1959 Survivor Benefit Program
Actuarial Valuation
as of
June 30, 2012

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Actuarial Certification

Certification

To the best of our knowledge, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the 1959 Survivor Program for Public Agency 1st, 2nd, 3rd, 4th, and Indexed Level, and the State and Schools 5th Level Pools. This valuation is based on the beneficiary and membership data provided to the Actuarial Office, the statement of assets provided by the CalPERS Fiscal Services Division, and the benefits provided under this program. It is our opinion that this valuation has been performed by qualified actuaries in accordance with generally accepted actuarial principles, in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for this program.

The undersigned are actuaries for CalPERS, who are members of the American Academy of Actuaries and the Society of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

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Highlights and Executive Summary

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Highlights & Executive Summary

Purpose of the Report

This actuarial valuation of the 1959 Survivor Program for Public Agency 1st, 2nd, 3rd, 4th and Indexed level and the State and Schools 5th level pools within the California Public Employees' Retirement System (CalPERS) was performed by CalPERS' staff actuaries as of June 30, 2012 in order to

- set forth the funded status of the program, reflecting the assets and funding liabilities of this program as of June 30, 2012;
- establish the actuarially required premiums for all employers and employee premiums in the Indexed, and State and Schools 5th Level for the fiscal year July 1, 2013 through June 30, 2014; and
- provide actuarial information as of June 30, 2012 to the CalPERS Board of Administration and other interested parties.

The use of this report for any other purposes may be inappropriate.

Funded Status of the Plan

Shown below are the Accrued Liability, Market Value of Assets, and Funded Ratio of all pools within the 1959 Survivor Benefit Program at June 30, 2012.

Plan	Accrued Liability[1]	Market Value of Assets (MVA)	Funded Ratio based on MVA
State 5th Level Pool	$ 134,750,039	$ 96,508,512	71.6%
Schools 5th Level Pool	$ 12,007,246	$ 56,096,617	467.2%
PA 1st Level Pool	$ 2,423,373	$ 32,683,599	1,348.7%
PA 2nd Level Pool	$ 2,231,378	$ 8,210,729	368.0%
PA 3rd Level Pool	$ 26,185,801	$ 83,615,577	319.3%
PA 4th Level Pool	$ 120,627,231	$ 125,729,339	104.2%
PA Indexed Level Pool	$ 16,250,802	$ 18,606,508	114.5%
Total	$ 314,475,870	$ 421,450,881	134.0%

1 – By definition, under the Term Insurance Method, the present value of future benefits and the accrued liability are equal. Under the Entry Age Normal Method, which is being used to fund the benefit in the Indexed Pool, the accrued liability is defined as the difference between the present value of future benefits and the present value of future normal costs.

Required Employer and Employee Monthly Premiums

The actuarially required employer and employee monthly premiums per covered member per month for the 1959 Survivor Program for the fiscal year July 1, 2013 through June 30, 2014 are shown below. The results for fiscal year July 1, 2012 through June 30, 2013 are shown for comparison. Except for the Public Agency Indexed Level pool, these monthly premiums are determined using a Modified Term Insurance funding method. Monthly premiums for the Public Agency Indexed Level pool are determined using the Entry Age Normal funding method.

Required Monthly Premiums

	2012-2013 Premium			2013-2014 Premium		
Plan	Employer	Employee	Total	Employer	Employee	Total
State 5th Level Pool*	$5.45	$5.45	$10.90	$5.35	$5.35	$10.70
Schools 5th Level Pool*	$0.00	$2.00	$2.00	$0.00	$2.00	$2.00
PA 1st Level Pool**	$0.00	$2.00	$2.00	$0.00	$2.00	$2.00
PA 2nd Level Pool**	$0.00	$2.00	$2.00	$0.00	$2.00	$2.00
PA 3rd Level Pool**	$0.00	$2.00	$2.00	$0.00	$2.00	$2.00
PA 4th Level Pool**	$4.00	$2.00	$6.00	$4.60	$2.00	$6.60
PA Indexed Level Pool*	$2.60	$2.60	$5.20	$2.60	$2.60	$5.20

* Section 21581 of the California Public Employees' Retirement Law requires mandatory cost sharing when the total premium exceeds $4.00. Mandatory $2.00 member monthly premium required.

** Mandatory $2.00 member monthly premium required.

The required employee premium for the State 5th level pool will change from $5.45 to $5.35 per member, per month (or from $2.52 to $2.47 for biweekly paid members) for fiscal year 2013/2014. This is in accordance with Statute 21581(c) which specifies that when the total required premium (after amortization of surplus/unfunded liability) exceeds $4, the employer and the member shall evenly share the required monthly premium.

The required employee premium for the Indexed level pool will remain the same at $2.60 per member, per month (or $1.20 for biweekly paid members) for fiscal year 2013/2014. This is in accordance with Statute 21581(b) which specifies that when the total required premium (after amortization of surplus/unfunded liability) exceeds $4, the employer and the member shall evenly share the required monthly premium.

Employee required premiums for all of the other pools shall remain the same, $2.00, as in the prior year.

Changes Since Prior Valuation

Actuarial Assumptions - There was no change in actuarial assumptions since the June 30, 2011 valuation.

Actuarial Method - There was no change in actuarial methods since the June 30, 2011 valuation.

Benefits - There was no change in the existing benefit levels in the program since the June 30, 2011 valuation.

Summary of Assets

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Reconciliation of the Market Value of Assets and Development of the Actuarial Value of Assets

State 5th Level Pool

Reconciliation of the Market Value of Assets from the Prior Fiscal Year

The following table shows the changes in the market value of assets for the State 5th Level Pool between June 30, 2011 and June 30, 2012.

1)	Beginning Balance 6/30/2011	$ 101,432,926
2)	Contributions (Employer and Employee) received during 2011-2012	11,024,945
3)	Benefit Payments during 2011-2012	(15,691,434)
4)	Net Transfer of Assets into and out of this pool	0
5)	Investment Earnings credited	(257,925)
6)	Ending Balance 6/30/2012 [(1)+(2)+(3)+(4)+(5)]	$ 96,508,512

Development of the Actuarial Value of Assets

The following table develops the actuarial value of assets for the State 5th Level Pool for the valuation date June 30, 2012.

1)	Actuarial Value of Assets as of 6/30/2011	$ 101,098,846
2)	Contributions (Employer and Employee) received during 2011-2012	11,024,945
3)	Benefit Payments during 2011-2012	(15,691,434)
4)	Net Transfer of Assets into and out of this pool	0
5)	Expected investment earnings during fiscal 2011-2012 [(1) * 0.075 + ((2)+(3)+(4)) * ($1.075^{1/2}$ - 1)]	7,410,584
6)	Expected Actuarial Value of Assets as of 6/30/2012 [(1) + (2) + (3) + (4) + (5)]	$ 103,842,941
7)	Market Value of Assets as of 6/30/2012	$ 96,508,512
8)	Actuarial Value of Assets as of 6/30/2012 [(6) + [((7)–(6)) ÷ 15], but not less than 80% or more than 120% of (7)]	$ 103,353,979
9)	Ratio of Actuarial Value to Market Value of Assets	107.09%

Schools 5th Level Pool

Reconciliation of the Market Value of Assets from the Prior Fiscal Year

The following table shows the changes in the market value of assets for the Schools 5th Level Pool between June 30, 2011 and June 30, 2012.

1)	Beginning Balance 6/30/2011	$ 57,578,035
2)	Contributions (Employer and Employee) received during 2011-2012	220,046
3)	Benefit Payments during 2011-2012	(1,553,340)
4)	Net Transfer of Assets into and out of this pool	0
5)	Investment Earnings credited	(148,124)
6)	Ending Balance 6/30/2012 [(1)+(2)+(3)+(4)+(5)]	$ 56,096,617

Development of the Actuarial Value of Assets

The following table develops the actuarial value of assets for the Schools 5th Level Pool for the valuation date June 30, 2012.

1)	Actuarial Value of Assets as of 6/30/2011	$ 56,894,114
2)	Contributions (Employer and Employee) received during 2011-2012	220,046
3)	Benefit Payments during 2011-2012	(1,553,340)
4)	Net Transfer of Assets into and out of this pool	0
5)	Expected investment earnings during fiscal 2011-2012 [(1) * 0.075 + ((2)+(3)+(4)) * ($1.075^{1/2}$ - 1)]	4,217,964
6)	Expected Actuarial Value of Assets as of 6/30/2012 [(1) + (2) + (3) + (4) + (5)]	$ 59,778,784
7)	Market Value of Assets as of 6/30/2012	$ 56,096,617
8)	Actuarial Value of Assets as of 6/30/2012 [(6) + [((7)–(6)) ÷ 15], but not less than 80% or more than 120% of (7)]	$ 59,533,306
9)	Ratio of Actuarial Value to Market Value of Assets	106.13%

Public Agency 1st Level Pool

Reconciliation of the Market Value of Assets from the Prior Fiscal Year

The following table shows the changes in the market value of assets for the Public Agency 1st Level Pool between June 30, 2011 and June 30, 2012.

1)	Beginning Balance 6/30/2011	$ 33,183,801
2)	Contributions (Employer and Employee) received during 2011-2012	172,176
3)	Benefit Payments during 2011-2012	(228,288)
4)	Net Transfer of Assets into and out of this pool	(358,261)
5)	Investment Earnings credited	(85,829)
6)	Ending Balance 6/30/2012 [(1)+(2)+(3)+(4)+(5)]	$ 32,683,599

Development of the Actuarial Value of Assets

The following table develops the actuarial value of assets for the Public Agency 1st Level Pool for the valuation date June 30, 2012.

1)	Actuarial Value of Assets as of 6/30/2011	$ 32,653,546
2)	Contributions (Employer and Employee) received during 2011-2012	172,176
3)	Benefit Payments during 2011-2012	(228,288)
4)	Net Transfer of Assets into and out of this pool	(358,261)
5)	Expected investment earnings during fiscal 2011-2012 [(1) * 0.075 + ((2)+(3)+(4)) * ($1.075^{1/2}$ - 1)]	2,433,758
6)	Expected Actuarial Value of Assets as of 6/30/2012 [(1) + (2) + (3) + (4) + (5)]	$ 34,672,931
7)	Market Value of Assets as of 6/30/2012	$ 32,683,599
8)	Actuarial Value of Assets as of 6/30/2012 [(6) + [((7)–(6)) ÷ 15], but not less than 80% or more than 120% of (7)]	$ 34,540,309
9)	Ratio of Actuarial Value to Market Value of Assets	105.68%

Public Agency 2nd Level Pool

Reconciliation of the Market Value of Assets from the Prior Fiscal Year

The following table shows the changes in the market value of assets for the Public Agency 2nd Level Pool between June 30, 2011 and June 30, 2012.

