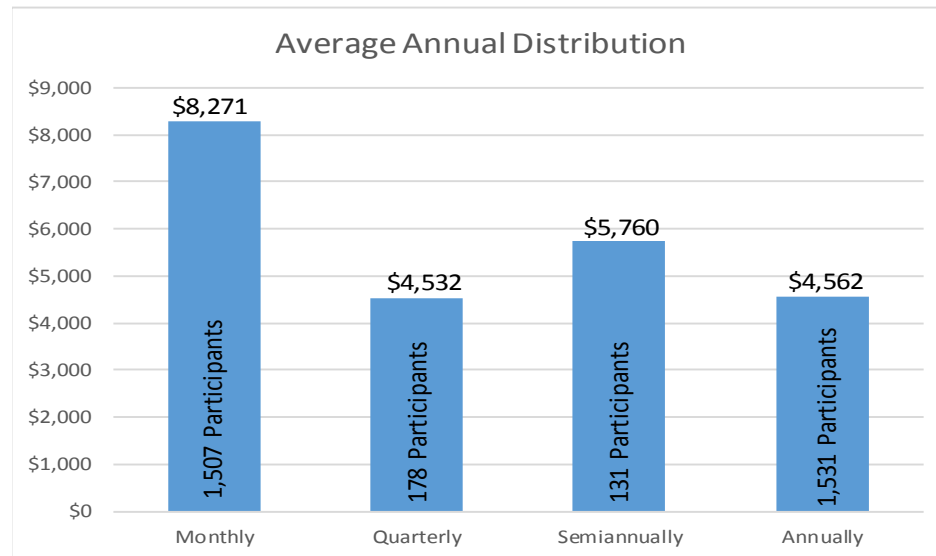


Participant Distributions

Year Ended December 31, 2016

Distribution Frequency	Participant Count	Distribution Total ^{1/}	Average Annual Distribution
Monthly	1,507	\$ 12,464,033	\$ 8,271
Quarterly	178	806,742	4,532
Semiannually	131	754,568	5,760
Annually	1,531	6,983,730	4,562
Total	3,347	\$ 21,009,073	\$ 6,277

22.6% increase to the average defined benefit



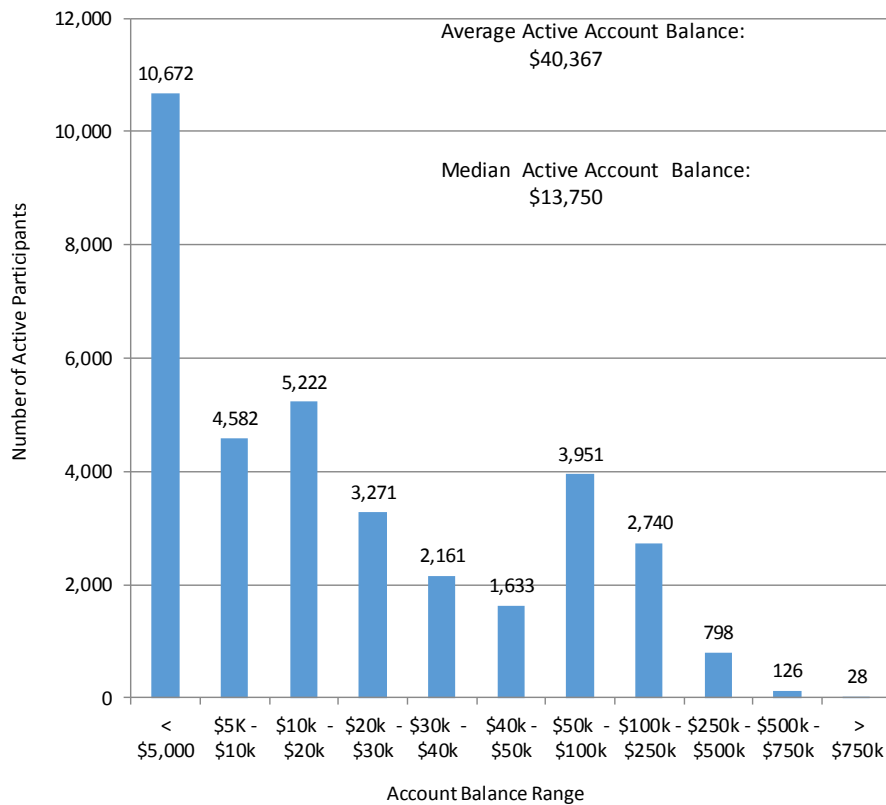
Benefit Plan	Average Total Benefit
Avg. Defined Benefit	\$ 27,722
Avg. Deferred Comp	6,277
Total	\$ 33,999

^{1/} Does not reflect \$184M in rollovers out of the Program.

