



# CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Limited Scope Audit of  
the December 31, 2008 through  
December 31, 2012 Actuarial Valuations



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July 30, 2014

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**Re: Limited Scope Audit of the December 31, 2008 – December 31, 2012 Actuarial  
Valuations for the City of Austin Employees' Retirement System**

Mr. Alfaro:

We are pleased to present the results of Segal's audit of the 2008 - 2012 actuarial valuations. The purpose of this audit is to conduct a review of the actuarial methods, assumptions, and procedures employed by the City of Austin Employees' Retirement System. This audit is intended to satisfy the requirements of Texas Government Code Section 802.1012.

The audit includes the following:

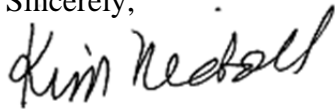
1. **Report review:** A review of the valuation reports, experience review and other documents and how they comply with actuarial standards, and whether the documents include appropriate disclosure information.
2. **Methods and assumptions review:** An analysis and benchmarking of the actuarial assumptions (including a review of the most recent experience study) and a review of the actuarial methods (including actuarial asset value smoothing period and corridor) utilized in determining the funded status and accrued liability for compliance with generally accepted actuarial principles.

This review was conducted under the supervision of Kim Nicholl, a Fellow of the Society of Actuaries, a member of the American Academy of Actuaries and an Enrolled Actuary under ERISA, and Leon F. (Rocky) Joyner, an Associate of the Society of Actuaries, a member of the American Academy of Actuaries and an Enrolled Actuary under ERISA. This review was conducted in accordance with the standards of practice prescribed by the Actuarial Standards Board.

The assistance of the Austin Employees' Retirement System (AERS) staff and Gabriel Roeder Smith & Company (GRS) is gratefully acknowledged. GRS responded to the audit, and their response is attached to this final report as an Appendix.

We appreciate the opportunity to serve as an independent actuarial advisor for the City of Austin and we are available to answer any questions you may have on this report. We look forward to discussing the results with the Audit & Finance Committee, the City Council, or the Board, at their convenience.

Sincerely,



Kim Nicholl, FSA, FCA, MAAA, EA  
Senior Vice President and Actuary



Leon F. (Rocky) Joyner, Jr., FCA, ASA, MAAA, EA  
Vice President and Actuary

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# Executive Summary

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The City of Austin retained Segal Consulting to conduct an independent review of the Employee Retirement System's current actuarial calculations, assumptions and methods. The City's main objectives for this engagement included:

1. An analysis of the appropriateness of the actuarial cost method used to calculate the normal cost and actuarial accrued liability;
2. An analysis of the appropriateness of the method used to develop the actuarial value of assets;
3. An opinion on the appropriateness of the assumptions used in the actuarial valuation, in light of Actuarial Standards of Practice Nos. 27 and 35;
4. Commentary on the completeness of each valuation report, and whether any additional items should be included in future valuation reports, or items could be omitted from future reports;
5. Verification as to whether the valuations meet all statutory requirements, the requirements of the Texas State Pension Review Board Guidelines for Actuarial Soundness, and relevant Actuarial Standards Board Standards of Practice;
6. An assessment of whether the valuations appropriately reflect information required to be disclosed under the current GASB statements; and
7. An opinion from Segal Consulting on other items or issues, which the actuary believes should be addressed, as determined in the course of the actuarial audit.

The objective of a limited scope audit (actuarial review) of any system is to provide validation that the liabilities and costs of the System are reasonable and being calculated as intended. This audit is not a full replication of the actuarial valuation results, but rather is a review of the key components in the valuation process that encompass the derivation of the liabilities and costs for the System.

We reviewed all information supplied to us. We also requested and reviewed additional information provided by GRS. Finally, we considered the reasonableness of the actuarial assumptions and methods in the context of our own experience, and those of other state and local pension systems.

In summary, we found the following:

1. The economic assumptions are within norms for the peer group, with the investment return right in the middle of the peer group range;
2. Certain of the demographic actuarial assumptions should be reviewed in detail as part of the next experience review, particularly mortality, retirement at key ages and DROP participation; and

3. While the asset valuation method is being applied correctly and in our opinion, the five-year smoothing method accomplished with the market recognition account is reasonable and meets actuarial standards, a simpler more easily understood method could be modeled and compared that may improve the valuation.

These items are described more fully in this report.

## Conclusions

This audit validates the findings of the 2008-2012 actuarial valuations. We believe the stated methods and assumptions were properly employed in determining the cost of the System.

