Imperial County Employees' Retirement System (ICERS)

Actuarial Review of the June 30, 2022 Actuarial Valuation and July 1, 2019 - June 30, 2022 Actuarial Experience Study

Produced by Cheiron

August 2023

TABLE OF CONTENTS

Via Electronic Mail

August 11, 2023

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

Members of the Board,

Cheiron is pleased to present the results of our actuarial audit of the June 30, 2022 actuarial valuation of the Imperial County Employees' Retirement System (ICERS, the System) and our peer review of the triennial Experience Study covering the period from July 1, 2019 to June 30, 2022, both performed by Segal Consulting (Segal). 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 No. 23. A detailed description of all information provided for this review is provided in the body of our report.

Cheiron utilizes ProVal actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have a basic understanding of ProVal and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this valuation.

We hereby certify that this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. 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.

Board of Retirement
Imperial County Employees' Retirement System
August 11, 2023

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

Anne D. Harper, FSA, EA, MAAA
Principal Consulting Actuary

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

Heather Fantz, FSA, EA, MAAA
Consulting Actuary

SECTION I – EXECUTIVE SUMMARY

Scope of Assignment

Cheiron performed a complete independent replication of the ICERS June 30, 2022 actuarial valuation and reviewed the actuarial methods underlying that valuation. We reviewed the census data provided by ICERS staff and compared it to the information used by Segal in their valuation. We then performed a full parallel valuation, including the calculation of the projected benefits, accrued liability, and normal cost for all ICERS members, and compared the results to those shown in Segal's actuarial valuation report.

Additionally, Cheiron performed a review of the assumptions recommended by Segal for the June 30, 2023 valuation, as reflected in the actuarial experience study covering the period from July 1, 2019 through June 30, 2022. This review did not constitute a full replication of the experience study; it was focused on a review of the recommendations and communications from Segal, based on the information provided within the study and on additional data provided by Segal based on follow-up requests.

This audit provides ICERS confirmation that:

- The results reported by Segal can be relied upon,
- Segal's actuarial valuation report, assumptions, and methods comply with Actuarial Standards of Practice (ASOPs),
- The communication of the actuarial valuation results is complete and reasonable, and
- The Board and Segal have considered recommendations and communications that may improve the valuation and experience study.

This section summarizes our review of the actuarial valuation and experience study and our recommendations.

Key Findings and Recommendations

The main findings of our review are as follows:

- As a result of our efforts, we are able to confirm that the liabilities and costs computed in the valuation as of June 30, 2022 are reasonably accurate and were computed in accordance with generally accepted actuarial principles.
- We have reviewed the economic and demographic assumptions recommended in the most recent Actuarial Experience Study presented by Segal. In general, we have found them to be reasonable and in accordance with generally accepted actuarial principles.

We found two technical issues with the calculation of the Safety Legacy contribution rates and the service used to determine eligibility for ICERS retirement benefits.

- Segal made an adjustment of 0.09% to the employer contribution rate for the Safety legacy group to account for active members who have reached 30 years of service and will no longer make employee contributions, reflecting an increase of 0.06% to the

Normal Cost and 0.03% to the Unfunded Actuarial Liability (UAL) associated with the Supplemental benefit, as shown on page 37 of their 2022 actuarial valuation report. We calculated a total adjustment of 0.38%, which includes the "pickup" contributions for one active member with more than 30 years of service as of the valuation date and an additional member who is expected to have 30 years of service near the beginning of fiscal year June 30, 2022. Using this higher adjustment would increase the Safety Legacy employer contribution rate by 0.29%.

- Segal does not include potential service earned from a reciprocal System to determine when a member is eligible for ICERS benefits. We understand that this service is not explicitly provided by the System, but ICERS does provide each member's age of entry for determining member contribution rates which could be used as a proxy to calculate reciprocity service. ICERS liabilities may be slightly underestimated since some members would be eligible to retire earlier if their reciprocal service were recognized.

Overall, the actuarial assumptions proposed in Segal's Actuarial Experience Study and adopted by the Board at their April 19, 2023 meeting are reasonable and in accordance with the actuarial standards of practice. In particular, certain recommendations from our prior review of Segal's Experience Study have been incorporated (e.g., the study of benefit-weighted mortality amounts, the use of generational mortality assumptions, and the application of credibility techniques when developing mortality assumptions). The following, however, are suggestions for Segal to consider with their next Actuarial Experience Study.