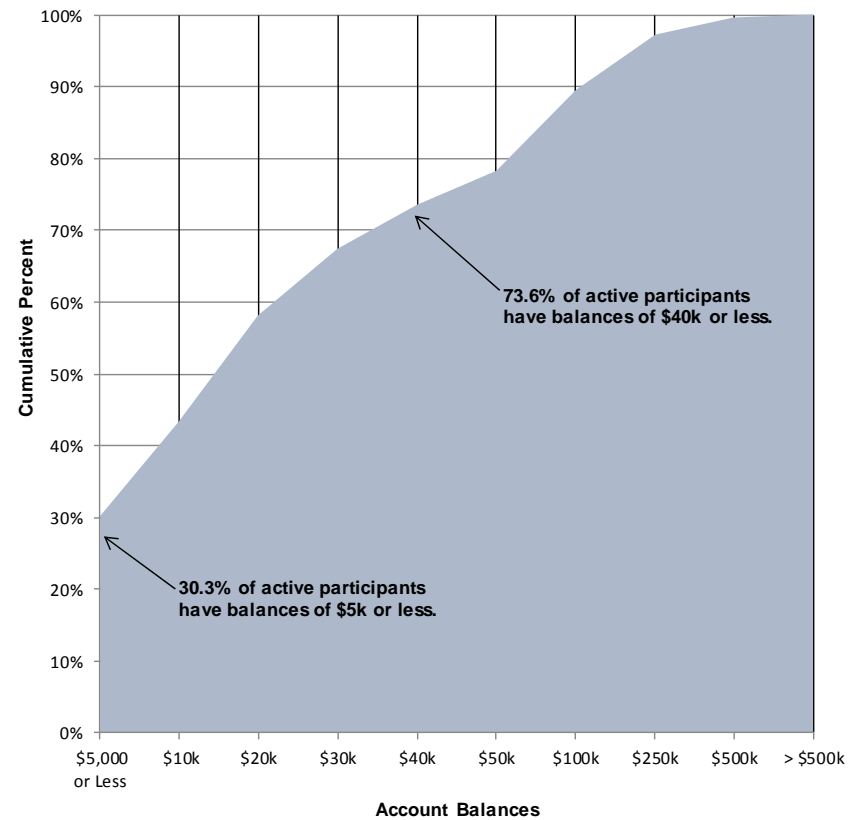
Participant Account Balance Demographics