All parameters and methods appear consistent with current GASB standards and generally accepted actuarial practices as promulgated in the various Actuarial Standards of Practice applicable to the valuations.

Finally, we offer ideas to improve the quality and understanding of the valuation report. Several suggestions and recommendations are made throughout this document. We would classify them as either:

1. **“Cosmetic” suggestions to enhance** the valuation process or report;
2. **Something to be examined** during the next experience review; and
3. **Something that may affect the cost of the plan.**

Where we make a comment in this regard in this report, we have identified them with the following colors:

 **Enhancement to valuation process or report**

 **Examine during next experience review**

 **May affect the cost of the plan**

# Section I: Purpose, Scope and Methodology of the Audit

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## Purpose of the Audit

The City of Austin retained Segal Consulting to conduct an independent review of the Employees' Retirement System's actuarial valuations from 2008 to 2012. The City requested a review of the appropriateness of the current funding method and procedures, an evaluation of both economic and non-economic assumptions, and a review of the actuarial report and most recent experience analysis and an assessment of whether the presentation of the actuarial results and are consistent with professional standards.

## Scope of the Audit

This actuarial audit has a specified, limited scope in its review. A full scope audit would include performing the 2012 actuarial valuation from start to finish, in essence, a parallel valuation. This limited scope audit reviews the valuation already performed, through reviewing the reports, assumptions, and methods, without a full replication of the actuarial valuation results. This review is conducted by reading the various documents supplied to us and comparing the documents to industry standards.

By not performing a full parallel valuation, the following assumptions are made:

1. The current actuary's valuation system is accurately developing plan liabilities based on the assumptions and methods disclosed; and
2. The valuation system is adding together liabilities appropriately for each decrement (retirement, turnover, disability, and death), for each member, and over the entire population.

What a limited scope audit can provide is:

1. Assurance that benefits reported in the valuation are consistent with the plan document;
2. Confirmation that the valuation assumptions are reasonable compared to those generally used in the industry;
3. A review of the reasonableness of actuarial funding and asset valuation methods; and
4. Confirmation that the reports conform to generally accepted actuarial principles and practices.

## Methodology of the Audit for the 2008-2012 Actuarial Valuations

The purpose of this audit is to express an opinion regarding the reasonableness of the actuarial assumptions, methods, and valuation reports. The limited scope review is not the same as an actuarial valuation, but represents a “second opinion” of the findings and processes included in the valuation.

The methodology employed in this audit is to carefully read and review the documents provided to Segal Consulting and to compare and contrast plan assumptions, methods and presentations to generally accepted standards and practices as well as comparison to typical industry usage.

### Assumptions Analysis

One critical component in assessing the reasonableness of the funding levels is in the selection and the application of the actuarial assumptions. With respect to the assumptions, Segal did the following:

1. Reviewed the Five-Year Experience Study report for the period covering January 1, 2007 to December 31, 2011;
2. Benchmarked the economic assumptions against a survey of state and local employee retirement systems; and
3. Compared other assumptions with the plan benefits being valued utilizing our experience with other plans to consider the reasonableness of the valuation assumptions.

### Methods Analysis

The selection and application of the actuarial cost method (including the method for amortizing the unfunded actuarial accrued liability) and the asset valuation method (including smoothing techniques) is crucial in evaluating the appropriateness of valuation results. For this, we reviewed the description in the valuation reports and compared to methodologies used by similar plans.



## Section II: Review of Reports

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### Valuation Reports

ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs*, and ASOP No. 41, *Actuarial Communications*, are the key publications actuaries use in developing report and disclosures for measuring pension obligations. GRS generally complies with these statements and provides a comprehensive actuarial valuation report, which includes sufficient information for an individual to gain a clear understanding of the financial picture of the System.

With respect to increasing the usefulness and understanding of the valuation report, we offer the following comments and suggestions:

1. ★ Include a 10-year projection of key valuation results. (Texas 802.303 requires this for benefit studies and we believe would add to the value of the report.)
2. ★ Improve the presentation of the Annual Required Contribution (ARC). We found the language in the valuation report confusing. Page 51 of the CAFR explains the difference well. We suggest that explanation be included in the valuation.
3. ★ We believe it would be helpful for the actuarial report to include additional demographic information. Page 11 does include the average and service for active employees. We suggest this be included in the statistical section of the report as well. Additionally, we suggest that the report include average age for the annuitants and the terminated vested employees. Page 11 notes the number of terminated vested employees but it does not distinguish between deferred annuitants and those with a return of contributions only.
4. ★ Page 15 of the 2012 report provided a derivation of the actuarial value of assets. We found this page challenging to follow, and we spoke to GRS about this. They indicated that this exhibit was revised for the 2013 report and they sent us a copy of the new format. We concur it is an improvement over what was in the 2012 report.
5. ★ Development of actuarial gains or losses is shown on page 18 of the most recent valuation. We note that GRS includes changes in assumptions and benefits as part of the gain/loss derivation (line 15). While plan and assumption changes impact the change in plan liability, they are not experience gains and losses. The page should be renamed to be changes in plan liability and the gain/loss shown separately from plan and assumption changes.
6. ★ On page 31, item 6, the productivity component of the salary scale is noted as 1.75%. In fact, this should be 1.25%.
7. ★ In the summary of benefits, purchase of permissive time and conversion of sick leave are included. Some mention of assumptions for the incidence of use of these purchase options should be included in the report. Currently no assumption is noted as being used to measure the potential impact on plan funding.

## Section III: Analysis of Actuarial Assumptions Employed

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As part of our analysis, we have reviewed the principal assumptions used in the actuarial valuations and the experience study report for the five-year period ending December 31, 2011. For this purpose, we reviewed the assumptions for reasonableness based on our review of the valuations as well as the methodology for setting assumptions described in the experience study. We also compared the current set of economic assumptions to those used by a peer group covering large state and local employees. The following is a summary of plan experience over the last five valuations.

### Economic Assumptions

The economic assumptions have a significant impact on the development of plan liabilities. Changes to these assumptions can substantially alter the results determined by the actuary. The goal is to have a consistent set of economic assumptions that appropriately reflect expected future economic trends.

The primary economic assumptions that affect the System's funding are:

- Inflation;
- Investment rate of return (or discount rate);
- Payroll growth rate;
- Salary scale; and
- Sick leave and service purchases.

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 27 (ASOP 27 - Selection of Economic Assumptions for Measuring Pension Obligations) to provide actuaries guidance in developing economic assumptions. A key feature of the ASB's guidance is the "building block" approach in developing economic assumptions.

The "building block" approach uses the actuary's best estimate for key components of economic assumptions. The actuary begins with reasonable range of each component then selects a specific point within the range based on historical data, plan specific data and the future economic environment. While the new ASOP 27 does not use a "best estimate range", the concept remains useful in approaching assumption setting.

The inflation component is included in all economic assumptions, and therefore is key to developing a consistent set of actuarial assumptions. Under the "building block" approach, we consider the investment rate of return assumption as the combination of an inflation component and a real rate of return component. The components of the salary increase assumption are inflation, productivity, and merit increases.

## A. Inflation

In developing the recommendation for the assumed inflation component, actuarial standards of practice suggest the actuary review appropriate inflation data. This data may include consumer price indexes, the implicit price deflator, forecasts of inflation, and yields on government securities of various maturities. GRS analyzed multiple sources in developing the inflation assumption. Their analysis reflected a reasonable range of 2.50% to 3.25% for inflation. GRS recommended a reduction in the inflation assumption to 3.00%. The Board elected to retain the current inflation assumption of 3.25%.

Based on the information contained in the GRS experience review as well as Segal's experience with public plans, either the 3.00% recommended or the 3.25% chosen as the assumption are reasonable and meet the guidelines of the ASB.

## B. Investment Rate of Return

The System's 7.75% assumption, when compared to the peer group, is within the range of 7.00% to 8.50% (based on valuations primarily covering fiscal years ending in 2012). The 7.75% assumption is comprised of two parts: an inflation assumption of 3.25% and an assumption for real rate of return (net of investment expenses) of 4.50%. As noted above, the inflation assumption is slightly higher than the 3% average of the peer group. The assumption for real rate of return matches the average of the peer group. The 7.75% assumption appears reasonable for the System.

We noted above that the plan actuary recommended a reduction in the inflation assumption to 3.00%. This would have lowered the investment return assumption to 7.50%. In our opinion, either assumption would be reasonable for this plan.

### *Comparison to Other Plans*

Each plan's investment structure and philosophy is unique, and therefore simply comparing one plan's investment return assumption to another plan's assumption does not always produce an "apples to apples" outlook. Even so, AERS's 7.75% assumption is below the median of assumptions for similar plans in Texas.

