Gabriel Roeder Smith & Company
Consultants & Actuaries

AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

REPORT OF AN ACTUARIAL AUDIT

Final Actuarial Audit Report in Accordance with Section 802.1012(h) of the Texas Government Code

AUGUST 20, 2014

GRS
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August 20, 2014

Mr. Art Alfaro
Treasurer
City of Austin
700 Lavaca Street, Suite 940
Austin, TX 78701

Re: Final Actuarial Audit Report in Accordance with Section 802.1012(h) of the Texas Government Code

Dear Mr. Alfaro:

Gabriel, Roeder, Smith & Company (GRS) is pleased to present this report of an actuarial audit of the December 31, 2011 Actuarial Valuation of the Austin Fire Fighters Relief and Retirement Fund (AFRRF). The following documents are intended to demonstrate that the City of Austin (the City) has complied with Section 802.1012 of the Texas Government Code which requires an actuarial audit of public retirement systems with total assets of at least $100 million.

The following three documents will constitute the final actuarial audit report, as required by Section 802.1012(h) of the Texas Government Code:

1. This cover letter,
2. Preliminary draft of the actuarial audit report, dated June 19, 2014, and
3. Retained actuary response to the preliminary draft of the actuarial audit report, dated July 14, 2014.

Following the delivery of the preliminary draft of the actuarial audit report to AFRRF on June 19, 2014, GRS requested a response to the preliminary draft, as required by Section 802.1012(g) of the Texas Government Code. The retained actuary for AFRRF provided a response to the preliminary draft which was dated July 14, 2014.

GRS is pleased to report to the City that, in our professional opinion, the December 31, 2011 Actuarial Valuation prepared by the retained actuary provides a fair and reasonable assessment of the financial position of AFRRF.

The undersigned are independent actuaries and consultants. Mr. Falls is an Enrolled Actuary, a Fellow of the Society of Actuaries, and a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. Both Mr. Falls and Mr. Ward are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

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

Lewis Ward
Consultant

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Gabriel Roeder Smith & Company
Consultants & Actuaries

AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

REPORT OF AN ACTUARIAL AUDIT

Preliminary Draft in Accordance with Section 802.1012(f) of the Texas Government Code

JUNE 19, 2014

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June 19, 2014

Mr. Art Alfaro
Treasurer
City of Austin
700 Lavaca Street, Suite 940
Austin, TX 78701

Dear Mr. Alfaro:

Gabriel, Roeder, Smith & Company (GRS) is pleased to present this report of an actuarial audit of the December 31, 2011 Actuarial Valuation of the Austin Fire Fighters Relief and Retirement Fund (AFRRF). We are grateful to the City of Austin (the City) staff, AFRRF staff, and Foster and Foster, the retained actuary, for their cooperation throughout the actuarial audit process.

This actuarial audit involves an independent verification and analysis of the assumptions, procedures, methods, and conclusions used by the retained actuary for AFRRF, in the valuation of AFRRF as of December 31, 2011, to ensure that the conclusions are technically sound and conform to the appropriate Standards of Practice as promulgated by the Actuarial Standards Board.

GRS is pleased to report to the City, in our professional opinion, the December 31, 2011 Actuarial Valuation prepared by the retained actuary provides a fair and reasonable assessment of the financial position of AFRRF.

Throughout this report we included several suggestions for ways to improve the work product. We hope that the retained actuary and AFRRF find these items helpful. Thank you for the opportunity to work on this assignment.

Mr. Falls is an Enrolled Actuary, a Fellow of the Society of Actuaries, and a Member of the American Academy of Actuaries. He meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. Both Mr. Falls and Mr. Ward are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

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SECTION I

EXECUTIVE SUMMARY

Executive Summary

The City of Austin (the City) engaged Gabriel, Roeder, Smith & Company (GRS) for an actuarial audit of the recent actuarial valuations, studies and reports on the Austin Fire Fighters Relief and Retirement Fund (AFRRF) performed by the retained actuary. The project commenced in November 2013.

The scope of this actuarial audit includes the following:

- Review and analysis of the calculation results, including an evaluation of the data used for reasonableness and consistency as well as a review of the mathematical calculations for completeness and accuracy, based on a detailed review of a representative sample of the current plan participants.
- Evaluation of the actuarial cost method and the actuarial asset valuation method in use and whether other methods may be more appropriate for AFRRF.
- Verification of the reasonableness of the calculation of the unfunded actuarial accrued liability and the amortization period used under the actuarial cost method.
- Review the demographic and economic actuarial assumptions for consistency, reasonableness and compatibility. Such assumptions shall include, but are not limited to: mortality, retirement and separation rates, levels of pay adjustments, rates of investment return and disability factors.
- Assessment of the adherence to Actuarial Standards of Practice (ASOPs) published by the American Academy of Actuaries.
- Assessment of the adherence to the Texas Pension Review Board (PRB) Guidelines for Actuarial Soundness.
- A full replication of the December 31, 2011 actuarial valuation results was not covered under the scope of this engagement.

This actuarial audit will satisfy the requirements of Section 802.1012 of the Texas Government Code which requires an actuarial audit of public retirement systems in Texas with total assets of at least $100 million.

Summary of Findings

Based on our review, the actuarial valuations, studies, and reports of AFRRF are reasonable, used appropriate assumptions, complied with the Actuarial Standards of Practice, and complied with the Texas PRB Guidelines for Actuarial Soundness. We offer the following recommendations based on the valuation methods and assumptions used by the retained actuary in the December 31, 2011 actuarial valuation.

Actuarial Assumptions

- We have no recommendations regarding the actuarial assumptions.

Actuarial Methods and Funding Policy

- We believe that the application of the Entry Age Normal actuarial cost method (EAN Method) that produces a constant normal cost rate over the member's entire career would be more appropriate for AFRRF based on the fixed contribution rate that AFRRF receives from the City. We recommend that the retained actuary review their application of the EAN Method and consider the most appropriate application for AFRRF.

- We recommend that the retained actuary incorporate the hypothetical salary history into the projected benefits in the development of the normal cost rate for each member to ensure that salary increases different than expected are reflected in the actuarial accrued liability and not the normal cost.

- We recommend that the retained actuary should use the "Total Annual Payroll" to determine the contributions available to finance the unfunded actuarial accrued liability.

Actuarial Valuation Results

- We recommend that the retained actuary explicitly value the DROP provisions using the actuarial assumptions for DROP utilization adopted by the Board as part of the 2009 experience study.

- We recommend that the retained actuary correct the application of the IRC Section 415 limit so that the projected benefits prior to age 25 are not limited to zero. Additionally, we recommend that the retained actuary review the application of the IRC Section 415 limit for all benefits, and at all ages, to ensure that the limit is being appropriately applied in all cases.