as of December 31, 2016

Number of Active Participants by Account Balance Ranges

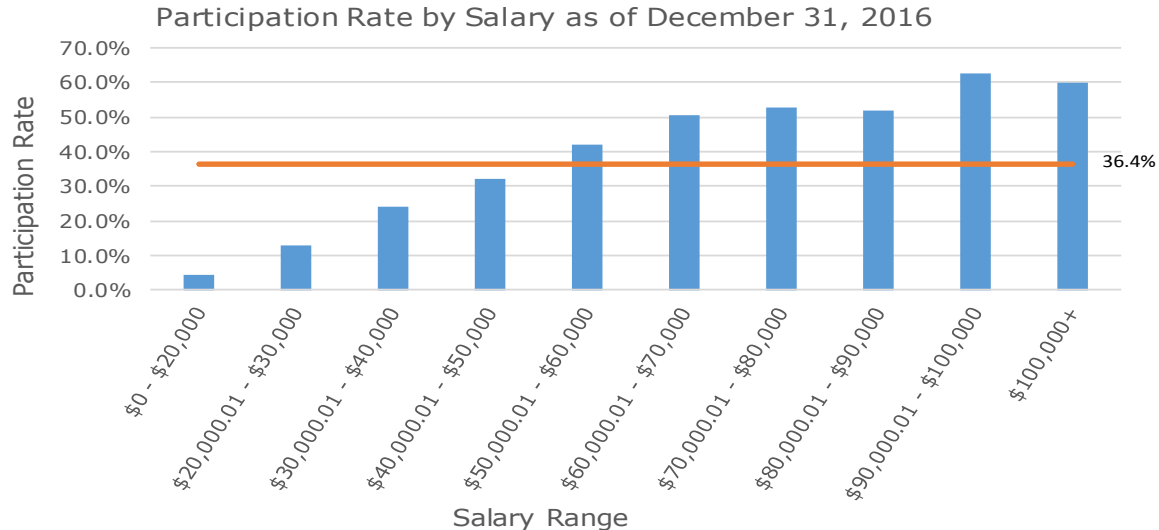


Cumulative Active Participant Population by Balance Threshold



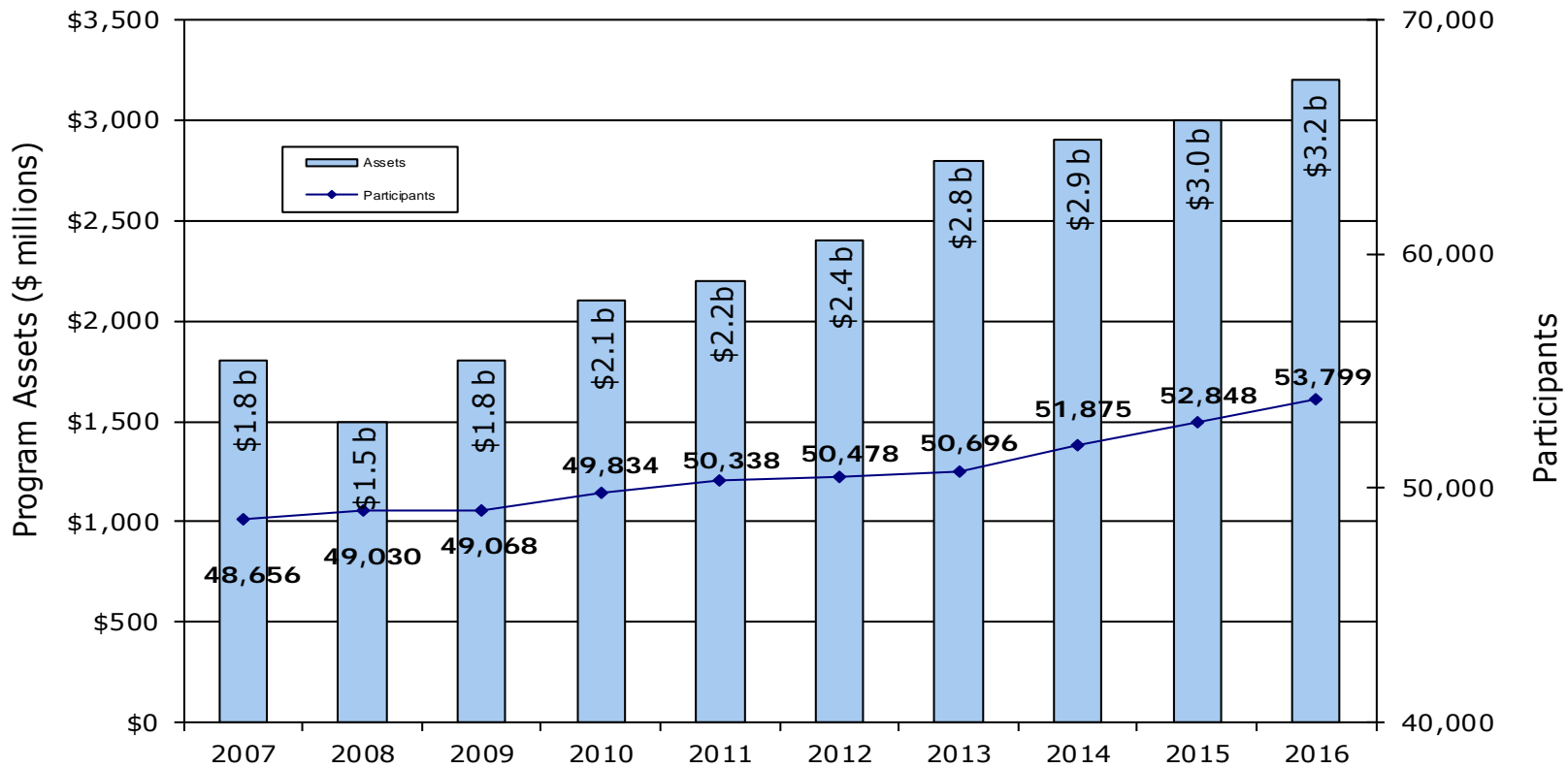
Participation Rate by Salary Range

<u>Salary Range</u>		<u>SERS Active</u> <u>Member Count</u>	<u>DCP Active</u> <u>Participant Count</u>	<u>Participation Rate</u>
	≤ \$ 20,000.00	8,427	387	4.6%
\$	20,000.01 - \$ 30,000.00	5,891	770	13.1%
\$	30,000.01 - \$ 40,000.00	14,392	3,456	24.0%
\$	40,000.01 - \$ 50,000.00	20,194	6,533	32.4%
\$	50,000.01 - \$ 60,000.00	14,755	6,202	42.0%
\$	60,000.01 - \$ 70,000.00	11,005	5,574	50.6%