1)	Beginning Balance 6/30/2011	$ 8,436,530
2)	Contributions (Employer and Employee) received during 2011-2012	95,052
3)	Benefit Payments during 2011-2012	(210,182)
4)	Net Transfer of Assets into and out of this pool	(88,978)
5)	Investment Earnings credited	(21,693)
6)	Ending Balance 6/30/2012 [(1)+(2)+(3)+(4)+(5)]	$ 8,210,729

Development of the Actuarial Value of Assets

The following table develops the actuarial value of assets for the Public Agency 2nd Level Pool for the valuation date June 30, 2012.

1)	Actuarial Value of Assets as of 6/30/2011	$ 8,324,385
2)	Contributions (Employer and Employee) received during 2011-2012	95,052
3)	Benefit Payments during 2011-2012	(210,182)
4)	Net Transfer of Assets into and out of this pool	(88,978)
5)	Expected investment earnings during fiscal 2011-2012 [(1) * 0.075 + ((2)+(3)+(4)) * ($1.075^{1/2}$ - 1)]	616,813
6)	Expected Actuarial Value of Assets as of 6/30/2012 [(1) + (2) + (3) + (4) + (5)]	$ 8,737,090
7)	Market Value of Assets as of 6/30/2012	$ 8,210,729
8)	Actuarial Value of Assets as of 6/30/2012 [(6) + [((7)–(6)) ÷ 15], but not less than 80% or more than 120% of (7)]	$ 8,701,999
9)	Ratio of Actuarial Value to Market Value of Assets	105.98%

Public Agency 3rd Level Pool

Reconciliation of the Market Value of Assets from the Prior Fiscal Year

The following table shows the changes in the market value of assets for the Public Agency 3rd Level Pool between June 30, 2011 and June 30, 2012.

1)	Beginning Balance 6/30/2011	$ 85,495,710
2)	Contributions (Employer and Employee) received during 2011-2012	955,290
3)	Benefit Payments during 2011-2012	(2,528,390)
4)	Net Transfer of Assets into and out of this pool	(86,673)
5)	Investment Earnings credited	(220,360)
6)	Ending Balance 6/30/2012 [(1)+(2)+(3)+(4)+(5)]	$ 83,615,577

Development of the Actuarial Value of Assets

The following table develops the actuarial value of assets for the Public Agency 3rd Level Pool for the valuation date June 30, 2012.

1)	Actuarial Value of Assets as of 6/30/2011	$ 84,505,654
2)	Contributions (Employer and Employee) received during 2011-2012	955,290
3)	Benefit Payments during 2011-2012	(2,528,390)
4)	Net Transfer of Assets into and out of this pool	(86,673)
5)	Expected investment earnings during fiscal 2011-2012 [(1) * 0.075 + ((2)+(3)+(4)) * ($1.075^{1/2}$ - 1)]	6,276,808
6)	Expected Actuarial Value of Assets as of 6/30/2012 [(1) + (2) + (3) + (4) + (5)]	$ 89,122,689
7)	Market Value of Assets as of 6/30/2012	$ 83,615,577
8)	Actuarial Value of Assets as of 6/30/2012 [(6) + [((7)–(6)) ÷ 15], but not less than 80% or more than 120% of (7)]	$ 88,755,548
9)	Ratio of Actuarial Value to Market Value of Assets	106.15%

Public Agency 4th Level Pool

Reconciliation of the Market Value of Assets from the Prior Fiscal Year

The following table shows the changes in the market value of assets for the Public Agency 4th Level Pool between June 30, 2011 and June 30, 2012.

1)	Beginning Balance 6/30/2011	$ 133,276,491
2)	Contributions (Employer and Employee) received during 2011-2012	4,480,737
3)	Benefit Payments during 2011-2012	(12,224,308)
4)	Net Transfer of Assets into and out of this pool	533,913
5)	Investment Earnings credited	(337,494)
6)	Ending Balance 6/30/2012 [(1)+(2)+(3)+(4)+(5)]	$125,729,339

Development of the Actuarial Value of Assets

The following table develops the actuarial value of assets for the Public Agency 4th Level Pool for the valuation date June 30, 2012.

1)	Actuarial Value of Assets as of 6/30/2011	$ 132,669,218
2)	Contributions (Employer and Employee) received during 2011-2012	4,480,737
3)	Benefit Payments during 2011-2012	(12,224,308)
4)	Net Transfer of Assets into and out of this pool	533,913
5)	Expected investment earnings during fiscal 2011-2012 [(1) * 0.075 + ((2)+(3)+(4)) * ($1.075^{1/2}$ - 1)]	9,684,717
6)	Expected Actuarial Value of Assets as of 6/30/2012 [(1) + (2) + (3) + (4) + (5)]	$ 135,144,277
7)	Market Value of Assets as of 6/30/2012	$125,729,339
8)	Actuarial Value of Assets as of 6/30/2012 [(6) + [((7)–(6)) ÷ 15], but not less than 80% or more than 120% of (7)]	$134,516,614
9)	Ratio of Actuarial Value to Market Value of Assets	106.99%

Public Agency Indexed Level Pool

Reconciliation of the Market Value of Assets from the Prior Fiscal Year

The following table shows the changes in the market value of assets for the Public Agency Indexed Level Pool between June 30, 2011 and June 30, 2012.

1)	Beginning Balance 6/30/2011	$ 19,123,248
2)	Contributions (Employer and Employee) received during 2011-2012	551,368
3)	Benefit Payments during 2011-2012	(1,018,944)
4)	Net Transfer of Assets into and out of this pool	0
5)	Investment Earnings credited	(49,164)
6)	Ending Balance 6/30/2012 [(1)+(2)+(3)+(4)+(5)]	$ 18,606,508

Development of the Actuarial Value of Assets

The following table develops the actuarial value of assets for the Public Agency Indexed Level Pool for the valuation date June 30, 2012.

1)	Actuarial Value of Assets as of 6/30/2011	$ 18,931,485
2)	Contributions (Employer and Employee) received during 2011-2012	551,368
3)	Benefit Payments during 2011-2012	(1,018,944)
4)	Net Transfer of Assets into and out of this pool	0
5)	Expected investment earnings during fiscal 2011-2012 [(1) * 0.075 + ((2) + (3) + (4)) * ($1.075^{1/2}$ - 1)]	1,402,644
6)	Expected Actuarial Value of Assets as of 6/30/2012 [(1) + (2) + (3) + (4) + (5)]	$ 19,866,553
7)	Market Value of Assets as of 6/30/2012	$ 18,606,508
8)	Actuarial Value of Assets as of 6/30/2012 [(6) + [((7)–(6)) ÷ 15], but not less than 80% or more than 120% of (7)]	$19,782,550
9)	Ratio of Actuarial Value to Market Value of Assets	106.32 %

Liabilities and Funding Requirements

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Comparison of Current and Prior Results

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

State 5th Level Pool

	June 30, 2011	June 30, 2012
Covered Active Members	77,714	71,759
Beneficiaries Included in the Valuation		
Deferred (eligible, but not yet receiving benefits)	272	320
Receiving Benefits	1,405	1,388
Total	1,677	1,708
Present Value of Benefits	$ 134,973,458	$ 134,750,039
Assets		
Actuarial Value (AVA)	$ 101,098,846	$ 103,353,979
Market Value (MVA)	$ 101,432,926	$ 96,508,512
(Unfunded Liability)/Excess Assets on AVA	$ (33,874,612)	$ (31,396,060)
Required Employer Monthly Premium Per Member		
Before Amortization of (Unfunded Liability)/Excess Assets	$7.60	$7.30
After Amortization of (Unfunded Liability)/Excess Assets	$10.90	$10.70
After employer/employee premium sharing	$5.45	$5.35
Funded Ratio based on MVA	75.2%	71.6%

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

Schools 5th Level Pool

	June 30, 2011	June 30, 2012
Covered Active Members	9,811	10,123
Beneficiaries Included in the Valuation		
Deferred (eligible, but not yet receiving benefits)	19	24
Receiving Benefits	133	137
Total	152	161
Present Value of Benefits	$ 11,527,717	$ 12,007,246
Assets		
Actuarial Value (AVA)	$ 56,894,114	$ 59,533,306
Market Value (MVA)	$ 57,578,035	$ 56,096,617
(Unfunded Liability)/Excess Assets on AVA	$ 45,366,397	$ 47,526,060
Required Employer Monthly Premium Per Member		
Before Amortization of (Unfunded Liability)/Excess Assets	$5.00	$5.00
After Amortization of (Unfunded Liability)/Excess Assets	$0.00	$0.00
After employer/employee premium sharing	$0.00	$0.00
Funded Ratio based on MVA	499.5%	467.2%

Comparison of Current and Prior Results (continued)

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

Public Agency 1st Level Pool

	June 30, 2011	June 30, 2012
Covered Active Members	7,917	7,735
Beneficiaries Included in the Valuation		
Deferred (eligible, but not yet receiving benefits)	40	36
Receiving Benefits	91	93
Total	131	129
Present Value of Benefits	$ 2,411,810	$ 2,423,373
Assets		
Actuarial Value (AVA)	$ 32,653,546	$ 34,540,309
Market Value (MVA)	$ 33,183,801	$ 32,683,599
(Unfunded Liability)/Excess Assets on AVA	$ 30,241,736	$ 32,116,936
Required Employer Monthly Premium Per Member		
Total premium required	$ 1.40	$ 1.40
Premium required after Employee Contributions	$ 0.00	$ 0.00
Employer premium after Amortization of (Unfunded Liability)/Excess Assets	$ 0.00	$ 0.00
Funded Ratio based on MVA	1,375.9%	1,348.7%

