

# Public Employees' Retirement System of the State of Nevada

Actuarial Valuation and Review as of June 30, 2014

This report has been prepared at the request of the Retirement Board to assist in administering the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Retirement Board and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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November 13, 2014

Public Employees' Retirement Board 693 West Nye Lane Carson City, Nevada 89703

Dear Retirement Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2014 for the Public Employees' Retirement System of Nevada (PERS). It summarizes the actuarial data used in the valuation, establishes the actuarially determined contribution requirements for the 2014-2015 plan year and analyzes the preceding year's experience.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Plan. The census and financial information on which our calculations were based was provided by the Retirement Office. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Mark Hamwee, FSA, MAAA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

Bv:

Brad Ramirez, FSA, FCA, MAAA, EA Consulting Actuary

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EK/hy

# **SECTION 1**

# **SECTION 2**

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**REPORTING INFORMATION** 

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# Purpose

	This report has been prepared by Segal Consulting to present a valuation of the Public Employees' Retirement System of the State of Nevada as of June 30, 2014. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:
	> The benefit provisions of the Public Employees' Retirement Act,
	<ul> <li>The characteristics of covered active members, inactive vested members, retired members, disabled members, beneficiaries and survivors as of June 30, 2014,</li> </ul>
	> The assets of the Plan as of June 30, 2014, provided by the Retirement Office,
	<ul> <li>Economic assumptions regarding future salary increases and investment earnings and</li> </ul>
	<ul> <li>Other actuarial assumptions, regarding member terminations, retirement, death, etc.</li> </ul>
	Significant Issues in Valuation Year
	The following key findings were the result of this actuarial valuation:
Reference: Pg. vi	The ratios of the actuarial value of assets to actuarial accrued liabilities have increased from 68.9% to 70.8% for Regular members and increased from 71.1% to 74.3% for Police/Fire members.
Reference: Pg. 14	There were actuarial experience gains due to individual salary increases less than expected for continuing active members; these gains amounted to \$459 million for Regular members and \$216 million for Police/Fire members. This item is shown in Chart 18. The average actual increase for continuing active members during 2013/14 was 2.7% for Regular members and 1.2% for Police/Fire members.
Reference: Pg. 16	Actuarially determined contributions may increase or decrease from year to year even if all assumptions are exactly met. For Regular members, the actuarially determined contribution rates for 2014 increased from the previous year, while for Police/Fire members there was a decrease. Both groups saw an increase due to the smaller than expected payroll growth used to amortize the UAAL. The actuarially determined contribution rates for Regular members increased due to contributions being less than expected, and were partially offset by the gains from individual salary increases less than expected as well as an investment gain. This increase was more than offset for Police/Fire members primarily by the gains from individual salary increases less than expected and the investment gains.
Reference: Pg. 15	The Public Employees' Retirement Act requires an adjustment in the statutory contribution rates on July 1 of each odd-numbered year based on the actuarially determined rates indicated in the actuarial valuation report for the immediately preceding year. Rates are only adjusted upward if the new rates are more than 0.50% higher



Summary of Contribution Rates

than the existing rate for Employer-Pay members and more than 0.25% higher for Employee/Employer members. Rates are only adjusted downward if the new rates are more than 2.00% lower than the existing rate for Employer-Pay members (and adjusted only by the amount in excess of 2.00%) and more than 1.00% lower than the existing rate for Employee/Employer members (and adjusted only by the amount in excess of 1.00%). Rates are rounded to the nearest 0.25% of payroll. Since the actuarially determined rates from this valuation were not within the ranges previously noted for Regular members and this valuation year is an even numbered year, the following adjustments in the statutory contribution rates for Regular members are required for fiscal years July 1, 2015 through June 30, 2017 as a result of this valuation. The statutory rates for Police/Fire members remain unchanged.

	Regular	Police/Fire
Cmployer-Pay*:		
Statutory Rate for Fiscal Years July 1, 2013 through June 30, 2015		
(as determined from the June 30, 2012 valuation)	25.75%	40.50%
Actuarially Determined Contribution Rate per June 30, 2014 Actuarial Valuation	27.99%	39.65%
Statutory Rate for Fiscal Years July 1, 2015 through June 30, 2017		
(as determined from the June 30, 2014 valuation)	28.00%	40.50%
Cmployee/Employer**:		
Statutory Rate for Fiscal Years July 1, 2013 through June 30, 2015		
(as determined from the June 30, 2012 valuation)	26.50%	41.50%
Actuarially Determined Contribution Rate per June 30, 2014 Actuarial Valuation	28.95%	40.80%
Statutory Rate for Fiscal Years July 1, 2015 through June 30, 2017		
(as determined from the June 30, 2014 valuation)	29.00%	41.50%
See cost-sharing mechanism in NRS 286.421		
* See cost-sharing mechanism in NRS 286.410		
See cost-shuring mechanism in MAS 200.410		

# Reference: Pg. 11

Reference: Pg. 12

The returns on the actuarial value of assets for 2013-2014 for the PERS Fund were 9.1% for Regular and 9.3% for Police/Fire, which were more than the investment return assumption of 8.00%. As a result, the PERS Fund experienced investment gains on an actuarial value basis of approximately \$251 million for Regular and \$82 million for Police/Fire.



Reference: Pg. 8

- As indicated in Section 2, Subsection B (see Chart 12) of this report, the total unrecognized investment gains as of June 30, 2014 were approximately \$1,639 million for Regular, and \$471 million for Police/Fire compared to losses of \$236 million and \$38 million in the previous valuation, respectively. These unrecognized gains will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years. This means that, if the System earns the assumed rate of investment return of 8.00% per year (net of investment expenses) on an actuarial value basis, then the deferred gains would be recognized over the next four years as shown in the footnote on Chart 12.
- The June 30, 2014 unrecognized investment gains of \$2,110 million represent about 6.3% of the PERS Fund market value of assets. Unless offset by future investment losses or other unfavorable experience, the recognition of the \$2,110 million market gains is expected to have an impact on the System's future funded ratio and actuarial contribution requirement. This potential impact may be illustrated as follows:
  - If the deferred gains were recognized immediately in the actuarial value of assets, the funded ratios would increase from 70.8% to 75.5% for Regular members and from 74.3% to 79.4% for Police/Fire members.

	2014/2015 Actuarially Determined Contribution Rate	2014/2015 Rate Reflecting Deferred Gains
Regular:		
Employer-Pay	27.99%	26.14%
Employee/Employer Pay	28.95%	27.10%
Police/Fire:		
Employer-Pay	39.65%	37.11%
Employee/Employer Pay	40.80%	38.26%

• If the deferred gains were recognized immediately in the actuarial value of assets, the actuarial determined contribution rates would decrease as follows:

- The payroll growth assumptions are set by the Board and affect the timing of payments toward the unfunded liabilities. Considerations for setting these assumptions include future financial conditions that are difficult for Segal to evaluate. In recent years, payroll growth has been less than assumed. This has the effect of delaying contributions toward the unfunded liabilities and could result in increases to required contributions in future years. We recommend that the Board closely monitor actual payroll growth to verify that the assumptions remain valid.
- > The actuarial valuation report as of June 30, 2014 is based on financial data as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected.



- There were no changes in actuarial assumptions since the preceding valuation. The results of this valuation reflect updated option factors that went into effect July 1, 2014. The actuarially determined contribution rates increased by 0.02% for Regular members and increased by 0.04% for Police/Fire members to reflect this update.
- In 2009, the Critical Labor Shortage (CLS) program was extended through June 30, 2015 but restrictions on eligible positions were added. This program allows PERS retirees to return to work without facing the usual suspension of retirement benefits. Since the program is more restrictive than it has been in the past, and it is still temporary in nature, we believe that the cost to the System has been minimal. As of the valuation date, there were a total of 64 retired PERS members currently active and reenrolled in PERS under this provision. A study will be performed prior to the program being extended or made permanent to determine whether the actuarially determined cost rate is affected, and if so, to estimate its cost.
- The Governmental Accounting Standards Board (GASB) approved two new Statements affecting the reporting of pension liabilities for accounting purposes. Statement 67 replaces Statement 25 and is for plan reporting. Statement 68 replaces Statement 27 and is for employer reporting. Statement 67 is effective with the fiscal year ending June 30, 2014 for Plan reporting. Statement 68 is effective with the fiscal year ending June 30, 2015 for employer reporting. Financial reporting information for Statement 67 will be provided in a separate report.



# **Summary of Key Valuation Results**

	Total (Regular and Polic	e/Fire Combined)
	2014	2013
Actuarially determined contribution rates		
for plan year beginning July 1 <sup>(1)</sup>	30.02%	29.99%
Funding elements for plan year beginning July 1:		
Normal cost, including administrative expenses	18.64%	18.67%
Total rate payroll <sup>(2)</sup>	\$5,753,148,095	\$5,715,259,174
Market value of assets	\$33,575,081,157	\$28,834,653,041
Actuarial value of assets	\$31,465,556,937	\$29,108,541,364
Actuarial accrued liability	\$43,997,060,180	\$41,984,481,544
Unfunded actuarial accrued liability	\$12,531,503,243	\$12,875,940,180
Funded ratio on actuarial value basis (AVA / AAL)	71.5%	69.3%
Funded ratio on market value basis (MVA / AAL)	76.3%	68.7%
Demographic data for plan year beginning July 1:		
Number of retired members and beneficiaries	55,208	52,430
Number of vested former members	14,633	13,739
Number of active members	100,522	99,038
Total salary <sup>(3)</sup>	\$5,113,517,273	\$5,100,207,634
Average salary	\$50,870	\$51,497

(1) Average rate for the combined Regular and Police/Fire Employer-pay and Employee/Employer pay plans.

<sup>(2)</sup> Based on actual pay for prior year, annualized for new hires and part-time employees, and projected one year using individual salary increase assumption.

<sup>(3)</sup> Based on actual pay for prior year, without adjustment.



