City of El Paso

Actuarial Audits of the City's Public Employee Pension Funds

December 12, 2013

Rudd and Wisdom, Inc.
CONSULTING ACTUARIES

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CONSULTING ACTUARIES

December 12, 2013

Via E-Mail: arrietacx@elpasotexas.gov, plummw@elpasotexas.gov

Ms. Carmen Arrieta-Candelaria, Chief Financial Officer
City of El Paso – Office of the CFO
221 N. Kansas, Suite 1601, Wells Fargo Plaza
El Paso, TX 79901-1400

Re: Actuarial Audits of the City's Public Employee Pension Funds

Dear Ms. Arrieta-Candelaria:

In accordance with our contract with the City of El Paso, we have prepared this final report of our actuarial audit of the El Paso City Employees' Pension Fund and the El Paso Firemen and Policemen's Pension Fund for the five years ending in 2013. Rudd and Wisdom, Inc. was selected for this project to provide an actuarial audit as an independent actuary. This actuarial audit was conducted to comply with the requirements of Section 802.1012 of the Texas Government Code.

This final report includes these items:

- Revised Preliminary Report for the City of El Paso Employees' Fund
- Response from Buck Consultants to the Revised Preliminary Report for the City of El Paso Employees' Fund
- Revised Preliminary Report for the Firemen and Policemen's Fund
- Response from Buck Consultants to the Revised Preliminary Report for the El Paso Firemen and Policemen's Fund

The actuarial services for the two funds during the five years have been provided by Buck Consultants (Buck). When we refer to Buck, we are referring collectively to the actuaries who provided the actuarial services. Our revised preliminary reports for each fund include a discussion of our review of the methods, assumptions, calculations, and communications that were involved in Buck's actuarial services for that fund. The executive summary of each report contains the scope of the actuarial review, a summary of our key findings, and a summary of our key recommendations.

Statement of Key Findings

In the executive summary of the report for the City Employees' Fund, we said:

> **Based upon our review of the September 1, 2012 actuarial valuation by Buck and of the actuarial assumptions and methods used in the valuation, the actuarial valuation by Buck provided a reasonable assessment of the actuarial condition of the Fund, except that the actuarial liability and the amortization period for the unfunded actuarial accrued liability (UAAL) were somewhat understated due to mortality assumptions that were reasonable but not fully appropriate.**

In the executive summary of the report for the Firemen and Policemen's Fund, we said:

> **Based upon our review of the January 1, 2012 actuarial valuations by Buck and of the actuarial assumptions and methods used in the valuations, the actuarial valuations by Buck provided a reasonable assessment of the actuarial condition of both the Firemen's Pension Fund and the Policemen's Pension Fund.**

Summary of Responses from Buck

For the report on the City Employees' Fund, Buck's responses to our nine key recommendations can be summarized with these statements:

- Buck disagreed with three recommendations, including our first two recommendations, which were on mortality assumptions.
- Buck agreed or partially agreed with three recommendations.
- Buck did not object to three recommendations.

For the report on the Firemen and Policemen's Fund, Buck's responses to our nine key recommendations can be summarized with these statements:

- Buck disagreed with one recommendation.
- Buck agreed with two recommendations.
- Buck did not object to six recommendations.

Concluding Remarks

In light of the responses of Buck to our key recommendations, we recommend that the city encourage the two boards to request that Buck implement most of our key recommendations:

- Both boards should request that Buck implement the recommendations to which they did not object but said or implied they would implement if asked by the board.
- The City Employees' Fund board should ask Buck to review their mortality assumptions as described on page 7 of our revised preliminary report to the board before the next actuarial valuation in order to clearly comply with ASOP No. 35.

  In reviewing the actuarial assumptions for the City Employees' Fund in 2011, Buck used experience over six years that included 293 male deaths and 161 female deaths among healthy retirees. We like the published tables they selected; however, they gave full credibility to the fund's experience for adjusting the published tables. For private pension plans, the IRS requires experience over a maximum of five years that has at least 1,000 deaths for each sex in order to give full credibility to the experience. Requiring 1,000 deaths is probably too high a standard, but in our opinion, 293 and 161 deaths are too low to rely on completely for adjusting a published table.

  Actuarial Standard of Practice (ASOP) No. 35 is the applicable ASOP for mortality assumptions. It says in section 3.3.4 that "the actuary should not give undue weight…to experience that is not sufficiently credible." We believe this is a case in which the experience is not sufficiently credible simply because the number of annuitants is not large enough, resulting in only 293 male and 161 female deaths over a six-year period.