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

Public Agency 2nd Level Pool

	June 30, 2011	June 30, 2012
Covered Active Members	4,072	3,966
Beneficiaries Included in the Valuation		
Deferred (eligible, but not yet receiving benefits)	27	29
Receiving Benefits	68	62
Total	95	91
Present Value of Benefits	$ 2,125,178	$ 2,231,378
Assets		
Actuarial Value (AVA)	$ 8,324,385	$ 8,701,999
Market Value (MVA)	$ 8,436,530	$ 8,210,729
(Unfunded Liability)/Excess Assets on AVA	$ 6,199,207	$ 6,470,621
Required Employer Monthly Premium Per Member		
Total premium required	$ 1.80	$ 1.80
Premium required after Employee Contributions	$ 0.00	$ 0.00
Employer premium after Amortization of (Unfunded Liability)/Excess Assets	$ 0.00	$ 0.00
Funded Ratio based on MVA	397.0%	368.0%

Comparison of Current and Prior Results (continued)

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

Public Agency 3rd Level Pool

	June 30, 2011	June 30, 2012
Covered Active Members	41,563	41,429
Beneficiaries Included in the Valuation		
Deferred (eligible, but not yet receiving benefits)	188	203
Receiving Benefits	492	492
Total	680	695
Present Value of Benefits	$ 24,999,819	$ 26,185,801
Assets		
Actuarial Value (AVA)	$ 84,505,654	$ 88,755,548
Market Value (MVA)	$ 85,495,710	$ 83,615,577
(Unfunded Liability)/Excess Assets on AVA	$ 59,505,835	$ 62,569,747
Required Employer Monthly Premium Per Member		
Total premium required	$ 2.70	$ 2.70
Premium required after Employee Contributions	$ 0.70	$ 0.70
Employer premium after Amortization of (Unfunded Liability)/Excess Assets	$ 0.00	$ 0.00
Funded Ratio based on MVA	342.0%	319.3%

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

Public Agency 4th Level Pool

	June 30, 2011	June 30, 2012
Covered Active Members	70,451	69,642
Beneficiaries Included in the Valuation		
Deferred (eligible, but not yet receiving benefits)	264	272
Receiving Benefits	839	874
Total	1,103	1,146
Present Value of Benefits	$ 115,953,166	$ 120,627,231
Assets		
Actuarial Value (AVA)	$ 132,669,218	$ 134,516,614
Market Value (MVA)	$ 133,276,491	$ 125,729,339
(Unfunded Liability)/Excess Assets on AVA	$ 16,716,102	$ 13,889,383
Required Employer Monthly Premium Per Member		
Total premium required	$ 7.40	$ 7.60
Premium required after Employee Contributions	$ 5.40	$ 5.60
Employer premium after Amortization of (Unfunded Liability)/Excess Assets	$ 4.00	$ 4.60
Funded Ratio based on MVA	114.9%	104.2%

Comparison of Current and Prior Results (continued)

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

Public Agency Indexed Level Pool

	June 30, 2011	June 30, 2012
Covered Active Members	10,252	9,982
Beneficiaries Included in the Valuation		
Deferred (eligible, but not yet receiving benefits)	28	27
Receiving Benefits	98	98
Total	126	125
Entry Age Normal Accrued Liability	$ 15,665,106	$ 16,250,802
Assets		
Actuarial Value (AVA)	$ 18,931,485	$ 19,782,550
Market Value (MVA)	$ 19,123,248	$ 18,606,508
(Unfunded Liability)/Excess Assets on AVA	$ 3,266,379	$ 3,531,748
Required Employer Monthly Premium Per Member		
Before Amortization of (Unfunded Liability)/Excess Assets	$ 7.20	$ 7.40
After Amortization of (Unfunded Liability)/Excess Assets	$ 5.20	$ 5.20
After employer/employee premium sharing	$ 2.60	$ 2.60
Funded Ratio based on MVA	122.1%	114.5%

The following table develops the annual premiums required for 2013-14 for the State 5th and Schools 5th Level Pools.

Development of Funding Requirements for State 5th and Schools 5th Level Pools

June 30, 2012 Annual Valuation of 1959 Survivor Program

	State 5th Level	School 5th Level
1) Development of Unfunded Liability		
a. Present Value of Future Survivor Benefits	$134,750,039	$12,007,246
b. Actuarial Value of Assets	$103,353,979	$59,533,306
c. Unfunded Accrued Liability/(Excess Assets) [1(a)-1(b)]	$31,396,060	($47,526,060)
2) Development of Normal Cost		
a. Present Value of Benefits for 2008-2011 Deaths	$25,388,292	$2,421,894
b. Number of 2008-2011 Member Months	3,853,248	493,512
c. Total per member, per month 2012/2013 Term Insurance Normal Cost	$7.60	$5.00
d. Total per member, per month 2013/2014 Term Insurance Normal Cost [.25 * 2(a)/2(b) + .75 * (c)], rounded to nearest $0.10	$7.30	$5.00
3) 2013 Projected Unfunded Liability		
a. 2012 Unfunded Accrued Liability/(Excess Assets) as of June 30, 2013 [1(c)*1.075]	$33,750,765	($51,090,515)
b. Projected Normal Cost Accrual 2012-2013 with interest	$6,586,838	$652,218
c. Projected Employer Contributions 2012-2013 with interest	$4,738,401	$0
d. Projected Employee Contributions 2012-2013 with interest	$4,738,401	$251,612
e. Total Projected UAL/(Excess Assets) as of June 30, 2013 [3(a)+3(b)-3(c)-3(d)]	$30,860,802	($50,689,908)
4) 2013/2014 Required Contribution		
a. Required Normal Cost per member, per month [2(d)]	$7.30	$5.00
b. Projected Active Members as of 6/30/2013	68,000	10,100
c. Required Normal Cost Contribution [12*4(a)*4(b)*1.075^1/2]	$6,176,142	$628,314
d. Amortization of the UAL/(Excess Assets)	$2,520,222	($628,314)
e. Total Required Contribution per member, per month [(4(c)+4(d))/(4(b)*12)], rounded to nearest $0.10	$10.70	$0.00
f. Amortization Period	30-year	N/A
5) 2013/2014 Required Employer and Employee Premiums With Cost Sharing Provision		
a. Required Employee Premium per member, per month [maximum($2,4(e)/2)]	$5.35	$2.00
b. Required Employer Premium per member, per month [maximum($0,4(e)-5(a))]	$5.35	$0.00

The following table develops the annual premiums required for 2013-14 for the Public Agency 1st and 2nd Level Pools.

Development of Funding Requirements for Public Agency 1st and 2nd Level Pools

June 30, 2012 Annual Valuation of 1959 Survivor Program

	Public Agency Level 1	Public Agency Level 2
1) Development of Unfunded Liability		
a. Present Value of Future Survivor Benefits	$2,423,373	$2,231,378
b. Actuarial Value of Assets	$34,540,309	$8,701,999
c. Unfunded Accrued Liability/(Excess Assets) [1(a)-1(b)]	($32,116,936)	($6,470,621)
2) Development of Normal Cost		
a. Present Value of Benefits for 2008-2011 Deaths[1]	$9,979,003	$12,473,754
b. Number of 2008-2011 Member Months[1]	6,729,120	6,729,120
c. Total per member, per month 2012/2013 Term Insurance Normal Cost	$1.40	$1.80
d. Total per member, per month 2013/2014 Term Insurance Normal Cost [.25 * 2(a)/2(b) + .75 * (c)], rounded to nearest $0.10	$1.40	$1.80
3) 2013 Projected Unfunded Liability		
a. 2012 Unfunded Accrued Liability as of June 30, 2013 [1(c)*1.075]	($34,525,706)	($6,955,918)
b. Projected Normal Cost Accrual 2012-2013 with interest	$138,518	$90,232
c. Projected Employer Contributions 2012-2013 with interest	$0	$0
d. Projected Employee Contributions 2012-2013 with interest	$190,796	$96,624
e. Total Projected UAL as of June 30, 2013 [3(a)+3(b)-3(c)-3(d)]	($34,577,984)	($6,962,310)
4) 2013/2014 Required Contribution		
a. Required Normal Cost per member, per month [2(d)]	$1.40	$1.80
b. Projected Active Members as of 6/30/2013	7,600	3,800
c. Required Normal Cost Contribution [12*4(a)*4(b)*1.075^1/2]	$132,381	$85,102
d. Amortization of the UAL/(Excess Assets)	($132,381)	($85,102)
e. Total Required Contribution Per Member, Per Month [(4(c)+4(d))/(4(b)*12)], rounded to nearest $0.10	$0.00	$0.00
f. Amortization Period	N/A	N/A
5) 2013/2014 Required Employer and Employee Premiums		
a. Required Employee Premium per member, per month	$2.00	$2.00
b. Required Employer Premium per member, per month [maximum($0,4(e)-5(a))]	$0.00	$0.00

Notes:

1 - Mortality experience and survivor distribution are assumed to be homogeneous across all Public Agency pools and are added together to develop normal costs in order to improve credibility of the data. This is further explained in the Actuarial Funding Methods section.

The following table develops the annual premiums required for 2013-14 for the Public Agency 3rd and 4th Level Pools.

Development of Funding Requirements for Public Agency 3rd and 4th Level Pools

June 30, 2012 Annual Valuation of 1959 Survivor Program

	Public Agency Level 3	Public Agency Level 4
1) Development of Unfunded Liability		
a. Present Value of Future Survivor Benefits	$26,185,801	$120,627,231
b. Actuarial Value of Assets	$88,755,548	$134,516,614
c. Unfunded Accrued Liability/(Excess Assets) [1(a)-1(b)]	($62,569,747)	($13,889,383)
2) Development of Normal Cost		
a. Present Value of Benefits for 2008-2011 Deaths[1]	$19,403,618	$52,666,962
b. Number of 2008-2011 Member Months[1]	6,729,120	6,729,120
c. Total per member, per month 2012/2013 Term Insurance Normal Cost	$2.70	$7.50
d. Total per member, per month 2013/2014 Term Insurance Normal Cost [.25 * 2(a)/2(b) + .75 * (c)], rounded to nearest $0.10	$2.70	$7.60
3) 2013 Projected Unfunded Liability		
a. 2012 Unfunded Accrued Liability as of June 30, 2013 [1(c)*1.075]	($67,262,478)	($14,931,087)
b. Projected Normal Cost Accrual 2012-2013 with interest	$1,425,688	$6,816,260
c. Projected Employer Contributions 2012-2013 with interest	$0	$3,459,884
d. Projected Employee Contributions 2012-2013 with interest	$1,018,105	$1,729,942
e. Total Projected UAL as of June 30, 2013 [3(a)+3(b)-3(c)-3(d)]	($66,854,895)	($13,304,652)
4) 2013/2014 Required Contribution		
a. Required Normal Cost per member, per month [2(d)]	$2.70	$7.60
b. Projected Active Members as of 6/30/2013	40,400	69,400
c. Required Normal Cost Contribution [12*4(a)*4(b)*1.075^1/2]	$1,357,159	$6,562,337
d. Amortization of the UAL/(Excess Assets)	($1,357,159)	($1,086,514)
e. Total Required Contribution Per Member, Per Month [(4(c)+4(d))/(4(b)*12)], rounded to nearest $0.10	$0.00	$6.60
f. Amortization Period	N/A	30-year
5) 2013/2014 Required Employer and Employee Premiums		
a. Required Employee Premium per member, per month	$2.00	$2.00
b. Required Employer Premium per member, per month [maximum($0,4(e)-5(a))]	$0.00	$4.60

Notes:

1 - Mortality experience and survivor distribution are assumed to be homogeneous across all Public Agency pools and are added together to develop normal costs in order to improve credibility of the data. This is further explained in the Actuarial Funding Methods section.