Content of Valuation Report

- In order to improve the ability of the report to communicate the assumptions, methods and plan provisions incorporated into the December 31, 2011 actuarial valuation, we recommend that the retained actuary incorporate the noted enhancements into future actuarial valuation reports.

SECTION II

GENERAL ACTUARIAL AUDIT PROCEDURE

General Actuarial Audit Procedure

At the commencement of this engagement, GRS requested the information necessary to thoroughly review the work product of the retained actuary. Specifically, GRS received and reviewed the following items:

- Actuarial report as of December 31, 2011,
- Actuarial report as of December 31, 2009 (performed by a prior actuarial firm),
- AFRRF's COLA Adjustment Policy (not dated),
- Valuation Summary and Actuarial Assumption Experience Study, dated December 9, 2008,
- The original census data for plan participants and beneficiaries as of December 31, 2011 provided to the retained actuary by AFRRF for the actuarial valuation,
- A full set of census data for plan participants and beneficiaries as of December 31, 2011 used by the retained actuary for the actuarial valuation,
- AFRRF's Statement of Investment Policies and Objectives, including Operating Procedures, revised August 24, 2012,
- AFRRF Pension Law, effective September 1, 2011,
- Detailed calculations from the retained actuary for a sampling of 12 active plan participants as of December 31, 2011, and
- Detailed calculations from the retained actuary for a sampling of 12 inactive plan participants as of December 31, 2011.

In performing our review, we:

- Reviewed the plan document and applicable statutes to understand the benefits provided by AFRRF,
- Reviewed the appropriateness of the actuarial assumptions,
- Reviewed the actuarial valuation reports, and
- Reviewed the detailed liability calculation of the sample lives to ensure that the calculations were consistent with the stated plan provisions, actuarial methods and assumptions.

We believe that an actuarial audit should not focus on finding differences in actuarial processes and procedures utilized by the retained actuary and the auditing actuary. Rather, our intent is to identify and suggest improvements to the process and procedures utilized by AFRRF's retained actuary. In performing this actuarial audit, we attempted to limit our discussions regarding opinion differences and focus our attention on the accuracy of the calculations of the liability and costs, completeness and reliability of reporting, and compliance with the Actuarial Standards of Practice that apply to the work performed by AFRRF's retained actuary.

The actuarial audit findings, which follow, are based on our review of this information and subsequent correspondence with the retained actuary for clarification and further documentation.

Key Actuarial Concepts

An actuarial valuation is a detailed statistical simulation of the future operation of a retirement plan using the set of actuarial assumptions adopted by the Board. It is designed to simulate all of the dynamics of such a retirement plan for each current participant of the plan, including:

- Accrual of future service,
- Changes in compensation,
- Leaving the plan through retirement, disability, withdrawal, or death, and
- Determination of and payment of benefits from the plan.

This simulated dynamic is applied to each active member in the plan and results in a set of expected future benefit payments for that member. Discounting those future payments for the likelihood of survival at the assumed rate of investment return produces the Total Present Value of Plan Benefits (TPV) for that participant. The actuarial cost method will allocate this TPV between the participant's past service (actuarial accrued liability) and future service (future normal costs).

Guidelines for Actuarial Soundness

During our actuarial audit of AFRRF, we reviewed the actuarial valuation of AFRRF from the perspective of the Texas PRB Guidelines for Actuarial Soundness, as adopted September 28, 2011. The Guidelines are:

1. The funding of a pension plan should reflect all plan obligations and assets.
2. The allocation of the normal cost portion of the contributions should be level or declining as a percent of payroll over all generations of taxpayers, and should be calculated under applicable actuarial standards.
3. Funding of the unfunded actuarial accrued liability should be level or declining as a percent of payroll over the amortization period.
4. Funding should be adequate to amortize the unfunded actuarial accrued liability over a period not to exceed 40 years, with 15 to 25 years being a more preferable target. Benefit increases should not be adopted if all plan changes being considered cause a material increase in the amortization period and if the resulting amortization period exceeds 25 years.
5. The choice of assumptions should be reasonable, and should comply with applicable actuarial standards.

These key actuarial concepts will be discussed in more detail throughout this report.

SECTION III

ACTUARIAL ASSUMPTIONS

Actuarial Assumptions

Overview

The set of actuarial assumptions is one of the foundations upon which an actuarial valuation is based. An actuarial valuation is, essentially, a statistical projection of the amount and timing of future benefits to be paid under the retirement plan. In any statistical projection, assumptions as to future events will drive the process. Actuarial valuations are no exception.

The actuarial valuation report contains a description of the actuarial assumptions which were used in the actuarial valuation as of December 31, 2011. Additionally, the assumptions utilized for the December 31, 2011 actuarial valuation were based on an Actuarial Assumption Experience Study, dated December 9, 2008, prepared by a prior actuarial firm. We have reviewed these details in order to assess the reasonableness of the assumptions used in the actuarial valuation.

It is important to understand the nature of the retirement plan and the plan sponsor when assessing the reasonableness of the actuarial assumptions. No projection of future events can be labeled as "correct" or "incorrect". However, there is a "range of reasonableness" for each assumption. We evaluated each individual assumption as follows:

- Whether or not they fall within the range of reasonableness, and
- If they fall within that range, whether they are reasonable for the actuarial valuation of the plan.

Actuarial assumptions for the valuation of retirement plans are of two types: (i) demographic assumptions, and (ii) economic assumptions. We have assessed the reasonableness of both types as part of this actuarial audit.

Demographic Assumptions

General

These assumptions simulate the movement of participants into and out of plan coverage and between status types. ASOP No. 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations, provides guidance to actuaries in selecting (including giving advice on selecting) demographic and other noneconomic assumptions for measuring pension obligations.

Key demographic assumptions are:

- turnover among active members,
- retirement patterns among active members, and
- healthy retiree mortality.

In addition, there are a number of other demographic assumptions with less substantial impact on the results of the process, such as:

- disability incidence and mortality among disabled benefit recipients,
- mortality among active members,

- percentage of members electing to enter DROP,
- distribution of form of payment selection, and
- percent of active members who are married and the relationship of the ages of participants and spouses.

Demographic assumptions for a retirement plan such as AFRRF are normally established by statistical studies of recent actual experience, called experience studies. Such studies underlie the assumptions used in the valuations.

Once it is determined whether or not an assumption needs adjustment, setting the new assumption depends upon the extent to which the current experience is an indicator of the long-term future. The measurement of experience is normally affected by simply counting occurrences of an event. For example, in reviewing retirement patterns, an actuary might count the number of actual retirees among males aged 50 with 20 years of service. These retirements would be compared against the number of total people in that group to generate a raw rate of retirement for that group.

- Full credibility may be given to the current experience. Under this approach the new assumptions are set very close to recent experience.
- Alternatively, the recent experience might be given only partial credibility. Thus, the new assumptions may be set by blending the recent experience with the prior assumption.
- If recent experience is believed to be atypical of the future, such knowledge is taken into account.