- Review assumed retirement age for inactive members separately for those with and without outgoing reciprocity.
- Separately review the proportion of total terminations assumed to receive a refund of member contributions for General and Safety members. We have seen that Safety refund rates are generally much lower than the General refund rates. In addition, if the six-year trend showing fewer actual refunds than expected continues, lower refunds rates should be strongly considered.
- Currently, there are separate General retirement rates for Legacy active members with less than 30 years of service and for those with 30 or more years of service. We suggest that Segal review the Safety Legacy members' retirement patterns separately based on different service levels as well.

Valuation Procedures

Overall, we find that the June 30, 2022 actuarial valuation procedures applied in the reporting of the funded status and the determination of the funding requirements based on the current funding policies and adopted assumptions are technically reasonable and conform to the ASOPs. This is based on our review of: the valuation report, the census data used in the valuation and our parallel valuation using the information described above.

Valuation Results

Our independent replication of the June 30, 2022 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 based on the adopted assumptions and methods. For the scope of this audit, materiality means the results in the aggregate were within industry standards of plus or minus 5%. Our replication of the measures of plan liabilities and contributions is summarized in Table I-1 and Table I-II below. We note that all of the results are well within 5% of Segal's calculations. More detailed information can be found in Section II.

Table I-1
June 30, 2022 Valuation - Replication of Liabilities
(in thousands)

	Segal	Cheiron	Variance
Present Value of Future Benefits	$ 1,470,454	$ 1,470,955	0.0%
Actuarial Liability (AL)			
Active Members	$ 466,086	$ 465,130	-0.2%
Vested Terminated Members	62,409	62,407	0.0%
Retirees and Beneficiaries	648,227	647,030	-0.2%
Total AL	$ 1,176,722	$ 1,174,568	-0.2%
Valuation Value of Assets	1,091,781	1,091,781	0.0%
Unfunded Actuarial Liability (UAL)	$ 84,941	$ 82,787	-2.5%
Funded Ratio	92.8%	93.0%	
Total Salary	$ 134,257	$ 134,920	0.5%

SECTION I – EXECUTIVE SUMMARY

Table I-2
June 30, 2022 Valuation - Replication of Employer Contribution Rates

	Segal	Cheiron	Variance
Total Normal Cost Rate	25.88%	25.51%	-1.4%
Member Contribution Rate (Normal Cost)[1]	11.89%	11.56%	-2.8%
Employer Normal Cost Rate	13.99%	13.95%	-0.3%
Total UAL Amortization Rate	7.03%	6.93%	-1.4%
Member Contribution Rate (UAL)[2]	0.91%	0.91%	-0.4%
Employer UAL Rate	6.12%	6.02%	-1.6%
Total Employer Contribution Rate	20.11%	19.98%	-0.7%

[1] *Reflects 3.00% employer pickup.*
[2] *Reflects employer pickup of Supplemental UAL and Safety Supplemental UAL Relief of 1.14%.*

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

A. Census Data

Both the ICERS Staff and Segal provided us with the data that was used in the June 30, 2022 actuarial valuation. We reviewed the information in both files and reviewed the data questions provided to ICERS by Segal and the ICERS responses. We find that the data used in the valuation is generally valid, complete, and contains the necessary data elements for purposes of performing the actuarial valuation of ICERS, with the exception of including actual or estimated reciprocal service to determine benefit eligibility as discussed in the Executive Summary.

In Table II-1 below, we include an exhibit comparing the processed June 30, 2022 data file – as modified appropriately based on the ICERS responses to Segal's questions and as noted in Segal's report - to the raw data provided by ICERS to Segal. There are minor differences between the two data files. Segal's Tier 3 active members' projected salaries are lower than our projected salaries (See Tables II-2 and II-3 on the following pages). Segal's data set contains three additional retired members compared to the raw data. One record was added based on data questions and two records came through in the raw retiree file with active status codes. We understand that Segal does not assume any salary increase in the first fiscal year after a member is hired. However, in their recent Actuarial Experience Study, Segal made a change to their methodology for calculating salary increases which also resulted in salary increases for new members in the fiscal year after they are hired.