The following table develops the annual premiums required for 2013-14 for the Public Agency Indexed Level Pools.

Development of Funding Requirements for Public Agency Indexed Level Pool

June 30, 2012 Annual Valuation of 1959 Survivor Program

	Public Agency Indexed Level
1) Development of Unfunded Liability	
a. Present Value of Future Benefits for Active Members	$10,158,685
b. Present Value of Future Benefits for Current Survivors	$12,135,282
c. Total Present Value of Future Benefits [1(a)+1(b)]	$22,293,967
d. Present Value of Future Normal Costs	$6,043,165
e. Entry Age Normal Total Accrued Liability [1(c)-1(d)]	$16,250,802
f. Actuarial Value of Assets	$19,782,550
g. Unfunded Accrued Liability/(Excess Assets) [1(e)-1(f)]	($3,531,748)
2) Development of Normal Cost	
a. Required Entry Age Normal Cost	$891,012
b. Active Members as of June 30, 2012	9,982
c. Total per member per month Entry Age Normal Cost [2(a)/2(b)*12], rounded to nearest $0.10	$7.40
3) 2013 Projected Unfunded Liability	
a. 2012 Unfunded Accrued Liability/(Excess Assets) as of June 30, 2013 [1(g)*1.075]	($3,796,629)
b. Projected Normal Cost Accrual 2012-2013 with interest	$944,503
c. Projected Employer Contributions 2012-2013 with interest	$319,962
d. Projected Employee Contributions 2012-2013 with interest	$319,962
e. Total Projected UAL as of June 30, 2013 [3(a)+3(b)-3(c)-3(d)]	($3,492,051)
4) 2013/2014 Required Contribution	
a. Required Normal Cost per member, per month [2(c)]	$7.40
b. Projected Active Members as of June 30, 2013	9,800
c. Required Normal Cost Contribution [12*4(a)*4(b)*1.075^1/2]	$902,284
d. Amortization of the UAL/(Excess Assets)	($285,176)
e. Total Required Contribution per member, per month [(4(c)+4(d))/(4(b)*12)], rounded to nearest $0.10	$5.20
f. Amortization Period	30-year
5) 2013/2014 Employer and Employee Premiums with Cost Sharing Provision	
a. Required Employee Premium per member, per month [maximum(2,4(e)/2)]	$2.60
b. Required Employer Premium per member, per month [maximum(0,4(e)-5(a))]	$2.60

Gain/(Loss) Analysis 6/30/2011 – 6/30/2012

State 5th Level Pool

The following table develops the asset and demographic gain and losses between June 30, 2011 and June 30, 2012 for the State 5th Level Pool.

Amounts as of 6/30/2011		
1)	Present Value of Benefits	$ 134,973,458
2)	Actuarial Value of Assets	101,098,846
3)	Unfunded Liability/(Excess Assets) [(1)-(2)]	33,874,612
Amounts During the Period 6/30/2011 – 6/30/2012		
4)	Expected Claims for the Fiscal Year	6,842,874
5)	Employer and Employee Premiums Collected	11,024,945
6)	Benefit Payments	(15,691,434)
7)	Net Liabilities Transferred into the State 5th level pool	0
8)	Net Assets Transferred into the State 5th level pool	0
Expected Amounts as of 6/30/2012		
9)	Expected Present Value of Benefits [(1) * 1.075 + ((4) + (6) + (7)) * $(1.075)^{1/2}$]	135,922,085
10)	Expected Actuarial Value of Assets [(2) * 1.075 + ((5) + (6) + (8)) * $(1.075)^{1/2}$]	103,842,941
11)	Expected Unfunded Liability/(Excess Assets) [(9)-(10)]	32,079,144
Amounts as of 6/30/2012		
12)	Present Value of Benefits	134,750,039
13)	Actuarial Value of Assets	103,353,979
14)	Unfunded Liability/(Excess Assets) [(12)-(13)]	31,396,060
Gain/(Loss) for the Period 6/30/2011 – 6/30/2012		
15)	Liability Gain/(Loss) [(9) – (12)]	1,172,046
16)	Asset Gain/(Loss) [(13) – (10)]	(488,962)
17)	Total Gain/(Loss) [(15) + (16)]	$ 683,084

Gain/(Loss) Analysis 6/30/2011 – 6/30/2012

Schools 5th Level Pool

The following table develops the asset and demographic gain and losses between June 30, 2011 and June 30, 2012 for the Schools 5th Level Pool.

Amounts as of 6/30/2011		
1)	Present Value of Benefits	$ 11,527,717
2)	Actuarial Value of Assets	56,894,114
3)	Unfunded Liability/(Excess Assets) [(1)-(2)]	(45,366,397)
Amounts During the Period 6/30/2011 – 6/30/2012		
4)	Expected Claims for the Fiscal Year	600,412
5)	Employer and Employee Premiums Collected	220,046
6)	Benefit Payments	(1,553,340)
7)	Net Liabilities Transferred into the Schools 5th level pool	0
8)	Net Assets Transferred into the Schools 5th level pool	0
Expected Amounts as of 6/30/2012		
9)	Expected Present Value of Benefits [(1) * 1.075 + ((4) + (6) + (7)) * $(1.075)^{1/2}$]	11,404,279
10)	Expected Actuarial Value of Assets [(2) * 1.075 + ((5) + (6) + (8)) * $(1.075)^{1/2}$]	59,778,784
11)	Expected Unfunded Liability/(Excess Assets) [(9)-(10)]	(48,374,505)
Amounts as of 6/30/2012		
12)	Present Value of Benefits	12,007,246
13)	Actuarial Value of Assets	59,533,306
14)	Unfunded Liability/(Excess Assets) [(12)-(13)]	(47,526,060)
Gain/(Loss) for the Period 6/30/2011 – 6/30/2012		
15)	Liability Gain/(Loss) [(9) – (12)]	(602,967)
16)	Asset Gain/(Loss) [(13) – (10)]	(245,478)
17)	Total Gain/(Loss) [(15) + (16)]	$ (848,445)

Gain/(Loss) Analysis 6/30/2011 – 6/30/2012

Public Agency 1st Level Pool

The following table develops the asset and demographic gain and losses between June 30, 2011 and June 30, 2012 for the Public Agency 1st Level Pool.

Amounts as of 6/30/2011		
1)	Present Value of Benefits	$ 2,411,810
2)	Actuarial Value of Assets	32,653,546
3)	Unfunded Liability/(Excess Assets) [(1)-(2)]	(30,241,736)
Amounts During the Period 6/30/2011 – 6/30/2012		
4)	Expected Claims for the Fiscal Year	132,416
5)	Employer and Employee Premiums Collected	172,176
6)	Benefit Payments	(228,288)
7)	Net Liabilities Transferred into the 1st level pool	(118,072)
8)	Net Assets Transferred into the 1st level pool	(358,261)
Expected Amounts as of 6/30/2012		
9)	Expected Present Value of Benefits [(1) * 1.075 + ((4) + (6) + (7)) * $(1.075)^{1/2}$]	2,370,874
10)	Expected Actuarial Value of Assets [(2) * 1.075 + ((5) + (6) + (8)) * $(1.075)^{1/2}$]	34,672,931
11)	Expected Unfunded Liability/(Excess Assets) [(9)-(10)]	(32,302,057)
Amounts as of 6/30/2012		
12)	Present Value of Benefits	2,423,373
13)	Actuarial Value of Assets	34,540,309
14)	Unfunded Liability/(Excess Assets) [(12)-(13)]	(32,116,936)
Gain/(Loss) for the Period 6/30/2011 – 6/30/2012		
15)	Liability Gain/(Loss) [(9) – (12)]	(52,499)
16)	Asset Gain/(Loss) [(13) – (10)]	(132,622)
17)	Total Gain/(Loss) [(15) + (16)]	$ (185,121)

Gain/(Loss) Analysis 6/30/2011 – 6/30/2012

Public Agency 2nd Level Pool

The following table develops the asset and demographic gain and losses between June 30, 2011 and June 30, 2012 for the Public Agency 2nd Level Pool.

Amounts as of 6/30/2011		
1)	Present Value of Benefits	$ 2,125,178
2)	Actuarial Value of Assets	8,324,385
3)	Unfunded Liability/(Excess Assets) [(1)-(2)]	(6,199,207)
Amounts During the Period 6/30/2011 – 6/30/2012		
4)	Expected Claims for the Fiscal Year	84,881
5)	Employer and Employee Premiums Collected	95,052
6)	Benefit Payments	(210,182)
7)	Net Liabilities Transferred into the 2nd level pool	(11,651)
8)	Net Assets Transferred into the 2nd level pool	(88,978)
Expected Amounts as of 6/30/2012		
9)	Expected Present Value of Benefits [(1) * 1.075 + ((4) + (6) + (7)) * $(1.075)^{1/2}$]	2,142,572
10)	Expected Actuarial Value of Assets [(2) * 1.075 + ((5) + (6) + (8)) * $(1.075)^{1/2}$]	8,737,090
11)	Expected Unfunded Liability/(Excess Assets) [(9)-(10)]	(6,594,518)
Amounts as of 6/30/2012		
12)	Present Value of Benefits	2,231,378
13)	Actuarial Value of Assets	8,701,999
14)	Unfunded Liability/(Excess Assets) [(12)-(13)]	(6,470,621)
Gain/(Loss) for the Period 6/30/2011 – 6/30/2012		
15)	Liability Gain/(Loss) [(9) – (12)]	(88,806)
16)	Asset Gain/(Loss) [(13) – (10)]	(35,091)
17)	Total Gain/(Loss) [(15) + (16)]	$ (123,897)

Gain/(Loss) Analysis 6/30/2011 – 6/30/2012

Public Agency 3rd Level Pool

The following table develops the asset and demographic gain and losses between June 30, 2011 and June 30, 2012 for the Public Agency 3rd Level Pool.