Finally, it may be determined that the size of the plan does not provide a large enough sample to make the data credible. In such cases, the experience of the plan may be disregarded and the assumption is set based upon industry standards for similar groups.

Actuarial Assumption Experience Study Report

The current retained actuary did not develop the assumptions currently being used in the actuarial valuation. The prior actuarial firm performed an experience study in December 2008 based on experience through December 31, 2007. The recommended assumptions from this report were used by the prior actuarial firm to prepare the December 31, 2009 actuarial valuation. The retained actuary generally used these same assumptions to prepare the December 31, 2011 actuarial valuation.

We believe that the experience study report did a good job, in most cases, of describing each assumption, providing context for the basis of each assumption, and outlining the reason for the proposed assumption going forward.

Observations on Assumptions

Overall, it appears that the current demographic assumptions are reasonable. Below, we offer general observations and considerations for the retained actuary based on our experiences with similar plans.

Retirement – Members are eligible to retire after 20 years of service or at age 45 with 10 years of service. The rates at which participants are assumed to retire are based on the number of years since the members were first eligible for retirement. The current assumption was developed to be consistent with the actual experience of the plan over the most recent experience study period. We noted that the

actual number of retirements is less than the expected number of retirement under the current assumptions, which is typically where this assumption is set to add a level of conservatism into the retirement assumption. We believe that the retirement rate assumption is reasonable for AFRRF.

Turnover – The rates at which members are assumed to withdraw (or turnover) prior to eligibility for retirement are based on the member's service. The current assumption was developed to be consistent with the actual experience of the plan over the most recent experience study period. We believe that the turnover rate assumption is reasonable for AFRRF.

Mortality – The most important demographic assumption is mortality because this assumption is a predictor of how long pension payments will be made. The current mortality assumption for healthy active plan members and healthy annuitants is generally based on the RP-2000 Combined mortality tables for male and females projected with full generational mortality from the year 2000 using mortality improvement Scale AA. Furthermore, the assumption is made more conservative with the application of a two-year age set back to the table.

The mortality assumption for disabled members is based on the RP-2000 Disability Mortality Table with no adjustments.

There has been much debate about the life expectancy of public safety personnel versus other general governmental workers. Anecdotal evidence would suggest that due to their physical demands and high stress careers, public safety retirees have shorter life expectancies than other governmental workers. However, we have seen empirical evidence that indicates this may not be reality. GRS works for numerous large statewide and municipal retirement systems that cover both general employees and public safety personnel. Recent studies performed in California, Utah and New York City show that post-retirement life expectancies for public safety personnel are not materially less than those for general employees and in some cases the life expectancies are even longer for public safety personnel. These findings relate to general employees and public safety personnel in the same geographical region.

These tables and mortality improvement projections are established mortality assumptions and are reasonable for this purpose.

Disability Incidence – Very little retirement plan experience generally exists in order to set a reasonable assumption based on actual retirement plan experience. The current assumption for disability incidence is reasonable for this purpose.

Economic Assumptions

General

These assumptions simulate the impact of economic forces on the amounts and values of future benefits. Key economic assumptions are the assumed rate of investment return and assumed rates of future salary increase. All economic assumptions are built upon an underlying inflation assumption.

Inflation

Inflation refers to mean price inflation as measured by annual increases in the Consumer Price Index (CPI). This inflation assumption underlies most of the other economic assumptions. It primarily impacts investment return and salary increases.

The current explicit inflation assumption is 3.50%. We consider this assumption to be within the reasonable range; albeit, the higher end of the range. The experience study stated that inflation over the past 30 years was 4.1%. However, the period study ended in 2007 and therefore contained the very high inflation period at the end of the 1970s. If the analysis was performed at the end of 2011, inflation over the past 30 years is slightly less than 3.0% and for the past 20 years is less than 2.5%. We recommend that the retained actuary continue to monitor this assumption to ensure its continued reasonableness.

We recommend that the retained actuary include forward looking indicators for inflation, as well as an analysis of historical inflation, in future experience studies. This analysis can be a comparison of the yield spread between inflation protected and non-inflation projected treasuries, a survey of economists, or some other forward looking expectation of inflation. Many economists forecast inflation rates lower than the current 3.50% assumption, but some of these forecasts are often for shorter periods than are necessary in preparing an actuarial valuation.

Investment Return

The investment return assumption is one of the principal assumptions in any actuarial valuation of a retirement plan. It is used to discount future expected benefit payments to the valuation date to determine the liabilities of the retirement plan. Even a small change to this assumption can produce significant changes to the liabilities and contribution rates. The current assumption incorporates inflation of 3.50% per annum, plus an annual real rate of return of 4.25%, net of investment fees and administrative expenses paid from the trust, for an assumed nominal rate of return of 7.75%. Please note that the valuation report only indicated that the investment return assumption was net of investment expenses. However, since there is no explicit administrative expense assumption incorporated into the normal cost of AFRRF we have assumed that the investment return rate is intended to be net of both investment and plan administrative expenses.

We believe an appropriate approach to reviewing an investment return assumption is to determine the median expected portfolio return given the retirement plan's target allocation and a given set of capital market assumptions. We have reviewed the Statement of Investment Policies and Objectives, including Operating Procedures, which was revised by the Board on August 24, 2012. The policy ranges for the different investment classes are quite broad, which makes determining a return expectation for the portfolio difficult.

Based on the allocation of AFRRF's assets at the most recent valuation date, December 31, 2011, we have modeled AFRRF's investment portfolio using the very broad asset classes described below:

Asset Class	Target
U.S. Equities	31%
International Equities	6%
Alternative Investments	28%
U.S. Fixed Income	20%
Other Commingled Funds*	15%
Total	100%

* For modeling purposes, the commingled funds listed in the financial statement were assumed to add 5% to the allocation of U.S. Equities and 10% to the allocation of alternative investments.

Because GRS does not develop or maintain its own capital market assumptions, we reviewed assumptions developed and published by the following investment consulting firms:

- JP Morgan
- NEPC
- PCA
- Mercer
- RV Kuhns
- Towers Watson
- BNY Mellon
- HewittEnnisKnupp

These investment consulting firms issue reports that describe their capital market assumptions, which include their estimates of expected returns, volatility, and correlations. While these assumptions are developed based upon historical analysis, many of these firms also incorporate forward looking adjustments to better reflect near-term expectations.