Entity	Investment Rate of Return	Inflation Rate	"Real Rate of Return"
Dallas Police and Fire	8.50%	4.00%	4.50%
Houston Municipal Employees	8.50%	3.00%	5.50%
Houston Police	8.50%	3.00%	5.50%
Dallas Employees	8.25%	3.00%	5.25%
Fort Worth Employees	8.00%	3.00%	5.00%
Austin Police	8.00%	3.75%	4.25%
El Paso City Employees	8.00%	4.00%	4.00%
Galveston Employees	8.00%	3.25%	4.75%
<b>Austin Employees</b>	<b>7.75%</b>	<b>3.25%</b>	<b>4.50%</b>

Entity	Investment Rate of Return	Inflation Rate	“Real Rate of Return”
Austin Firefighters	7.75%	3.50%	4.25%
El Paso Firemen	7.75%	3.50%	4.25%
El Paso Police	7.75%	3.50%	4.25%
Galveston Police	7.50%	4.00%	3.50%
San Antonio Fire and Police	7.50%	3.50%	4.00%

### C. Salary Scale

For all members, the salary scale assumption is comprised of a service based table including components for promotion ranging from 0.0% to 1.5%, productivity of 1.25% and an inflation rate of 3.25%. These rates appear reasonable, based on the experience review. As long as increases in future wages (over the long term) are expected to be similar to recent past experience, the current assumption is appropriate.

Both the investment return and salary assumptions use the same 3.25% underlying inflation rate (4.5% wage inflation rate), and thus a consistent economic model for assumption setting is being used.

### Demographic Assumptions

The demographic assumptions used to value the System reflect the expected occurrences of various events among participants of the plan. The assumptions should reflect specific characteristics of the plan and produce reasonable results. A reasonable assumption is one that is expected to model the contingency being measured and not expected to produce significant gains and losses. The types of demographic assumptions used to measure pension obligations include, but are not limited to the following:

- Mortality;
- Disability;
- Termination of employment (withdrawal);
- Retirement; and
- Others, including percentage married, spousal age difference, sick leave recognition and service purchases.

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 35 (ASOP 35 - Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations) to provide actuaries guidance in developing demographic assumptions. The standard recommends the actuary follow a general process for selecting demographic assumptions. The first step of the general procedure is to identify the types of assumptions to use. The actuary should consider relevant plan provisions that will affect timing and value of any potential benefit payments, all contingencies that give rise to benefits or loss of benefits and the

characteristics of the covered group. The next step is to identify the relevant assumption universe. The assumption universe may include prior experience studies or general studies of trends relevant to the type of demographic assumption in addition to plan experience to the extent that it is credible. The third step is to consider the assumption format. The format may include different tables for different segments of the covered population (i.e., different turnover rates for municipal employees versus public safety). The final step is to select the specific assumption and evaluate the reasonableness of each assumption. The specific experience of the plan should be incorporated but not given undue weight if recent experience is attributable to a phenomenon that is unlikely to continue. For example, if recent rates of termination were due to a one-time reduction in workforce it may be unreasonable to assume that such rates will continue.

## A. Mortality Rates

One of the most basic actuarial assumptions is the probability of death. The mortality assumption takes the form of a mortality table, which contains, for each age in the table, a probability of a person dying between that age and the next. There are several sets of mortality tables currently in use for the Plan. There are different mortality assumptions for active participants, non-disabled annuitants and disabled retirees:

- **Healthy annuitants:** RP-2000 Mortality Table with the white collar adjustment projected using the AA projection table with a multiplier of 110% for males and 120% for females
- **Active members:** RP-2000 Mortality Table projected using the AA projection table with a multiplier of 70%
- **Disabled:** RP-2000 Mortality Table for Disabled lives projected using the AA projection table multiplied by 150% for males and 120% for females

“Credibility Theory” says that, based on the number of deaths and a desired level of confidence, the true underlying ratio of actual to expected deaths lies within a resulting range of the plan-specific ratio. The chart below shows the number of deaths required to have various levels of confidence that the underlying ratio falls within a certain range. For example, the highlighted entry on the table shows that the actual experience being used must have at least 1,082 actual deaths in order to be confident that 90% of the time the true underlying ratio is within a +/- 5% range (95% - 105%) of the observed plan-specific ratio during the study period.

