



**Imperial County Employees'
Retirement System**

**Actuarial Audit
of the
June 30, 2013
Actuarial Valuation**

Produced by [Cheiron](#)

June 10, 2014

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June 10, 2014

Board of Retirement
 Imperial County Employees' Retirement System
 1221 West State Street
 El Centro, CA 92243

Members of the Board:

Cheiron is pleased to present the results of our actuarial audit of the June 30, 2013 actuarial valuation of the Imperial County Employees' Retirement System (ICERS), the July 1, 2010 to June 30, 2013 experience study of demographic assumptions, and the review of economic assumptions for the June 30, 2014 valuation, performed by Segal Consulting. We would like to thank Segal for providing us with information and explanations that facilitated the actuarial audit process and ensured that our findings are accurate and benefit ICERS. We direct your attention to the executive summary section of our report which highlights the key findings of our review. The balance of the report provides details in support of these findings along with supplemental data, background information and discussion of the process used in the evaluation of the work performed by Segal.

In preparing our report, we relied on information (some oral and some written) supplied by ICERS and Segal. This information includes, but is not limited to, actuarial assumptions and methods adopted by ICERS, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness in accordance with Actuarial Standard of Practice #23. A detailed description of all information provided for this review is provided in the body of our report.

We hereby certify that, to the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This report was prepared exclusively for the Imperial County Employees' Retirement System for the purpose described herein. This report is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

Sincerely,
 Cheiron



David B. Holland, FSA, EA, MAAA
 Associate Actuary



Graham A. Schmidt, ASA, FCA, MAAA
 Consulting Actuary



**IMPERIAL COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL AUDIT AND REVIEW OF ASSUMPTION AND METHODS
JUNE 30, 2013 ACTUARIAL VALUATION**

**SECTION I
EXECUTIVE SUMMARY**

Scope of Assignment

Cheiron performed a complete independent replication of ICERS' June 30, 2013 actuarial valuation and reviewed the actuarial methods underlying that valuation. Since the ICERS Board adopted the most recent demographic and economic assumptions recommended by Segal Consulting at its March 19, 2014 meeting, with the exception of incorporating an explicit load for administrative expenses, we have focused our attention on the actuarial assumptions in those studies, rather than the assumptions in the June 30, 2013 valuation. However, our high-level review of the assumptions in the June 30, 2013 valuation did not reveal anything that appeared to be unreasonable. The replication and peer review provides ICERS confidence that:

- The results reported by Segal can be relied upon,
- Segal's actuarial valuation report, assumptions, and methods comply with actuarial standards of practice,
- The communication of the actuarial valuation results is complete and accurate, and
- The Board and Segal have considered any alternatives to the assumptions, methods, or communications that may improve the valuation.

Our key findings and recommendations are summarized below. In the sections that follow, additional details that explain and support these findings and recommendations are presented.

Key Findings and Recommendations

Our independent replication of the June 30, 2013 actuarial valuation found no material difference in calculations of plan liabilities, actuarial value of assets, and overall contribution rates from the amounts calculated by Segal. In addition, we were able to match closely the data set that Segal used for the valuation. Consequently, we conclude that the valuation prepared by Segal for ICERS as of June 30, 2013 is reasonable and can be relied on by the Board for its intended purpose. Our replication of the measures of plan liabilities and contributions rates is summarized below. More detailed information can be found in Section IV.

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JUNE 30, 2013 ACTUARIAL VALUATION**

**SECTION I
EXECUTIVE SUMMARY**

Table I-1 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Replication of Liabilities (in thousands)			
	Segal	Cheiron	Variance
Present Value of Future Benefits	\$ 875,369	\$ 884,176	1.0%
Actuarial Liability (AL)			
Active Members	\$ 322,117	\$ 321,945	-0.1%
Vested Terminated Members	23,377	23,754	1.6%
Retirees and Beneficiaries	<u>338,808</u>	<u>337,740</u>	-0.3%
Total AL	\$ 684,303	\$ 683,440	-0.1%
Valuation Value of Assets	\$ 611,989	\$ 611,989	0.0%
Unfunded Actuarial Liability (UAL)	\$ 72,314	\$ 71,451	-1.2%
Funded Ratio	89.4%	89.5%	
Total Salary	\$ 102,547	\$ 102,719	0.2%
Present Value of Future Salaries	\$ 891,613	\$ 906,937	1.7%

Table I-2 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Replication of Employer Contribution Rates			
	Segal	Cheiron	Variance
Total Normal Cost Rate	23.56%	23.09%	-2.0%
Member Contribution Rate (Normal Cost)*	<u>9.89%</u>	<u>9.96%</u>	0.8%
Employer Normal Cost Rate	13.67%	13.12%	-4.0%
Total UAL Amortization Rate	5.59%	5.46%	-2.3%
Member Contribution Rate (UAL)	<u>0.99%</u>	<u>0.55%</u>	-44.3%
Employer UAL Rate	4.60%	4.91%	6.8%
Total Employer Contribution Rate	18.27%	18.04%	-1.3%

* Reflects expected 3% employer pickup

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Table I-3 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Data Comparison			
	Segal	Cheiron	Variance
Active Members			
Count	1,919	1,919	0.0%
Average Age	42.4	42.4	-0.1%
Average Service	10.1	10.1	0.3%
Total Salary	\$ 102,547,137	\$ 102,719,479	0.2%
Average Salary	\$ 53,438	\$ 53,528	0.2%
Vested Terminated Members			
Count	354	355	0.3%
Average Age	42.8	42.8	0.1%
Retired Members			
Count	702	698	-0.6%
Average Age	68.1	68.2	0.1%
Average Monthly Benefit	\$ 2,866	\$ 2,865	0.0%
Disabled Members			
Count	118	118	0.0%
Average Age	63.7	63.7	0.0%
Average Monthly Benefit	\$ 1,983	\$ 1,983	0.0%
Beneficiaries			
Count	155	155	0.0%
Average Age	72.6	73.2	0.8%
Average Monthly Benefit	\$ 1,445	\$ 1,445	0.0%

In performing our audit, we found a number of issues for the Board and/or Segal to consider in the preparation of future valuations. None of these issues appears to have a material impact on the results of the valuation, but each may contribute to a better measurement of the liabilities and costs of the plan. The primary issues to consider are as follows.