Given the AFRRF's asset allocation described above and the investment firms' capital market assumptions for 2013, the development of the average nominal return, net of investment-related fees and administrative expenses fees paid from the trust, is provided in the following table:

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return (2)–(3)	Actuary Inflation Assumption	Expected Nominal Return (4)+(5)	Plan Incurred Expense Assumption	Expected Nominal Return Net of Expenses (6)-(7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	7.65%	3.00%	4.65%	3.50%	8.15%	0.35%	7.80%
2	7.66%	3.00%	4.66%	3.50%	8.16%	0.35%	7.81%
3	7.39%	2.40%	4.99%	3.50%	8.49%	0.35%	8.14%
4	7.70%	2.50%	5.20%	3.50%	8.70%	0.35%	8.35%
5	8.06%	2.51%	5.55%	3.50%	9.05%	0.35%	8.70%
6	8.26%	2.50%	5.76%	3.50%	9.26%	0.35%	8.91%
7	8.38%	2.30%	6.08%	3.50%	9.58%	0.35%	9.23%
8	9.26%	2.50%	6.76%	3.50%	10.26%	0.35%	9.91%
Average	**8.05%**	**2.59%**	**5.46%**	**3.50%**	**8.96%**	**0.35%**	**8.61%**

We determined, for each investment consulting firm, the expected nominal return rate based on AFRRF's asset allocation and then subtracted that investment consulting firm's expected inflation to arrive at their expected real return in column (4). Then we added back AFRRF's current 3.50% inflation assumption and subtracted an estimated 0.35% for investment fess and administrative expenses (see discussion below) paid from the trust to arrive at an expected nominal return net of expenses. As the table shows, the resulting average arithmetic one-year return of the eight firms is 8.61%. It should be noted that the average administrative and investment expenses for the prior two fiscal years was higher than 0.35%. However, we reduced the offset for an estimate of the investment expenses related to active management. The reason for the reduced offset is the expectation that the managers will generate enough alpha to at least cover the cost of the active management. No additional alpha for active management is considered.

In addition to examining the expected one-year return, it is important to review anticipated volatility of the investment portfolio and understand the range of long-term net return that could be expected to be produced by the investment portfolio. Therefore, the following table provides the 25th, 50th, and 75th percentiles of the 20-year geometric average of the expected nominal return, net of investment fees paid from the trust, as well as the probability of exceeding the current 7.75% assumption.

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding 7.75% *
	25th	50th	75th	
(1)	(2)	(3)	(4)	(5)
1	5.00%	6.96%	8.96%	39.5%
2	5.07%	7.00%	8.98%	39.9%
3	5.90%	7.56%	9.24%	46.9%
4	5.42%	7.46%	9.54%	46.2%
5	5.76%	7.80%	9.88%	50.7%
6	5.74%	7.91%	10.11%	51.9%
7	6.03%	8.21%	10.44%	55.6%
8	6.47%	8.77%	11.13%	61.7%
Average	**5.68%**	**7.71%**	**9.78%**	**49.1%**

*AFRRF's current return assumption net of expenses.

As the analysis shows, there is a 50% likelihood that the 20-year average net nominal return will be between 5.68% and 9.78%. This is our assessment of the best-estimate range under ASOP No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, as it currently exists. Further, the average result of all eight firms indicates there is a 49% chance that the current target asset allocation will produce an average return that exceeds 7.75% over the next 20 years.

As a point of reference, the National Association of State Retirement Administrators published a survey in March 2013 of 126 large public retirement systems which reflects the nominal assumption in use, or announced for use, as of the date of the survey. The average investment return assumption for responding systems was 7.77%.

It should be noted that if a lower inflation assumption was used, the analysis would look notably different. For example, if a 3.00% inflation assumption was used, the average one-year arithmetic

return for the eight investment consultants would be 8.11%, with 3 of the 8 less than 7.75%. Also, the probability of meeting the 7.75% return over the next 20 years would decline to 43%. However, the current investment return assumption would still fall within our best-estimate range under the current Actuarial Standards of Practice (ASOP). Therefore, we believe that the current assumption is reasonable for this purpose.

There are changes to ASOP No. 27 which will significantly reduce the range from which the investment return assumption may be chosen. These changes will go into effect for valuations that occur on or after September 30, 2014. AFRRF may wish to discuss the possible impact of these changes with their retained actuary.

Expense Assumptions

The investment return assumption is stated in the December 31, 2011 valuation report as net of expected investment fees paid from the trust. As previously noted, we have assumed that the investment return assumption is intended to be net of administrative expenses as well. This is a reasonable procedure for accounting for anticipated plan expenses. Further, the determination of the actual rate of return calculations and the actuarial value of assets presented in the actuarial valuation report are calculated consistently with this procedure.

Earnings Progression

In general, assumed rates of pay increase are often constructed as the total of three main components:

- Price Inflation – currently 3.50%
- Economic Productivity Increases (base pay increases above price inflation) – currently zero
- Merit, Promotion, and Longevity – This portion of the salary increase assumption reflects components such as promotional increases as well as "step" increases and longevity pay. This portion of the assumption is not related to inflation.

In the context of a typical employer pay scale, pay levels are set for various employment grades, or "steps". In general, this pay scale is adjusted as follows:

- The inflation and economic productivity assumptions, collectively referred to as wage inflation, reflect the overall increases of the entire pay scale, and
- The Merit, Promotion, and Longevity increase assumption reflects movement of members through the pay scale.

The salary scale assumption appears reasonable. We would like to suggest that the retained actuary modify the actuarial valuation report to explicitly state the salary increase assumption for all years of service. The current report shows only select years between 5 and 30 years of service.

Cost of Living Adjustments (COLAs)

The December 31, 2011 actuarial valuation of AFRRF assumed that all future COLAs would be zero. This assumption is reasonable based on the provisions of Section 9.04 of the Statutes applicable to AFRRF (governing the provision for ad hoc COLAs) and the Board's COLA adjustment policy.

The Governmental Accounting Standards Board (GASB) has adopted new accounting standards for Pension Plans (Statements 67 and 68) which will be effective for the December 31, 2014 financial statements of AFRRF and the September 30, 2015 financial statements of the City of Austin. These new standards require that the plan liability include an assumed COLA to the extent that the COLA is "substantively automatic", even if the COLAs are granted on an ad hoc basis.

A COLA was granted to AFRRF retirees in 2013 and 2014. Even though the COLA for AFRRF is ad hoc, the GASB valuation may need to include a COLA assumption to the extent that the COLA is expected to continue in the future.

This requirement does not directly affect the COLA assumption adopted by the Board to develop the funding requirements. However, the potential use of different COLA assumptions could result in the disclosure of multiple actuarial liabilities (one for funding and one for accounting).

Summary

The set of actuarial assumptions and methods, taken in combination, is within the range of reasonableness and generally established in accordance with ASOP No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, ASOP No. 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations, and the Texas PRB Guidelines for Actuarial Soundness.

SECTION IV

ACTUARIAL METHODS AND FUNDING POLICY

Actuarial Methods and Funding Policy

Actuarial Cost Methods

The ultimate cost of a retirement system is equal to the benefits paid plus the expenses related to operating the retirement system. This cost is funded through contributions to the retirement system plus the investment return on accumulated contributions which are not immediately needed to pay benefits or expenses. The projected level and timing of the contributions needed to fund the ultimate cost are determined by the actuarial assumptions, plan provisions, participant characteristics, investment experience, and the actuarial cost method.