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

Table II-1
June 30, 2022 Data Comparison

	Segal	Cheiron	Variance
Active Members			
Count	2,221	2,221	0.0%
Average Age	42.2	42.2	0.0%
Average Service	10.2	10.2	0.0%
Total Salary	$ 134,256,769	$ 134,920,186	0.5%
Average Salary	$ 60,449	$ 60,747	0.5%
Vested Terminated Members			
Count	707	707	0.0%
Average Age	42.4	42.4	0.0%
Retired Members			
Count	1,029	1,026	-0.3%
Average Age	69.6	69.6	0.0%
Average Monthly Benefit	$ 3,513	$ 3,517	0.1%
Disabled Members			
Count	150	150	0.0%
Average Age	63.8	63.8	0.0%
Average Monthly Benefit	$ 2,556	$ 2,556	0.0%
Beneficiaries			
Count	191	191	0.0%
Average Age	73.8	73.8	0.0%
Average Monthly Benefit	$ 1,892	$ 1,892	0.0%

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

Table II-2
June 30, 2022 Data Comparison (General)

	Legacy			PEPRA		
	Segal	**Cheiron**	**Variance**	**Segal**	**Cheiron**	**Variance**
Active Members						
Count	867	867	0.0%	1,016	1,016	0.0%
Average Age	49.5	49.4	0.0%	37.3	37.3	0.0%
Average Service	17.6	17.6	0.0%	3.8	3.8	0.0%
Total Salary	$ 59,176,574	$ 59,167,166	0.0%	$ 51,519,550	$ 52,082,228	1.1%
Average Salary	$ 68,254	$ 68,244	0.0%	$ 50,708	$ 51,262	1.1%
Vested Terminated Members						
Count	338	338	0.0%	267	267	0.0%
Average Age	47.4	47.3	0.0%	37.0	37.0	0.0%
Retired Members						
Count	839	836	-0.4%	9	9	0.0%
Average Age	70.3	70.3	0.0%	67.5	67.5	0.0%
Average Monthly Benefit	$ 3,187	$ 3,180	-0.2%	$ 917	$ 917	0.0%
Disabled Members						
Count	72	72	0.0%	1	1	0.0%
Average Age	66.9	66.9	0.0%	52.3	52.2	0.0%
Average Monthly Benefit	$ 1,945	$ 1,945	0.0%	$ 1,910	$ 1,910	0.0%
Beneficiaries						
Count	154	154	0.0%	-	-	
Average Age	74.7	74.7	0.0%	N/A	N/A	
Average Monthly Benefit	$ 1,765	$ 1,765	0.0%	N/A	N/A	

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

Table II-3
June 30, 2022 Data Comparison (Safety)

	Legacy			PEPRA		
	Segal	Cheiron	Variance	Segal	Cheiron	Variance
Active Members						
Count	171	171	0.0%	167	167	0.0%
Average Age	44.1	44.1	0.0%	32.3	32.3	0.0%
Average Service	16.6	16.5	0.0%	4.2	4.1	0.0%
Total Salary	$ 13,909,826	$ 13,905,620	0.0%	$ 9,650,819	$ 9,765,172	1.2%
Average Salary	$ 81,344	$ 81,319	0.0%	$ 57,789	$ 58,474	1.2%
Vested Terminated Members						
Count	72	72	0.0%	30	30	0.0%
Average Age	42.7	42.7	0.0%	34.5	34.5	0.0%
Retired Members						
Count	181	181	0.0%	0	0	
Average Age	66.3	66.3	0.0%	N/A	N/A	
Average Monthly Benefit	$ 5,156	$ 5,204	0.9%	N/A	N/A	
Disabled Members						
Count	77	77	0.0%	0	0	
Average Age	61.1	61.1	0.0%	N/A	N/A	
Average Monthly Benefit	$ 3,136	$ 3,136	0.0%	N/A	N/A	
Beneficiaries						
Count	37	37	0.0%	0	0	
Average Age	70.1	70.1	0.0%	N/A	N/A	
Average Monthly Benefit	$ 2,420	$ 2,420	0.0%	N/A	N/A	

We find that the methods and requirements provided in the Actuarial Standard of Practice No. 23 *Data Quality* have been adhered to, to the extent applicable for the valuation of pension plan obligations. Note that Segal uses (and provided) status codes showing distinct termination types in their valuation data but discloses only a consolidated total in their actuarial valuation report. We recommend showing distinct counts when possible.