- **Mortality Rates** – We recommend that at the time of the next experience study, Segal consider the use of a new approach towards mortality assumptions, based on the use of generational mortality assumptions, as opposed to using a margin for future mortality improvement.
- **Inflation and Wage Growth** – We recommend that at the time of the next experience study, the Board consider making further reductions to the inflation and wage growth assumptions.
- **Enhanced Disclosures** - We commend Segal for their inclusion of asset and liability volatility ratios, and recommend they provide the Board with additional disclosures regarding future risks to the pension plan, either within the valuation report or via supplementary presentations and particularly with respect to the volatility associated with investments.

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**SECTION I
EXECUTIVE SUMMARY**

Additional Findings

In addition to the key findings described above, there were a number of less significant findings. These issues are described below.

- We recommend that at the time of the next experience study, Segal consider including in their analysis of demographic experience a summary of data over time periods longer than three years for those assumptions which do not yield a credible data set over a three year period, such as disabilities and Safety healthy post-retirement mortality.
- While Segal discloses the fact that potential liabilities arising from future unallocated earnings were not reflected in the valuation results, we recommend they explain in the valuation report why this is the case.
- We recommend Segal provide more information with respect to adjustments made for the refundability of employee contributions. Segal indicated, for instance, that members' Supplemental UAL contribution rates were increased to reflect the fact that those contributions may be refunded upon termination of employment. We understand the rationale for this, but recommend Segal indicate which components of the member contributions were adjusted and how.

Our understanding is that Segal employed an entry age approach in making these adjustments, but we recommend they consider an alternative for components for which members have generally not contributed towards since their entry into the plan, such as the cost of the Supplemental benefits. An approach based on the additional value of the refunds members are actually expected to receive may yield lower adjustments (i.e., lower employee contribution rates) than the ones currently used by Segal.

- We noticed that the implied funded ratio for Safety Supplemental benefits, based on the outstanding UAL bases shown on page 64 of Segal's valuation report, is considerably less than the funded ratio for General Supplemental benefits, and for the plan as a whole. Our understanding is that Segal relies on reserve balances provided by ICERS to determine the UAL amounts for Supplemental benefits, and that Segal may have inquired as to the reason for this difference. We recommend this issue be investigated further, as the calculated Supplemental UAL directly affects employee contribution rates.
- We recommend Segal provide enhanced liability-related disclosures, including the total normal cost rates by tier and the membership-weighted employee contribution rates by tier, for both Regular and Total benefits (Regular plus Supplemental).

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**SECTION I
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- While we understand ICERS has requested that for the Legacy tiers, Segal show member contribution rates for illustrative entry ages (page v of the June 30, 2013 valuation report), we suggest Segal avoid showing expected contributions in dollars using these rates, since they are not the same as the actual membership-weighted average contribution rates. Similarly, we would not recommend displaying an aggregate member contribution rate for the combined ICERS tiers based on illustrative rates (we have done so only to compare to Segal's results).
- We recommend Segal review whether the age 70 retirement eligibility criteria apply to PEPRA members (see AB 1380).
- In the assumptions section of the valuation report, we recommend Segal clarify which benefits are assumed to be enhanced with the terminal pay loads and/or conversions of sick leave credit to service.
- In the next experience study, we recommend Segal provide a discussion of the retirement age assumption for non-vested terminated members.
- We recommend Segal add a description of the assumption regarding future growth in the PEPRA wage cap.

IMPERIAL COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL AUDIT AND REVIEW OF ASSUMPTION AND METHODS
DECEMBER 31, 2013 ACTUARIAL VALUATION

SECTION II
ACTUARIAL VALUATION AUDIT PROCESS

Cheiron was retained by ICERS to conduct a replication and peer review of the June 30, 2013 actuarial valuation and the most recent demographic and economic experience studies of the Plan performed by Segal Consulting. The replication and peer review was completed over a three-month period commencing in March.

An independent replication is intended to provide ICERS with confidence that there have been no significant miscalculations. In addition, other aspects of the valuation process are reviewed and the independent opinions provided help to ensure that all issues have been addressed and all perspectives have been examined.

Cheiron's replication and peer review process includes the following:

- **Review of census data used.** Valuation results are only as good as the inputs used to generate them. Thus, it is important to analyze the processed data used by Segal and address any inconsistent data. We reviewed the data by reproducing the valuation data based on raw data received from ICERS and comparing our results to Segal's processed data.
- **Replication of liabilities and contribution rates.** By separately programming our valuation system for the same benefits, using the same census data, actuarial cost methods and assumptions as reported in the June 30, 2013 valuation, we can compare and contrast the results developed by Segal. This provides an explicit check of the "*black-box*" valuation process.
- **Assessment of funding sufficiency.** In order to test the effectiveness of the actuarial funding method in providing a systematic and smooth pattern of contributions to fund the Plan, we built our interactive projection and simulation model, P-Scan, and intend to demonstrate it to the Board as part of our audit presentation. With P-Scan, we can explore with the Board different potential economic scenarios to illustrate how the actuarial funding method behaves when stressed.
- **Review of actuarial communications.** We reviewed the actuarial valuation report to ensure that it complies with actuarial standards of practice for communicating actuarial results. This review ensures that the report provides complete and accurate information to the user.

The replication and peer review process is conducted in accordance with generally accepted actuarial principles and methods. The balance of our report presents our detailed findings.

**IMPERIAL COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL AUDIT AND REVIEW OF ASSUMPTION AND METHODS
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**SECTION III
REVIEW OF CENSUS DATA USED**

We received a copy of the ICERS processed data file Segal used for the valuation. We compared key statistics between the file and the June 30, 2013 Actuarial Valuation Report. The tables below summarize our detailed results.