Amounts as of 6/30/2011		
1)	Present Value of Benefits	$ 24,999,819
2)	Actuarial Value of Assets	84,505,654
3)	Unfunded Liability/(Excess Assets) [(1)-(2)]	(59,505,835)
Amounts During the Period 6/30/2011 - 6/30/2012		
4)	Expected Claims for the Fiscal Year	1,369,368
5)	Employer and Employee Premiums Collected	955,290
6)	Benefit Payments	(2,528,390)
7)	Net Liabilities Transferred into the 3rd level pool	0
8)	Net Assets Transferred into 3rd level pool	(86,673)
Expected Amounts as of 6/30/2012		
9)	Expected Present Value of Benefits [(1) * 1.075 + ((4) + (6) + (7)) * $(1.075)^{1/2}$]	25,673,106
10)	Expected Actuarial Value of Assets [(2) * 1.075 + ((5) + (6) + (8)) * $(1.075)^{1/2}$]	89,122,689
11)	Expected Unfunded Liability/(Excess Assets) [(9)-(10)]	(63,449,583)
Amounts as of 6/30/2012		
12)	Present Value of Benefits	26,185,801
13)	Actuarial Value of Assets	88,755,548
14)	Unfunded Liability/(Excess Assets) [(12)-(13)]	(62,569,747)
Gain/(Loss) for the Period 6/30/2011 – 6/30/2012		
15)	Liability Gain/(Loss) [(9) – (12)]	(512,695)
16)	Asset Gain/(Loss) [(13) – (10)]	(367,141)
17)	Total Gain/(Loss) [(15) + (16)]	$ (879,836)

Gain/(Loss) Analysis 6/30/2011 – 6/30/2012

Public Agency 4th Level Pool

The following table develops the asset and demographic gain and losses between June 30, 2011 and June 30, 2012 for the Public Agency 4th Level Pool.

Amounts as of 6/30/2011		
1)	Present Value of Benefits	$ 115,953,116
2)	Actuarial Value of Assets	132,669,218
3)	Unfunded Liability/(Excess Assets) [(1)-(2)]	(16,716,102)
Amounts During the Period 6/30/2011 – 6/30/2012		
4)	Expected Claims for the Fiscal Year	6,270,563
5)	Employer and Employee Premiums Collected	4,480,737
6)	Benefit Payments	(12,224,308)
7)	Net Liabilities Transferred into the 4th level pool	672,350
8)	Net Assets Transferred into the 4th level pool	533,913
Expected Amounts as of 6/30/2012		
9)	Expected Present Value of Benefits [(1) * 1.075 + ((4) + (6) + (7)) * $(1.075)^{1/2}$]	119,173,732
10)	Expected Actuarial Value of Assets [(2) * 1.075 + ((5) + (6) + (8)) * $(1.075)^{1/2}$]	135,144,277
11)	Expected Unfunded Liability/(Excess Assets) [(9)-(10)]	(15,970,544)
Amounts as of 6/30/2012		
12)	Present Value of Benefits	120,627,231
13)	Actuarial Value of Assets	134,516,614
14)	Unfunded Liability/(Excess Assets) [(12)-(13)]	(13,889,383)
Gain/(Loss) for the Period 6/30/2011 – 6/30/2012		
15)	Liability Gain/(Loss) [(9) – (12)]	(1,453,499)
16)	Asset Gain/(Loss) [(13) – (10)]	(627,663)
17)	Total Gain/(Loss) [(15) + (16)]	$ (2,081,161)

Gain/(Loss) Analysis 6/30/2011 – 6/30/2012

Public Agency Indexed Level Pool

The following table develops the asset and demographic gain and losses between June 30, 2011 and June 30, 2012 for the Public Agency Indexed Level Pool.

Amounts as of 6/30/2011		
1)	Accrued Liability	$ 15,665,106
2)	Actuarial Value of Assets	18,931,485
3)	Unfunded Liability/(Excess Assets) [(1)-(2)]	(3,266,379)
Amounts During the Period 6/30/2011 – 6/30/2012		
4)	Normal Cost for the Fiscal Year	869,253
5)	Employer and Employee Premiums Collected	551,368
6)	Benefit Payments	(1,018,944)
7)	Net Liabilities Transferred into the Indexed Level pool	0
8)	Net Assets Transferred into the Indexed Level pool	0
Expected Amounts as of 6/30/2012		
9)	Expected Present Value of Benefits [(1) * 1.075 + ((4) + (6) + (7)) * $(1.075)^{1/2}$]	16,684,786
10)	Expected Actuarial Value of Assets [(2) * 1.075 + ((5) + (6) + (8)) * $(1.075)^{1/2}$]	19,866,553
11)	Expected Unfunded Liability/(Excess Assets) [(9)-(10)]	(3,181,768)
Amounts as of 6/30/2012		
12)	Present Value of Benefits	16,250,802
13)	Actuarial Value of Assets	19,782,550
14)	Unfunded Liability/(Excess Assets) [(12)-(13)]	(3,531,748)
Gain/(Loss) for the Period 6/30/2011 – 6/30/2012		
15)	Liability Gain/(Loss) [(9) – (12)]	443,984
16)	Asset Gain/(Loss) [(13) – (10)]	(84,003)
17)	Total Gain/(Loss) [(15) + (16)]	$ 349,981

Risk Analysis

Contents

This section contains the following topics:

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Investment Return Scenario Analysis

The following analysis looks at what the 2014-15 contribution rates would be under four different investment return scenarios. This type of analysis can give the reader a sense of the short-term risk to the contribution rates.

The first scenario is what one would expect if the markets were to give us a 5th percentile return without considering we are already at approximately 12% so far for the 2012-13 fiscal year. The 5th percentile return corresponds to a -12% return for the 2012-13 fiscal year. The second scenario assumed the return would be our assumed 7.50%. The third scenario assumes an approximate return of 12%, the rate of return attained so far this fiscal year (at March 31, 2013). The last scenario is what one would expect if the markets were to give us a 95th percentile return notwithstanding the 12% year-to-date return for the current fiscal year. This 95th percentile return is equivalent to around 27%.

The tables below shows 2014-15 projected employee and employer contribution rates under the return scenarios mentioned above.

	-12% Return		**7.50% Return**	
	2014-2015 Employer Monthly Premium	2014-2015 Employee Monthly Premium	2014-2015 Employer Monthly Premium	2014-2015 Employee Monthly Premium
PA 1	$0.00	$2.00	$0.00	$2.00
PA 2	$0.00	$2.00	$0.00	$2.00
PA 3	$0.00	$2.00	$0.00	$2.00
PA 4	$5.80	$2.00	$4.60	$2.00
Indexed	$3.20	$3.20	$2.65	$2.65
State	$5.60	$5.60	$5.20	$5.20
School	$0.00	$2.00	$0.00	$2.00

	12% Return		**27% Return**	
	2014-2015 Employer Monthly Premium	2014-2015 Employee Monthly Premium	2014-2015 Employer Monthly Premium	2014-2015 Employee Monthly Premium
PA 1	$0.00	$2.00	$0.00	$2.00
PA 2	$0.00	$2.00	$0.00	$2.00
PA 3	$0.00	$2.00	$0.00	$2.00
PA 4	$4.50	$2.00	$4.40	$2.00
Indexed	$2.65	$2.65	$2.60	$2.60
State	$5.15	$5.15	$5.10	$5.10
School	$0.00	$2.00	$0.00	$2.00

Discount Rate Sensitivity

The following analysis looks at what the 2013-14 contribution rates would be under two different discount rate scenarios. We determined the required contribution rates using discount rates that are 1% lower and 1% higher than the valuation discount rate of 7.50%. This analysis will give an indication of the potential required contribution rates if the PERF had investment returns of 6.50% or 8.50% over the long-term.

This type of analysis can give employers a sense of the long-term risk to the contribution rates.

	6.50% Discount Rate (-1%)		**Increase in Rate**	
	2013-2014 Employer Monthly Premium	2013-2014 Employee Monthly Premium	2013-2014 Employer Monthly Premium	2013-2014 Employee Monthly Premium
PA 1	$0.00	$2.00	$0.00	$0.00
PA 2	$0.00	$2.00	$0.00	$0.00
PA 3	$0.00	$2.00	$0.00	$0.00
PA 4	$5.60	$2.00	$1.00	$0.00
Indexed	$3.20	$3.20	$0.60	$0.60
State	$5.95	$5.95	$0.60	$0.60
School	$0.00	$2.00	$0.00	$0.00

	8.50% Discount Rate (+1%)		**Decrease in Rate**	
	2013-2014 Employer Monthly Premium	2013-2014 Employee Monthly Premium	2013-2014 Employer Monthly Premium	2013-2014 Employee Monthly Premium
PA 1	$0.00	$2.00	$0.00	$0.00
PA 2	$0.00	$2.00	$0.00	$0.00
PA 3	$0.00	$2.00	$0.00	$0.00
PA 4	$3.00	$2.00	($1.60)	$0.00
Indexed	$2.10	$2.10	($0.50)	($0.50)
State	$4.80	$4.80	($0.55)	($0.55)
School	$0.00	$2.00	$0.00	$0.00

Appendix A - Statement of Actuarial Methods and Assumptions

Actuarial Funding Method for Public Agency 1st, 2nd, 3rd and 4th Level, and State and Schools 5th Level Pools

The actuarial funding method used, as provided in State statute for public agency 1st, 2nd, 3rd and 4th level, and State and Schools 5th level pools, is called the Term Insurance method. This is a terminal funding arrangement with no pre-funding of the survivor benefits payable on account of deaths expected to occur beyond those in the coming year.