B. 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 tables below show the comparison of our independent calculations of the results for each Legacy group compared to those calculated by Segal.

Table II-4
ICERS Actuarial Valuation as of June 30, 2022
Replication of Liabilities (General Legacy)
(in thousands)

	Segal			Cheiron			Variance		
	Regular	**Supplemental**	**Total**	**Regular**	**Supplemental**	**Total**	**Regular**	**Supp**	**Total**
Present Value of Future Benefits	$ 832,965	$ 79,187	$ 912,152	$ 830,884	$ 80,512	$ 911,396	-0.2%	1.7%	-0.1%
Actuarial Liability (AL)									
Active Members	$ 288,275	$ 29,105	$ 317,380	$ 288,632	$ 28,904	$ 317,535	0.1%	-0.7%	0.0%
Vested Terminated Members	38,266	3,451	41,717	37,072	4,224	41,296	-3.1%	22.4%	-1.0%
Retirees and Beneficiaries	411,695	35,721	447,416	411,750	35,652	447,402	0.0%	-0.2%	0.0%
Total AL	$ 738,236	$ 68,277	$ 806,513	$ 737,454	$ 68,779	$ 806,233	-0.1%	0.7%	0.0%
Total Salary			$ 59,177			$ 59,167			0.0%

Table II-5
ICERS Actuarial Valuation as of June 30, 2022
Replication of Liabilities (Safety Legacy)
(in thousands)

	Segal			Cheiron			Variance		
	Regular	**Supplemental**	**Total**	**Regular**	**Supplemental**	**Total**	**Regular**	**Supp**	**Total**
Present Value of Future Benefits	$ 279,856	$ 65,335	$ 345,191	$ 278,971	$ 65,525	$ 344,497	-0.3%	0.3%	-0.2%
Actuarial Liability (AL)									
Active Members	$ 74,485	$ 20,847	$ 95,332	$ 74,107	$ 19,520	$ 93,627	-0.5%	-6.4%	-1.8%
Vested Terminated Members	12,548	2,762	15,310	12,878	2,934	15,812	2.6%	6.2%	3.3%
Retirees and Beneficiaries	164,121	34,985	199,106	162,591	35,334	197,926	-0.9%	1.0%	-0.6%
Total AL	$ 251,154	$ 58,594	$ 309,748	$ 249,577	$ 57,788	$ 307,365	-0.6%	-1.4%	-0.8%
Total Salary			$ 13,910			$ 13,906			0.0%

Most of the differences shown above are within normal industry standards for an audit. There are a few 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 close to Segal's for the vested terminated members General Regular and Total benefits (3.1% low for Regular and 1.0% low for Total), but for the difference between them (the supplemental benefit amount), our liability is 22.4% higher.

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

For Tier 3, the differences in the present value of future benefits are within 4% for Safety and almost identical for General. However, it is not unusual to see larger differences in actuarial liability and normal cost for newer PEPRA Tiers, as a result of minor differences in how valuation systems apply various elements used in the allocation of costs between past and future service, such as the rounding of entry ages and service amounts. We are generally not concerned with these differences when they offset each other and the match for the present value of benefits is close.

As the average service of the PEPRA Tiers continues to increase, the percentage differences between different valuation systems should decline. We have seen the actuarial liability variances from the last audit we performed in 2013 to this audit decrease from 133% to 9%.

Finally, despite the difference in liabilities, we are well within normal industry standards on the employer contribution rates (See Tables II-8 and II-9).