Table III-1 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Data Comparison (General)						
	Segal	Legacy Cheiron	Variance	Segal	PEPRA Cheiron	Variance
Active Members						
Count	1,561	1,561	0.0%	40	40	0.0%
Average Age	43.5	43.5	0.0%	35.4	35.4	0.0%
Average Service	10.4	10.4	0.0%	0.4	0.4	0.0%
Total Salary	\$ 81,147,577	\$ 81,256,618	0.1%	\$ 1,822,913	\$ 1,831,079	0.4%
Average Salary	\$ 51,984	\$ 52,054	0.1%	\$ 45,573	\$ 45,777	0.4%
Vested Terminated Members						
Count	299	300	0.3%	-	-	
Average Age	43.9	43.9	0.0%	N/A	N/A	
Retired Members						
Count	572	570	-0.3%	-	-	
Average Age	69.4	69.5	0.1%	N/A	N/A	
Average Monthly Benefit	\$ 2,514	\$ 2,518	0.2%	N/A	N/A	
Disabled Members						
Count	64	64	0.0%	-	-	
Average Age	67.2	67.2	0.0%	N/A	N/A	
Average Monthly Benefit	\$ 1,500	\$ 1,500	0.0%	N/A	N/A	
Beneficiaries						
Count	128	128	0.0%	-	-	
Average Age	74.2	74.2	0.0%	N/A	N/A	
Average Monthly Benefit	\$ 1,286	\$ 1,286	0.0%	N/A	N/A	

**IMPERIAL COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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**SECTION III
REVIEW OF CENSUS DATA USED**

Table III-2 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Data Comparison (Safety)						
	Segal	Legacy Cheiron	Variance	Segal	PEPRA Cheiron	Variance
Active Members						
Count	307	307	0.0%	11	11	0.0%
Average Age	38.4	38.4	0.0%	27.2	27.2	0.0%
Average Service	10.0	10.0	0.0%	0.2	0.2	0.0%
Total Salary	\$ 19,148,469	\$ 19,202,452	0.3%	\$ 428,178	\$ 429,330	0.3%
Average Salary	\$ 62,373	\$ 62,549	0.3%	\$ 38,925	\$ 39,030	0.3%
Vested Terminated Members						
Count	55	55	0.0%	-	-	
Average Age	36.6	36.6	0.0%	N/A	N/A	
Retired Members						
Count	130	128	-1.5%	-	-	
Average Age	62.5	62.5	0.0%	N/A	N/A	
Average Monthly Benefit	\$ 4,415	\$ 4,407	-0.2%	N/A	N/A	
Disabled Members						
Count	54	54	0.0%	-	-	
Average Age	59.6	59.6	0.0%	N/A	N/A	
Average Monthly Benefit	\$ 2,555	\$ 2,555	0.0%	N/A	N/A	
Beneficiaries						
Count	27	27	0.0%	-	-	
Average Age	65.0	68.7	5.7%	N/A	N/A	
Average Monthly Benefit	\$ 2,200	\$ 2,200	0.0%	N/A	N/A	

IMPERIAL COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL AUDIT AND REVIEW OF ASSUMPTION AND METHODS
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**SECTION IV
REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

After collecting the census data and actuarial assumptions, we programmed our valuation system based on our understanding of the Plan's provisions and performed calculations based on the Segal processed data files. The table below shows the comparison of our independent calculations of the results by group compared to those calculated by Segal.

It is not unusual for there to be differences in the allocation of the total present value of benefits into past and future amounts (the actuarial liability and normal cost, respectively) due to the different valuation systems and minor differences in programming. We are generally not concerned with these differences when they offset each other – i.e., when the projected value of benefits match is close.

Most of the differences shown below are within normal industry standards for an audit. There are several figures outside of the normal 5% industry standard; however, none of them raise material concerns with respect to whether Segal's results are reasonable:

- While our results are well within 5% on both the Regular and Total benefits, our results for the differences *between* them are larger in some cases. However, the difference is heavily leveraged since the value of the Supplemental benefits is relatively small. For instance, our actuarial liabilities are nearly identical to Segal's for the General Regular and Total benefits (0.6% high for Regular and nearly identical for Total), but for the difference between them, our liability is 8.2% lower.

These differences in the liabilities are further leveraged by the assets when the amount of the unfunded actuarial liability is calculated. Imagine a plan which is measured as 100% funded (assets exactly equal to actuarial liabilities) by the Plan's actuary. If the auditing actuary were to determine an actuarial liability 0.1% greater than the Plan's actuary, the differences would clearly be minor, but the *relative* size of the unfunded liability measures would be infinitely different, as the Plan's actuary's estimate of the UAL would be \$0, while auditing actuary's estimate would be a positive number.

Since most of the Supplemental UAL is paid for by the members, these differences do have an impact on employee contribution rates, as shown in Table IV-7. Again, this is largely a product of the degree of leverage.

- For the PEPRA tiers, there are significant percentage differences in the actuarial liability, and smaller differences in the present value of future benefits. However, the dollar amounts are quite small. Further, due to the very small size of the populations, such differences are not uncommon and may result from minor variations in rounding or other methodologies, or even in the data treatment for one or two individuals. As the size of the PEPRA population grows, the percentage differences between different valuation systems should decline significantly. Finally, despite the difference in liabilities, we are well within normal industry standards on the employer contribution rates.

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**SECTION IV
REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

Table IV-1 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Replication of Liabilities (General Legacy) (in thousands)									
	Segal			Cheiron			Variance		
	Regular	Supplemental	Total	Regular	Supplemental	Total	Regular	Supplemental	Total
Present Value of Future Benefits	\$ 589,242	\$ 46,742	\$ 635,983	\$ 594,681	\$ 46,151	\$ 640,832	0.9%	-1.3%	0.8%
Actuarial Liability (AL)									
Active Members	\$ 227,536	\$ 20,324	\$ 247,861	\$ 230,483	\$ 17,608	\$ 248,091	1.3%	-13.4%	0.1%
Vested Terminated Members	18,763	1,209	19,972	19,110	1,175	20,285	1.9%	-2.8%	1.6%
Retirees and Beneficiaries	<u>215,974</u>	<u>12,666</u>	<u>228,640</u>	<u>215,371</u>	<u>12,617</u>	<u>227,988</u>	-0.3%	-0.4%	-0.3%
Total AL	\$ 462,273	\$ 34,200	\$ 496,473	\$ 464,964	\$ 31,400	\$ 496,364	0.6%	-8.2%	0.0%
Total Salary	\$ 81,148	\$ 81,148	\$ 81,148	\$ 81,257	\$ 81,257	\$ 81,257	0.1%	0.1%	0.1%
Present Value of Future Salaries	\$ 708,142	\$ 708,142	\$ 708,142	\$ 717,204	\$ 717,204	\$ 717,204	1.3%	1.3%	1.3%