Number of observed deaths to be within indicated range with associated confidence

<u>Confidence</u>		99-101%	98-102%	97-103%	96-104%	95-105%	90-110%	80-120%	75-125%
0.674	75%	4,543	1,136	505	284	182	45	11	7
1.282	80%	16,435	4,109	1,826	1,027	657	164	41	26
1.645	90%	27,060	6,765	3,007	1,691	1,082 *	271	68	43
1.96	95%	38,416	9,604	4,268	2,401	1,537	384	96	61
2.576	99%	66,358	16,589	7,373	4,147	2,654	664	166	106

\* with 1,082 observed deaths, there is 90% confidence that the actual experience of the group is fully credible (defined as being within  $\pm 5\%$  of the underlying characteristics of the group)

There were 253 actual male annuitant deaths in the five-year study period, and therefore we can say with nearly 90% confidence that the true underlying mortality ratio for the system's population is within 90% – 110% of the observed experience. The 139 female annuitant deaths in the period provide about 80% confidence. The active and disabled experience totals provide much less confidence as the numbers are not sufficient for statistical viability.

\$ In summary, we concur with the GRS choice of tables. GRS then developed multipliers, i.e. factors to apply to the standard table rates, which recognized observable experience for the System that differed from that expected by the base tables. Given the sample size for disabled deaths, we would have used the same multipliers for disabled death as for healthy annuitants. This would increase plan costs slightly. GRS has chosen to use lower expectations of mortality for active participants rather than using the same structure as for healthy annuitants. We believe this is a reasonable approach to a relatively minor incidence of probability.

## B. Withdrawal Rates

The assumed withdrawal rates used in annual actuarial valuations project the percentage of employees at each age or service duration who will terminate employment before retirement. These rates take into account possible terminations for all causes other than retirement, death, or disability. They include both voluntary and involuntary withdrawals from service.

Terminations before retirement give rise to some benefit rights, but may also involve the forfeiture of a portion of previously accrued benefits. Forfeitures resulting from turnover are anticipated in advance and help finance benefits which become payable to other employees.

GRS has used a select and ultimate approach for separation from active service, based on select rates that apply during a member's first five years of service. We support the use of this format for turnover rates, and suggest that GRS continue this approach for as long as experience review data suggests that it is appropriate.

New termination rates developed in the experience review were set such that the rates generally produce fewer expected terminations relative to the actual experience over the review period. This concurs with recent patterns we have observed in other experience reviews. We believe the new assumptions to be reasonably related to expected future plan experience.

### C. Disability Rates

Disability rate tables function in the same way as mortality tables. The rate at each age indicates the probability of becoming disabled before the next age. Disability rates add liability for the value of the disability benefits, but lessen the value of retirement benefits ultimately payable, since anyone who becomes disabled is not projected to receive retirement benefits other than the disability benefit.

Participants are eligible for line-of-duty disability benefits immediately upon membership and for standard disability benefits after five years of service. The System has limited disability experience. GRS, in their five-year experience review, observed that disability experience was inconsistent with the current assumptions but recommended no change in the assumption due to the low incidence of disability in total. We concur and suggest that in the next experience review that the review of disability experience be expanded to a 15-year period to determine if expected patterns may be gleaned from the increase in the experience period. We note that since GRS has been the actuary for the System since 2001, 15 years of experience will be available to them.

### D. Retirement Rates

Group A participants are eligible to retire with a normal benefit (i.e. unreduced benefit) after they have attained the earlier of age 62, age 55 with at least 20 years of service or attainment of 23 years of service. Effective January 1, 2012, Group B participants may retire with a normal benefit (i.e. unreduced benefit) after they have attained the earlier of age 65 with 5 years of service or age 62 with at least 30 years of service. Group B participants may also retire upon attainment of age 55 with 10 years of service at an actuarially equivalent reduced benefit.

The valuation employs retirement rates from eligibility for a normal retirement to age 74. As a result of the last experience review study, the retirement rates were adjusted to assume longer working careers including new retirement rates from age 70 to 74. We have observed a trend toward later ages for retirement in recent experience studies completed for other public employers. The rates for Group A male employees are a constant 25% per year that a participant is eligible. Rates for Group A female employees decline gradually from 27% to 20% over the period. The same rates are applied to Group B employees except that at first eligibility for an unreduced benefit, the rate is doubled and at age 65 the rate is set at 50%. The experience review supports the assumptions chosen by GRS for Group A participants. As noted by GRS, Group B retirement assumptions have no experience on which to rely. We concur with the GRS assumptions at first eligibility and age 65 for Group B.



✍ We would have been inclined to also include a “bump-up” at age 62 (the earliest Social Security age) for Group A participants. In future experience reviews, we suggest that the plan actuary watch for emerging patterns for Group A participants that might support “bump-ups” at earliest eligibility, age 62 and age 65. The benefit commencement age assumption for inactive members with a deferred vested benefit should be separately identified in the valuation report.