The Normal Cost for the year is equal to the Expected Claims (present value of benefits arising from deaths) that will occur in the coming fiscal year. The expected claims for the coming fiscal year is determined as the expected claim per member, per month multiplied by the expected member months for the coming fiscal year. The normal cost (or expected claims) per member, per month for the coming fiscal year is equal to a weighted average of the prior year and current year normal cost. Specifically, the current year's normal cost is calculated as the present value of member deaths for the past 4 years divided by the total number of members exposed to the death benefit over the same period. Then the normal cost (expected claims) for the coming year is simply 25% of the current year's normal cost and 75% of the prior year's normal cost. The reason for this methodology is that when new deaths occur each year, it is often unknown which benefit will ultimately apply (i.e. 1957 Survivor, Industrial Death, Pre-Retirement Option 2 or 1959 Survivor). Many times, new deaths are initially placed under the 1959 Survivor roll, but ultimately are reclassified to another roll some time later. This can create extreme volatility in the normal cost calculation between valuation years, especially for smaller pools.

The consequence of this approach is that very little weight is given to the most recent year's data and more weight is given to previous years. In fact, as this methodology matures or reaches a steady state, all data from the past would have some impact on the calculated normal cost. The following matrix shows ultimate weights for the past ten year's data as the methodology approaches its steady state:

Data t years ago	Weights
1	6.3%
2	10.9
3	14.5
4	17.1
5	12.8
6	9.6
7	7.2
8	5.4
9	4.1
10	3.0

For Public Agency 1st, 2nd, 3rd and 4th Levels, the Present Value of Benefits for 2008-2011 Deaths for each level are calculated as if all members of all four levels who died from 2008-2011 were members of that particular level.

The Accrued Liability is equal to the Present Value of Benefits payable to current survivors. If the Accrued Liability exceeds the Actuarial Value of Assets, the difference is called the Unfunded Liability. On the other hand, if the Actuarial Value of Assets exceeds the Accrued Liability, the difference is called Excess Assets.

The required employer monthly premium is the total required monthly premium less the $2.00 per month member contributions as required by State Statute Section 21581. For all levels, existing excess assets in the pool will be amortized and directly used to offset required employer contributions. However, for the State and Schools 5th Level pool, if the total required monthly premium after amortization of excess assets exceeds $4, the member and the employer shall evenly share the required monthly premium. For the current valuation date, the unfunded liability for the State 5th Level pool was amortized over a 30-year period. Excess assets for the Schools 5th Level pool, and Public Agency 1st, 2nd, and 3rd Level pools were sufficient to offset required employer contributions indefinitely, based on June 30, 2012 data and assumptions. Excess assets for the Public Agency 4th Level were amortized over a 30-year period, and are not sufficient to fully offset the required employer contribution. The resulting employer contribution for the 4th Level is $4.60 per covered member per month.

Actuarial Funding Method for Public Agency Indexed Level Pool

The funding method used for the Public Agency Indexed Level pool is the Entry Age Normal method. Under this method, projected benefits are determined for all members and the associated liabilities are spread in a manner that produces an annual cost that increases by approximately 2% in each year.

The Normal Cost for the Public Agency Indexed Level pool is the portion of the total Entry Age Normal Cost, as described in the preceding paragraph that is allocated to the current fiscal year. Since there is no cost allocated to the current fiscal year for those already receiving benefits or are in a deferred status, only active members have a Normal Cost. The population demographics, excluding population growth, are assumed to remain stable for purposes of projecting the Normal Cost to the year for which the contribution requirement is being determined.

The Accrued Liability is equal to the Present Value of Future Benefits for both current survivors and active members, less the Present Value of Future Normal Costs.

The total required monthly premium is the sum of the individual Normal Costs divided by the number of member months. The required employer monthly premium is the total required monthly premium less the $2.00 per month member contributions as required by State Statute Section 21581. Existing excess assets in the pool will be amortized and directly used to offset required employer contributions. However, if the total required monthly premium after amortization of excess assets exceeds $4.00, the member and the employer shall evenly share the required monthly premium. Excess assets for the Public Agency Indexed Level are amortized over a 30-year period. The resulting employer contribution for the Indexed Level is $2.60 per covered member per month.

Asset Valuation Method

In order to dampen the effect of short term market value fluctuations on employer contribution rates, the following asset smoothing technique is used. First, an Expected Value of Assets is computed by bringing forward the prior year's Actuarial Value of Assets and the contributions received and benefits paid during the year at the assumed actuarial rate of return. The Actuarial Value of Assets is then computed as the Expected Value of Assets plus one-fifteenth of the difference between the actual Market Value of Assets and Expected Value of Assets as of the valuation date. However, in no case will the Actuarial Value of Assets be less than 80% nor greater than 120% of the actual Market Value of Assets.

Method for Projecting Active Counts

In the past, actuarial staff has found that two particular methods have worked well in predicting future active member counts for the pools. Projected counts are necessary to determine employer premiums. The two methods that are normally used are linear trend or autoregressive models. For this valuation year, we will continue to use these models for the Public Agency Pools. They continue to model slow and even declining growth in the Levels 1, 2 and 3 pools and less positive growth in Level 4 and Indexed. This is to be expected, since the first three levels are closed to new entrants and Levels 4 and Indexed are still open to amending and new contracting.

These methods when applied to the State and Schools Pools are also predicting less positive growth. This is consistent with the current state of the economy, current hiring practices of the State and the fact that new migration into and out of these pools do not take place.

Actuarial Assumptions

The actuarial assumptions used in this valuation include the investment return rate and the mortality rates for current beneficiaries. These assumptions are shown below. Actual mortality rates for active members of all pools combined are shown in Appendix 3 and are used in the calculation of the annual normal costs, except for the Public Agency Indexed Level.

Economic Assumptions:

Investment Return — 7.50% compounded annually (net of administrative expenses).

Demographic Assumptions:

The following table shows mortality rates for the 1959 Survivor Program by age and sex.

Attained Age	Male Mortality Rate	Female Mortality Rate
20	.0004	.0003
25	.0006	.0003
30	.0007	.0003
35	.0008	.0004
40	.0009	.0006
45	.0013	.0009
50	.0024	.0013
55	.0047	.0024
60	.0072	.0043
65	.0107	.0078
70	.0168	.0124
75	.0308	.0207
80	.0527	.0375
85	.0978	.0701
90	.1675	.1240
95	.2566	.2156
100	.3455	.3188
105	.5853	.5609
110	1.0000	1.0000

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level

The Public Agency Indexed Level's Accrued Liability and Entry Age Normal cost for active members are calculated based on the actuarial assumptions for our Public Agency miscellaneous 2% @ 55 and police 2% @ 50 pension plans. The final valuation results equals the sum of the results valued on the basis of a miscellaneous 2% @ 55 plan plus the results valued on the basis of a police 2% @ 50 plan, where all miscellaneous employees of plans contracting for the Public Agency Indexed Level of 1959 Survivor benefits are valued using miscellaneous 2% @ 55 assumptions, and all safety employees of plans contracting for the Public Agency Indexed Level of 1959 Survivor benefits are valued using police 2% @ 50 assumptions.
The actuarial assumptions for each of these plans are as follows:

Eligible Survivor Status

For active members of both the Miscellaneous and Safety Police plans, the probability of having eligible survivor(s) at the date of death is assumed according to the following table:

Age at Death	Percent having Eligible Survivor(s)
Age 20 and under	30%
Between ages 21 and 24	50%
Between ages 25 and 29	70%
Between ages 30 and 39	90%
Between ages 40 and 49	95%
Between ages 50 and 54	90%
Age 55 and above	85%

Average claims are developed at every age using actual experience from the program. These average claims are then multiplied by the percentages in the above table. The results are used to estimate expected claims in the active population.

Benefit amounts and Present Value of benefits were based on average claim experience. A sample of the average claim experience is shown in the table below:

Age at Death	Present Value of Average Claim at the Time of Death*
20 and below	$25,901
25	$86,136
30	$120,232
35	$114,938
40	$107,691
45	$91,864
50	$73,882
55	$61,283
60	$57,360
65	$57,134
70	$58,198
75	$56,619
80 and above	$46,938

Average claims were calculated using actual experience from the 1959 Survivor program and smoothed using a polynomial regression model.

*Values are based on an initial benefit of $500/$1,000/$1,500 for one, two, or three survivors, respectively. This was the benefit level on June 30, 2000, when the Indexed Level first became effective. The valuation program increases these amounts by 2% per year up to the current valuation year.

Public Agency Miscellaneous 2% @ 55

Non-Industrial (Not Job-Related) Death and Non-Industrial (Not Job-Related) Disability

Rates vary by age and sex. See sample rates in table below.

	Male		Female	
	Non-Industrial (Not Job-Related)	Non-Industrial (Not Job-Related)	Non-Industrial (Not Job-Related)	Non-Industrial (Not Job-Related)
Attained Age	Death	Disability	Death	Disability
20	0.00019	0.00010	0.00009	0.00010
25	0.00027	0.00010	0.00014	0.00010
30	0.00038	0.00021	0.00021	0.00020
35	0.00054	0.00063	0.00031	0.00088
40	0.00077	0.00145	0.00046	0.00164
45	0.00110	0.00252	0.00068	0.00243
50	0.00156	0.00331	0.00102	0.00311
55	0.00221	0.00366	0.00151	0.00306
60	0.00314	0.00377	0.00226	0.00253

Service Retirement

Rates vary by age and service. See table sample below.