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**SECTION IV
REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

Table IV-2 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Replication of Liabilities (Safety Legacy) (in thousands)									
	Segal			Cheiron			Variance		
	Regular	Supplemental	Total	Regular	Supplemental	Total	Regular	Supplemental	Total
Present Value of Future Benefits	\$ 198,824	\$ 36,943	\$ 235,768	\$ 202,284	\$ 37,237	\$ 239,521	1.7%	0.8%	1.6%
Actuarial Liability (AL)									
Active Members	\$ 60,602	\$ 13,464	\$ 74,067	\$ 61,822	\$ 11,767	\$ 73,589	2.0%	-12.6%	-0.6%
Vested Terminated Members	2,900	505	3,405	3,004	465	3,469	3.6%	-8.0%	1.9%
Retirees and Beneficiaries	<u>94,392</u>	<u>15,776</u>	<u>110,168</u>	<u>94,038</u>	<u>15,714</u>	<u>109,752</u>	-0.4%	-0.4%	-0.4%
Total AL	\$ 157,894	\$ 29,745	\$ 187,640	\$ 158,864	\$ 27,945	\$ 186,810	0.6%	-6.1%	-0.4%
Total Salary	\$ 19,148	\$ 19,148	\$ 19,148	\$ 19,202	\$ 19,202	\$ 19,202	0.3%	0.3%	0.3%
Present Value of Future Salaries	\$ 162,864	\$ 162,864	\$ 162,864	\$ 168,726	\$ 168,726	\$ 168,726	3.6%	3.6%	3.6%

**IMPERIAL COUNTY EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL AUDIT AND REVIEW OF ASSUMPTION AND METHODS
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**SECTION IV
REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

Table IV-3				
Imperial County Employees' Retirement System				
Actuarial Valuation as of June 30, 2013				
Replication of Liabilities (General PEPR)				
(in thousands)				
	Segal	Cheiron	Variance	
Present Value of Future Benefits	\$ 2,615	\$ 2,767	5.8%	
Actuarial Liability (AL)				
Active Members	\$ 168	\$ 214	27.4%	
Vested Terminated Members	-	-		
Retirees and Beneficiaries	-	-		
Total AL	<u>\$ 168</u>	<u>\$ 214</u>	27.4%	
Total Salary	\$ 1,823	\$ 1,831	0.4%	
Present Value of Future Salaries	\$ 16,070	\$ 16,346	1.7%	

Table IV-4				
Imperial County Employees' Retirement System				
Actuarial Valuation as of June 30, 2013				
Replication of Liabilities (Safety PEPR)				
(in thousands)				
	Segal	Cheiron	Variance	
Present Value of Future Benefits	\$ 1,003	\$ 1,056	5.3%	
Actuarial Liability (AL)				
Active Members	\$ 22	\$ 52	133.3%	
Vested Terminated Members	-	-		
Retirees and Beneficiaries	-	-		
Total AL	<u>\$ 22</u>	<u>\$ 52</u>	133.3%	
Total Salary	\$ 428	\$ 429	0.3%	
Present Value of Future Salaries	\$ 4,537	\$ 4,661	2.7%	

**IMPERIAL COUNTY EMPLOYEES' RETIREMENT SYSTEM
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**SECTION IV
REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

As part of the actuarial valuation, Segal calculates an employer contribution rate as a level percent of payroll. We understand the employer's contribution rate to be made up of the following components:

- The employer's normal cost, which is equal to the total normal cost attributed to the Regular benefits (for PEPRA members, the entire normal cost), offset by expected member contributions for Regular benefits,
- The amortization of the unfunded actuarial liability for Regular and PEPRA benefits (amortized over 18 years as of June 30, 2013) and changes in the unfunded actuarial liability (amortized over 15 years), and
- For Safety, the amortization of one-third of the unfunded actuarial liability for the Supplemental benefits for Safety members (amortized over 18 years as of June 30, 2013), as calculated in the June 30, 2006 valuation.

In determining the unfunded actuarial liability Segal relies on reserve balances provided by ICERS, which we have not audited.

We replicated the development of the contribution rate for each group as illustrated below. The differences in the total employer contribution rates shown below are within normal industry standards for an audit.

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**SECTION IV
REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

Table IV-5 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Replication of Employer Contribution Rates (General)						
	Legacy			PEPRA		
	Segal	Cheiron	Variance	Segal	Cheiron	Variance
Employer Normal Cost Rate	12.88%	12.30%	-4.5%	8.48%	8.42%	-0.7%
Employer UAL Amortization Rate	<u>4.32%</u>	<u>4.60%</u>	6.5%	<u>4.32%</u>	<u>4.60%</u>	6.5%
Total Employer Contribution Rate	17.20%	16.90%	-1.8%	12.80%	13.02%	1.8%

Table IV-6 Imperial County Employees' Retirement System Actuarial Valuation as of June 30, 2013 Replication of Employer Contribution Rates (Safety)						
	Legacy			PEPRA		
	Segal	Cheiron	Variance	Segal	Cheiron	Variance
Employer Normal Cost Rate	17.55%	17.06%	-2.8%	11.29%	10.85%	-3.9%
Employer UAL Amortization Rate	<u>5.80%</u>	<u>6.23%</u>	7.5%	<u>5.80%</u>	<u>6.23%</u>	7.5%
Total Employer Contribution Rate	23.35%	23.29%	-0.2%	17.09%	17.09%	0.0%

**SECTION IV
REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

Employee Contribution Rates

As part of the audit, we attempted to replicate the calculations of the individual employee contribution rates based on the applicable provisions of the County Employees Retirement Law (the CERL) and our understanding of cost-sharing that was agreed to with respect to the Supplemental benefits. For the Legacy tiers, we understand the employee contribution rates to be made up of the following components:

- A Basic rate providing for an annuity equal to 1/100th (Safety) or 1/120th (General) of Final Average Compensation at a retirement age of 50 (Safety) or 55 (General),
- A COLA rate providing for one-half of the cost of the COLA for the Regular benefits, and
- The normal cost rate attributable to the Supplemental benefits, as well as an amortization of the unfunded actuarial liability for Supplemental benefits (amortized over 18 years as of June 30, 2013). For Safety, one-third of the unfunded actuarial liability for the Supplemental benefits for Safety members (amortized over 18 years as of June 30, 2013), as calculated in the June 30, 2006 valuation, is paid for by the employer.