# Summary of Key Valuation Results (continued)

	Regular		Polic	e/Fire
	2014	2013	2014	2013
Actuarially determined contribution rates				
for plan year beginning July 1:				
Employer-Pay <sup>(1)</sup>	27.99%	27.91%	39.65%	39.73%
Employee/Employer Pay <sup>(2)</sup>	28.95%	28.86%	40.80%	40.85%
Funding elements for plan year beginning July 1:				
Normal cost, including administrative expenses				
Employer-Pay <sup>(1)</sup>	16.87%	16.90%	26.91%	26.82%
Employee/Employer Pay <sup>(2)</sup>	17.83%	17.85%	28.06%	27.94%
Total rate payroll <sup>(3)</sup>	\$4,827,560,245	\$4,777,126,367	\$925,587,850	\$938,132,807
Market value of assets	\$26,253,267,928	\$22,610,714,221	\$7,321,813,229	\$6,223,938,820
Actuarial value of assets	\$24,614,307,816	\$22,846,659,235	\$6,851,249,121	\$6,261,882,129
Actuarial accrued liability	\$34,774,341,511	\$33,178,566,729	\$9,222,718,669	\$8,805,914,815
Unfunded actuarial accrued liability	\$10,160,033,695	\$10,331,907,494	\$2,371,469,548	\$2,544,032,686
Funded ratio on actuarial value basis (AVA / AAL)	70.8%	68.9%	74.3%	71.1%
Funded ratio on market value basis (MVA / AAL)	75.5%	68.1%	79.4%	70.7%
Demographic data for plan year beginning July 1:				
Number of retired members and beneficiaries	48,283	45,796	6,925	6,634
Number of vested former members	13,851	13,009	782	730
Number of active members	88,709	87,193	11,813	11,845
Total salary <sup>(4)</sup>	\$4,263,102,612	\$4,239,824,030	\$850,414,661	\$860,383,604
Average salary	\$48,057	\$48,626	\$71,990	\$72,637

<sup>(1)</sup> See cost-sharing mechanism in NRS 286.421

<sup>(2)</sup> See cost-sharing mechanism in NRS 286.410

<sup>(3)</sup> Based on actual pay for prior year, annualized for new hires and part-time employees, and projected one year using individual salary increase assumption.

<sup>(4)</sup> Based on actual pay for prior year, without adjustment.



#### A. MEMBER DATA

#### i. Regular Members

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, vested terminated members, retired members and beneficiaries. This section presents a summary of significant statistical data on the Regular member group.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

# CHART 1

Regular Member Population: 2005 – 2014

Year Ended June 30	Active Members	Vested Terminated Members	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2005	83,224	8,676	26,978	0.43
2006	87,020	9,730	28,933	0.44
2007	91,757	10,394	31,104	0.45
2008	93,816	10,965	33,248	0.47
2009	92,784	10,954	36,705	0.51
2010	90,219	11,167	38,400	0.55
2011	87,975	11,931	40,675	0.60
2012	86,719	12,253	43,258	0.64
2013	87,193	13,009	45,796	0.67
2014	88,709	13,851	48,283	0.70

#### i. Regular Members (continued)

#### **Active Members**

Plan costs are affected by the age, years of service and salaries of active members. In this year's valuation, there were 88,709 active members with an average age of 46.4, average years of service of 10.1 years and average salary of \$48,057. The 87,193 active members in the prior valuation had an average age of 46.5, average service of 10.1 years and average salary of \$48,626.

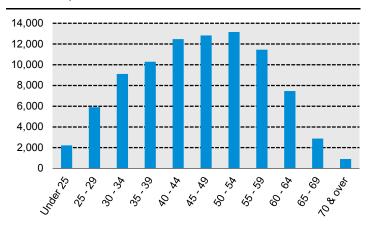
#### **Inactive Members**

In this year's valuation, there were 13,851 members with a vested right to a deferred or immediate vested benefit versus 13,009 members in the prior valuation.

These graphs show a distribution of active members by age and by years of service.

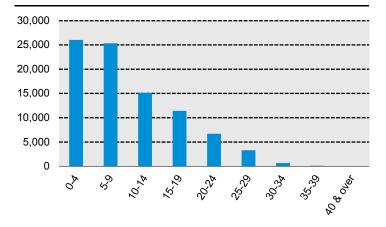
# CHART 2

Distribution of Active Regular Members by Age as of June 30, 2014



#### CHART 3

Distribution of Active Regular Members by Years of Service as of June 30, 2014





#### i. Regular Members (continued)

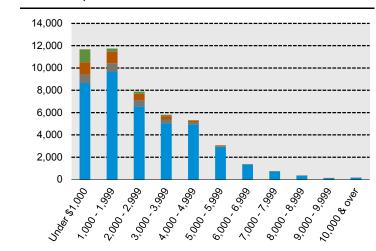
#### **Retired Members and Beneficiaries**

As of June 30, 2014, 43,136 retired members and 5,147 beneficiaries and survivors were receiving total monthly benefits of \$125,242,045. Of these, 505 retired members and 5 beneficiaries and survivors were receiving annual benefits of at least \$100,000, which represents 1.1% of all retirees, beneficiaries and survivors. For comparison, in the previous valuation, there were 40,854 retired members and 4,942 beneficiaries and survivors receiving monthly benefits of \$116,337,773.

These graphs show a distribution of the current retired members and beneficiaries based on their monthly amount and age, by type of pension.

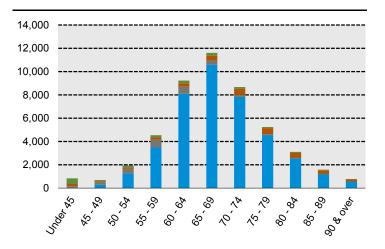
# CHART 4

Distribution of Retired Regular Members and Beneficiaries by Type and by Monthly Amount as of June 30, 2014



#### CHART 5

Distribution of Retired Regular Members and Beneficiaries by Type and by Age as of June 30, 2014





Survivor

Beneficiary

DisabilityService

#### ii. Police/Fire Members

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, vested terminated members, retired members and beneficiaries. This section presents a summary of significant statistical data on the Police/Fire member group.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

# CHART 6

Police/Fire Member Population: 2005 – 2014

Year Ended June 30	Active Members	Vested Terminated Members	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2005	10,771	506	4,021	0.42
2006	11,167	579	4,329	0.44
2007	11,936	596	4,583	0.43
2008	12,307	628	4,882	0.45
2009	12,633	620	5,200	0.46
2010	12,375	640	5,519	0.50
2011	11,936	701	5,903	0.55
2012	11,793	709	6,288	0.59
2013	11,845	730	6,634	0.62
2014	11,813	782	6,925	0.65

#### ii. Police/Fire Members (continued)

#### **Active Members**

Plan costs are affected by the age, years of service and salaries of active members. In this year's valuation, there were 11,813 active members with an average age of 40.8, average years of service of 11.5 years and average salary of \$71,990. The 11,845 active members in the prior valuation had an average age of 40.6, average service of 11.3 years and average salary of \$72,637.

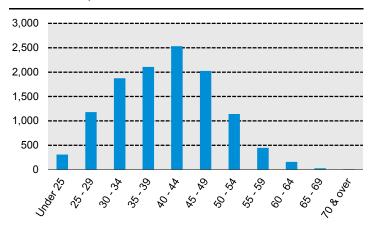
#### **Inactive Members**

In this year's valuation, there were 782 members with a vested right to a deferred or immediate vested benefit versus 730 members in the prior valuation.

These graphs show a distribution of active members by age and by years of service.

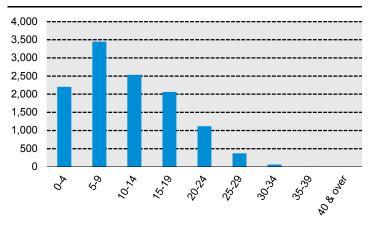
# CHART 7

Distribution of Active Police/Fire Members by Age as of June 30, 2014



# CHART 8

Distribution of Active Police/Fire Members by Years of Service as of June 30, 2014





#### ii. Police/Fire Members (continued)

#### **Retired Members and Beneficiaries**

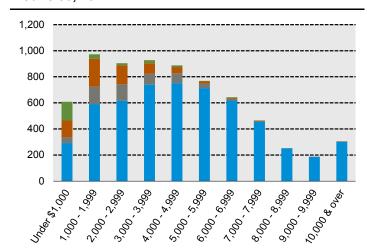
As of June 30, 2014, 6,034 retired members and 891 beneficiaries and survivors were receiving total monthly benefits of \$30,747,354. Of these, 651 retired members and 5 beneficiaries and survivors were receiving annual benefits of at least \$100,000, which represents 9.5% of all retirees, beneficiaries and survivors. For comparison, in the previous valuation, there were 5,799 retired members and 835 beneficiaries and survivors receiving monthly benefits of \$28,550,994.

These graphs show a distribution of the current retired members and beneficiaries based on their monthly amount and age, by type of pension.



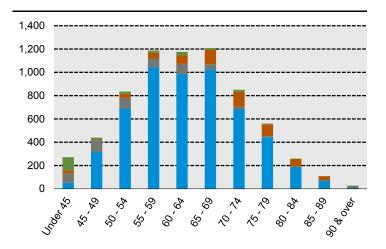
# CHART 9

Distribution of Retired Police/Fire Members and Beneficiaries by Type and by Monthly Amount as of June 30, 2014



#### CHART 10

Distribution of Retired Police/Fire Members and Beneficiaries by Type and by Age as of June 30, 2014

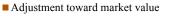


# **B. FINANCIAL INFORMATION**

Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

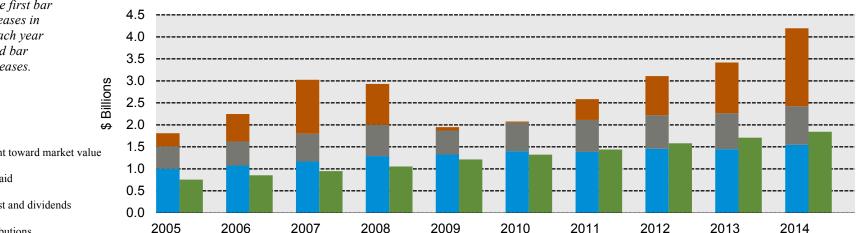
Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D, E and F.