## E. Benefit Election

✍ Currently, all retirement benefits are valued assuming members elect the single life annuity form of benefit payment with a guaranteed return of accumulated employee contributions. The plan provides various alternative payment forms at an actuarial equivalent amount. The factors used to develop these alternative amounts should be reviewed with the experience study to assure that the factors remain actuarially equivalent. For future cash flow purposes, it would be helpful to study recent benefit election forms. This could be done with the next experience review.

## F. Marriage

✍ The valuation assumes all active members are married and males are assumed to be three years older than females. We recommend the actual marital status and spouse age difference of relatively new retirees (as a proxy for active members) be examined in the next experience review, even if use of a 100% marriage assumption for death-in-service benefits continues in future valuations.

★ Overall, the economic and demographic actuarial assumptions adopted by the System are reasonable and consistent with generally accepted actuarial standards and practices contained in Actuarial Standard of Practice No. 27 covering economic assumptions and Actuarial Standard of Practice No. 35 covering demographic and non-economic assumptions. In future experience investigation reports, when discussing recommendations for adjusting assumptions so that the ratio of actual to expected experience is something other than 100%, we recommend that GRS state the rationale.

## G. DROP Participation

★ The valuation assumes that 15% of retiring members with at least 20 years of service will elect a “Backward DROP” which has the greatest actuarial value to the member. This is a change from the prior assumption of 20%. DROP participation is not included in the experience review, so there is no explanation of the change. We recommend that the next experience review include an analysis of DROP usage to assure that the valuation assumption matches observed experience.



## H. Sick Leave and Service Purchases

✍ The System provides for various types of service recognition in addition to earned service. These include service purchases (non-contributory time, military and supplemental) and unused sick leave at retirement. The valuation report does not include an assumption for these service enhancements nor does the experience review indicate where their impact may have been studied.

\$ In Segal's experience, these service enhancements can have an impact on emerging plan liabilities. We suggest that they be studied in conjunction with the next experience review and that before that study, the annual data be reviewed closely for unexplained plan losses that could be attributed to service enhancements.

## I. Cost-of-Living-Adjustment (COLA) and Lump-Sum Additional Benefit Payment

✍ The System provides the Board authority to approve a COLA or an additional lump-sum payment to members and beneficiaries in pay status. The valuation report indicates that these items may not be adopted if they would put the System into a fiscally "unsound" position or if adopted be "inconsistent" with the Code. In reviewing the various COLA studies, it appears that an agreement with the Board and the City exists that would better describe the parameters as to when a COLA may be provided. We recommend additional descriptive language be included that provides better understanding as to when a COLA may actually be adopted. The actuary may also be able to project when such circumstances are most likely to occur in the future.

## Section IV: Validation of Funding and Asset Valuation Methods

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### Funding Method for Liabilities

The funding method used in the valuation is the Ultimate Entry Age Normal Cost Method. Under this method the normal cost is developed using the Group B benefit provisions and the actuarial accrued liability is the present value of future benefits less the present value of future normal costs using the Group B benefits.

We find the current method to be reasonable. One item we would point out is that public pension accounting as required by the Governmental Accounting Standards Board (GASB) is changing. For financial reporting purposes only the required actuarial cost method will be “traditional” entry age normal. It is our understanding that for the 2013 valuation the Board has adopted a change from the Ultimate Entry Age Normal to the Traditional Entry Age Normal method. We also concur that the 2013 method is reasonable.

### Asset Valuation Method

An essential part of the public sector budgeting process is that material budget items, including pension contributions, should have a level cost pattern from year to year to the extent possible. One way to approach this is to establish reasonable methodologies for recognizing investment gains and losses and limiting the potential volatility that may result in increased contributions due to investment results.

The actuary’s guide for determining the reasonableness of an asset smoothing method is Actuarial Standard of Practice (ASOP) No. 44. The following is an excerpt from this ASOP that establishes the qualities a reasonable asset smoothing method must exhibit.

### From the Actuarial Standard of Practice No. 44

**3.3 Selecting Methods Other Than Market Value:** If the considerations in section 3.2 have led the actuary to conclude that an asset valuation method other than market value may be appropriate, the actuary should select an asset valuation method that is designed to produce actuarial values of assets that bear a reasonable relationship to the corresponding market values. The qualities of such an asset valuation method include the following:

- a. The asset valuation method is likely to produce actuarial values of assets that are sometimes greater than and sometimes less than the corresponding market values.