\$	70,000.01 - \$ 80,000.00	7,715	4,054	52.5%
\$	80,000.01 - \$ 90,000.00	5,421	2,822	52.1%
\$	90,000.01 - \$ 100,000.00	3,459	2,162	62.5%
\$	100,000.01 +	5,363	3,224	60.1%
Total^{1/}		96,622	35,184	36.4%



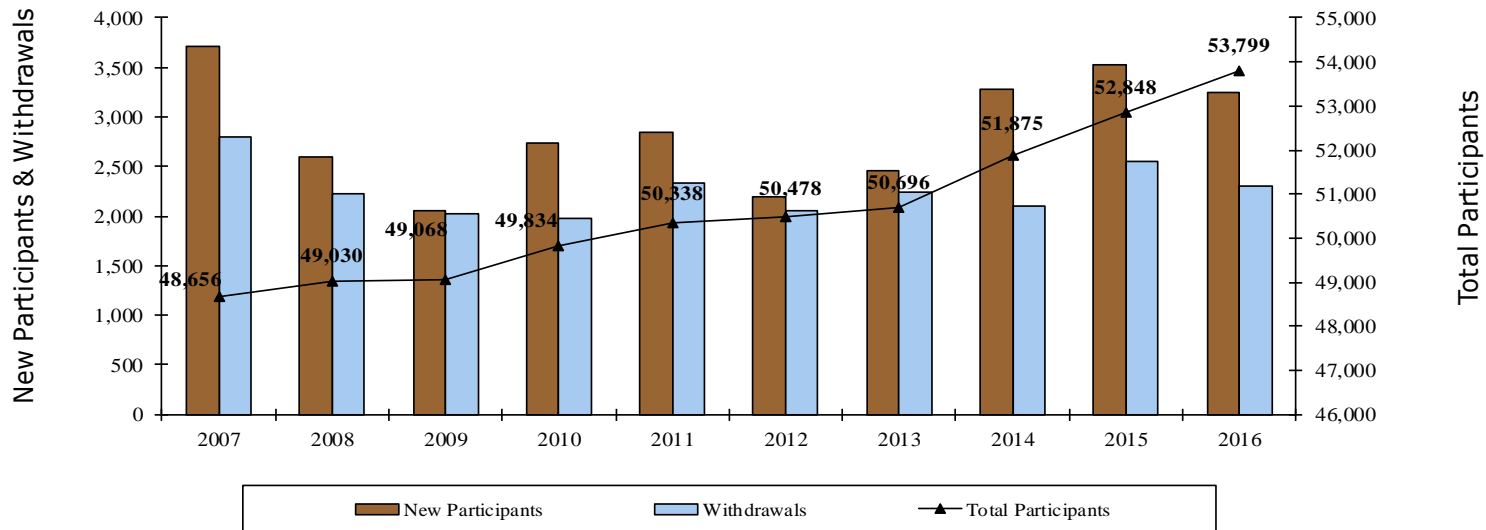
^{1/}Does not include non-participating employees

10 Year Growth of the Program



Participant History

Year	New		Total
	Participants	Withdrawals	Participants
2007	3,710	2,795	48,656
2008	2,593	2,219	49,030
2009	2,059	2,021	49,068
2010	2,743	1,977	49,834
2011	2,845	2,341	50,338
2012	2,196	2,056	50,478
2013	2,456	2,238	50,696
2014	3,273	2,094	51,875
2015	3,527	2,554	52,848
2016	3,249	2,298	53,799