The chart depicts the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.



- Benefits paid
- Net interest and dividends
- Net contributions







It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

#### **CHART 12**

Determination of Actuarial Value of Assets for Year Ended June 30, 2014

	Regular		Police	/Fire	
1.	Market value of assets		\$26,253,267,928		\$7,321,813,229
			Unrecognized		Unrecognized
2.	Calculation of unrecognized return	Original Amount <sup>(1)</sup>	Return	Original Amount <sup>(1)</sup>	Return
	(a) Year ended June 30, $2014^{(2)}$	\$2,125,431,988	\$1,700,345,590	\$590,979,307	\$472,783,446
	(b) Year ended June 30, $2013^{(2)}$	795,397,787	477,238,672	219,573,607	131,744,164
	(c) Year ended June 30, $2012^{(2)}$	(1,024,925,274)	(409,970,110)	(271,624,048)	(108,649,619)
	(d) Combined net deferred loss <sup>(3)</sup>	<u>(514,616,159)</u>	<u>(128,654,040)</u>	(101,255,532)	<u>(25,313,883)</u>
	(e) Total unrecognized return <sup>(4)</sup>	\$1,381,288,342	\$1,638,960,112	\$437,673,334	\$470,564,108
3.	Preliminary actuarial value of assets: (1) - (2e)		\$24,614,307,816		\$6,851,249,121
4.	Additional write up/(down) due to 70%/130% corridor:		\$0		\$0
5.			<u>\$24,614,307,816</u>		<u>\$6,851,249,121</u>
6.	Actuarial value as a percentage of market value: $(5) \div (1)^{(5)}$		93.76%		93.57%

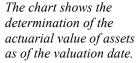
(1) Market value minus prior year's actuarial value, adjusted for cash flows and expected return, minus prior year's unrecognized return

<sup>(2)</sup> Recognition at 20% per year over 5 years

<sup>(3)</sup> Net deferred loss as of June 30, 2011 was combined and is recognized at 25% per year over 4 years.

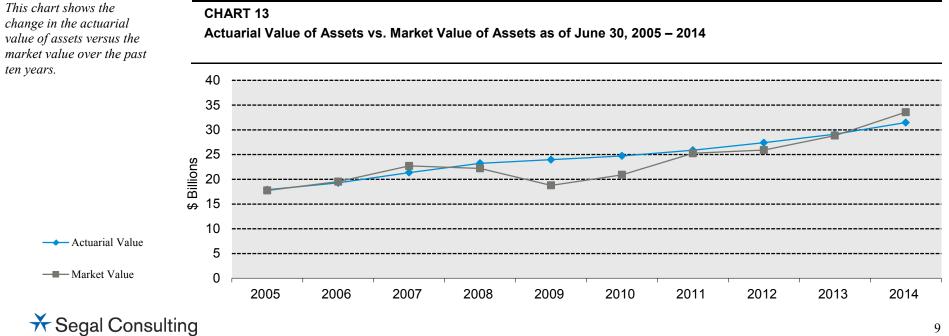
(4)	Deferred return as of June 30, 2014 recognized in each of the next four years:	Regular	Police/Fire	Total
	(a) Amount recognized during 2014/2015	\$250,526,859	\$82,471,891	\$332,998,750
	(b) Amount recognized during 2015/2016	379,180,900	107,785,773	486,966,673
	(c) Amount recognized during 2016/2017	584,165,955	162,110,583	746,276,538
	(d) Amount recognized during 2017/2018	425,086,398	118,195,861	543,282,259
		\$1,638,960,112	\$470,564,108	\$2,109,524,220

<sup>(5)</sup> Total actuarial value as a percentage of total market value is 93.72% for Regular and Police/Fire.





Both the actuarial value and market value of assets are representations of PERS's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because PERS's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.



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#### C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The components of the total gain of \$918.3 million are shown below. The net experience gain from sources other than investments was 1.3% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience during the past year.

#### CHART 14

Actuarial Experience for Year Ended June 30, 2014

	Regular	Police/Fire	Total
1. Net gain/(loss) from investments <sup>(1)</sup>	\$250,526,860	\$82,471,889	\$332,998,749
2. Net gain/(loss) from individual salary increases other than expected	459,065,725	215,702,266	674,767,991
3. Net gain/(loss) from other experience <sup><math>(2)</math></sup>	<u>(58,944,031)</u>	(30,565,147)	(89,509,178)
4. Net experience gain/(loss): $(1) + (2) + (3)$	\$650,648,554	\$267,609,008	\$918,257,562

<sup>(1)</sup> Details in Chart 15.

<sup>(2)</sup> Details in Chart 18. Does not include the effects of Plan or assumption changes if any.



#### **Investment Rate of Return**

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the PERS investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.00%. The actual rates of return on an actuarial basis for the 2014 plan year were 9.10% for Regular and 9.32% for Police/Fire.

Since the actual return for the year was more than the assumed return, PERS experienced an actuarial gain during the year ended June 30, 2014 with regard to its investments.

This chart shows the gain/(loss) due to investment experience.

#### CHART 15

#### Actuarial Value Investment Experience for Year Ended June 30, 2014

	Regular	Police/Fire	Total
1. Actual return	\$2,066,313,021	\$583,651,095	\$2,649,964,116
2. Average value of assets	22,697,327,015	6,264,740,078	28,962,067,093
3. Actual rate of return: $(1) \div (2)$	9.10%	9.32%	9.15%
4. Assumed rate of return	8.00%	8.00%	8.00%
5. Expected return: $(2) \times (4)$	<u>1,815,786,161</u>	501,179,206	<u>2,316,965,367</u>
6. Actuarial gain/(loss): $(1) - (5)$	<u>\$250,526,860</u>	<u>\$82,471,889</u>	<u>\$332,998,749</u>



Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last ten years, including five-year and ten-year averages.

#### CHART 16

#### Investment Return – Actuarial Value vs. Market Value: 2005 – 2014

		Reg	ular			Police/Fire				Total			
	Market V Investment		Actuarial Value Investment Return					Actuarial Value Investment Return		Market Value Investment Return		Value t Return	
Year Ended	• · ·	<b>D</b> (		<b>_</b>	• •	<b>D</b> 4		<b>D</b> (		<b>_</b>			
June 30	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	
2005	\$1,212,108,045	9.31%	\$655,199,509	4.78%	\$282,442,259	9.30%	\$158,174,277	4.97%	\$1,494,550,304	9.31%	\$813,373,786	4.82%	
2006	1,269,981,705	8.83%	943,516,255	6.51%	300,369,858	8.83%	227,032,573	6.63%	1,570,351,563	8.83%	1,170,548,828	6.54%	
2007	2,370,161,064	15.03%	1,497,823,745	9.63%	570,204,492	15.03%	361,064,116	9.64%	2,940,365,556	15.03%	1,858,887,861	9.63%	
2008	(596,088,431)	(3.26%)	1,320,009,898	7.68%	(144,603,728)	(3.24%)	321,274,088	7.64%	(740,692,159)	(3.26%)	1,641,283,986	7.68%	
2009	(2,834,457,823)	(15.98%)	497,747,740	2.68%	(706,537,749)	(16.00%)	123,352,371	2.67%	(3,540,995,572)	(15.99%)	621,100,111	2.68%	
2010	1,641,734,286	11.03%	537,022,624	2.82%	419,574,635	11.03%	141,729,146	2.93%	2,061,308,921	11.03%	678,751,770	2.84%	
2011	3,489,069,530	21.10%	942,690,794	4.81%	915,513,116	21.09%	258,581,939	5.07%	4,404,582,646	21.10%	1,201,272,733	4.86%	
2012	605,897,096	3.05%	1,297,183,274	6.36%	162,299,827	3.05%	354,285,182	6.53%	768,196,923	3.05%	1,651,468,456	6.40%	
2013	2,511,331,333	12.41%	1,541,374,010	7.19%	685,094,279	12.40%	429,796,701	7.39%	3,196,425,612	12.40%	1,971,170,711	7.23%	
2014	3,941,218,147	17.55%	2,066,313,021	9.10%	1,092,158,512	17.54%	<u>583,651,095</u>	9.32%	5,033,376,659	17.55%	<u>2,649,964,116</u>	9.15%	
Total	\$13,610,954,952		\$11,298,880,870		\$3,576,515,501		\$2,958,941,488		\$17,187,470,453		\$14,257,822,358		
Five-year av	erage return	12.97%		6.19%		12.99%		6.44%		12.97%		6.24%	
Ten-year ave	erage return	7.86%		6.18%		8.07%		6.35%		7.90%		6.22%	

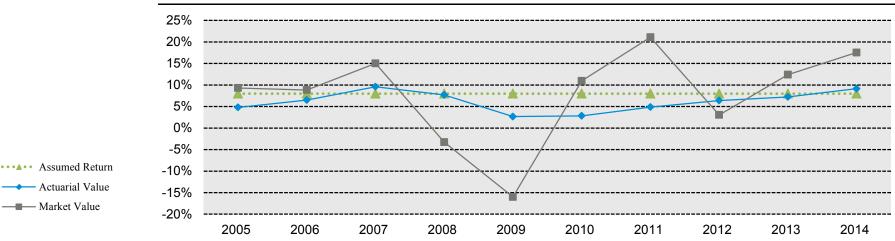
Note: Each year's yield is weighted by the average asset value in that year.



In the preceding subsection B we described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this method is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs. This effect is clear in the chart below, where the year-to-year returns on actuarial value are less volatile than the returns on market value.

This chart illustrates how this leveling effect has actually worked over the years 2005 - 2014.

**CHART 17** 



Market and Actuarial Rates of Return for Years Ended June 30, 2005 - 2014

# $\star$ Segal Consulting

#### **Other Experience**

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- > the extent of turnover among the participants,
- > retirement experience (earlier or later than expected),
- > mortality (more or fewer deaths than expected),
- > the number of disability retirements, and
- > salary increases different than assumed.