  Buck's response to our recommendation to change the mortality assumptions by the next actuarial valuation included this sentence: "The practice of conducting experience studies at regular intervals and updating assumptions accordingly must be borne in mind in assessing compliance with the requirements of ASOP 35." However, section 3.9 of ASOP No. 35, quoted below, includes the standard of reviewing assumptions for each actuarial valuation date (referred to as "measurement date").

> Reviewing Assumptions – At each measurement date the actuary should consider whether the selected assumptions continue to be reasonable. The actuary is not required to do a complete assumption study at each measurement date. However, if the actuary determines that one or more of the previously selected assumptions are no longer reasonable, the actuary should follow the general process described in section 3.3 and select reasonable new assumptions as appropriate.

Thank you for the opportunity to serve the City of El Paso and the boards of the two funds through this actuarial audit. We appreciate the cooperation of Mr. Robert Ash and his board and of Mr. Robert Stanton and his board throughout the steps of the actuarial audit. We made nine key recommendations for each fund in the executive summary and other recommendations that did not appear in the executive summary. We made these recommendations hoping that Buck would find them useful for improving or enhancing their actuarial services for the two funds.

We are members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

Mark R. Fenlaw

Mark R. Fenlaw, F.S.A.

Coralie A. Taylor

Coralie A. Taylor, A.S.A.

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El Paso City Employees' Pension Fund

ACTUARIAL AUDIT

October 24, 2013

Rudd and Wisdom, Inc.
CONSULTING ACTUARIES

9500 Arboretum Boulevard., Suite 200
Austin, Texas 78759

Rudd and Wisdom, Inc.

CONSULTING ACTUARIES

October 24, 2013

Via E-mail: ashrx@elpasotexas.gov
Board of Trustees
c/o Mr. Robert B. Ash, Pension Administrator
El Paso City Employees' Pension Fund

Re: Actuarial Audit – Revised Preliminary Report

Dear Board Members:

In accordance with our contract with the City of El Paso, we have prepared this revised preliminary report of our audit of the actuarial valuations, studies, and reports related to the El Paso City Employees' Pension Fund (the Fund) for the five years ending in 2013. Rudd and Wisdom, Inc. was selected for this project to provide an actuarial audit as an independent actuary. This actuarial audit was conducted to comply with the requirements of Section 802.1012 of the Texas Government Code.

The actuarial services for the Fund during the five years have been provided by Buck Consultants (Buck). When we refer to Buck, we are referring collectively to the actuaries who provided the actuarial services. This report includes a discussion of our review of the methods, assumptions, calculations, and communications that were involved in Buck's actuarial services for Fund over five years. The majority of the emphasis of our actuarial review (which is a more appropriate description than actuarial audit), was on the most recent actuarial valuation as of September 1, 2012 and the review of actuarial assumptions in the April 2011 report of the actuarial experience study for the six-year period ending August 31, 2010. The Executive Summary contains the scope of the actuarial review, a summary of our key findings, and a summary of our key recommendations.

This report is the revised preliminary report to be reviewed by the board and by Buck. The final report to the city will include the response to this revised preliminary report

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from the board, probably with the assistance of Buck. We welcome the input of Buck to correct or clarify anything we have written in this revised preliminary report.

We are members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

Mark R. Fenlaw

Mark R. Fenlaw, F.S.A.

Coralie A. Taylor

Coralie A. Taylor, A.S.A.

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I. Executive Summary

Scope of the Actuarial Review

The scope of the project the City of El Paso engaged us to complete includes analyzing the recent actuarial services provided by Buck for the board. The audit must consider the following items:

- A review of the actuarial valuations, studies, and reports for the five years ending in 2013
- Testing of various valuation calculations by using sampling (full replication of the valuation not required)
- Appropriateness of the actuarial cost method used to calculate the normal cost and actuarial accrued liability
- Appropriateness of the method used to develop the actuarial value of assets
- Appropriateness of the assumptions used in the actuarial valuation
- Completeness of the valuation report and any additional items which the reviewing actuary believes should be included in future valuation reports
- Whether the valuation was performed in accordance with the requirements of the Pension Review Board's "Guidelines for Actuarial Soundness", and relevant Actuarial Standards of Practice
- A critique of the actuaries' judgment concerning the Fund's exposure to risk

Statement of Key Findings

Our review of Buck's actuarial services for the board was detailed in many respects, and, as a result of our findings, this report includes a number of recommendations that deal with details. Even though our review of the testing of the valuation results by using sampling may be of most interest to you, this report should be considered as a whole. When we compared our sample lives calculations to those made by Buck, the comparison was one part of our review to assist us in judging the appropriateness of Buck's valuation.