We also understand that for the Legacy tiers, the employer has agreed to pay for (pickup) a portion of the member's contribution rate (3%).

For the PEPRA members, the employee contribution rates are equal to 50% of the total normal cost rate, plus an amortization of the unfunded actuarial liability for Legacy members' Supplemental benefits as described above. Generally, pickup of member contributions is not allowed for members hired after the effective date of PEPRA (January 1, 2013).

We understand that the ICERS Board gave significant consideration as to whether PEPRA members should contribute towards the Supplemental UAL for Legacy members, and we were provided with a letter from Public Pension Consultants dated January 16, 2014 analyzing this matter. We concur with the letter's conclusion that PEPRA members are permitted to contribute more than 50% of the normal cost if agreed to through collective bargaining, and that no violations of Actuarial Standards of Practice arise by doing so.

There is a legitimate concern that PEPRA members may question why they are contributing towards benefits they will not receive. However, we do not take issue with the approach the Board adopted, as the closure of the Legacy tiers to new hires could eventually lead to dramatic swings in the Supplemental UAL rate as the size of the population diminishes.

One alternative that may or may not be feasible would be to redefine how the Supplemental UAL is measured for purposes of developing member contribution rates. For instance, when one 1937 Act system we work with enhanced benefits several years ago, it was agreed that members who received the benefit enhancement would pay a fixed rate towards the cost of those benefits, with the county taking responsibility for subsequent gains or losses.

Finally, below we show a comparison of our employee contribution rates to Segal's for each of the four groups. As discussed earlier, the differences are noticeable due to the amount of leverage in the Supplemental UAL. If we were to exclude the Supplemental UAL contributions from the comparison, we would be within 4% for all four groups and within 0.5% in total.

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**SECTION IV
 REPLICATION OF LIABILITIES AND CONTRIBUTION RATES**

Table IV-7			
Imperial County Employees' Retirement System			
Actuarial Valuation as of June 30, 2013			
Replication of Employee Contribution Rates			
	Segal	Cheiron	Variance
General Legacy*	9.30%	8.97%	-3.5%
General PEPRA	8.92%	8.53%	-4.4%
Safety Legacy*	18.50%	17.86%	-3.5%
Safety PEPRA	14.62%	13.29%	-9.1%
Total	11.03%	10.64%	-3.5%

* Rates for entry ages of 33 (General Legacy) and 28 (Safety Legacy)

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**SECTION V
ASSUMPTIONS AND METHODS REVIEW**

We reviewed the actuarial assumptions and methods used in the June 30, 2013 actuarial valuation and the analysis performed by Segal for the three-year experience study during the period from July 1, 2010 through June 30, 2013. Since the ICERS Board adopted the most recent demographic and economic assumptions recommended by Segal Consulting at its March 19, 2014 meeting, with the exception of incorporating an explicit load for administrative expenses, we have focused our attention on the actuarial assumptions in those studies, rather than the assumptions in the June 30, 2013 valuation. However, our high-level review of the assumptions in the June 30, 2013 valuation did not reveal anything that appeared to be unreasonable. It should be noted the setting of assumptions involves a great deal of professional judgment and is both art and science. Two actuaries reviewing the same experience may reach different conclusions with respect to recommendations of actuarial assumptions. It is not our intent to substitute our judgment for the judgment of the consulting actuary to ICERS. Rather, it is our intent to determine whether the actuarial assumptions are reasonable based upon all of the data available, and in some cases even when the current assumptions may be reasonable to present alternatives for Segal and ICERS to consider.

Economic Assumptions

Investment Return Assumption

After reviewing the June 30, 2013 economic experience study and the discussion at the March 19, 2014 ICERS Board meeting, we conclude that the rate of return that will be used in the next valuation – 7.5%, net of expected investment expenses – is a reasonable assumption and satisfies the current relevant actuarial standards of practice.

We independently collected information from the Plan's investment advisor (Wurts & Associates) and performed an analysis of the Plan's target asset allocation as specified in the asset allocation study dated January 2013. Using the investment advisor's return, volatility and correlation assumptions for each asset class, and adjusting for differences in the investment advisor's versus the Plan's inflation assumptions (2.40% versus 3.25%) a simulation of the Plan's portfolio resulted in an average geometric return of 7.29%.

Assuming the returns on the asset classes provided by the investment advisor are representative of indexed returns, we would assume that the investment expenses on a passively managed portfolio would be minimal (less than 0.10% of assets), producing an average geometric return of approximately 7.20%. The adopted rate of return of 7.50% is therefore slightly above the median of expense-adjusted returns, meaning there is a less than 50% chance of achieving higher returns and a greater than 50% chance of achieving lower returns, based on ICERS' investment advisor's capital market expectations.

However, Segal notes that its analysis is based on the average real return from a sample of its California public sector systems, which is slightly higher than Wurts' expectations. Also, Segal's model is based on the use of arithmetic returns, which are slightly higher than geometric returns. In contrast to the use of an expected geometric return, which would be sufficient to fund an obligation 50% of the time, use of an expected arithmetic return would be anticipated to

SECTION V
ASSUMPTIONS AND METHODS REVIEW

accumulate assets sufficient to fund an obligation, but may fall short more than half the time. Neither measure is inherently better than the other, but it is important is to be aware of the difference and comfortable with the measure being used.

We note that a revised version of the Actuarial Standard of Practice (ASOP) governing the selection of the discount rate – ASOP 27 – has been adopted by the Actuarial Standards Board and will be effective beginning with the June 30, 2015 actuarial valuation. We believe that the methodology employed by Segal is generally consistent with the revised standard of practice. However, Segal may need to provide additional disclosures to fully satisfy the standard's documentation requirements.

Investment Expenses

Traditionally, the expected rate of return on pension assets is expressed net of investment expenses. As a result, actuaries will typically adjust expected asset class returns for anticipated investment expenses when setting the overall assumption rate. Segal has followed this practice in their Review of Economic Assumptions: they computed an average level of investment expenses of 0.48% over the past three years, and reduced the expected overall investment return by a similar amount.