Roth Option^{1/}

In August 2012, the DCP began offering a Roth option. This option allowed participants to make post tax contributions to a Roth account. In 2014 the program was amended again to allow members to make in-plan conversions of assets to Roth Assets. Roth participant data as of:

December 31, 2016

- 5,190 Participants
- Average Participant age: 42
- Average Balance: \$5,114
- Total Roth Balance: \$26,543,317
- 25 Total Conversions to Roth

December 31, 2015

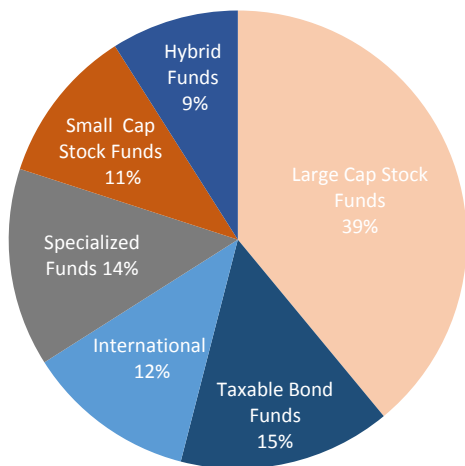
- 3,850 Participants
- Average Participant age: 43
- Average Balance: \$4,292
- Total Roth Balance: \$16,525,946
- 15 Total Conversions to Roth

^{1/}According to the 2015 National Association of Government Defined Contribution Administrators' Public Sector Defined Contribution Plan survey of 129 government defined contribution plans, 28% offer Roth accounts and 7% offer in-service Roth conversions.

Self-Directed Brokerage Account

In 2004, the DCP began offering the Self-Directed Brokerage Account (SDBA) through Charles Schwab. Participants have access to over 8,000 mutual funds through the SDBA. As of December 31, 2016, total asset value for the SDBA was \$98.6 million comprised of 1,306 different mutual funds. There are 1,270 participants invested in the SDBA, and the average account balance was \$75,510.

Market Value Allocation



Source: Charles Schwab & Co., Inc.

Top 10 Mutual Fund (MF) Holdings	\$ MF Assets	% MF Assets
PIMCO INCOME FUND CLASS D	\$5,026,097	5.55
PACIFIC FINANCIAL CORE EQUITY FUND CLASS INVESTOR	\$4,561,327	5.04
GLENMEDE LARGE CAP GROWTH PORTFOLIO	\$4,042,921	4.46
GLENMEDE LARGE CAP CORE PORTFOLIO	\$3,612,868	3.99
ABERDEEN US SMALL CAP EQUITY FUND CLASS A	\$2,886,628	3.19
PARNASSUS MID CAP FUND	\$2,756,260	3.04
INVESCO DIVERSIFIED DIVIDEND FUND CLASS A	\$2,751,247	3.04
PACIFIC FINANCIAL DYNAMIC ALLOCATION FUND INVESTOR CLASS	\$2,586,296	2.86
MATTHEWS JAPAN FUND INVESTOR CLASS	\$2,569,529	2.84
INTECH U.S. MANAGED VOLATILITY FUND CLASS T	\$2,519,781	2.78

Other Data

As of December 31, 2016

Defined Benefit Plan		Deferred Compensation Program	
Avg. Active Member Credited Service	11.4	Total Active Participant	35,184
Avg. Active Member Annual Salary	\$ 56,499	Total Non-Active Participants	18,615
Avg. Age at Retirement	61	Total Participant Count	53,799
Avg. Annual Pension for New Retirees	\$ 28,736	Avg. DCP Participant Account Balance	\$ 58,552
Avg. Ann. Pen. for Ret. Removed from Rolls	\$ 15,008	Avg. Surveyed DCP Account Balance ^{1/}	\$ 41,620
Ten Yr. Active Member Decrease (109,610 to 104,632)	-4.54%	Largest Account Balance	\$ 1,205,218
Ten Yr. Retired Member Increase (107,130 to 127,338)	18.86%	Avg. DCP Participant Ann. Contribution	\$ 3,030
Total Option 4 Withdrawal Payouts	\$ 354 Million	Avg. Surveyed DCP Ann. Contribution ^{1/}	\$ 3,584
Avg. Option 4 Payout	\$79,148	Avg. Number of Investment Options Held	2.82

^{1/}2016 National Association of Government Defined Contribution Administrators' Perspectives in Practice Survey Report of 62 individual plans.