- b. The asset valuation method is likely to produce actuarial values of assets that, in the actuary's professional judgment, satisfy both of the following:
1. The asset values fall within a reasonable range around the corresponding market values. For example, there might be a corridor centered at market value, outside of which the actuarial value of assets may not fall, in order to assure that the difference from market value is not greater than the actuary deems reasonable.
  2. Any differences between the actuarial value of assets and the market value are recognized within a reasonable period of time. For example, the actuary might use a method where the actuarial value of assets converges toward market value at a pace that the actuary deems reasonable, if the investment return assumption is realized in future periods.

In lieu of satisfying both (1) and (2) above, an asset valuation method could satisfy section 3.3(b) if, in the actuary's professional judgment, the asset valuation method either (i) produces values within a sufficiently narrow range around market value or (ii) recognizes differences from market value in a sufficiently short period.

Two key principles arise from ASOP 44. These are that acceptable asset smoothing must create asset values that fall within a reasonable range around market value and are recognized in a reasonable period of time. In lieu of satisfying both of these principles, a smoothing method could satisfy the requirements if, in the actuary's professional judgment, the range around market value is sufficiently narrow or the differences are recognized in a sufficiently short period.

The asset smoothing method in place for the valuation uses a 5-year smoothing period, which we believe is sufficiently short so that the method qualifies as a reasonable method under ASOP 44. On an annual basis, each year's base is written down by 20% except for years when the following year change has an opposite sign from the prior year (i.e. an asset gain followed by an asset loss or vice versa). In that case, the new base offsets the older base to the amount possible. There is a 20% corridor for the assets but it is not a hard corridor. Rather if the resultant smoothed asset amount is greater than 20% away from the market value then the smoothed value is adjusted by 1/3 of the amount outside the corridor.

*✍* In our opinion, the corridor, the offsetting of prior bases and the gradual move to the corridor limits could be eliminated and the asset smoothing method reduced to a simple 5-year smoothing with no corridor. This would meet the sufficiently short requirements of ASOP 44 and simplify understanding of asset smoothing. We suggest that GRS model the current asset smoothing method under various economic conditions and compare the results to the 5-year method described above.

# Section V: Conclusion and Recommendations

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This limited scope audit reviewed actuarial valuations from 2008 to 2012. The actuarial assumptions, methods, and procedures are reasonable and reflect the benefit promises made to plan participants. All parameters and methods appear consistent with GASB 25.

Below we summarize our recommendations for your consideration:

## A. Valuation Report

1. Include a ten-year projection of valuation results.
2. Include the CAFR explanation for the derivation of the ARC.
3. Include additional demographic information in the statistical section.
4. Delineate gains and losses from other changes in plan liability.
5. Correct the productivity assumption on page 31.
6. Provide an assumption or explanation for sick leave and/or service purchases.

## B. Assumptions

1. The economic assumptions appear reasonable and develop a consistent framework.
2. More credence should be given to the mortality patterns emerging from the healthy male annuitants rather than the smaller groups to improve statistical viability.
3. Review of disability experience should be expanded in the next assumption review to include 15 years to determine if better expectations could be developed.
4. Key retirement ages (earliest eligibility, age 62 and 65) should be monitored for potential emerging patterns for Group A participants.
5. The derivation of the assumption for DROP participation should be documented and reviewed as part of future experience studies.
6. Expand on the sick leave and service purchase impact on plan liabilities.
7. Expand on how and when a COLA and/or lump-sum adjustment could be expected.

## C. Methods

1. It is our understanding that the valuation cost method changed from Ultimate Entry Age Normal to Traditional Entry Age Normal for the 2013 valuation. In our opinion both methods are reasonable for the plan.
2. We suggest that the assets smoothing method be modeled under various economic conditions and compared to a simpler and easier to follow method.

To reiterate our summary from Section 1, the plan's actuary appears to have reasonably valued the expected liability of the System. GRS has applied the methodology consistently and the valuation reports generally conform to accepted actuarial principle and practices. In this report, we have noted areas that we believe will improve the usefulness and clarity of the System's annual actuarial valuation. We are available to discuss any aspect of our review with System staff or the System's actuary.

## Appendix: GRS Response to Audit

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May 9, 2014

Mr. Stephen C. Edmonds  
Executive Director  
City of Austin Employees' Retirement System  
418 E. Highland Mall Blvd.  
Austin, TX 78752-3720

**Re: Response to Actuarial Audit of the City of Austin Employees' Retirement System**

Dear Steve:

Gabriel, Roeder, Smith & Company ("GRS") offers our comments below on the draft actuarial audit report prepared by Segal Consulting ("Segal"), dated April 3, 2014. The draft report provides Segal's actuarial audit, at the behest of the City of Austin as required by Texas Government Code Section 802.1012, of the City of Austin Employees' Retirement System (COAERS).