This level of expenses is based on recent investment policies, which include a significant amount of active management. However, the average real returns collected by Segal from various investment consultants are stated to be based on indexed (or passively managed) returns – which would generally reflect investment expenses significantly lower than 0.48%. As a result, Segal is using an investment return assumption based on passive investing, but reflecting active management expenses, in essence assuming *negative* alpha.

Actuarial Standard of Practice 27 indicates that actuaries should generally not assume inferior (or superior) performance for an actively-managed portfolio. Segal offers two reasons to explain why it has taken this approach. First, Segal's final adjustment to reflect investment and administrative expenses is slightly lower than the three-year average, so implicitly it may reflect expenses based on passive management to a certain degree. Second, Segal indicates that to the extent the investment return assumption produced by their model would otherwise be higher as a result of lower assumed investment expenses, the recommended assumption can be seen as having a higher level of confidence (or margin for conservatism) than otherwise stated.

While our preference would be to develop expected returns and expected investment expenses on a consistent basis, we think Segal's approach ultimately produces a reasonable investment return assumption, as described above.

Administrative Expenses

In their experience study report, Segal recommended that the investment return assumption continue to be net of administrative expenses, due to the complications that could arise in allocating them between the employer and employees under an explicit approach (i.e., where there is a separate cost item for administrative expenses). However, we understand that at the March 19, 2014 ICERS Board meeting, Segal changed their recommendation to an explicit

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approach, with the assumption that administrative expenses would be 1.2% of payroll. We further understand that the allocations of 0.75% for the employer and 0.45% for employees were developed by Segal based on the employer and the employees' overall share of the contributions.

We have used the same explicit approach with several of the 1937 Act systems, as it has a number of advantages over the approach Segal originally recommended.

As Segal noted in their assumption review, the new GASB Statements 67 and 68 require the use of an investment return assumption *for financial statement purposes* which is not net of administrative expenses. Instead, the administrative expenses will be recognized as a separate line item in the calculation of pension expense under the new Statements.

Many pension plans use a similar approach for funding administrative expenses: a separate charge is added to the actuarially-determined contribution amount for the expected annual cost of administrative expenses, which we will refer to as the line item approach. Although the Plan is not bound by the GASB statements for determining liabilities or contributions for funding purposes, there will almost certainly be benefits from an administrative and communications perspective in using the same discount rate for funding and accounting purposes.

From an administrative standpoint, there will be fewer liabilities to track and publish, and potentially reduced actuarial expenses, if a single discount rate and liability measure can be used. From a communications perspective, the use of a single discount rate for funding and accounting purposes will reduce the potential for confusion and the need to explain any discrepancy between accounting and funding liabilities and funded ratios.

Finally, we believe there is also an actuarial advantage to the use of an approach of adding the expected administrative expenses to the required contributions directly, as opposed to adjusting the discount rate. Under the line item approach, the administrative expenses can be directly expressed as a percentage of payroll, which is generally expected to grow at a rate related to inflation, perhaps increased by the "real" wage growth assumption. Under the net discount rate approach, the adjustment to the discount rate is based on the size of the assets.

While the rate of growth in administrative expenses and payroll can be expected to be at least partially related over time, the ratio between assets and administrative expenses will not be expected to grow at similar rates, particularly if the plan is under- or over-funded. As a result, the line item approach is more likely to result in a relatively stable cost as a percentage of payroll than the net discount rate approach.

Inflation

Segal recommended a reduction in the assumed rate of inflation from 3.50% to 3.25% in the June 30, 2013 experience study. We concur with the change as well as the rationale and process that led to the recommendation. We would recommend that at the time of the next review of economic assumptions, if the markets and forecasters continue to indicate lower expectations of future inflation, the Board may wish to consider further reductions in the assumption.

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ASSUMPTIONS AND METHODS REVIEW

Wage Inflation

Segal recommended a reduction in the assumed wage inflation from 4.00% to 3.75% in the June 30, 2013 experience study. Wage inflation is comprised of price inflation plus an across-the-board increase, so decreasing the inflation assumption by 0.25% results in a similar decrease in the wage inflation. Segal maintained the across-the-board component of 0.50%. Although this is certainly a reasonable assumption given the historical data and forward-looking information cited by Segal in their assumption review, we would note that many public sector systems have reduced their expectations for across-the-board (or “real”) wage growth, given the financial pressures for many public sector employers.

In addition, some of the outside sources of expectations regarding real wage growth – such as the Social Security expectations referenced by Segal in their assumption review – have focused on the increases in *mean* wages. However, there are reasons to believe that public sector wages may follow the growth in *median* wages, which has traditionally lagged behind the growth in mean wages. The Office of the Chief Actuary for Social Security has a helpful explanation of this phenomenon (<http://www.ssa.gov/oact/cola/central.html>).

Finally, at least over the short to medium term, it is expected that other areas of employee compensation – most notably health care costs – are expected to increase faster than general inflation. This is likely to crowd out other possible increases in compensation, including wage growth.

Therefore we recommend consideration of a reduction in the across-the-board wage increase assumption at the time of the next economic assumption review.

Cost-of-Living Adjustments (COLA)

Segal recommended the COLA assumption remain at 2.00%. This is consistent with the recommended inflation assumption of 3.25%, in the sense that if inflation is equal to 3.25% every year, the COLA will always be 2.00%.

For some systems, particularly those with maximum COLAs close to the inflation assumption, we have instead recommended a COLA assumption lower than the maximum, as simulations we have performed suggest that expected growth in the COLA will be less than the maximum due to annual variation in inflation, even if the inflation assumptions is met over the long term. However, the greater the difference between expected inflation and the maximum COLA, the less significant the effect is likely to be. Therefore, we think Segal’s recommendation of 2.00% is reasonable.

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ASSUMPTIONS AND METHODS REVIEW

Demographic Assumptions

Mortality Assumption

The mortality assumptions recommended by Segal as part of the most recent Actuarial Experience Study – the RP-2000 Combined Healthy Tables, projected to 2019 using Scale BB, with ages set forward two years for General males and one year for General females – are reasonable and contain a margin of conservatism for future improvement. The experience for Safety members is very limited, but Segal's recommended assumption, which is the same as for General members but using only a one year set forward for Safety males and no adjustment for Safety females, is also reasonable.