Table II-6
ICERS Actuarial Valuation as of June 30, 2022
Replication of Liabilities (General Tier 3)
(in thousands)

	Segal	Cheiron	Variance
Present Value of Future Benefits	$164,089	$ 164,187	0.1%
Actuarial Liability (AL)			
Active Members	$ 42,279	$ 41,861	-1.0%
Vested Terminated Members	4,545	4,431	-2.5%
Retirees and Beneficiaries	1,705	1,703	-0.1%
Total AL	$ 48,529	$ 47,995	-1.1%
Total Salary	$ 51,519	$ 52,082	1.1%

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

Table II-7
ICERS Actuarial Valuation as of June 30, 2022
Replication of Liabilities (Safety Tier 3)
(in thousands)

	Segal	Cheiron	Variance
Present Value of Future Benefits	$ 49,022	$ 50,875	3.8%
Actuarial Liability (AL)			
Active Members	$ 11,095	$ 12,106	9.1%
Vested Terminated Members	837	869	3.8%
Retirees and Beneficiaries	-	-	
Total AL	$ 11,932	$ 12,975	8.7%
Total Salary	$ 9,651	$ 9,765	1.2%

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

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 Tier 3 members, the entire normal cost), offset by expected member contributions for Regular benefits,
- The amortization of the unfunded actuarial liability for Regular and Tier 3 benefits (amortized over 9 years as of June 30, 2022) and changes in the unfunded actuarial liability (amortized over 15 years),
- For Safety, the amortization of one-third of the unfunded actuarial liability for the Supplemental benefits for Safety members (amortized over 9 years as of June 30, 2022), as calculated in the June 30, 2006 valuation,
- For Tier 3 members belonging to bargaining units that have negotiated an agreement, the pickup of Supplemental UAL contributions, and
- Explicit administrative expenses loads of 0.74% and 0.42% of payroll to the Normal Cost and UAL rates, respectively.

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. As noted earlier, we are comfortable with slightly larger differences in the individual components of the cost calculation (i.e., the normal cost and UAL amortization rates) when those differences are offsetting, and the liability measurements underlying the UAL calculation are found to be reasonable.

Table II-8
ICERS Actuarial Valuation as of June 30, 2022
Replication of Employer Contribution Rates (GENERAL)

	Legacy			Tier 3		
	Segal	Cheiron	Variance	Segal	Cheiron	Variance
Normal Cost	14.76%	14.83%	0.5%	10.49%	10.24%	-2.3%
UAL Amortization[1]	4.94%	4.64%	-5.9%	5.43%	5.16%	-4.8%
Total Employer Contribution	19.70%	19.48%	-1.1%	15.92%	15.41%	-3.2%

[1] *Tier 3 UAL Amortization includes the employer pickup for the Supplemental UAL.*

Table II-9
ICERS Actuarial Valuation as of June 30, 2022
Replication of Employer Contribution Rates (SAFETY)

	Legacy			Tier 3		
	Segal	Cheiron	Variance	Segal	Cheiron	Variance
Normal Cost	21.98%	22.16%	0.8%	16.36%	16.34%	-0.1%
UAL Amortization[1]	8.29%	8.84%	6.6%	14.14%	14.40%	1.9%
Total Employer Contribution	30.27%	31.00%	2.4%	30.50%	30.74%	0.8%

[1] *Tier 3 UAL Amortization includes the employer pickup for the Supplemental UAL.*

Employee Contribution Rates

As part of the audit, we replicated 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,
- The normal cost rate attributable to the Supplemental benefits, as well as an amortization of the unfunded actuarial liability for Supplemental benefits (amortized over 9 years as of June 30, 2022), including a load for the refundability of member contributions. For Safety, one-third of the unfunded actuarial liability for the Supplemental benefits for Safety members (amortized over 9 years as of June 30, 2022), as calculated in the June 30, 2006 valuation, is paid for by the employer, and
- An explicit administrative expense load of 0.74% of payroll.

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

For the Tier 3 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. For Tier 3 members belonging to bargaining units that have negotiated an agreement, the employer picks up the Supplemental UAL contributions, excluding the refundability load.

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

Below we show a comparison of our employee contribution rates to Segal's for each of the four groups. Our results are well within the 5% tolerance level.

Table II-10
ICERS Actuarial Valuation as of June 30, 2022
Replication of Employee Contribution Rates

	Segal	Cheiron	Variance
General Legacy[1]	11.29%	11.09%	-1.8%
General Tier 3	10.49%	10.24%	-2.3%
Safety Legacy[1]	25.98%	25.97%	-0.1%
Safety Tier 3	16.36%	16.34%	-0.1%
Total	12.89%	12.68%	-1.7%

[1] *Rates for entry ages of 32 (General Legacy) and 28 (Safety Legacy)*

C. Plan Provisions

We compared the summary of plan provisions shown in Section 4, Exhibit 2 of Segal's June 30, 2022 valuation report to the benefits as summarized in the Retirement Booklets in the *Books and Regulation* section of the ICERS website. The plan provisions shown in Exhibit 2 match the materials on the website.