	Service Retirement					
	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.0150	0.0200	0.0240	0.0290	0.0330	0.0390
51	0.0130	0.0160	0.0200	0.0240	0.0270	0.0330
52	0.0140	0.0180	0.0220	0.0270	0.0300	0.0360
53	0.0170	0.0220	0.0270	0.0320	0.0370	0.0430
54	0.0270	0.0340	0.0410	0.0490	0.0560	0.0670
55	0.0500	0.0640	0.0780	0.0940	0.1070	0.1270
56	0.0450	0.0570	0.0690	0.0830	0.0950	0.1130
57	0.0480	0.0610	0.0740	0.0900	0.1020	0.1220
58	0.0520	0.0660	0.0800	0.0970	0.1100	0.1310
59	0.0600	0.0760	0.0920	0.1110	0.1270	0.1510
60	0.0720	0.0920	0.1120	0.1340	0.1530	0.1820
61	0.0890	0.1130	0.1370	0.1650	0.1880	0.2240
62	0.1280	0.1620	0.1970	0.2370	0.2700	0.3220
63	0.1290	0.1640	0.1990	0.2390	0.2730	0.3250
64	0.1160	0.1480	0.1800	0.2160	0.2470	0.2940
65	0.1740	0.2210	0.2690	0.3230	0.3690	0.4390
66	0.1350	0.1710	0.2080	0.2500	0.2850	0.3400
67	0.1330	0.1690	0.2060	0.2470	0.2820	0.3360
68	0.1180	0.1500	0.1820	0.2190	0.2500	0.2970
69	0.1160	0.1470	0.1790	0.2150	0.2460	0.2930
70	0.1380	0.1760	0.2140	0.2570	0.2930	0.3490

Public Agency Miscellaneous 2% @ 55 (continued)

Termination with Refund

Rates vary by entry age and service. See sample rates in table below.

Duration of Service	Termination with Refund — Entry Age 20	25	30	35	40	45
0	0.1742	0.1674	0.1606	0.1537	0.1468	0.1400
1	0.1545	0.1477	0.1409	0.1339	0.1271	0.1203
2	0.1348	0.1280	0.1212	0.1142	0.1074	0.1006
3	0.1151	0.1083	0.1015	0.0945	0.0877	0.0809
4	0.0954	0.0886	0.0818	0.0748	0.0680	0.0612
5	0.0212	0.0193	0.0174	0.0155	0.0136	0.0116
10	0.0138	0.0121	0.0104	0.0088	0.0071	0.0055
15	0.0060	0.0051	0.0042	0.0032	0.0023	0.0014
20	0.0037	0.0029	0.0021	0.0013	0.0005	0.0001
25	0.0017	0.0011	0.0005	0.0001	0.0001	0.0001
30	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001

Termination with Vested Deferred Benefits

Rates vary by entry age and service. See sample rates in table below.

Duration of Service	Termination with Vested Deferred Benefits — Entry Age 20	25	30	35	40
5	0.0656	0.0597	0.0537	0.0477	0.0418
10	0.0530	0.0466	0.0403	0.0339	0.0000
15	0.0443	0.0373	0.0305	0.0000	0.0000
20	0.0333	0.0261	0.0000	0.0000	0.0000
25	0.0212	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000

Public Agency Police 2% @ 50

Non-Industrial (Not Job-Related) Death and Non-Industrial (Not Job-Related) Disability

Rates vary by age and sex. See sample rates in table below.

Attained Age	Male: Non-Industrial (Not Job-Related) Death	Male: Non-Industrial (Not Job-Related) Disability	Female: Non-Industrial (Not Job-Related) Death	Female: Non-Industrial (Not Job-Related) Disability
20	0.00019	0.00010	0.00009	0.00010
25	0.00027	0.00010	0.00014	0.00010
30	0.00038	0.00020	0.00021	0.00020
35	0.00054	0.00030	0.00031	0.00030
40	0.00077	0.00040	0.00046	0.00040
45	0.00110	0.00050	0.00068	0.00050
50	0.00156	0.00080	0.00102	0.00080
55	0.00221	0.00130	0.00151	0.00130
60	0.00314	0.00200	0.00226	0.00200

Public Agency Police 2% @ 50 (continued)

Service Retirement

Rates vary by age and service. See table sample below.

	Service Retirement					
	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.0138	0.0138	0.0138	0.0138	0.0253	0.0451
51	0.0123	0.0123	0.0123	0.0123	0.0226	0.0402
52	0.0262	0.0262	0.0262	0.0262	0.0480	0.0855
53	0.0523	0.0523	0.0523	0.0523	0.0957	0.1706
54	0.0697	0.0697	0.0697	0.0697	0.1275	0.2274
55	0.0899	0.0899	0.0899	0.0899	0.1645	0.2932
56	0.0638	0.0638	0.0638	0.0638	0.1166	0.2079
57	0.0711	0.0711	0.0711	0.0711	0.1300	0.2318
58	0.0628	0.0628	0.0628	0.0628	0.1149	0.2049
59	0.1396	0.1396	0.1396	0.1396	0.1735	0.2544
60	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
61	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
62	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
63	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
64	0.1396	0.1396	0.1396	0.1396	0.1719	0.2506
65	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Termination with Refund

Rates vary by entry age and service. See sample rates in table below.

	Termination with Refund					
Duration of	Entry Age					
Service	20	25	30	35	40	45
0	0.1013	0.1013	0.1013	0.1013	0.1013	0.1013
1	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636
2	0.0271	0.0271	0.0271	0.0271	0.0271	0.0271
3	0.0258	0.0258	0.0258	0.0258	0.0258	0.0258
4	0.0245	0.0245	0.0245	0.0245	0.0245	0.0245
5	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086
10	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
15	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
20	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
25	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
30	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009

Termination with Vested Deferred Benefits

Rates vary by entry age and service. See sample rates in table below.

	Termination with Vested Deferred Benefits				
Duration of	Entry Age				
Service	20	25	30	35	40
5	0.0163	0.0163	0.0163	0.0163	0.0163
10	0.0126	0.0126	0.0126	0.0126	0.0000
15	0.0082	0.0082	0.0082	0.0000	0.0000
20	0.0065	0.0065	0.0000	0.0000	0.0000
25	0.0058	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000

Appendix B - Summary of Principal Plan Provisions

The 1959 Survivor program was designed to provide pre-retirement death benefits comparable to those provided by Social Security, formally the Federal Old Age and Survivor Insurance (OASI) program, to CalPERS' members not covered by Social Security.

Eligibility

The benefit is available only to those members not covered by Social Security OASI benefits. For public agencies, this benefit is provided by contract with CalPERS. Only those public agencies that contract for the 1st, 2nd, 3rd, 4th, or Indexed level of the program are eligible for the benefits valued in this report. Public Agency 1st and 2nd levels have been closed since January 1, 1994 and 3rd level has been closed since July 1, 2001. For State and Schools members, the 5th level benefit is provided by State statute to certain groups of employees. Members who are eligible for the benefit are given a one-time option to join at the time of contract. Members hired subsequent to the time of contract are automatically enrolled in the program.

Spousal or Domestic Partner Benefit

The benefit is a monthly payment to eligible surviving spouses or domestic partners age 62 or older for Public Agency Levels 1, 2 and 3 and age 60 or older for all other levels. The benefit is also payable under these deferred ages for spouses or partners that have care of children under the age of 22. As an example, assume an agency contracts for the Level 3 benefit and an active member dies and leaves behind a 35 year old spouse and 2 children, ages 5 and 15. The following table describes how the benefit would be paid over the course of time.

Event	Monthly Benefit Paid
Member Death	$840
1st Child turns 22	$700
2nd Child turns 22*	$0
Spouse turns 62**	$350

* At this time, the spouse would be 52 years old and would not receive any benefit until age 62

** Spouse would continue to receive this benefit until his/her death

Child Benefit

Children are eligible under the age of 22 whether or not a spouse or domestic partner exists. For 3 or more children, the 3 survivor benefit is paid; for 2 children, the 2 survivor benefit is paid and so forth (see tables below). In all cases, unless a child is disabled, the benefit stops at age 22. If a child is disabled, the benefit is paid until the disability ceases.

Parental Benefit

If there is no eligible spouse or domestic partner or children, parent(s) dependent for at least half of their subsistence from the deceased member may be eligible for benefits. The parent(s) must be over age 62 for Public Agency Levels 1, 2 and 3 and over age 60 for all other levels.

Monthly Benefit Amounts

The monthly benefit amount depends upon the coverage level within the program.

Level 1 (For Members of Public Agencies who Contract)

a. spouse or domestic partner with two or more eligible children; or three or more eligible children	$430
b. spouse with one eligible child; or two eligible children only	$360
c. one eligible child only; or spouse age 62 or older; or eligible dependent parents	$180

Level 2 (For Members of Public Agencies who Contract)

a. spouse or domestic partner with two or more eligible children; or three or more eligible children	$538
b. spouse with one eligible child; or two eligible children only	$450
c. one eligible child only; or spouse age 62 or older; or eligible dependent parents	$225

Level 3 (For Members of Public Agencies who Contract)

a. spouse or domestic partner with two or more eligible children; or three or more eligible children	$840
b. spouse with one eligible child; or two eligible children only	$700
c. one eligible child only; or spouse age 62 or older; or eligible dependent parents	$350

Level 4 (For Members of Public Agencies who Contract)

a. spouse or domestic partner with two or more eligible children; or three or more eligible children	$2,280
b. spouse with one eligible child; or two eligible children only	$1,900
c. one eligible child only; or spouse age 60 or older; or eligible dependent parents	$950

Indexed Level (For Members of Public Agencies who Contract)

a. spouse or domestic partner with two or more eligible children; or three or more eligible children	$1,940[1]
b. spouse with one eligible child; or two eligible children only	$1,294[1]
c. one eligible child only; or spouse age 60 or older; or eligible dependent parents	$647[1]

Level 5 – (For State and Schools Members)

a. spouse or domestic partner with two or more eligible children; or three or more eligible children	$1,800
b. spouse with one eligible child; or two eligible children only	$1,500
c. one eligible child only; or spouse age 60 or older; or eligible dependent parents	$750

1 - These figures indicate calendar year benefit amounts for the Indexed Level in effect for calendar year 2013. Benefit amounts will increase by 2 percent each January 1.

Comparison of Social Security and CalPERS 1959 Survivor Benefits

The following tables compare current Social Security survivor benefits with current benefit levels paid under the 1959 Survivor Program.

	Social Security		
Survivor Group	**Low**	**Average**	**High**
One Survivor	$ 729	$ 1,116	$ 1,603
Two Survivors	$ 1,458	$ 2,232	$ 3,206
Three Survivors	$ 1,460	$ 2,774	$ 3,741

Unlike the 1959 Survivor Benefit (with the exception of the Indexed level), federal Social Security benefits normally receive an automatic cost-of-living adjustment every year. Also, unlike the 1959 Survivor Benefit, Social Security benefits are based on a worker's actual earnings up to the maximum covered. The values shown assume death at age 45 (benefits slightly higher at lower ages, lower at higher ages), and steady earnings. "Low" is 2013 salary of $25,000, "Average" is $50,000, and "High" is exceeding the maximum OASDI taxable earnings.