However, the use of a projection to a future year combined with a set forward, in which the mortality rate used for each age is based on the original table's rate for a later age (e.g., if there is a one year set forward, the rate used for age 65 would be based on the original table's age 66 rate), presents somewhat of an illusion of expected mortality improvement. As Segal notes, they have increased the life expectancy for Safety members slightly, and have actually *decreased* it slightly for General members. Available evidence, including the Scale BB report issued by the Society of Actuaries, suggests mortality has long been improving and is expected to continue to improve in the future.

While the table for General members still has a margin for future mortality improvement – the traditional 10% margin used by actuaries – we suggest Segal consider using a generational mortality assumption at the time of the next experience study. The idea behind a generational mortality assumption is to build in an automatic expectation of future improvements in mortality. This is a different approach from building in a margin for conservatism in the current rates to account for the expectation that the same rates will be applied in future years, when mortality experience has improved.

Recent changes to Actuarial Standards of Practice suggest that using generational mortality is a preferable approach, as it allows for an explicit declaration of the amount of future mortality improvement included in the assumptions. We note that several '37 Act systems have recently made a change to using such a generational approach, which often results in a material increase in costs, corresponding to a margin in the range of 20-30%, as compared to the traditional 10%.

We note that the Society of Actuaries has developed a replacement to the RP2000 mortality tables and a new mortality improvement scale, and recently issued an exposure draft of their study for comments. If the replacement tables are available at the time of the next experience study, we recommend Segal include them in their analysis. As an alternative, since the replacement tables do not reflect data from public sector plans, Segal could look to the rates developed by CalPERS for their actuarial valuations.

A final recommendation on mortality rates would be to encourage Segal to review the impact of benefit size on mortality rates, in addition to reviewing the experience based on gender and retirement status. Based on our recent review of mortality among a number of '37 Act systems, we have found a significant impact on the analysis of mortality rates, as members with higher

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benefits tend to live longer. If not taken into account, this can lead to underestimations of liability, even if the number and timing of deaths is accurately predicted for the group as a whole. Both the RP2000 mortality tables and the replacement tables from the Society of Actuaries were developed using benefit weighting.

Retirement Assumption

We did not review the data supporting the retirement assumptions developed by Segal as part of the most recent Analysis of Actuarial Experience. The rates recommended by Segal appear reasonable based on the experience presented in their report, and when compared to the retirement rates being used by other '37 Act systems.

Termination Assumptions

We support Segal's practice of analyzing the probability that a terminated member will either receive a refund or a deferred vested retirement, and we concur with the revisions to the rates given the evidence provided. We also support their recommendation to cut off termination rates once a member is eligible and assigned a probability of taking a service retirement.

All Other Demographic Assumptions

In addition to the assumptions above, we reviewed all the other demographic assumptions and report that they appear to be reasonable based on the analysis presented in the June 30, 2013 experience study. However, for those assumptions for which the number of decrements observed during a three-year period is relatively small – such as disabilities and Safety healthy post-retirement mortality – we recommend that Segal consider presenting an analysis of the experience over a longer time period, such as six years (i.e. combining two experience study periods) – in order to develop a more robust dataset from which to extrapolate assumptions. We understand that Segal is implicitly reflecting experience over such a time period by only partially adjusting the prior assumptions towards more recent experience, but still believe that presenting the data would help users of the report evaluate whether the recommended assumptions are reasonable.

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ASSUMPTIONS AND METHODS REVIEW

Actuarial Methods

Actuarial Funding Method

The individual Entry Age actuarial cost method is used in the June 30, 2013 actuarial valuation. Under this method, the expected cost of benefits for each individual member is allocated over that member's career as a level percentage of that member's expected salary. The normal cost for the plan is the sum of the individual normal costs calculated for each member. We concur with this methodology and note that it is a "Model Practice" based on the guidance issued by the California Actuarial Advisory Panel (CAAP), and a "Best Practice" based on guidance issued by the Government Finance Officers Association.

Asset Smoothing Method

ICERS smoothes assets over a five-year period, or 10 six-month interest crediting periods, with a corridor of 30% around the market value of assets. Actuarial Standard of Practice 44 requires the actuary to consider whether the smoothed value of assets falls within a reasonable range around the market value and if the differences between the smoothed value and market value will be recognized within a reasonable period of time. We believe the smoothing method used by ICERS satisfies this ASOP. We have also confirmed that Segal has applied the smoothing method as described in the valuation report.

We commend Segal for including the funded ratio, unfunded liability and employer contribution rate using both the market value and smoothed value of assets in their report. These disclosures are included in the "Model Disclosure Elements for Actuarial Valuation Reports" adopted by the CAAP.

Amortization Policy

The current Amortization Policy for ICERS is a layered amortization policy, with the balance of the unfunded liability as of June 30, 2012 amortized as a level percentage of payroll over a closed 19-year period, and with each subsequent year's unfunded liability attributable to experience gains or losses amortized as a level percentage of payroll over a new closed 15-year period. Assumption changes, plan amendments, and early retirement incentive programs will be amortized over 20 years, 15 years and five years, respectively. This amortization method satisfies the current GASB standards for determining the Annual Required Contribution (ARC), and is also in accordance with the recent funding policy guidance issued by the CAAP and GFOA.

However, we note that the shorter the amortization periods, the more potential for contribution volatility when a significant gain or loss occurs, especially with plans close to being fully funded. If Segal has not already done so, we encourage them to ensure that the Board is comfortable with the level of contribution volatility that could arise from the amortization periods in effect. We also intend to use our interactive projection model, P-Scan, to illustrate this to the Board during the presentation of the audit.

SECTION VI
REVIEW OF ACTUARIAL COMMUNICATIONS

Actuarial communications should be clear and appropriate for their intended audience. In particular, an actuarial valuation report should identify the principal findings and describe the data, methods, assumptions, and plan provisions on which the actuarial valuation is based. We reviewed the report for compliance with both the Actuarial Standards of Practice (ASOP) as well as the model disclosures recommended by the California Actuarial Advisory Panel (CAAP). Our review of Segal's valuation report finds substantial compliance with these requirements.

We do have some suggestions for where improvements could be made, or where certain elements of the Report or the Plan provisions should be reviewed.

- ASOP 41 (*Actuarial Communications*) states: "The actuary should consider what cautions regarding possible uncertainty or risk in any results should be included in the actuarial report." We commend Segal for adding an exhibit to the most recent valuation report (in Section 2F) reporting and explaining the Plan's Volatility Ratios, as recommended in the CAAP model disclosure document.