Based on our close match of the Segal liabilities as part of our parallel valuation, we conclude that Segal has appropriately reflected material plan provisions in the actuarial valuation.

D. Actuarial Assumptions

We reviewed the actuarial assumptions and methods used in the June 30, 2022 actuarial valuation and the analysis performed by Segal for the three-year experience study during the period from July 1, 2019 through June 30, 2022. Since the ICERS Board adopted the most recent demographic and economic assumptions recommended by Segal at its April 19, 2023 meeting, we have focused our attention on the actuarial assumptions in those studies, rather than the assumptions in the June 30, 2022 valuation. However, the assumptions used in the June 30, 2022 valuation are reasonable, based on our high-level review.

It should be noted that 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.

Demographic Assumptions

We commend Segal for using six years of census data when reviewing most of the demographic assumptions and using twelve years of census data for the mortality experience. It is generally the case that using more data when analyzing participant behavior will produce more reliable results and mitigates anomalies in the experience.

Our prior review of the prior Experience Study (covering the period ending June 30, 2013) raised certain concerns regarding several demographic assumptions. In particular, the use of headcount-weighted mortality rates without generational mortality improvements and the non-application of credibility techniques when developing mortality assumptions seemed inconsistent in light of available data, common practices among the actuarial industry, and our experience with similar systems.

We agree with the changes Segal made to their approach in the recent study which directly addressed these issues. Segal also notes in this Experience Study that they "do not believe the incidences of death in 2020-2022 were too material compared to other causes of death to warrant any special adjustments" in light of the COVID-19 pandemic. ICERS identified six COVID-19 related deaths between 2020-2022. Though counter-intuitive, this analysis and treatment are consistent with general trends seen across the actuarial industry when considering actuarial gains due to increased deaths during the pandemic.

We also note that other changes Segal made since we last reviewed their recommended assumptions, such as the adoption of age and service-based retirement rates for General members, are consistent with the experience and assumptions for many similar systems we work with.

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

Retirement Rates

We strongly support Segal's recommendation to use a different set of retirement rates for General Legacy actives who have less than 30 years of service and those who have 30 or more years of service. It is intuitive and reasonable to assume that, for two members of the same age, the one with the higher level of service will be more likely to retire, if for no other reason than the higher-service member is more likely to have achieved their desired level of post-retirement replacement income. On page 39 and 40 of their Actuarial Experience Study report, Segal shows the actual General Legacy retirement experience is significantly different for actives with less than 30 years of service compared to actives with more than 30 years of experience.

We recommend Segal also review the Safety Legacy retirement experience for different service levels in their next study. We generally see material differences in retirement behavior for Safety members at service breakpoints above and below 20 or 25 years of service.

This discrepancy in the rates matters, because all other things being equal, the liabilities will be more heavily weighted towards those with higher levels of service (and thus higher benefits). If the retirement rates accurately predict the number of retirements by age but overestimate the number of retirements for those with low levels of service and underestimate the number of retirements for those with high levels of service, it is likely that the assumptions will underestimate the future liabilities and costs of the System.

Retirement Age for Deferred Vested Members

We have one comment regarding the deferral commencement age assumptions recommended by Segal as part of the experience study. Their recommendation was to increase the assumed commencement age for deferred General members from 60 to 61, and to maintain the current assumption that deferred Safety members will retire at age 54. However, they did not review whether separate retirement age assumptions would be warranted for members retiring with or without reciprocity, and to justify this they commented that the limited data over the past six years did not show a significant difference.

However, we strongly suggest that Segal consider developing different commencement age assumptions for those with and without reciprocity, *even if there continues to be limited data.*

For the 1937 Act systems, we have generally found that the age at which deferred vested members typically commence benefits differs between those who have and have not established reciprocity, with those who establish reciprocity generally commencing benefits later. This makes intuitive sense; members with reciprocity may benefit from deferring their retirement, if the final average compensation used to determine their ICERS benefit continues to increase during their employment with the other system. The same incentive does not exist for members without reciprocity.