Based upon our review of the September 1, 2012 actuarial valuation by Buck and of the actuarial assumptions and methods used in the valuation, the actuarial valuation by Buck provided a reasonable assessment of the actuarial condition of the Fund,

except that the actuarial liability and the amortization period for the unfunded actuarial accrued liability (UAAL) were somewhat understated due to mortality assumptions that were reasonable but not fully appropriate. Our findings can be summarized as follows:

- The sample actuarial calculations (limited to present value of future benefits)
  - accurate
- The asset valuation method
  - appropriate
  - correctly applied
- The actuarial cost method and amortization method
  - appropriate
  - limited in review of application by Buck's not sharing their calculations
- The actuarial assumptions
  - appropriate except for the mortality assumptions
  - correctly applied
- The valuation results
  - reasonable but somewhat understated due to the mortality assumptions
- The actuarial communications in the actuarial valuation report
  - appropriate and well written
  - generally clear
  - complete with these exceptions
    - discussion of investment risk and reward should be included
    - cost-reducing effect of rolling amortization period was not identified
    - ASOP No. 4 required language on risk was omitted
    - amortization method should be more fully described
    - description of withdrawal rates assumption was incomplete
    - assumption about unused sick leave was omitted
- The actuarial communications in the experience study report
  - appropriate
  - generally clear
  - more detail desirable in some parts (similar to 2008 recommendation)
- The actuarial valuation
  - complied with Texas Government Code except for a glossary of terms
  - complied with PRB "Guidelines for Actuarial Soundness"
  - complied with relevant Actuarial Standards of Practice except for the mortality assumptions and the omission of required language on risk

Statement of Key Recommendations

The key recommendations resulting from our review are in order of importance and are summarized below.

- The service retirement mortality assumptions should be revised in order to clearly comply with Actuarial Standard of Practice (ASOP) No. 35 by the next actuarial valuation.
- The disabled lives mortality assumption, even though a relatively minor assumption, should be reviewed and changed to a more appropriate assumption by the next actuarial valuation.
- The valuation report should include some discussion of investment risk and reward and its potential effects on the amortization period in future valuations to give the board and the city insights into the next two actuarial valuations.
- The valuation report should include in the analysis of change in funding cost the cost-reducing effect of rolling the amortization period from 28 years to 30 years.
- The amortization method for determining the period required to amortize the UAAL (21 years as of September 1, 2012) should be more fully described in the valuation report.
- An incomplete description of the withdrawal rates assumption in the valuation report should be corrected beginning with the September 1, 2014 actuarial valuation.
- Documentation of the experience study should include more detail to support the recommended mortality assumption.
- Buck's report of their review of the investment return assumption should include disclosure of their assumed long-term real rates of return by asset class.
- The experience study report should include full sets of withdrawal rates, disability rates, and the non-published disabled lives mortality rates to document what was recommended and adopted since only sample ages are shown in the valuation report.

The rest of this report includes a more detailed discussion of our review of the methods, assumptions, calculations, and communications that were involved in Buck's actuarial work for the board.

II. Actuarial Methods

We reviewed the actuarial cost method, the actuarial asset valuation method, and the amortization method used by Buck in the actuarial valuations we reviewed.

Actuarial Cost Method

The actuarial cost method used by Buck is the entry age actuarial cost method. It is the most common method used by public employee retirement systems in the United States. It has the advantage of more stability from year to year in the normal cost contribution rate than with any other acceptable actuarial cost method. **We believe that the entry age actuarial cost method is reasonable, acceptable, and appropriate for the Fund's benefit design and for meeting the financing objectives implied in Buck's report:** contribution rates by the members and the city, as percents of total salary, are intended to pay the normal cost and to amortize the unfunded actuarial accrued liability (UAAL) over a reasonable period, as a level percent of total payroll. **We were not able to review the correctness of the application of the entry age actuarial cost method because Buck declined to share any sample life calculations of the normal cost.**

Actuarial Asset Valuation Method

The method used to determine the actuarial value of assets in each of the valuations is a smoothing method that spreads annual asset gains and losses over five years. An annual gain or loss is measured as the difference between actual net investment income and expected net investment income based upon the assumed investment return rate in that year. The smoothed actuarial value of assets is not restricted by a corridor around the market value of assets. A corridor is used by many public employee pension plans. However, a corridor is not really required for the five-year smoothing method. **A five-year smoothing method is used by many public employee retirement systems, and we believe it is appropriate for the Fund. We found that the method used for determining the actuarial value of assets is reasonable and consistent with ASOP No. 44.**

We were able to replicate the actuarial value of assets as of September 1, 2012 based on financial statements we were provided for the period September 1, 2011 to August 31, 2012.