### **General Comments**

We are pleased with the results of the actuarial audit of COAERS. We would like to quote the following passage from the Executive Summary section of the actuarial audit report, in particular:

**"This audit validates the findings of the 2008-2012 actuarial valuations. We believe the stated methods and assumptions were properly employed in determining the cost of the System.**

**All parameters and methods appear consistent with current GASB standards and generally accepted actuarial practices as promulgated in the various Actuarial Standards of Practice applicable to the valuations."**

This statement should provide both COAERS Staff and the Board with the confidence that the actuarial results they are receiving are both accurate and reasonable.

In the remainder of our letter, we will respond to specific recommendations made by Segal in its actuarial audit report. These recommendations can be separated into three distinct areas: report content, actuarial assumptions, and actuarial methods.

### **Specific Recommendations**

**1) Segal's Recommendation on Report Content:** Segal made six recommendations regarding the content of the valuation report and identified one typographical error in the assumption section.

**GRS Response:** GRS will take under advisement the recommendations dealing with style and format. With regards to the recommendations about content, GRS will discuss with COAERS staff and/or the Benefits and Services Committee the recommendations and make a determination as whether or not to incorporate the suggestions into the report. GRS corrected the typographical error in the assumption section in the December 31, 2013 actuarial valuation report.

**2) Segal's Recommendation on Actuarial Assumptions:** Segal made six recommendations concerning the actuarial assumptions. The recommendations varied from suggestions on the development on some of the assumptions, to expanding the information provided in the experience study report documenting the reasons for selecting particular assumptions. Segal also made some suggestions in the assumption section of their review about disclosing the impact of service purchases (both sick leave and permissive time) as well as the possibility of how and when future COLAs might be paid.

**GRS Response:** GRS will consider Segal's suggestions about the development of the assumptions during the next the experience study. We will include the additional discussion and documentation of the assumptions they mentioned. With regards to the sick leave and service purchases, GRS will discuss with COAERS Staff and/or the Benefits and Services Committee whether this type of analysis is appropriate. Currently any difference between the actual cost of the service purchases and the present value of the benefits associated with the service purchases is recognized as a gain or loss in the year it occurs. If COAERS so desires, the amount of any gain or loss could be identified for each category of service purchase. It is likely this would require additional data from COAERS be gathered as part of the valuation process. With regards to the comment about including a discussion about COLAs in the valuation report, as you are aware and in accordance with your statutes, we currently provide a letter towards the end of each calendar year which discusses whether COAERS could (or should) consider a COLA effective the following year. We believe this process works well and suggest that COAERS does not change the content of the actuarial valuation report in this area.

**3) Segal's Recommendation on Actuarial Methods:** Segal suggested that the Board's current asset smoothing method be modeled under various economic conditions and compared to the asset smoothing method outlined in their report.

**GRS Response:** Before COAERS adopted the current asset smoothing method (at GRS' recommendation), COAERS used a simple 5-year asset smoothing method similar to the method proposed in Segal's report. However, as we discussed with the Board, that method could lead to systemic volatility in the actuarial value of assets (which was the reason we reset the actuarial value of assets to the market value of assets with the December 31, 2011 valuation). The asset smoothing method adopted by the Board in 2012 was thoroughly tested under various economic scenarios before it was recommended to COAERS. The testing clearly demonstrated this method was superior to the prior method in smoothing out gains and losses while also eliminating the systemic volatility that could occur under the prior method. In fact, when this method was reviewed as part of an actuarial audit for a different GRS client, that particular actuarial firm made this comment: ***"Our analysis shows that this method resulted in a superior smoothed asset value in the wake of market volatility..."*** While the current method is more difficult to communicate in a table format, it



Mr. Stephen C. Edmonds

May 9, 2014

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is not more difficult to communicate in written or verbal format; therefore, we continue to support the Board's current asset smoothing method.

If you have any questions or need any additional clarifying information with regard to our comments, please do not hesitate to contact either one of us.

Sincerely,

Handwritten signature of Lewis Ward in black ink.

Lewis Ward  
Consultant

Handwritten signature of Ryan R. Falls in black ink.

Ryan R. Falls, FSA, MAAA, EA  
Senior Consultant

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