The net gains from this other experience for the year ended June 30, 2014 amounted to \$400.1 million for Regular and \$185.1 million for Police/Fire, which are 1.15% and 2.01% of the actuarial accrued liability, respectively.

A brief summary of the demographic gain/(loss) experience of the PERS for the year ended June 30, 2014 is shown in the chart below.

#### CHART 18

Experience Due to Changes in Demographics for Year Ended June 30, 2014

	Regular	% of AAL	Police/Fire	% of AAL	Total	% of AAL
Age and Service Retirements	(\$133,936,672)	(0.39%)	(\$17,166,105)	(0.19%)	(\$151,102,777)	(0.34%)
Disability Retirements	(15,561,374)	(0.04%)	(1,411,854)	(0.02%)	(16,973,228)	(0.04%)
Pre and Post-Retirement Deaths	25,272,079	0.07%	(22,286,621)*	(0.24%)	2,985,458	0.01%
Post-Retirement Benefit Increases (PRBIs)	147,096,796	0.42%	36,759,097	0.40%	183,855,893	0.42%
Withdrawal From Employment	(723,534)	0.00%	(8,985,415)	(0.10%)	(9,708,949)	(0.02%)
Individual Pay Increases	459,065,725	1.32%	215,702,266	2.34%	674,767,991	1.53%
Active New Entrants	(49,907,509)	(0.14%)	(5,077,104)	(0.06%)	(54,984,613)	(0.13%)
Active Rehires	(34,027,697)	(0.10%)	(3,034,931)	(0.03%)	(37,062,628)	(0.08%)
Inactive and Retiree Showups	(4,526,800)	(0.01%)	(1,511,674)	(0.01%)	(6,038,474)	(0.01%)
Other	7,370,680	<u>0.02%</u>	<u>(7,850,540)</u>	<u>(0.08%)</u>	<u>(479,860)</u>	<u>(0.01%)</u>
Total Liability Experience Gain/(Loss) During Year	\$400,121,694	1.15%	\$185,137,119	2.01%	\$585,258,813	1.33%

\* Reflects Police/Fire mortality experience and also the assumption that existing "employer-pay" Police/Fire retirees with an unmodified option who retired after June 30, 1981 and before July 1, 2011 have been valued assuming no surviving spouse.



The chart shows elements

gain/(loss) for the most

of the experience

recent year.

#### D. CALCULATED CONTRIBUTION RATES

The amount of annual contribution required to fund the Plan is comprised of a normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount is then divided by the projected payroll for active members to determine the actuarially determined contribution rate. The statutory contribution rates are adjusted at the beginning of each odd-numbered fiscal year, based on the actuarially determined rates indicated in the actuarial valuation report for the immediately preceding year. See Exhibit III in Section 4 for details about this adjustment.

The chart compares this valuation's calculated contribution rates with the prior valuation.

#### CHART 19

**Calculated Contribution Rates** 

		Year Beginn	ing July 1	
	20	014	20	013
	Regular	Police/Fire	Regular	Police/Fire
Employer-Pay, current statutory rate <sup>(1)</sup>	25.75%	40.50%	25.75%	40.50%
Normal cost	16.72%	26.76%	16.75%	26.67%
Amortization percentage	11.12%	12.74%	11.01%	12.91%
Administrative expenses	0.15%	0.15%	0.15%	0.15%
Employer-Pay, total rate <sup>(1)</sup>	27.99%	39.65%	27.91%	39.73%
New statutory rounded rate	<u>28.00%</u>	<u>40.50%</u>	<u>N/A</u>	<u>N/A</u>
Employee/Employer Pay, current statutory rate <sup>(2)</sup>	26.50%	41.50%	26.50%	41.50%
Normal cost	17.68%	27.91%	17.70%	27.79%
Amortization percentage	11.12%	12.74%	11.01%	12.91%
Administrative expenses	0.15%	0.15%	0.15%	0.15%
Employee/Employer Pay, total rate <sup>(2)</sup>	28.95%	40.80%	28.86%	40.85%
New statutory rounded rate	<u>29.00%</u>	<u>41.50%</u>	<u>N/A</u>	<u>N/A</u>

<sup>(1)</sup> See cost-sharing mechanism in NRS 286.421

<sup>(2)</sup> See cost-sharing mechanism in NRS 286.410



The actuarially determined contribution rates as of June 30, 2014 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

#### **Reconciliation of Actuarially Determined Contribution Rate**

The chart below details the changes in the actuarially determined contribution rate from the prior valuation to the current year's valuation.

#### CHART 20

The chart reconciles the actuarially determined contribution rates from the prior valuation to the amount determined in this valuation.

# Reconciliation of Actuarially Determined Contribution Rate<sup>(1)</sup> from June 30, 2013 to June 30, 2014

	Regular	Estimated Annual Dollar Cost <sup>(2)</sup>	Police/Fire	Estimated Annual Dollar Cost <sup>(2)</sup>
Actuarially Determined Contribution Rate as of June 30, 2013	28.07%	\$1,340,939,371	39.83%	\$373,658,297
Effect of investment (gain)/loss	(0.28%)	(13,671,624)	(0.44%)	(4,112,142)
Effect of gains on individual salary experience	(0.52%)	(25,051,900)	(1.16%)	(10,755,160)
Effect on existing amortization of payroll growth less than expected	0.59%	34,197,101 <sup>(3)</sup>	1.15%	9,080,317 <sup>(3)</sup>
Effect of changes in normal cost	(0.03%)	6,918,421 <sup>(4)</sup>	0.07%	$(2,755,822)^{(4)}$
Effect of contributions less than expected	0.24%	11,580,637	0.11%	983,639
Effect of gain on Post Retirement Benefit Increases	(0.17%)	(8,027,291)	(0.20%)	(1,832,850)
Effect of other (gains)/losses <sup>(5)</sup>	0.24%	11,590,738	0.35%	3,284,656
Effect of changes in plan provisions	0.02%	965,512	0.04%	370,235
Total change	<u>0.09%</u>	<u>18,501,594</u>	<u>(0.08%)</u>	<u>(5,737,127)</u>
Actuarially Determined Contribution Rate as of June 30, 2014	28.16%	\$1,359,440,965	39.75%	\$367,921,170

<sup>(1)</sup> Average rate for the Employer-pay and Employee/Employer pay plans.

<sup>(2)</sup> Based on rate payroll for each valuation date shown.

<sup>(3)</sup> Actual dollar increase in existing amortization bases.

<sup>(4)</sup> Actual dollar increase/(decrease) in normal cost, prior to plan changes.

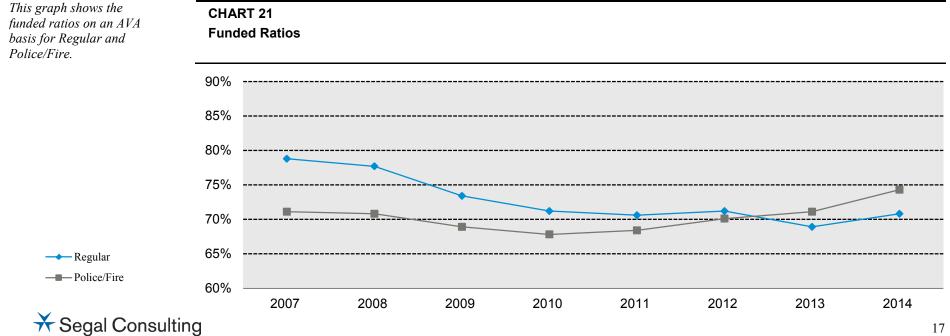
<sup>(5)</sup> Estimated annual dollar cost also reflects change in payroll from prior valuation.



#### **E. FUNDED RATIO**

One critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the actuarial value of assets to the actuarial accrued liabilities of the plan.

High ratios indicate a well-funded plan with assets sufficient to cover the plan's liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.



# EXHIBIT A

# Table of Plan Coverage

i. Regular

	Year En	Year Ended June 30				
Category	2014	2013	Change From Prior Year			
Active members in valuation:						
Number	88,709	87,193	1.7%			
Employer-Pay	71,179	70,522	0.9%			
Employee/Employer	17,530	16,671	5.2%			
Average age	46.4	46.5	N/A			
Average service	10.1	10.1	N/A			
Total annual salary	\$4,263,102,612	\$4,239,824,030	0.5%			
Average annual salary	\$48,057	\$48,626	-1.2%			
Account balances	\$658,607,280	\$629,070,263	4.7%			
Total active vested members	67,408	68,036	-0.9%			
Vested terminated members	13,851	13,009	6.5%			
Retired members:						
Number in pay status	40,471	38,313	5.6%			
Average age	69.0	68.7	N/A			
Average monthly benefit	\$2,753	\$2,703	1.8%			
Disabled members:						
Number in pay status	2,665	2,541	4.9%			
Average age	59.5	59.2	N/A			
Average monthly benefit	\$1,994	\$1,923	3.7%			
Beneficiaries:						
Number in pay status	3,303	3,122	5.8%			
Average age	71.2	71.2	N/A			
Average monthly benefit	\$1,853	\$1,800	2.9%			
Survivors:						
Number in pay status	1,844	1,820	1.3%			
Average age	55.6	54.8	N/A			
Average monthly benefit	\$1,288	\$1,253	2.8%			



# EXHIBIT A

# Table of Plan Coverage

ii. Police/Fire

	Year End	ded June 30	
Category	2014	2013	Change From Prior Year
Active members in valuation:			
Number	11,813	11,845	-0.3%
Employer-Pay	10,247	10,255	-0.1%
Employee/Employer	1,566	1,590	-1.5%
Average age	40.8	40.6	N/A
Average service	11.5	11.3	N/A
Total annual salary	\$850,414,661	\$860,383,604	-1.2%
Average annual salary	\$71,990	\$72,637	-0.9%
Account balances	\$116,756,982	\$114,082,218	2.3%
Total active vested members	9,866	9,686	1.9%
Vested terminated members	782	730	7.1%
Retired members:			
Number in pay status	5,515	5,309	3.9%
Average age	63.7	63.5	N/A
Average monthly benefit	\$4,965	\$4,810	3.2%
Disabled members:			
Number in pay status	519	490	5.9%
Average age	54.8	55.0	N/A
Average monthly benefit	\$2,902	\$2,767	4.9%
Beneficiaries:			
Number in pay status	652	607	7.4%
Average age	69.3	69.0	N/A
Average monthly benefit	\$2,291	\$2,185	4.9%
Survivors:			
Number in pay status	239	228	4.8%
Average age	45.5	45.2	N/A
Average monthly benefit	\$1,526	\$1,461	4.4%