An actuarial cost method is a mathematical process for allocating the dollar amount of the total present value of plan benefits (TPV) between future normal costs and actuarial accrued liability (AAL). The retained actuary uses the Entry Age Normal actuarial cost method (EAN Method), characterized by:

(1) Normal Cost – the level percent of payroll contribution, paid from each participant's date of hire to date of retirement, which will accumulate enough assets at retirement to fund the participant's projected benefits from retirement to death.

(2) Actuarial Accrued Liability – the assets which would have accumulated to date had contributions been made at the level of the normal cost since the date of the first benefit accrual, if all actuarial assumptions had been exactly realized, and there had been no benefit changes.

The EAN Method is the most prevalent funding method in the public sector. It is appropriate for the public sector because it produces costs that remain stable as a percentage of payroll over time, resulting in intergenerational equity for taxpayers. The Public Fund Survey published in 2011, sponsored by the National Association of State Retirement Administrators and the National Council on Teacher Retirement, surveyed 126 retirement systems (mostly statewide). Over 75% of the plans reported using the EAN Method. Therefore, the retained actuary's stated methods for allocating the liabilities of AFRRF are certainly in line with national trends.

Allocation of Normal Cost

The most common application of the EAN Method will produce a normal cost that is expected to remain constant, as a percentage of pay, throughout each member's working lifetime. That is, the cost of all plan benefits is evenly allocated across each member's expected career.

The retained actuary applies the EAN Method in a slightly different manner. Specifically, the normal cost is calculated independently for each benefit such that the normal cost for each benefit will only span through the last age at which that benefit is payable.

For example, AFRRF members are only eligible for a refund of contributions if they terminate within the first 10 years of employment. Under the most common application of the EAN Method, the anticipated cost associated with providing refund benefits is evenly allocated across each member's expected career. However, the retained actuary's application will produce a normal cost for the refund of contributions for the first 10 years of the member's career and then the normal cost associated with the refund of contributions will go to zero for the remainder of their expected career.

In general, the retained actuary's application of the EAN Method is reasonable; however, it may not be the most appropriate method for AFRRF because the normal cost rate will certainly decrease over the course of each member's career.

Since AFRRF receives a fixed contribution rate from members and the City, the normal cost rate is an important component of the calculation of the funding period (or, "Funding Period to Amortize UAAL"). Specifically, the fixed contribution rate in excess of the normal cost rate is used to amortize (or "pay down") the unfunded actuarial accrued liability (UAAL). Based on this fixed contribution arrangement, AFRRF should seek a method that is expected to maintain a level normal cost percentage (especially when benefit improvements are considered based on the funding period).

Based on our understanding of the new accounting standards, we do not believe that the retained actuary's application of the EAN Method will comply with the new accounting requirements under GASB Statement Nos. 67 and 68. These new GASB statements are very specific about how the EAN Method should be applied for accounting purposes. Paragraph 46(b) of GASB 67 states, in part: "each plan member's service costs should be level as a percentage of that member's projected pay." Additionally, paragraph 46(d) states, in part: "the service costs of all pensions should be attributed through all assumed exit ages, through retirement." As previously noted, this requirement does not directly affect the methods and assumptions adopted by the Board to develop the funding requirements. However, the use of a different actuarial cost method will result in the disclosure of multiple actuarial liabilities (one for funding and one for accounting).

We believe that the retained actuary's application of the EAN Method is reasonable. However, we believe that the application of the EAN Method that produces constant normal cost rate over the member's entire career would be more appropriate for AFRRF based on the fixed contribution rate that AFRRF receives from the City. Additionally, we believe that this more common method is more appropriate for purposes of complying with the new GASB requirements.

Immediate Gain Method

The EAN Method is an Immediate Gain Actuarial Cost Method, which means that it is an actuarial cost method under which actuarial gains and losses are included as part of the unfunded actuarial accrued liability of the pension plan, rather than as part of the normal cost of the plan. When appropriately applied, the cost method used by AFRRF should produce a stable normal cost as a percentage of payroll and any deviations from the assumptions (e.g., salary increases different than expected) will be immediately reflected in the AAL.

The retained actuary currently uses actual pay history, where applicable, to calculate the projected benefits in the development of the normal cost rate for each member in the valuation. This procedure allows unexpected changes in pay to impact the normal cost rate, which should not occur in an Immediate Gain Actuarial Cost Method. We recommend that the retained actuary incorporate the hypothetical salary history into the projected benefits in the development of the normal cost rate for each member to ensure that the normal cost remains stable as a percentage of pay.

Impact

Based on our further review of the application of the EAN Method, the projected pay included in the cost of plan benefits (i.e., TPV) and the present value of future salary was calculated consistently (i.e., there is no disconnect in the decrement timing for these two amounts).

It should be noted that the TPV (i.e., the total present value of plan benefits) remains unchanged, so the present value of all plan benefits is appropriately accounted for in the actuarial valuation. The recommended modifications to the EAN Method will only impact the allocation of the TPV between future normal costs and actuarial accrued liability. We believe that the recommended modifications will result in the most appropriate application of the EAN Method. The modifications for AFRRF should not have a material impact on most of the valuation results since the TPV remains unchanged, with the possible exception of the funding period. A complete analysis of the impact of these modifications is beyond the scope of this actuarial audit.

Asset Valuation Method

The market value of assets can experience significant short-term swings, which can cause large fluctuations in the development of the actuarially determined contributions required to fund a retirement system. Thus, many systems use an asset valuation method which dampens these short-term volatilities to achieve more stability in the required contributions. A good asset valuation method places values on a retirement plan's assets which are related to the current market value, but which will also produce a smoother pattern of costs.

ASOP No. 44, Selection and Use of Asset Valuation Methods for Pension Valuations, provides a framework for the determination of the actuarial value of assets (AVA), emphasizing that the method should: (1) bear a reasonable relationship to the market value of assets (MVA), (2) recognize investment gains and losses over an appropriate time period, and (3) avoid systematic bias that would overstate or understate the AVA in comparison to MVA.

The actuarial valuation of AFRRF currently utilizes a smoothed asset valuation method that immediately recognizes income equal to the expected return on valuation assets, based on the assumed valuation interest rate (7.75%). The method also recognizes 20% of the difference between the expected AVA and the actual MVA each year. Further, the AVA cannot exceed 120% or be less than 80% of the market value of assets.

The smoothing method used for the actuarial valuation of AFRRF is common among public employee retirement systems. We feel that this method complies with ASOP No. 44. Additionally, this method is reasonable and appropriately applied for the valuation.