	CalPERS 1959 Survivor Benefit					
Survivor Group	**First**	**Second**	**Third**	**Fourth**	**Indexed[2]**	**Schools/ State 5th**
One Survivor	$ 180	$ 225	$ 350	$ 950	$ 647	$ 750
Two Survivors	$ 360	$ 450	$ 700	$ 1,900	$ 1,294	$ 1,500
Three Survivors	$ 430	$ 538	$ 840	$ 2,280	$ 1,940	$ 1,800

2 – Amounts effective January 1, 2013

Summary of Plan Changes

Existing public agency employers joining the Public Agency 4th or Indexed Level Pool during the 2013-14 fiscal year are required to pay only the Unfunded Liability based on their own membership (amortized over a period of 5 years) which exists at the time they join plus the agency's normal cost for all members at the new benefit level for the first five years. If they have excess assets, then they will be allowed to use as much of it as necessary to offset any increased liabilities incurred at the higher level and required employer premiums incurred at the higher level.

Appendix C - Demographic and Experience Information

Current and Deferred Beneficiaries – All Levels of the 1959 Survivor Program for Public Agencies, State and Schools

Currently, there are 4,055 cases where liability exists. These cases include widows or widowers in deferred status even though presently there are no benefits being paid. There are 9 possible beneficiary combinations that can be associated with each case. The combinations presented below are given as of the date of the valuation, for all levels of the 1959 Survivor program.

Status	Number	Percent
Widow deferred	911	22.5%
Widow only receiving	2,320	57.2%
Widow with one child	309	7.6%
Widow with two or more children	303	7.5%
One child	144	3.6%
Two children	42	1.0%
Three or more children	17	0.4%
One parent	9	0.2%
Two parents	0	0.0%
Totals	4,055	100.0%[1]

Beneficiary Combinations at Date of Death – All Levels of the 1959 Survivor Program for Public Agencies, State and Schools

There exist 7,418 cases of death associated with the 1959 Survivor program since its inception. With this data, a historical account of each combination can be made. Further, probabilities can be approximated with respect to these combinations when a member dies. Below is a list of all combinations on record, numbers and associated percentages as of the time of death, for all levels of the 1959 Survivor program.

Status	Number	Percent
Widow deferred	2,301	31.0%
Widow only receiving	1,024	13.8%
Widow with one child	1,132	15.3%
Widow with two or more children	1,955	26.4%
One child	457	6.2%
Two children	333	4.5%
Three or more children	193	2.6%
One parent	20	0.3%
Two parents	3	0.0%
Totals	7,418	100.0%[1]

1 – Percentages may not sum to 100% due to rounding

Appendix D – 1959 Survivor Coverage by Level

1959 Survivor Coverage by Level

A CalPERS contracting agency that has employees not covered by Social Security will offer those employees 1st, 2nd, 3rd, 4th, or Indexed Level of 1959 Survivor benefit coverage, or no 1959 Survivor coverage at all. The following table shows the number of agencies and the count of active employees under each coverage scenario. An agency offering different levels of benefits to different groups of employees will be counted each time for each level that it offers.

	As of June 30, 2011			As of June 30, 2012	
	Contracting Agencies	Covered Active Employees	Agencies amending to different level[2]	Contracting Agencies	Covered Active Employees
No Coverage [1]	169	15,765		167	15,816
Level 1 Benefits	42	7,917	(1)	41	7,735
Level 2 Benefits	41	4,072		40	3,971
Level 3 Benefits	312	41,563	(1)	309	41,351
Level 4 Benefits	408	70,451	2	418	69,741
Indexed Level Benefits	67	10,252		70	9,982
Total	1,039	150,020		1,045	148,596

1 - This count includes only agencies that have active members. The change in agencies with no coverage from June 30, 2011 to June 30, 2012 is due to two agencies that adopted Social Security.
2 - This column only reflects agencies moving between 1959 Survivor benefit levels due to contract amendments. This does not include new or existing agencies contracting for 1959 Survivor benefits for the first time.

Appendix E – 1959 Survivor Deaths Per Year

1959 Survivor Deaths Per Year

Displayed on the following page is a year-by-year account of the number of deaths under the program since 1959 and the death rate each year since 1980 for public agencies, State, and Schools. The historic covered active counts are not available prior to 1980. Deaths given in the exhibit are on a calendar year basis. Counts represent mid-year active exposure. The historic covered active counts may not match those reported in the prior year's valuation. This is due to the fact that in some cases there is a time gap between a member's death and the determination of which type of death benefit that member will receive.

Appendix E - continued
1959 Survivor Deaths Per Year

	Public Agency			State			School		
Calendar Year	Deaths	Mid-year Active Counts	Death Rate	Deaths	Mid-year Active Counts	Death Rate	Deaths	Mid-year Active Counts	Death Rate
1959	0		*	0		*	1		*
1960	4		*	86		*	14		*
1961	5		*	100		*	11		*
1962	8		*	77		*	21		*
1963	14		*	60		*	14		*
1964	19		*	84		*	12		*
1965	20		*	83		*	9		*
1966	28		*	69		*	6		*
1967	41		*	73		*	14		*
1968	24		*	95		*	13		*
1969	40		*	93		*	17		*
1970	41		*	88		*	14		*
1971	42		*	75		*	10		*
1972	47		*	74		*	12		*
1973	54		*	74		*	14		*
1974	52		*	70		*	7		*
1975	66		*	101		*	10		*
1976	55		*	69		*	6		*
1977	59		*	72		*	22		*
1978	71		*	92		*	17		*
1979	57		*	88		*	7		*
1980	60		*	83		*	7		*
1981	80	54,354	0.15%	71	38,192	0.19%	10	7,843	0.13%
1982	73	56,401	0.13%	78	37,030	0.21%	11	7,987	0.14%
1983	81	59,917	0.14%	67	37,186	0.18%	8	7,685	0.10%
1984	76	65,480	0.12%	63	38,488	0.16%	6	7,104	0.08%
1985	69	66,927	0.10%	79	39,175	0.20%	5	6,842	0.07%
1986	62	68,500	0.09%	44	39,391	0.11%	8	6,500	0.12%
1987	63	69,340	0.09%	51	40,315	0.13%	11	6,200	0.18%
1988	77	84,808	0.09%	49	41,980	0.12%	9	7,100	0.13%
1989	68	82,046	0.08%	59	44,069	0.13%	6	6,899	0.09%
1990	89	86,196	0.10%	63	45,502	0.14%	7	7,942	0.09%
1991	96	91,574	0.10%	40	47,708	0.08%	7	7,752	0.09%
1992	88	95,840	0.09%	43	48,872	0.09%	8	6,823	0.12%
1993	79	97,752	0.08%	53	46,872	0.11%	4	6,776	0.06%
1994	72	98,088	0.07%	59	47,323	0.12%	11	6,653	0.17%
1995	74	99,235	0.07%	51	47,689	0.11%	10	6,751	0.15%
1996	83	100,494	0.08%	54	51,746	0.10%	6	6,726	0.09%
1997	70	102,475	0.07%	62	55,084	0.11%	4	6,794	0.06%
1998	83	112,389	0.07%	60	55,435	0.11%	7	6,956	0.10%
1999	96	118,850	0.08%	62	59,406	0.10%	1	7,444	0.01%
2000	78	121,538	0.06%	57	60,349	0.09%	7	8,338	0.08%
2001	89	116,161	0.08%	60	64,309	0.09%	5	7,884	0.06%
2002	88	129,355	0.07%	52	65,558	0.08%	4	9,195	0.04%
2003	95	129,620	0.07%	68	68,791	0.10%	6	9,390	0.06%
2004	91	131,633	0.07%	62	64,252	0.10%	2	9,325	0.02%
2005	104	133,510	0.08%	67	70,193	0.10%	5	9,402	0.05%
2006	90	137,095	0.07%	68	71,742	0.09%	13	9,469	0.14%
2007	105	140,012	0.07%	67	76,902	0.09%	5	10,131	0.05%
2008	104	144,828	0.07%	51	81,369	0.06%	8	10,550	0.08%
2009	96	143,207	0.07%	61	82,434	0.07%	6	10,562	0.06%
2010	83	138,470	0.06%	52	79,587	0.07%	7	10,203	0.07%
2011	104	134,255	0.08%	64	77,714	0.08%	5	9,811	0.05%

Death counts may change from previous valuations due mainly to reclassification of the benefit that ultimately gets paid to the beneficiary.

Appendix F – Glossary of Actuarial Terms

Accrued Liability	The portion of the actuarial present value of projected benefits allocated to service before the valuation date in accordance with the actuarial cost method.
Actuarial Assumptions	Assumptions made about the occurrence of future events that will affect pension costs. Assumptions generally can be broken down into two categories: demographic and economic. Demographic assumptions include such things as mortality, disability and retirement rates. Economic assumptions include investment return, salary growth and inflation.
Actuarial Cost Method	A procedure employed by actuaries for the allocation of the actuarial present value of projected benefits to time periods, usually in the form of a normal cost and an actuarial accrued liability to achieve certain funding goals for a pension plan. Sometimes this is referred to as the "funding method."
Actuarial Valuation	The determination, as of a valuation date, of the normal cost, actuarial accrued liability, actuarial value of assets and related actuarial present values for a pension plan.
Actuarial Value of Assets	The value of assets used for funding purposes. The actuarial value of assets may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses through an asset smoothing technique where investment gains and losses are partially recognized in the year they are incurred, with the remainder recognized in subsequent years in accordance with an asset valuation method. The actuarial value of assets has been set to equal the fair market value of assets for this System.
Amortization Period	The period of time used for determining the amount, timing, and pattern of recognition of contributions. The period for determining the employer's annual required contributions (ARC) under GASB 27 equals the average future working period for the active members in the plan as of the valuation date.
Normal Cost	The portion of the actuarial present value of projected benefits that is allocated to a period, typically twelve months, under the actuarial cost method. The normal cost may include a provision for expenses.

Pension Actuary

A person who is responsible for the calculations necessary to properly fund a pension plan.

Present Value of Benefits

Sometimes called the "actuarial present value of benefits," the total dollars needed as of the valuation date to make future payments of all benefits, earned in the past or expected to be earned in the future, for current members by application of a particular set of actuarial assumptions.