# EXHIBIT A

# Table of Plan Coverage

iii. Total

	Year En	ded June 30	
Category	2014	2013	Change From Prior Year
Active members in valuation:			
Number	100,522	99,038	1.5%
Employer-Pay	81,426	80,777	0.8%
Employee/Employer	19,096	18,261	4.6%
Average age	45.7	45.8	N/A
Average service	10.2	10.3	N/A
Total annual salary	\$5,113,517,273	\$5,100,207,634	0.3%
Average annual salary	\$50,870	\$51,497	-1.2%
Account balances	\$775,364,262	\$743,152,481	4.3%
Total active vested members	77,274	77,722	-0.6%
Vested terminated members	14,633	13,739	6.5%
Retired members:			
Number in pay status	45,986	43,622	5.4%
Average age	68.3	68.1	N/A
Average monthly benefit	\$3,019	\$2,959	2.0%
Disabled members:			
Number in pay status	3,184	3,031	5.0%
Average age	58.8	58.5	N/A
Average monthly benefit	\$2,142	\$2,059	4.0%
Beneficiaries:			
Number in pay status	3,955	3,729	6.1%
Average age	70.9	70.8	N/A
Average monthly benefit	\$1,925	\$1,863	3.3%
Survivors:			
Number in pay status	2,083	2,048	1.7%
Average age	54.4	53.7	N/A
Average monthly benefit	\$1,315	\$1,276	3.1%



# EXHIBIT B

Members in Active Service as of June 30, 2014 By Age, Years of Service, and Average Annual Salary i. Regular

	Years of Service											
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over		
Under 25	2,216	2,182	34									
	\$21,499	\$21,385	\$28,796									
25 - 29	5,909	4,574	1,311	24								
	31,945	30,050	38,409	\$40,031								
30 - 34	9,108	4,114	4,234	725	35							
	40,177	33,140	45,199	49,842	\$59,423							
35 - 39	10,290	3,366	3,817	2,373	702	32						
	45,618	32,424	47,625	56,104	61,522	\$67,551						
40 - 44	12,476	3,138	3,693	2,655	2,333	590	67					
	50,167	32,536	47,365	56,969	65,270	68,651	\$72,064					
45 - 49	12,826	2,603	3,221	2,479	2,249	1,683	584	7				
	52,763	33,203	45,634	55,237	64,911	69,749	72,804	\$70,756				
50 - 54	13,172	2,368	3,346	2,529	2,138	1,565	1,065	160	1			
	52,834	32,359	45,016	54,327	62,439	68,950	73,183	74,272	*			
55 - 59	11,456	1,886	2,684	2,236	2,051	1,460	849	248	40	2		
	53,066	32,963	44,666	54,583	62,621	64,808	70,352	72,811	\$71,932	*		
60 - 64	7,464	1,126	1,932	1,400	1,316	959	520	162	43	6		
	53,170	33,588	46,586	53,120	60,735	65,705	68,290	77,146	74,979	\$82,599		
65 - 69	2,885	462	800	535	473	351	162	80	15	7		
	50,996	30,089	45,801	51,776	58,953	63,352	67,713	72,495	80,331	112,514		
70 & over	907	194	249	170	132	77	49	20	7	9		
	45,106	31,637	37,599	47,690	56,575	57,589	59,197	52,536	98,025	84,958		
Total	88,709	26,013	25,321	15,126	11,429	6,717	3,296	677	106	24		
	\$48,057	\$31,322	\$45,532	\$54,742	\$63,062	\$67,331	\$71,115	\$73,536	\$75,939	\$89,984		

\* Not shown for groups with fewer than five members.



# EXHIBIT B

Members in Active Service as of June 30, 2014 By Age, Years of Service, and Average Annual Salary ii. Police/Fire

					Years o	of Service				
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	310	301	9							
	\$32,496	\$31,762	\$57,064							
25 - 29	1,180	765	412	3						
	48,885	40,620	64,026	*						
30 - 34	1,875	469	1,185	204	17					
	61,706	42,912	66,165	\$77,263	\$82,657					
35 - 39	2,106	303	818	740	232	13				
	70,985	42,913	66,379	81,348	89,207	\$99,922				
40 - 44	2,533	179	528	811	820	184	11			
	79,256	42,619	64,333	81,052	90,053	100,249	\$103,369			
45 - 49	2,026	93	286	429	577	529	109	3		
	84,106	38,212	62,058	77,450	88,696	99,796	105,874	*		
50 - 54	1,142	53	129	217	265	279	175	23	1	
	85,372	45,010	56,762	76,062	85,820	99,313	104,614	\$105,547	*	
55 - 59	448	27	57	85	104	83	62	26	4	
	78,607	40,570	55,360	67,680	81,186	89,781	97,961	109,164	*	
60 - 64	158	12	20	35	40	21	12	10	7	1
	71,999	33,494	58,688	63,592	71,997	84,215	90,311	93,510	\$113,189	*
65 - 69	28	1	5	6	6	6	3	1		
	66,020	*	59,989	71,818	69,065	67,831	*	*		
70 & over	7	1	1	2	1	2				
	53,452	*	*	*	*	*				
Total	11,813	2,204	3,450	2,532	2,062	1,117	372	63	12	1
	\$71,990	\$40,335	\$64,734	\$79,062	\$88,107	\$98,439	\$103,069	\$105,024	\$107,768	*

\* Not shown for groups with fewer than five members.



# EXHIBIT B

Members in Active Service as of June 30, 2014 By Age, Years of Service, and Average Annual Salary iii. Total

	Years of Service											
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over		
Under 25	2,526	2,483	43									
	\$22,848	\$22,643	\$34,713									
25 - 29	7,089	5,339	1,723	27								
	34,765	31,565	44,535	\$44,132								
30 - 34	10,983	4,583	5,419	929	52							
	43,852	34,140	49,784	55,863	\$67,019							
35 - 39	12,396	3,669	4,635	3,113	934	45						
	49,928	33,290	50,935	62,105	68,399	\$76,903						
40 - 44	15,009	3,317	4,221	3,466	3,153	774	78					
	55,076	33,081	49,487	62,605	71,715	76,163	\$76,479					
45 - 49	14,852	2,696	3,507	2,908	2,826	2,212	693	10				
	57,038	33,375	46,973	58,514	69,768	76,935	78,006	\$85,529				
50 - 54	14,314	2,421	3,475	2,746	2,403	1,844	1,240	183	2			
	55,430	32,636	45,452	56,044	65,017	73,544	77,619	78,202	*			
55 - 59	11,904	1,913	2,741	2,321	2,155	1,543	911	274	44	2		
	54,028	33,070	44,888	55,062	63,517	66,151	72,231	76,261	\$74,601	*		
60 - 64	7,622	1,138	1,952	1,435	1,356	980	532	172	50	7		
	53,560	33,587	46,710	53,375	61,067	66,102	68,787	78,097	80,328	\$87,204		
65 - 69	2,913	463	805	541	479	357	165	81	15	7		
	51,141	30,113	45,889	51,998	59,079	63,427	67,692	72,286	80,331	112,514		
70 & over	914	195	250	172	133	79	49	20	7	9		
	45,170	31,620	37,724	47,835	56,700	57,187	59,197	52,536	98,025	84,958		
Total	100,522	28,217	28,771	17,658	13,491	7,834	3,668	740	118	25		
	\$50,870	\$32,026	\$47,834	\$58,230	\$66,890	\$71,766	\$74,356	\$76,217	\$79,176	\$90,978		

\* Not shown for groups with fewer than five members.



# EXHIBIT C

**Reconciliation of Member Data** 

	Active Members	Inactive Members	Retired Members	Disabled Members	Beneficiaries and Survivors	Total
Number as of June 30, 2013	99,038	13,739	43,622	3,031	5,777	165,207
New members	9,208	8	34	1	543	9,794
Terminations - with vested rights	-2,131	2,131	0	0	0	0
Terminations – without vested rights	-3,127	-44	N/A	N/A	N/A	-3,171
Retirements	-2,517	-748	3,294	-29	N/A	0
New disabilities	-264	-21	0	285	N/A	0
Return to work	411	-406	-2	-3	N/A	0
Died with or without beneficiary	-96	-26	-957	-101	-207	-1,387
Certain period expired	N/A	N/A	0	0	-75	-75
Data adjustments	<u>0</u>	<u>0</u>	<u>-5</u>	<u>0</u>	<u>0</u>	<u>-5</u>
Number as of June 30, 2014	100,522	14,633	45,986	3,184	6,038	170,363



#### EXHIBIT D

Summary Statement of Income and Expenses on an Actuarial Value Basis (based on unaudited financial statements)