Funding Policy

Current Contribution Rates

For purposes of determining the TPV and the funding period in the December 31, 2011 actuarial valuation report, the members are assumed to contribute 16.20% of pay, steadily increasing to 18.70% of pay by October 1, 2016. Similarly, the City is assumed to contribute 20.05% of pay, steadily increasing to 22.05% by the 25th pay date of the 2013 fiscal year. According to the results of the

December 31, 2011 actuarial valuation, these total contributions are sufficient to amortize the unfunded actuarial accrued liability over 20.91 years.

The Texas PRB Guidelines for Actuarial Soundness indicate that funding should be adequate to amortize the unfunded actuarial accrued liability over a period not to exceed 40 years, with 15 to 25 years a more preferable target. As a result, the contribution policy as of December 31, 2011 complies with the PRB's Guidelines.

Benefit Increases

Section 9.04 of the Statutes applicable to AFRRF, and the Board's COLA adjustment policy, allow for certain increases in plan benefits. According to the COLA adjustment policy:

> *Actuarial soundness and financial stability for purposes of adoption of a cost-of-living adjustment will be demonstrated by satisfying the following two parameters for all years in the projection period.*
>
> *1.) The funding period to amortize the unfunded accrued actuarial liability after the cost-of-living adjustment may not exceed 30 years for any year during the ten-year projection period;*
>
> *2.) The GASB25 funding ratio after the cost-of-living adjustment would not be less than 80% for any year in the ten-year projection period.*

This approach can increase benefits when there are positive developments in the long-term financing of the plan; however, this approach provides no way for the plan to reduce benefits when there are negative developments. In this situation, it will be difficult for the long-term financing of the plan to improve (the plan would need to outperform its assumptions over an extended period of time to generate gains greater than the benefit improvements), but it can get worse (requiring further contribution increases).

We believe that it is important that the City and the Board understand that without a significant outperformance of the actuarial assumptions the benefit increase provisions of AFRRF will likely require maintaining the current contribution rates (for the members and the City) as long as benefit increases are granted under these provisions.

It should also be noted that the Texas PRB Guidelines for Actuarial Soundness indicate that benefit increases should not be adopted if all plan changes being considered cause a material increase in the amortization period and if the resulting amortization period exceeds 25 years. If a benefit increase is granted through the Board's COLA adjustment policy, which can generally be granted if the funding period is less than 30 years, the benefit increase could violate the PRB's Guidelines if the funding period is greater than 25 years following the increase.

Expected Payroll

The retained actuary presents two measures of payroll for the upcoming year. The "Total Annual Payroll" was $82,078,865 which represents the total expected payroll for the entire plan for the upcoming year. Alternatively, the "Payroll Under Assumed Retirement Age" was $76,700,157 which

represents the payroll expected to be paid in the upcoming year to the active members as of the valuation date. The active members that are assumed to leave active service during the upcoming year will only receive a portion of their annual salary, so this amount is less than the total annual payroll of all members. The difference between these two payroll measures is the expected pay for new hires.

The retained actuary calculates the normal cost rate by dividing the total normal cost for active members on the valuation date by the "Payroll Under Assumed Retirement Age". We believe that this is the most appropriate way to calculate the normal cost rate since the normal cost and the salary are based on the active members on the valuation date and reflect the expected decrement in the first year.

When calculating the 30-year Funding Cost, the retained actuary appropriately calculates the total Payment Required to Amortize the Unfunded Actuarial Accrued Liability over 30 years. The retained actuary then divides this payment by "Payroll Under Assumed Retirement Age" in order to calculate the payment as a percentage of pay of 7.21%. We believe that it would be more appropriate to divide the payment by "Total Annual Payroll" since it represents the total expected payroll for the entire plan for the upcoming year. The updated method would produce payment to amortize the unfunded of 6.74%.

We believe that the retained actuary uses the most appropriate payroll to calculate the normal cost rate. However, we recommend that the retained actuary should use the "Total Annual Payroll" to determine the contributions available to finance the unfunded actuarial accrued liability.

Summary

We have the following recommendations regarding the application of the actuarial methods and assessment of the funding policy:

- We believe that the application of the EAN Method that produces constant normal cost rate over the member's entire career would be more appropriate for AFRRF based on the fixed contribution rate that AFRRF receives from the City. We recommend that the retained actuary review their application of the EAN Method and consider the most appropriate application for AFRRF.

- We recommend that the retained actuary incorporate the hypothetical salary history into the projected benefits in the development of the normal cost rate for each member to ensure that salary increases different than expected are reflected in the AAL and not the normal cost.

- We recommend that the retained actuary should use the "Total Annual Payroll" to determine the contributions available to finance the unfunded actuarial accrued liability.

SECTION V

ACTUARIAL VALUATION RESULTS

Actuarial Valuation Results

Benefits

Every employer is different and every employer's retirement plan is different. Each employer has a set of workforce and financial needs that dictate the type of retirement benefit that is most appropriate for their employees. Additionally, the amount of resources available to allocate to the retirement plan will dictate the level of benefits provided by the retirement plan. Regardless of the reasons for the benefit design, the employer must understand the liability and contribution requirements associated with the benefits promised. As a result, the actuarial valuation and the resulting funding policy contribution must properly reflect the benefit structure of the retirement plan.

Deferred Retirement Option Plan

As part of the 2008 experience study, the Board adopted an assumption that a percentage of retiring members would elect to participate in the DROP (if eligible). This assumption was incorporated into the December 31, 2009 actuarial valuation. However, the retained actuary assumed that no retiring members would participate in DROP for the December 31, 2011 actuarial valuation (which was the first actuarial valuation performed by the retained actuary for AFRRF). Based on correspondence during this actuarial audit, the retained actuary indicated that they determined that the value of the DROP under the current assumptions was cost neutral.

Based on the scope of this actuarial audit, it is difficult for us to determine whether, or not, the AFRRF DROP is cost neutral. The DROP balance accumulated by eligible members can be a significant amount of money. As such, it is imperative that the cost of the DROP is appropriately modeled by the retained actuary. Any of the following factors can impact the relative cost of DROP:

- Change in actuarial assumptions (e.g., investment return, mortality, etc),
- Granting of COLAs during the member's DROP period,
- Plan modifications (to the DROP or other plan features), and
- Change in workforce behavior.

For these reasons, we recommend that the retained actuary explicitly incorporate the DROP provisions into the actuarial valuation of AFRRF. The remaining benefits promised by AFRRF were reasonably incorporated in the actuarial valuation of AFRRF. If the retained actuary's assessment of the cost of DROP is correct, then this change will have no impact on the valuation results.

Actuarial Valuation Results

As part of its review, GRS requested sample participant calculations from the retained actuary to ensure that the retained actuary valued the correct benefit levels, used the correct assumptions, and calculated the liabilities correctly on an individual basis.