Moreover, Safety members under Section 31664.1 (3.0% @ 50) who are not working for a reciprocal system do not have *any* incentive to postpone retirement once they reach age 50, since their benefit multiplier does not increase. In fact, if they postpone retirement to age 54 (following Segal's proposed assumption), they will be forfeiting four years of benefit payments and cost of living adjustments.

Furthermore, there are no deferred vested members without reciprocity over the age of 49 in the June 30, 2022 census data. This supports the conclusion that these members generally retire at age 50.

Economic Assumptions

Overall, the economic assumptions proposed in Segal's review represent a reasonable set of assumptions. Segal recommended a reduction to the assumed rate of price inflation from 2.75% to 2.50%, and a corresponding reduction in the investment return assumption and wage growth assumption to 6.75% and 3.00%, respectively, to reflect the same rate of real investment return and real wage growth. No change was recommended to the long-term assumed COLA of 2.00%.

Inflation

Segal's recommended inflation assumption of 2.50% represents a reasonable inflation assumption in the long term. Segal notes in their report that the median inflation assumption used by 194 large public retirement funds in their 2021 fiscal year valuations was 2.50%. In addition, ICERS's investment consultant Verus anticipates an annual inflation rate of 2.50% over a 10-year horizon.

Segal's consistent recommendation of 0.25% reductions in the overall wage growth and nominal investment return assumptions are appropriate given their recommended reduction in the assumed rate of inflation.

Investment Returns and Expenses

Beginning with this study, Segal converts "the portfolio's expected arithmetic average return to an expected geometric average return." We suggested consideration of this methodology as part of our prior actuarial audit, and we support Segal's change in approach and confirm they have applied and described it appropriately. We also support their modification from prior experience studies to only adjust the assumed return for "investment consulting fees, custodian fees, and other miscellaneous investment expenses," explicitly excluding investment expenses associated with active management; we use a similar approach for our clients.

Segal discusses the concept of a "risk adjustment," noting that the "purpose of the risk adjustment (as measured by the corresponding confidence level) is to increase the likelihood of achieving the actuarial investment return in the long term." To achieve a confidence of 57% that the compound return will meet or exceed the assumed investment return, a risk adjustment of 50 basis points is removed from the proposed net investment return assumption, resulting in a proposal of 6.75%. The net effect is that the proposed investment return assumption continues to move in tandem with the proposed change in the underlying inflation assumption. We find this recommendation, and the resulting return assumption of 6.75%, to be reasonable.

E. Actuarial Methods

Actuarial methods relate to the application of actuarial assumptions in the determination of Plan liabilities and contributions. These methods include the actuarial cost method, amortization policy, actuarial asset smoothing, and cost-sharing methodologies. The questions guiding our review of the actuarial methods were the following:

- Are the methods acceptable and appropriate for the intended purpose?
- Do the methods comply with relevant accounting and actuarial standards?

Actuarial Cost Method

The individual Entry Age Actuarial Cost Method is used in the June 30, 2022 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 (GFOA). Segal has also applied this method in a manner which complies with the disclosure requirements under GASB Statements 67 and 68.

Asset Smoothing Method

The Actuarial (or smoothed) Value of Assets is determined using a five-year period for gains and losses and is restricted to fall within 70% to 130% of the market value of assets. We have confirmed that the Segal report applies the actuarial smoothing method as described.

In our opinion, this method satisfies the Actuarial Standard of Practice which governs asset valuation methods (ASOP No. 44), which requires that the actuarial asset value should fall within a "reasonable range around the corresponding market value" and that differences between the actuarial and the market value should be "recognized within a reasonable period of time."

Amortization Policy

The current Amortization Policy for ICERS is a layered amortization policy, with the balance of the unfunded actuarial liability for the Regular Legacy Benefit as of June 30, 2012 amortized as a level percentage of payroll over a closed 19-year period, with 9 years remaining as of June 30, 2022. Each subsequent year's unfunded liability attributable to experience gains or losses and plan amendments is amortized as a level percentage of payroll over a new closed 15-year period. Assumption changes are amortized over a 20-year closed period. Early retirement incentive programs will be amortized over five years.