		Year Ended June 30, 2014		Year Ended June 30, 2013
	Regular	Police/Fire	Total	Total
Net assets at actuarial value at the beginning of the year	\$22,846,659,235	\$6,261,882,129	\$29,108,541,364	\$27,398,984,856
Contribution income:				
Employer contributions <sup>(1)</sup>	\$1,063,369,497	\$341,637,056	\$1,405,006,553	\$1,310,082,859
Member contributions	94,124,999	15,531,493	109,656,492	99,230,935
Repayment and purchase of service	30,889,649	11,862,842	42,752,491	46,467,628
Contribution income	\$1,188,384,145	\$369,031,391	\$1,557,415,536	\$1,455,781,422
Investment income:				
Interest	\$279,130,969	\$0	\$279,130,969	\$288,938,451
Dividends	522,621,573	-	522,621,573	437,653,885
Net appreciation	4,157,043,026	-	4,157,043,026	2,379,643,463
Other	91,594,469	-	91,594,469	93,940,400
Transfer of annual investment income	(1,091,821,361)	1,091,821,361	-	0
Securities lending income	9,231,477	-	9,231,477	(20,265,516)
Net change in FV of securities lending	(1,155,897)	-	(1,155,897)	41,426,019
Other income	1,604,665	337,151	1,941,816	2,519,896
Change in unrecognized return	(1,874,905,126)	(508,507,417)	(2,383,412,543)	(1,225,254,901)
Less investment fees	(27,030,774)	0	(27,030,774)	(27,430,986)
Net investment income	\$2,066,313,021	<u>\$583,651,095</u>	\$2,649,964,116	\$1,971,170,711
Total income available for benefits	\$3,254,697,166	\$952,682,486	\$4,207,379,652	\$3,426,952,133
Less operating expenses:				
Retirement and survivor benefits	(\$1,385,277,435)	(\$336,462,831)	(\$1,721,740,266)	(\$1,594,120,590)
Disability benefits	(75,485,504)	(19,493,171)	(94,978,675)	(86,675,534)
Post-retirement increases	(13,741)	(963)	(14,704)	(18,085)
Refunds to members	(17,515,705)	(5,532,038)	(23,047,743)	(26,126,061)
Administrative expenses	(8,639,165)	(953,405)	(9,592,570)	(9,560,240)
Transfer to JRS	(990,121)	0	(990,121)	(895,115)
Net operating expenses	(\$1,487,921,671)	(\$362,442,408)	(\$1,850,364,079)	(\$1,717,395,625)
Interfund transfer	\$873,086	(\$873,086)	\$0	\$0
Change in reserve for future benefits	\$1,767,648,581	\$589,366,992	\$2,357,015,573	\$1,709,556,508
Net assets at actuarial value at the end of the year	\$24,614,307,816	\$6,851,249,121	\$31,465,556,937	\$29,108,541,364

<sup>(1)</sup> See cost-sharing mechanisms in NRS 286.410 and NRS 286.421



#### EXHIBIT E

Summary Statements of Assets (based on unaudited financial statements)

		Ended 0, 2014	Year Ended June 30, 2013		
Cash equivalents		\$1,022,818,228		\$689,553,439	
Accounts receivable:					
Contributions receivable	\$118,903,642		\$107,130,930		
Pending trades receivable	136,040,433		144,328,901		
Accrued investment income	100,132,219		100,462,848		
Total accounts receivable		355,076,294		351,922,679	
Investments:					
Fixed income securities	\$8,765,972,447		\$6,424,979,583		
Marketable equity securities	14,289,468,027		12,159,852,276		
International securities	7,678,599,448		7,550,034,097		
Real estate	1,337,751,979		1,265,383,156		
Private equity	<u>1,111,639,569</u>		907,783,472		
Total investments at market value		33,183,431,470		28,308,032,584	
Collateral on loaned securities		1,605,428,527		4,867,492,944	
Property and equipment		3,891,904		3,779,204	
Other assets		2,240,330		2,060,547	
Total assets		\$36,172,886,753		\$34,222,841,397	
Liabilities:					
Accounts payable	(\$12,822,827)		(\$12,459,146)		
Pending trades payable	(979,554,242)		(508,795,227)		
Obligations under securities lending activities	<u>(1,605,428,527)</u>		<u>(4,866,933,983)</u>		
Total liabilities		(\$2,597,805,596)		(\$5,388,188,356)	
Net assets at market value		<u>\$33,575,081,157</u>		<u>\$28,834,653,041</u>	
Net assets at actuarial value		<u>\$31,465,556,937</u>		<u>\$29,108,541,364</u>	



#### EXHIBIT F

Development of the Fund Through June 30, 2014

Year Ended June 30	Employer Contributions	Member Contributions	Other Contributions	Net Investment Return*	Administrative Expenses	Benefit Payments**	Actuarial Value of Assets at End of Year
2005							\$17,886,538,573
2006	\$966,130,036	\$75,970,321	\$42,214,033	\$1,170,548,830	\$8,212,797	\$851,160,762	19,282,028,234
2007	1,046,628,769	83,219,638	45,632,332	1,858,887,861	8,588,057	948,781,892	21,359,026,885
2008	1,167,392,913	88,013,888	43,287,531	1,641,283,986	8,723,601	1,052,629,998	23,237,651,604
2009	1,213,067,534	93,648,004	28,116,522	621,100,111	9,714,463	1,211,993,461	23,971,875,851
2010	1,281,714,847	99,683,851	26,890,242	678,751,770	11,118,633	1,322,333,219	24,725,464,709
2011	1,264,759,603	97,033,823	31,547,354	1,201,272,733	10,579,998	1,438,358,514	25,871,139,710
2012	1,332,320,660	98,183,663	37,993,705	1,651,468,456	10,002,855	1,582,118,483	27,398,984,856
2013	1,310,082,859	99,230,935	46,467,628	1,971,170,711	9,560,240	1,707,835,385	29,108,541,364
2014	1,405,006,553	109,656,492	42,752,491	2,649,964,116	9,592,570	1,840,771,509	31,465,556,937

\* Net of investment fees

\*\* Includes transfers in/out of the System (e.g. to the Judicial Retirement System) that correspond to transfers of liability.



#### **EXHIBIT G**

Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2014

	Regular	Police/Fire	Total
1. Unfunded actuarial accrued liability at beginning of year	\$10,331,907,494	\$2,544,032,686	\$12,875,940,180
2. Normal cost at beginning of year	807,586,115	251,151,742	1,058,737,857
3. Actual total contributions	(1,188,384,145)	(369,031,391)	(1,557,415,536)
4. Actual administrative expenses	8,639,165	953,405	9,592,530
5. Interest			
(a) For whole year on $(1) + (2)$	\$891,159,489	\$223,614,754	\$1,114,774,243
(b) For a half year on $(3) + (4)$	<u>(47,189,799)</u>	(14,723,119)	<u>(61,912,918)</u>
(c) Total interest	843,969,690	208,891,635	1,052,861,325
6. Expected unfunded actuarial accrued liability	\$10,803,718,319	\$2,635,998,077	\$13,439,716,396
7. Changes due to <sup>(1)</sup>			
(a) Investment gain	(\$250,526,860)	(\$82,471,889)	(\$332,998,749)
(b) Individual Salary increases lower than expected	(459,065,725)	(215,702,266)	(674,767,991)
(c) Other experience	58,944,031	30,565,147	89,509,178
(d) Changes in plan provisions	<u>6,963,930</u>	3,080,479	10,044,409
(e) Total changes	<u>(\$643,684,624)</u>	<u>(\$264,528,529)</u>	<u>(\$908,213,153)</u>
8. Unfunded actuarial accrued liability at end of year	<u>\$10,160,033,695</u>	<u>\$2,371,469,548</u>	<u>\$12,531,503,243</u>

(1) Does not include contribution losses of \$212,210,386 for Regular and \$19,727,578 for Police/Fire during the year from actual contributions less than expected due to payroll growth lower than assumed and the statutory rates lower than the actuarially determined contribution rates. Does not include administrative expenses loss of \$1,245,787 for Regular and administrative expenses gain of \$528,234 for Police/Fire.



#### EXHIBIT H

**Table of Amortization Bases** 

Date Established	Initial Years	Initial Amount	Current Annual Payment <sup>(1)</sup>	Years Remaining	Outstanding Balance
Regular					
06/30/2004	30	\$3,306,492,730	\$251,559,049	20	\$4,419,539,124
06/30/2005	30	825,676,847	58,983,817	21	1,080,854,082
06/30/2006	30	376,199,046	25,234,276	22	481,219,631
06/30/2007	30	(325,346,914)	(20,491,334)	23	(405,835,316)
06/30/2008	30	597,061,087	35,309,593	24	724,911,030
06/30/2009	30	1,396,781,607	77,562,686	25	1,647,819,523
06/30/2010	30	804,325,423	41,937,885	26	920,533,794
06/30/2011	30	322,201,646	15,774,401	27	357,212,469
06/30/2012	23	(31,427,931)	(1,799,846)	21	(32,981,440)
06/30/2013	22	1,365,091,459	76,235,783	21	1,396,989,249
06/30/2014	21	(430,228,451)	<u>(23,478,207)</u>	<u>21</u>	(430,228,451)
Subtotal			\$536,828,103	21.8 <sup>(2)</sup>	\$10,160,033,695

(1) Level percentage of payroll with payroll expected to increase 6.5% per year for Regular and 7.5% per year for Police/Fire. Payments shown as of beginning of year. (2) Effective average amortization period. Combined Regular and Police/Fire average amortization period is 21.7.



### EXHIBIT H

Table of Amortization Bases (continued)

Date Established	Initial Years	Initial Amount	Current Annual Payment <sup>(1)</sup>	Years Remaining	Outstanding Balance
Police/Fire					
06/30/2004	30	\$1,248,577,900	93,647,919	20	1,792,826,736
06/30/2005	30	166,690,723	11,602,753	21	232,701,334
06/30/2006	30	145,811,902	9,419,090	22	197,450,968
06/30/2007	30	(52,497,545)	(3,147,173)	23	(68,815,442)
06/30/2008	30	130,126,655	7,239,568	24	164,805,633
06/30/2009	30	204,577,462	10,562,535	25	249,900,890
06/30/2010	30	144,950,584	6,945,341	26	170,505,657
06/30/2011	30	585,886	26,052	27	662,670
06/30/2012	23	(101,888,427)	(5,397,611)	21	(108,252,872)
06/30/2013	22	(14,571,831)	(747,260)	21	(14,986,841)
06/30/2014	21	(245,329,185)	(12,232,392)	<u>21</u>	(245,329,185)
ubtotal			\$117,918,822	21.1 <sup>(2)</sup>	<u>\$2,371,469,548</u>
Frand Total					\$12,531,503,243

<sup>(1)</sup> Level percentage of payroll with payroll expected to increase 6.5% per year for Regular and 7.5% per year for Police/Fire. Payments shown as of beginning of year.