Generally accepted actuarial standards and practices provide actuaries with the basic mathematics and framework for calculating the actuarial results. When it comes to applying those actuarial standards to

complex calculations, differences may exist due to individual opinion on the best way to make those complex calculations or other differences may occur due to nuances in the valuation software programming. This may lead to differences in the calculated results, but these differences should not be material.

Active Participants. At the onset of the review, we requested that the retained actuary provide sample liability calculations that show probabilities of decrement by age, estimated pay and benefits by age, and values of benefits or pay by age for each decrement in sufficient detail to verify the calculation of the present value of benefits, present value of pay, accrued liability and normal cost for 12 active participants. The retained actuary provided all of the requested detail for all 12 members.

We have previously noted our comments on the application of the actuarial cost method (Section IV), the assumptions (Section III), and the DROP. We identified one additional element of the actuarial valuation of active participants that should be corrected for the next valuation. This issue does not have a material impact on the actuarial valuation of AFRRF.

> *Death and Disability Benefits Prior to Age 25* – The projected benefits prior to age 25 were zero in the actuarial valuation of active members in the samples we reviewed. Active members are eligible for death and disability benefits prior to age 25, so projected benefits of zero impact the liability associated with these two benefits. Based on correspondence with the retained actuary during the actuarial audit, the projected benefits prior to age 25 were inadvertently set to zero due to a misapplication of the IRC Section 415 limit.
>
> In the next actuarial valuation, we recommend that the retained actuary correct the application of the IRC Section 415 limit so that the projected benefits prior to age 25 are not limited to zero. Additionally, we recommend that the retained actuary review the application of the IRC Section 415 limit for all benefits, and at all ages, to ensure that the limit is being appropriately applied in all cases.

Based on our review of the other aspects of the actuarial valuation, the liability determination of active participants was reasonable and appropriately determined.

Annuitants. At the onset of the review, we requested that the retained actuary provide liability amount, benefit amount, form of benefit, age of participant, and age of beneficiary (where applicable) for 12 annuitants. The retained actuary provided all of the information we requested regarding the annuitants.

Based on our review, the liability determination of annuitants was reasonable and consistent with the stated assumptions and methods.

Summary

We believe that the valuation results were developed in a reasonable manner. In the next actuarial valuation, we recommend that the retained actuary incorporate the following enhancements into their valuation of active participants:

- We recommend that the retained actuary explicitly value the DROP provisions using the actuarial assumptions for DROP utilization adopted by the Board as part of the 2009 experience study.
- We recommend that the retained actuary correct the application of the IRC Section 415 limit so that the projected benefits prior to age 25 are not limited to zero. Additionally, we recommend that the retained actuary review the application of the IRC Section 415 limit for all benefits, and at all ages, to ensure that the limit is being appropriately applied in all cases.

SECTION VI

CONTENT OF THE VALUATION REPORT

Content of the Valuation Report

ASOP No. 4, Measuring Pension Obligations and Determining Pension Plan Costs, and ASOP No. 41, Actuarial Communications, provide guidance for measuring pension obligations and communicating the results. These Standards of Practice list specific elements to be included, either directly or by references to prior communication, in pension actuarial communications. The pertinent items that should be included in an actuarial valuation report on a pension plan should include:

- The name of the person or firm retaining the actuary and the purposes that the communication is intended to serve.
- A statement as to the effective date of the calculations, the date as of which the participant and financial information were compiled, and the sources and adequacy of such information.
- An outline of the benefits being discussed or valued and of any significant benefits not included in the actuarial determinations.
- A summary of the participant information, separated into significant categories such as active, retired, and terminated with future benefits payable. Actuaries are encouraged to include a detailed display of the characteristics of each category and reconciliation with prior reported data.
- A description of the actuarial assumptions, the cost method and the asset valuation method used. Changes in assumptions and methods from those used in previous communications should be stated and their effects noted. If the actuary expects that the long-term trend of costs resulting from the continued use of present assumptions and methods would result in a significantly increased or decreased cost basis, this should also be communicated.
- A summary of asset information and derivation of the actuarial value of assets. Actuaries are encouraged to include an asset summary by category of investment and reconciliation with prior reported assets showing total contributions, benefits, investment return, and any other reconciliation items.
- A statement of the findings, conclusions, or recommendations necessary to satisfy the purpose of the communication and a summary of the actuarial determinations upon which these are based. The communication should include applicable actuarial information regarding financial reporting. Actuaries are encouraged to include derivation of the items underlying these actuarial determinations.
- A disclosure of any facts which, if not disclosed, might reasonably be expected to lead to an incomplete understanding of the communication.

We have reviewed the actuarial valuation report prepared by the retained actuary and we have noted a few modifications to the report that would allow the report to adhere more closely with ASOP Nos. 4 and 41.

Cover Letter

ASOP No. 41 requires that actuarial communications should disclose "any information on which the actuary relied that has a material impact on the actuarial findings and for which the actuary does not assume responsibility."

In the cover letter of the valuation report, the retained actuary indicated that they relied on personnel, plan design, financial reports, and asset information supplied by the City of Austin. This information was actually provided by the staff of AFRRF.

We recommend that the retained actuary properly disclose the source of the information relied upon as part of the actuarial valuation.

Actuarial Assumptions and Funding Methods

The presentation of actuarial methods and assumptions is generally complete and understandable. The methods described in this section are reasonable and appropriate for public retirement plans. We do have the following suggestions to improve the overall communication of the valuation assumptions.

Interest Rate – The investment return assumption is stated in the December 31, 2011 valuation report as net of expected investment fees paid from the trust. However, since there is no explicit administrative expense assumption incorporated into the normal cost of AFRRF, we have assumed that the investment return rate is intended to be net of both investment and plan administrative expenses. We recommend the retained actuary clarify how the anticipated administrative expenses are incorporated into the actuarial valuation in the next actuarial valuation report.

Mortality Rates - Healthly Lives – The statement of the healthy life mortality assumption should indicate that the generation mortality improvements are based on Scale AA.

Marital Status – In addition to stating that 100% of actives are assumed to be married, the valuation report should also state the assumed age difference for spouses. Based on the 2008 experience study, the assumption at that time was that males are assumed to be three years older than females.

Dependent Children – The actuarial valuation of active members must incorporate an assumption for dependent children in order to determine the liability associated with active death benefits. The December 31, 2009 actuarial valuation report indicates that 50% of active members are assumed to have dependent children and the age of the youngest child is assumed to be one year. We recommend that the retained actuary state the assumptions used to determine the liability associated with the active death benefits payable to dependent children.

Summary of Benefit Provisions

The presentation of the major plan provisions is generally complete and understandable. We do have the following suggestion to improve the overall communication of the plan provisions.

Normal Retirement Benefit – The description of the minimum benefit should be expanded to incorporate the minimum benefit increase to $2,000 per month, effective July 1, 2012, to all retirees and surviving spouses who are currently receiving normal service or disability benefits that initially commenced prior to January 1, 1994.