Amortization Method

A funding policy includes the amortization of the UAAL, which includes a period and a method. The actuarial valuation reports have included both a 30-year period for determining a 30-year funding cost for the city for accounting purposes and an actuarially determined amortization period because the actual contribution rates are determined in advance by city ordinance. For the 30-year funding cost the amortization method expects the amortization payments to be level as a percent of covered payroll. The level percent of payroll amortization method is appropriate for a public employee defined benefit pension plan that is expected to continue indefinitely. In addition, it complies with both the Texas Pension Review Board (PRB) "Guidelines for Actuarial Soundness" and the parameters found in the Governmental Accounting Standards Board (GASB) statements on defined benefit pension plan accounting (GASB 25 and 27).

For the actuarially determined amortization period, the sentence describing the amortization method in the footnote on the bottom of page 4 is an incomplete description. **We recommend that this amortization method be more fully described in the valuation report.** There are actually two parts of the projected amortization payments. One part is the percent of pay for the Tier 1 members' projected pay reflecting the excess of the total contribution rate over the Tier 1 normal cost rate. In addition the closed group has an aggregate annual payroll projected to decline each year because it is a closed group. The second part is the percent of pay for the projected Tier 2 members' projected pay reflecting the excess of the total contribution rate over the somewhat lower Tier 2 normal cost rate. In addition since the total number of active members is assumed to remain constant each year, the projected number of Tier 2 members is increasing each year. The calculation reflected the contribution rates increasing in accordance with the city ordinance effective September 1, 2013 and September 1, 2014 and then assumed level contribution rates thereafter. Ignoring the two increases in the contribution rates, the net effect of this complex amortization method determination is that total amortization payments are assumed to gradually increase as a percent of aggregate payroll. Technically this increasing percent of payroll method does not comply with the PRB guidelines (amortization "should be level or declining as a percent of payroll over the amortization period"). However, it is appropriate for the two-tier benefit design because the aggregate normal cost rate is expected to gradually decrease as it approaches the Tier 2 normal cost rate.

We were not able to review the correctness of the determination of the 21-year amortization period because Buck declined to share any of the details of their determination and would only describe the methodology.

The 30-year period for amortizing the UAAL for determining the 30-year funding cost for the city is the maximum period allowed currently under GASB 25 and 27. In addition, the 30-year period used to be in the preferred range of the PRB guidelines (25 to 30 years). The PRB guidelines were revised in 2011, and the preferred range for the UAAL amortization period is now 15 to 25 years. The actuarially determined amortization period as of September 1, 2012 was 21 years; so the period complies with that aspect of the current PRB guidelines. **Therefore, both the amortization period and amortization methods for the UAAL are appropriate and comply with GASB parameters and PRB guidelines (except for the actuarially determined amortization period being based on an increasing percent of payroll method).**

III. Actuarial Assumptions

Review Process

We reviewed the summary description of the actuarial assumptions used in the September 1, 2012 actuarial valuation. Then we reviewed the PowerPoint presentation of the actuarial experience study for the six-year period ending August 31, 2010 to see how the actuarial assumptions were developed.

Actuaries have different opinions and different preferences for setting, reviewing, and adjusting actuarial assumptions, which generally have a range of reasonable alternatives. Actuarial standards of practice for setting, reviewing, and adjusting actuarial assumptions provide guidance to actuaries about the process and considerations, not about the actual assumptions themselves. The two actuarial standards of practice (ASOP) for selecting actuarial assumptions, ASOP Nos. 27 and 35, first became effective in 1997 and 2001, respectively. One of the principles included in both of these ASOPs is that for each valuation the actuary should consider whether the selected assumptions continue to be reasonable. The actuary is not required to do a complete assumption study for each valuation, but a review for reasonableness should be a part of each valuation. (See Sec. 3.12 of ASOP No. 27 and Sec. 3.9 of ASOP No. 35.)