<sup>(2)</sup> Effective average amortization period. Combined Regular and Police/Fire average amortization period is 21.7.



### EXHIBIT I

### **Definitions of Pension Terms**

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions:	The estimates on which the cost of the Plan is calculated including:	
	(a)	<u>Investment return</u> — the rate of investment yield that the Plan will earn over the long-term future;
	(b)	<u>Mortality rates</u> — the death rates of employees and pensioners; life expectancy is based on these rates;
	(c)	<u>Retirement rates</u> — the rate or probability of retirement at a given age;
	(d)	<u>Turnover rates</u> — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.
Normal Cost:		nount of contributions required to fund the level cost allocated to the current f service.
Actuarial Accrued Liability		
For Actives:		alue of all projected benefit payments for current members less the portion that e paid by future normal costs.
Actuarial Accrued Liability		
For Pensioners:	accour	ngle sum value of lifetime benefits to existing pensioners. This sum takes at of life expectancies appropriate to the ages of the pensioners and the interest e sum is expected to earn before it is entirely paid out in benefits.
Unfunded Actuarial Accrued Liability:	The ex Plan.	atent to which the actuarial accrued liability of the Plan exceeds the assets of the



# SECTION 3: Supplemental Information for the Public Employees' Retirement System of Nevada

Amortization of the Unfunded Actuarial Accrued Liability:	Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.
Investment Return:	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.



# EXHIBIT I

### **Summary of Actuarial Valuation Results**

Th	e valuation was made with respect to the following data supplied to us:		
1.	Retired members as of the valuation date (including 6,038 beneficiaries and survivors in pay status)		55,208
2.	Members inactive during year ended June 30, 2014 with vested rights		14,633
3.	Members active during the year ended June 30, 2014		100,522
Th	e actuarial factors as of the valuation date are as follows:		
1.	Normal cost*		\$1,063,483,261
2.	Actuarial accrued liability		43,997,060,180
	Retired members and beneficiaries	\$23,758,092,419	
	Inactive members with vested rights	1,023,455,125	
	Active members	<u>19,215,512,636</u>	
3.	Actuarial value of assets (\$33,575,081,157 at market value as reported by Retirement Office)		\$31,465,556,937
4.	Unfunded actuarial accrued liability (2. – 3.)		\$12,531,503,243
5.	Total rate payroll		\$5,753,148,095

\* Does not include administrative expenses



EXHIBIT II			
Actuarial As	ssumptions and Methods		
Actuarial A	ssumptions		
Mortality R	ates:		
Healthy:	Regular:	RP-2000 Combined Healthy Mortality Table projected to 2013 with Scale AA, set back one year for females (no age setback for males).	
	Police/Fire:	RP-2000 Combined Healthy Mortality Table projected to 2013 with Scale AA, set forward one year.	
Disabled:	Regular and Police/Fire:	RP-2000 Disabled Retiree Mortality Table projected to 2013 with Scale AA, set forward three years.	
	The RP-2000 Combined Healthy Mortality Table, set back one year for females (no age setback for males), reasonably reflects the projected mortality experience of the Plan as of the measurement date. The additional projection of 13 years is a provision made for future mortality improvement.		



		Mort	ality	
	Reg	ular	Police	e/Fire
Age	Male	Female	Male	Female
20	0.03%	0.02%	0.03%	0.02%
25	0.03	0.02	0.04	0.02
30	0.04	0.02	0.05	0.03
35	0.07	0.04	0.08	0.04
40	0.10	0.05	0.10	0.06
45	0.13	0.08	0.13	0.10
50	0.17	0.12	0.19	0.15
55	0.28	0.21	0.33	0.29
60	0.55	0.42	0.63	0.54

**Termination Rates before Retirement:** 

Any mortality that occurs during the first two years of employment is assumed to be non-duty related.



	Withdra	wal Rates
Years of Service	Regular	<b>Police/Fire</b>
0 – 1	16.50%	14.00%
1 - 2	12.50	6.50
2 - 3	9.70	5.75
3 – 4	7.30	4.75
4 – 5	6.60	4.25
5 - 6	5.00	3.50
6 – 7	4.00	3.00
7 - 8	3.50	2.25
8 – 9	3.25	1.90
9 - 10	3.00	1.75
10 - 11	2.75	1.50
11 – 12	2.50	1.25
12 – 13	2.25	1.00
13 – 14	2.00	0.90
14 - 15	1.75	0.80
15 & Over	1.50	0.50

**Termination Rates before Retirement (continued):** 

\_\_\_\_

No withdrawal is assumed after a member reaches earliest unreduced retirement age.



	Disabili	ity Rates
Age	Regular	<b>Police/Fire</b>
20 - 24	0.01%	0.00%
25 - 29	0.02	0.06
30 - 34	0.06	0.10
35 - 39	0.09	0.18
40 - 44	0.21	0.35
45 – 49	0.35	0.56
50 - 54	0.57	0.75
55 - 59	0.75	0.50
60 - 64	0.40	0.50
65 & Over	0.00	0.00

**Termination Rates before Retirement (continued):** 

Disability rates are applied only for members with more than 5 years of service and less than 30 years of service for Regular or 25 years for Police/Fire.



SECTION 4:	Reporting Information for the Public Employees' Retirement System of Nevada	

# **Retirement Rates:**

Regular:

	Years of Service (%)				
Age	5-9	10-19	20-24	25-29	30 or More
45-49	0.00	0.00	1.00	7.00	20.00
50-54	1.00	2.00	2.00	10.00	20.00
55-59	2.00	4.00	6.00	13.00	25.00
60-61	8.00	12.00	18.00	25.00	25.00
62-64	10.00	14.00	18.00	25.00	25.00
65-69	20.00	20.00	22.00	25.00	25.00
70-74	40.00	40.00	60.00	60.00	60.00
75 & Over	100.00	100.00	100.00	100.00	100.00

Police/Fire:

			Years of Servic	e (%)	
Age	5-9	10-19	20-24	25-29	30 or More
Less than 40	0.00	0.00	0.00	0.00	0.00
40-44	0.00	0.75	3.00	0.00	0.00
45-49	0.00	1.00	5.00	15.00	15.00
50-54	1.50	5.00	13.00	18.00	27.00
55-59	3.50	11.00	20.00	25.00	35.00
60-64	10.00	18.00	25.00	32.00	35.00
65-69	60.00	60.00	65.00	70.00	70.00
70 & Over	100.00	100.00	100.00	100.00	100.00



Retirement Age for Inactive Vested Participants:	Earliest unreduced retirement age.
Unknown Data for Participants:	Same as those exhibited by members with similar known characteristics. If not specified, Regular members are assumed to be female, and Police/Fire members are assumed to be male.
Percent Married:	Since pre-retirement death benefits are payable to a surviving beneficiary of an unmarried member, all members are assumed to have a beneficiary upon pre-retirement death.
	The unmodified option is a straight life annuity except for "employer-pay" Police/Fire retirees, for whom it is a 50% joint and survivor annuity. Existing "employer-pay" Police/Fire retirees with an unmodified option who retired after June 30, 1981 and before July 1, 2011 have been valued assuming no surviving spouse, pending the results of an analysis and verification of spousal information.
	75% of "employer-pay" Police/Fire male members and 60% of "employer-pay" Police/Fire female members are assumed to be married at retirement.
Age of Spouse:	Females 3 years younger than males. Spouses are assumed to be of the opposite sex of the member.
Dependent Children:	The assumption for dependent children in the actuarial valuation is one dependent child who is 28 years younger than the member.
Economic Assumptions	
Net Investment Return:	8.00% (including 3.50% for inflation).
<b>Consumer Price Index:</b>	Increase of 3.50% per year.
Administrative Expenses:	0.15% of payroll added to Normal Cost.



### **Salary Increases:**

Inflation:	3.50%	Plus
Productivity pay increases:	0.75%	Plus

Promotional and merit salary increases:

Years of Service	Regular	<b>Police/Fire</b>
Less than 1	5.50%	10.25%
1	4.25	6.55
2	3.50	5.15
3	3.25	4.55
4	3.00	4.25
5	2.75	4.05
6	2.40	3.75
7	2.25	3.25
8	1.85	2.75
9	1.75	2.25
10	1.50	1.75
11	1.00	1.50
12	0.80	1.25
13 or More	0.35	1.00

Assumed payroll growth rates are used to compute the unfunded actuarial accrued liability amortization payments as a level percentage of projected payroll. For this valuation, the payroll for the coming year is based on actual annualized payroll for the actives as of the valuation date and projected by the salary scale. For the purpose of calculating the actuarially determined contribution rate, the total payroll growth assumption for future years is 6.50% per year for Regular and 7.50% for Police/Fire.



Post-Retirement Benefit Increases:	For current retirees and beneficiaries, future Post-Retirement Benefit Increases reflect actual changes in historical CPI and are assumed to follow the formulas described on page 47 of this report. For future retirees, those hired prior to 2010 are assumed to reach the cap after 24 years of retirement. Those hired in 2010 or later are assumed to reach the cap after 39 years of retirement. Underlying all of these assumptions is that CPI will grow over time at a rate of 3.50% per year.
<u>Actuarial Methods</u> Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the participant commenced employment. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are based on costs allocated as a level percentage of salary, with Normal Cost determined based on the plan provisions and benefit accrual rate applicable to that individual.
Actuarial Value of Assets:	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the actuarial value, and is recognized over a five-year period, further adjusted, if necessary, to be within 30% of the market value. Deferred gains and losses as of June 30, 2011 have been combined and will be recognized in equal amounts over a period of four years from that date.
Amortization Policy:	The UAAL, (i.e., the difference between the Actuarial Accrued Liability and the Valuation Value of Assets), as of June 30, 2011 shall continue to be amortized over separate 30-year period amortization layers based on the valuations during which each separate layer was previously established.
	Any new UAAL as a result of actuarial gains or losses identified in the annual valuation as of June 30 will be amortized over a period equal to the truncated average remaining amortization period of all prior UAAL layers. This would occur until the average remaining amortization period is less than 20 years. At that point, amortization periods of 20 years would be used for actuarial gains and losses.
	Any new UAAL as a result of change in actuarial assumptions or methods will be amortized over a period equal to the truncated average remaining amortization period of all prior UAAL layers. This would occur until the average remaining amortization period is less than 20 years. At that point, amortization periods of 20 years would be used for assumption or method changes.