We have confirmed that the Segal report applies the amortization method as described. This amortization method is in accordance with funding policy guidance issued by the CAAP, GFOA,

SECTION II – SUMMARY OF REVIEW AND RECOMMENDATIONS

and the Conference of Consulting Actuaries Public Plans Community, as well as requirements for calculating an Actuarially Determined Contribution under the revised Actuarial Standard of Practice No. 4 (*Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*), which will be effective for the June 30, 2023 actuarial valuation. This amortization policy also meets the minimum standards of the '37 Act.

F. Contents of the Reports

We find the actuarial valuation and experience study reports to be in compliance with the Actuarial Standards of Practice, including recent updates to ASOPs regarding risk and modeling. We understand that Segal publishes a stand-alone risk report along with the actuarial valuation report only when new assumptions have been adopted. The risk report typically includes projections on the potential range of future contributions and funded status. However, we note it could be reasonable to make updates more frequently than every three years, in particular if there are any changes in circumstances that could warrant an update (i.e. actual investment returns or active membership payroll growth outside a certain corridor around the assumption).

We have two suggestions that would enhance the intended audience's understanding of the report.

- As noted in our previous audit, we recommend Segal provide enhanced liability-related disclosures, including the total normal cost rates and weighted employee contribution rates by tier, for Regular, Supplemental, and Total benefits. Also, more documentation on refundability loads to the contribution rates, which components were adjusted and the magnitude, would be an improvement.
- In the assumptions section of the valuation report, we recommend Segal clarify the sick leave conversion assumption is used for active member benefits, while the sick leave conversion for terminated vested members is calculated based on the actual sick leave balances provided in the census data.

Future reports are expected to contain additional disclosures now required by ASOP No. 4. In particular, for measurement dates (and reports issued) on or after February 15, 2023, the report should disclose a Low-Default-Risk Obligation Measure under an alternative discount rate "derived from low-default-risk fixed income securities."

Golden Handshake Study

Segal performed a study to determine the costs associated with providing one year of additional service to 59 County members in an early retirement incentive program ("Golden Handshake"). We reviewed the results of this study contained in Segal's February 19, 2021 letter to ICERS and find the methodology that Segal used and the resulting costs to be reasonable.

Based on the information in the letter and the data available to us from the audit, we performed an independent calculation to determine the costs of providing active members who were eligible to retire as of June 30, 2022 with an additional year of service. We adjusted the cost – based on the additional actuarial liability - for differences in the demographics (average age and service) of this group compared to the 59 members who took the "Golden Handshake". Our increase in actuarial liability for the additional year of service was within 2% of Segal's cost of $1.45 million (Column C) on page 9 of their February 19, 2021 letter.

APPENDIX A – GLOSSARY OF TERMS

1. **Actuarial Assumptions**

   Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, investment income, and salary increases. Demographic assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (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 (AAL or AL)**

   The actuarial accrued liability is the present value of all benefits accrued as of the valuation date using the methods and assumptions of the valuation. It is also referred to by some actuaries as the "accrued 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. 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.

6. **Actuarial Cost Method**

   A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal costs and the Actuarial Liability. It is sometimes referred to as the "actuarial funding method."

APPENDIX A – GLOSSARY OF TERMS

7. Funded Status

The Actuarial Value of Assets divided by the Actuarial Liability. The funded status can also be calculated using the Market Value of Assets.

8. Governmental Accounting Standards Board

The Governmental Accounting Standards Board (GASB) defines the accounting and financial reporting requirements for governmental entities. GASB Statement No. 67 defines the plan accounting and financial reporting for governmental pension plans, and GASB Statement No. 68 defines the employer accounting and financial reporting for participating in a governmental pension plan.

9. Market Value of Assets

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

10. Normal Cost

The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. It is sometimes referred to as "current service cost." Any payment toward the unfunded actuarial liability is not part of the normal cost.

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 Plan, 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.

13. Unfunded Actuarial Accrued Liability (UAL or UAAL)

The difference between the actuarial accrued liability and the Actuarial Value of Assets. This is sometimes referred to as the "unfunded accrued liability."

CHEIRON

Classic Values, Innovative Advice