Valuation Notes

The Valuation Notes section of the actuarial valuation report provides the definition of key terms in the actuarial valuation. We recommend that the retained actuary include a definition of "pay less than

assumed retirement age" in the next actuarial valuation report. Based on correspondence with the retained actuary during the actuarial audit, we believe that "pay less than assumed retirement age" represents the payroll expected to be paid in the upcoming year to the active members as of the valuation date. The active members that are assumed to leave active service during the upcoming year will only receive a portion of their annual salary, so this amount is less than the total annual payroll of all members.

Summary

In general, the actuarial valuation report complied with the applicable Actuarial Standards of Practice. In order to improve the ability of the report to communicate the assumptions, methods and plan provisions incorporated into the December 31, 2011 actuarial valuation, we recommend that the retained actuary incorporate the noted enhancements into future actuarial valuation reports.

SECTION VII

FINAL REMARKS

Final Remarks

The auditing actuarial firm, Gabriel, Roeder, Smith & Company (GRS), is independent of the retained actuarial firm and the City of Austin. The auditing actuaries are not aware of any conflict of interest that would impair the objectivity of this work.

We have presented many suggestions for areas where we believe the product can be improved. The retained actuary has access to information and experience with retirement plans similar to AFRRF. We understand that the retained actuary may agree with some of our recommendations, while rejecting others. We ask that the retained actuary and AFRRF consider our recommendations carefully. We hope that the retained actuary and AFRRF find these suggestions useful.

July 14, 2014

Mr. Bill Stefka
Plan Administrator
Austin Firefighters' Relief and Retirement Fund

Re: Actuarial Audit

Dear Bill:

As requested, I am writing to formally respond with comments on the Actuarial Audit performed by Gabriel Roeder Smith & Company (GRS) regarding the December 31, 2011 actuarial valuation of the above referenced plan. The purpose of this response is to address these comments/suggestions and illustrate what impact, if any, adoption of the suggestions may have on the funding amortization period of the plan. We take these audits very seriously, and welcome any suggestions from peer competitors on how we can improve our product. For this reason we willingly provided GRS all of the data they requested, along with specific test case examples which essentially allow them to "get under the hood" and examine exactly how our actuarial valuation was performed. We also held multiple conference calls to address specific questions that arose in the course of their review.

Like most actuarial audits, the auditing actuary first comments on whether or not the Board actuary reasonably characterized the funding levels and financial status of the plan. As we anticipated, GRS found that "the actuarial valuations, studies, and reports of AFRRF are reasonable, used appropriate assumptions, complied with the Actuarial Standards of Practice, and complied with the Texas PRB Guidelines for Actuarial Soundness." This is by far the most important determination the auditing actuary makes in their review.

Additionally, like most audits, the auditing actuary provides specific comments regarding the valuations, including suggestions for improvement or change in future valuations. All of their suggestions, if adopted, would have a minimal impact on the funding amortization period of the plan. A summary of their suggestions and our comments are listed below:

1) **Use the "Total Annual Payroll" to determine the contributions available to finance the UAAL.**

   Their approach effectively assumes that when a member retires during the year, the retiring member will be replaced by a member with equal pay, or if not, that the total payroll of the department will not decline as a result of this retirement. Historically, we included pay only for those current members who we anticipated would be generating a Normal Cost to the plan during the year. Hence, the total payroll assumed under our approach would be less than that utilized under GRS' recommended approach. Their approach is less conservative than ours, and we think either approach is fine. We really have no passion around either approach, and depending upon the year, either approach could be viewed as being more accurate. The result of adopting their approach lowers the amortization funding period in the 2011 valuation by 1.93 years, so we decided to adopt this approach as part of the 2013 valuation.

2) **Correct the application of the IRC Section 415 limit so that the projected benefits prior to age 25 are not limited to zero.**

GRS is correct and we have fixed the coding error in our 2013 valuation. The impact of fixing this was a decline in the amortization period of 0.01 years. So essentially, this was an immaterial item.

3) **Review application of the Entry Age Normal (EAN) Method and consider the most appropriate application for AFRRF.**

The funding span currently being utilized in our valuation when determining the normal cost rate for each benefit is to the last age at which that benefit is payable. GRS' recommended approach is to determine the normal cost rate by using a funding span for each benefit, regardless of when the eligibility for that benefit ceases, from a participant's date of hire to the date the valuation assumes they have a 100% probability of retiring. While we take all of their suggestions seriously, we believe that our application of the Entry Age normal is appropriate. The impact of a change to their approach is a decline in amortization period of 0.21 years, so we feel that this is not material enough to warrant a change or any further discussion. Additionally, we disagree with their interpretation that our application would run contrary to what the new GASB rules suggest.

4) **Incorporate the hypothetical salary history instead of the actual salary history into the projected benefits for development of the Normal Cost rate for each member to ensure that salary increases different than expected are reflected in the actuarial accrued liability and not the normal cost.**

While we understand that using this approach would add some purity to the development of the actuarial accrued liability, we also believe that some accuracy would be lost in the development of the Normal Cost, in particular for those Members within a few years of retirement. Their suggested approach would project incorrect final averages for these Members, and for this reason, we feel that our current approach is more appropriate. If we were to change to their approach, the amortization period would change by less than 0.5 years, but we do not support this change.

5) **Explicitly value the DROP provisions using the actuarial assumptions for DROP utilization adopted by the Board as part of the 2009 Experience Study.**

Based on an analysis between sample lives with and without utilization of the stated DROP assumptions, we determined the valuation of the DROP to be cost neutral. We will continue to review these assumptions based on demographics in future valuations to ensure the valuation of the DROP remains appropriate.

6) **Continue to monitor the inflation assumption to ensure that it continues to be reasonable.**

We will continue to monitor this assumption, as well as all of the other actuarial assumptions.

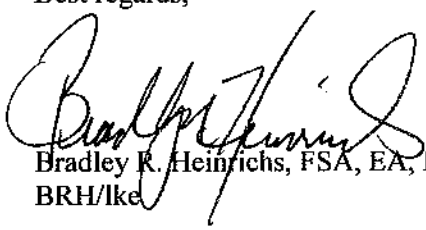
7) **Concern that the current COLA policy runs contrary to the Pension Review Board Guidelines for benefit increases.**

   While we will conduct a more thorough review prior to any future benefit increases, we believe that the current policy is not in violation of their guidelines, and that the current policy ensures that benefit improvements are only granted when the financial health of the fund is strong.

In summary, we appreciate the reassurance that another actuarial firm was able to generally agree with our development of the 2011 actuarial valuation. We have incorporated a few of their suggestions/comments in the 2013 actuarial valuation, but as described above, none of the changes materially impacted the funding amortization period.

If you have any questions, comments, or would like to discuss this further, please do not hesitate to contact me.

Best regards,



Bradley R. Heinrichs, FSA, EA, MAAA
BRH/lke