	Unless an alternative amortization period is recommended by the Actuary and accepted by the Board based on the results of an actuarial analysis:
	a. with the exception noted in b., below, the increase in UAAL as a result of any plan amendments will be amortized over a period of 15 years;
	b. the increase in UAAL that would result from a temporary retirement incentive will be pre-funded by the participating employer(s).
	UAAL layers shall be amortized over "closed" amortization periods so that the amortization period for each layer decreases by one year with each actuarial valuation.
	UAAL layers shall be amortized as a level percentage of payroll so that the amortization amount in each year during the amortization period shall be expected to be a level percentage of covered payroll, taking into consideration the current assumption for general payroll increase.
	If an overfunding exists (i.e., the total of all UAAL becomes negative so that there is a surplus), such surplus and any subsequent surpluses will be amortized over an "open" amortization period of 30 years. Any prior UAAL amortization layers will be considered fully amortized, and any subsequent UAAL will be amortized over 20 years as the first of a new series of amortization layers.
	These amortization policy components will apply separately to each of the Regular and Police/Fire UAAL cost groups.
Changes in Actuarial Assumptions and Methods:	There have been no changes in actuarial assumptions or methods since the last valuation.



#### EXHIBIT III

#### **Summary of Plan Provisions**

This exhibit summarizes the major provisions of the Nevada Public Employees' Retirement Act included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year:July 1 through June 30

#### **Service Retirement:**

### For members with an effective date of membership before January 1, 2010:

Requirement for Regular Members	Age 65 with five years of service, or age 60 with ten years of service, or at any age with 30 years of service.
Requirement for	
Police/Fire Members	Age 65 with five years of service, or age 55 with ten years of Police/Fire service, or age 50 with 20 years of Police/Fire service, or at any age with 25 years of Police/Fire service.
Benefit	2.67% of final average compensation (average of 36 highest consecutive months) per year of service earned on or after July 1, 2001 plus 2.50% of final average compensation per year of service before July 1, 2001. Maximum benefits are 90% of average compensation for individuals who became members before July 1, 1985 and 75% of average compensation for individuals who became members after June 30, 1985.



# For members with an effective date of membership on or after January 1, 2010:

Requirement for Regular Members	Age 65 with five years of service, or age 62 with ten years of service, or at any age with 30 years of service.
<i>Requirement for Police/Fire Members</i>	Age 65 with five years of service, or age 60 with ten years of Police/Fire service,
	or age 50 with 20 years of Police/Fire service, or at any age with 30 years of Police/Fire service.
Benefit	2.50% of final average compensation (average of 36 highest consecutive months) per year of service. Maximum benefits are 75% of average compensation.
Early Retirement:	
Requirement	Any age with five years of service.
For members with an effective date of	membership before January 1, 2010:
BenefitAccrued retirement benefit reduced 4% per year for each year th under the age required for service retirement.	
For members with an effective date of	membership on or after January 1, 2010:
Benefit	Accrued retirement benefit reduced 6% per year for each year that the member is under the age required for service retirement.
Disability:	
Requirement	Five years of service and totally unable to perform current job or any comparable job for which the member is qualified by training and experience, because of injury or illness of a permanent nature, provided the member is in the employ of a participating employer at the time of application for disability retirement.
Benefit	Accrued service retirement benefit without reduction for age. (System disability benefit is reduced for other benefits received on account of same disability, if such other benefits are financed by a Nevada public employer, to the extent that total disability benefits would otherwise exceed 100% of final average compensation.)



esting:	
Requirement	Any age with five years of service, provided the member has not received a refund of member contributions.
Benefit	Accrued service retirement benefit payable upon attainment of age 65 if member has between five and ten years of service at termination, or upon attainment of th age required for service retirement if member has ten or more years of service at termination.
ouse's Pre-Retirement Deatl	h Benefit:
Requirement	Eligible survivors of an active member who dies receive survivor benefits if: (a) the deceased member had two years of service in the 2½ years immediately preceding death; or (b) the deceased member had ten years of service; or (c) deat was caused by occupational disease or a service-connected accident regardless of the deceased member's length of service; or (d) death occurred within 18 months after termination of employment where mental or physical condition required the termination; or (e) death occurred while member was on leave of absence for training and member met requirements of (a) at time such leave began.
Benefît	a. Unmarried children under age 18, or age 18 to 23 and attending an accredite school on a full-time basis: \$400 per month per child. Payments cease upon attaining age 18 or age 23 if full-time student, unless child is incapacitated; o upon marriage, adoption, or death.
	<ul> <li>b. Spouse, or survivor beneficiary of an unmarried member, of deceased member with fewer than ten years of service (and at least two years of servic in the last 2<sup>1</sup>/<sub>2</sub> years): \$450 per month. Payments cease upon death.</li> </ul>
	c. Spouse, or survivor beneficiary of an unmarried member, of deceased member with ten but fewer than 15 years of service: greater of \$450 per month or Option 3 benefit that would have been payable if deceased membe had retired on date of death without reduction for early payment. Payments cease upon death.



	<ul> <li>d. Spouse, or survivor beneficiary of an unmarried member, of deceased member with 15 or more years of service: greater of \$450 per month or Option 2 benefit that would have been payable if deceased member had retired on date of death without reduction for early payment. Payments cease upon death.</li> </ul>
	e. Spouse, or survivor beneficiary of an unmarried member, of deceased member eligible to retire with respect to both age and service: greater of \$450 per month, Option 2 or Option 3 benefit that would have been payable if deceased member had retired on death, without reduction for early payment. Payments cease upon death.
	f. Dependent parents: \$400 per month each, provided there are no other eligible survivors. Payments cease upon death.
	g. Lump sum payment option: a spouse, or survivor beneficiary of an unmarried member, may waive right to monthly survivor benefits and instead receive a lump sum refund of deceased member's contributions plus half the contributions made under the Employer-Pay provisions, provided no other person is eligible for survivor benefits.
Benefit Limitations	Total survivor benefits, including any other survivor benefit received from any other source, shall not exceed final average compensation (a) if the other benefit was provided or purchased by a public employer, except for lump sum payments under a group insurance program; and (b) to the extent that the total of the allowance and the other benefit would otherwise exceed the deceased member's final average compensation.



Benefît for certain spouses	A member who begins receiving service or disability retirement benefits from the Police/Fire members retirement fund after June 30, 1981, is eligible to receive an unreduced service retirement allowance. Upon the death of such a retired member, a spouse who was the retired member's spouse at the time of retirement is entitled to receive 50% of the unreduced allowance; this benefit is payable to the surviving spouse beginning at age 50. A surviving spouse is not eligible to receive this 50% spouse's benefit if the retired member elects an optional benefit form at the time of retirement. Service performed after July 1, 1981, in positions other than as a Police/Fire member, except military service, is not credited toward this 50% spouse's benefit. Existing "employer-pay" Police/Fire retirees who retired after June 30, 1981 and before July 1, 2011 have been valued assuming no surviving spouse, pending the results of an analysis and verification of spousal information.
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# **Post-Retirement Benefit Increases:**

# For members with an effective date of membership before January 1, 2010:

Benefit	The lesser of	
	<ul> <li>(a) 2% per year following the third anniversary of the commencement of benefits, 3% per year following the sixth anniversary, 3 ½% per year following the ninth anniversary, 4% per year following the twelfth anniversary and 5% per year following the fourteenth anniversary, or</li> </ul>	
	(b) The annual benefit increase is equal to the average percentage increase in the Consumer Price Index (or other Board approved index) for the three preceding years.	
	In any event, a member's benefit must be increased by the percentages in paragraph (a) if their benefit has not been increased at a rate greater than or equal to the average of the Consumer Price Index (All Items) (or other Board approved index) for the period between retirement and the date of increase.	
For members with an effective date of n	nembership on or after January 1, 2010:	
Benefit	Same as above, except the increases do not exceed 4% per year.	



<b>Optional Benefit Forms</b>	Regular and disability retirees may elect one of the optional benefit plans:
	Option 1 - Single life annuity except for:
	Police/Fire members who contribute under the "employer pay" contribution plan, Option 1 is a 50% joint and survivor annuity
	Option 2 - 100% joint and survivor
	Option 3 - 50% joint and survivor
	Option 4 - 100% joint and survivor, with payments to beneficiary commencing at age 60
	Option 5 - 50% joint and survivor, with payments to beneficiary commencing at age 60
	Option 6 - specific sum option up to 100% of allowance paid to retiree
	Option 7 - specific sum option up to 100% of allowance paid to retiree, with payments to beneficiary commencing at age 60.
	If the beneficiary predeceases the retired member, the optional allowance reverts to the unmodified allowance.



		Regular	Police/Fire	
	Employer-Pay	25.75%	40.50%	
	Employee/Employer	13.25%/13.25%	20.75%/20.75%	
	Total contribution rates are adjusted at the beginning of each odd-numbered fiscal year, based on the actuarially determined rates indicated in the actuarial valuation report for the immediately preceding year. Rates are only adjusted upward if the new rates are more than 0.50% higher than the existing rate for Employer-Pay an more than 0.25% higher for Employee/Employer. Rates are only adjusted downward if the new rates are more than 2.00% lower than the existing rate for Employer-Pay (and adjusted only by the amount in excess of 2.00%) and more than 1.00% lower than the existing rate for Employee/Employer (and adjusted only by the amount in excess of 1.00%). Rates are rounded to the nearest 0.25% of payroll.			
	Under the Employer-Pay provisions, the contributions made by employers on behalf of members are not credited to member accounts and are not refunded upo termination. For members covered by the Employer-Pay provisions, final average compensation is increased by half the total contribution made by the public employer and may not be less than it would have been if contributions had been made by the member and the employer separately.			

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