However, we recommend that Segal continue to expand on the discussions of risk, either within the valuation report or through other supplementary communications with the Board. The CAAP document includes other suggestions for "enhanced risk disclosures", such as sensitivity analyses, deterministic stress test projections and stochastic or probabilistic analyses, that may give the Board a better understanding of the risks associated with funding the pension plan.

- In the valuation report (page ii) Segal discloses the fact that potential liabilities arising from future unallocated earnings were not reflected in the valuation results. Given the substantial negative contingency reserve (over \$33 million), as well as the Board's interest crediting and undistributed earnings policy, which allows unallocated earnings to be used for purposes other than increasing benefits, we believe it is reasonable for Segal to have not computed any additional liability or made any adjustment to the discount rate to account for any additional benefits the Board may grant. However, we recommend Segal include an explicit statement in the valuation report that they have considered the possibility of additional liabilities arising from future unallocated earnings, and believe it to be de minimis with respect to the funding and future benefits of the Plan.
- We recommend Segal provide more information with respect to adjustments made for the refundability of employee contributions. Segal indicated, for instance, that members' Supplemental UAL contribution rates were increased to reflect the fact that those contributions may be refunded upon termination of employment. We understand the rationale for this, but recommend Segal indicate which components of the member contributions were adjusted and how.

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REVIEW OF ACTUARIAL COMMUNICATIONS

Our understanding is that Segal employed an entry age approach in making these adjustments, but we recommend they consider an alternative for components for which members have generally not contributed towards since their entry into the plan, such as the cost of the Supplemental benefits. An approach based on the additional value of the refunds members are actually expected to receive may yield lower adjustments (i.e., lower employee contribution rates) than the ones currently used by Segal.

- We recommend Segal provide enhanced liability-related disclosures in the valuation report, including the total normal cost rates by tier and the membership-weighted employee contribution rates by tier, for both Regular benefits and Total benefits.
- While we understand ICERS has requested that for the Legacy tiers, Segal show member contribution rates for illustrative entry ages (page v of the June 30, 2013 valuation report), we suggest Segal avoid showing expected contributions in dollars using these rates, since they are not the same as the actual membership-weighted average contribution rates. Similarly, we would not recommend displaying an aggregate member contribution rate for the combined ICERS tiers based on illustrative rates (we have done so only to compare to Segal's results).
- The valuation report (page 51) describes the service retirement eligibility conditions for the General PEPRA members as age 52 with 5 years of service credit, and the Safety PEPRA members as age 50 with 5 years of service credit. The eligibility criterion of reaching age 70, regardless of service, is not included in the PEPRA eligibility conditions. The recently passed PEPRA clarification bill for systems governed by the CERL (AB 1380) has clarified that the age 70 criteria should also apply to the PEPRA members.
- In the assumptions section of the valuation report, we recommend Segal clarify which benefits are assumed to be enhanced with the terminal pay loads and/or conversions of sick leave credit to service.
- Segal's June 30, 2013 experience study did not contain a discussion of the retirement age assumption for non-vested terminated members. We note that it is somewhat unusual to assume such members will leave their contributions on deposit until retirement age. Generally, such members are assumed to withdraw their contributions immediately, and if the employee contribution crediting rate is less than the assumed investment return (which is the case for ICERS), this is the more conservative approach. Segal's assumption may be reflective of actual experience, but we recommend they document and analyze this in their next experience study.
- The valuation report should disclose the assumption used to project future growth in the dollar amount of wage cap applicable to PEPRA members.

**APPENDIX A
GLOSSARY**

1. Actuarial Assumptions

Estimates of future experience with respect to factors such as mortality, disability, turnover, retirement, investment income and salary increases. Demographic assumptions (such as rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (such as salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

2. Actuarial Gain (Loss)

The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial funding method.

3. Actuarial Accrued Liability

The Actuarial Accrued Liability is the difference between the present value of all future system benefits and the present value of total future normal costs. The Actuarial Accrued Liability represents the budgeted cost for benefits attributed to service prior to the valuation date by the Entry Age Actuarial Cost Method. It is also referred to by some actuaries as the “accrued liability” or “actuarial liability”.

4. Actuarial Present Value

The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

5. Actuarial Value of Assets

The Actuarial Value of Assets equals the Market Value of Assets adjusted according to the smoothing method adopted by the Plan. The smoothing method is intended to smooth out the short-term volatility of investment returns in order to stabilize contribution rates and the funded status reported under GASB 25 and 27.

6. Entry Age Actuarial Cost Method

A mathematical budgeting procedure that allocates the cost of an individual's retirement trust benefits as a level percentage of pay over his or her working career.

7. Funded Status

The Actuarial Value of Assets divided by the Actuarial Accrued Liability. The Funded Status represents the percentage of assets in the Trust compared to the budgeted amount under the Entry Age Actuarial Cost Method. The Funded Status can also be calculated using the Market Value of Assets.

**APPENDIX A
GLOSSARY**

8. Governmental Accounting Standards Board

The Governmental Accounting Standards Board (GASB) defines the accounting and financial reporting requirements for governmental entities. GASB Statement No. 25 (No. 67 for fiscal years beginning after June 15, 2013) defines the trust accounting and financial reporting for governmental pension plans, and GASB Statement No. 27 (No. 68 for fiscal years beginning after June 15, 2014) defines the employer accounting and financial reporting for participating in a governmental pension plan.

9. Market Value of Assets

The fair value of the Trust's assets assuming that all holdings are liquidated on the measurement date.

10. Normal Cost

The actuarial present value of retirement system benefits allocated to the current year by the actuarial funding method.

11. Present Value of Future Benefits

The estimated amount of assets needed today to pay for all benefits promised in the future to current members of the Trust assuming all Actuarial Assumptions are met.

12. Present Value of Future Normal Costs

The Actuarial Present Value of retirement system benefits allocated to future years of service by the Entry Age Actuarial Cost Method.

13. Unfunded Actuarial Liability (UAL)

The difference between Actuarial Liability and the Actuarial Value of Assets. The UAL represents the shortfall of assets in the trust compared to the budgeted amount under the Entry Age Actuarial Cost Method. The UAL can also be calculated using the Market Value of Assets.