With that background in the ASOPs, the experience studies every six years for the Fund take on added significance. The actuaries have the opportunity to thoroughly review and study the most important of the assumptions and to recommend adjustments to the assumptions, based on the underlying experience, their interpretation of the experience, any trends that are suggested by the experience, and their expectations about the future experience. Ideally, the recommended assumptions will continue to be reasonable and appropriate for the next six years in which there will be three biennial valuations. However, the actuary is still required, for each actuarial valuation, to consider whether the selected assumptions continue to be reasonable.

Findings

The summary conclusions of our review of the actuarial assumptions are that the development of the assumptions reflected quality actuarial services, all of the assumptions are reasonable, and most of them are appropriate for the next actuarial valuation, the exceptions being the mortality assumptions. Our most significant recommendation involves the development of the mortality assumptions. Our other recommendations deal with documentation details and are included in Section V for Buck's consideration for enhancing the quality of their actuarial services.

Mortality Assumptions

In the one page on mortality rates in the presentation of the six-year experience study, Buck analyzed the then-current mortality assumptions by comparing the number of actual deaths among service retirees during the six-year observation period to the number of deaths expected according to the current mortality rates and the proposed rates. The approach taken was the classic actual-to-expected analysis that is usually appropriate for an experience study. We think the basic published mortality tables selected by Buck are appropriate parts of the mortality assumptions. However, for setting an age adjustment and margins for future mortality improvement in those basic tables, **Buck gave full credibility to experience that included 293 male deaths and 161 female deaths among healthy retirees, which is not enough experience alone for establishing mortality assumptions in our opinion.**

For the number of the service retirees in the Fund, we recommend using the same basic published tables being used by Buck and projecting mortality to a year in the future that will still be beyond the actuarial valuation dates occurring before the next six-year experience study, as Buck did, but using at most half of the two-year age adjustment they used. A one-year age adjustment would give more margin for mortality improvement based on the Fund's somewhat limited experience. So we recommend the RP-2000 Combined Healthy Mortality Table with a one-year age set forward projected to 2017 for males and for females (two sex-distinct tables). **In other words, we recommend that Buck consider relying on the credibility of the combination of the Fund's limited experience with the published tables' large volumes of experience (over 190,000 deaths) for determining an age adjustment.** With this approach, Buck would be in compliance with ASOP No. 35 because they would not be relying solely on limited amounts of experience for determining an age adjustment. The application of this recommended approach would increase the actuarial liability by approximately 3%. It is beyond the scope of this actuarial audit for us to determine the exact effects of this recommended approach for the mortality assumptions on the September 1, 2012 actuarial valuation.

The mortality assumption for disabled annuitants is a relatively minor assumption for most defined benefit pension plans. Buck's review of assumptions presented in April 2011 did not mention this assumption. Buck told us that the Fund's prior actuary had been using the current assumption, and they have continued using it. It is a table based on Social Security experience from 1972-1976 published in 1978. Compared to the RP-2000 Disabled Retirees mortality tables for males and for females, the currently assumed mortality rates are too high to be appropriate. **We recommend that the disabled lives mortality assumption, even though a relatively minor assumption, be reviewed and changed to an appropriate assumption.** We like the simplifying assumption Buck uses for the fire and police plans, assuming the same mortality for disabled annuitants as for service retirees.

IV. Actuarial Calculations

Our review of sample life results for active and inactive members was limited by Buck's policy not to provide sample life detail. Therefore, we were not able to understand any differences in Buck's present value of future benefits for each sample life they provided compared to our calculations of the present value of future benefits for each sample life. While we matched exactly Buck's calculations for the four pensioners we selected, we got reasonably close for only two of the six actives. Therefore, we cannot be as sure as we would like to be that the plan provisions and actuarial assumptions were accurately reflected in the September 1, 2012 actuarial valuation for the Fund.

We selected a number of individuals to review, including a selection of active employees representing a variety of ages, service, compensation and gender, and a selection of inactive participants representing service retirees with four different forms of annuities. Our review was performed by independently calculating the present value of future benefits (PVB), the actuarial accrued liability (AAL), and the normal cost (NC) for a representative sample of active participants and the PVB for a representative sample of inactive participants. We then requested comparable calculations from Buck so we could compare our results to the results provided by Buck in order to verify that the Buck valuation results accurately reflect the plan provisions and the chosen actuarial assumptions. However, for each sample life Buck would only provide the PVB, and for each active the salary and the present value of future salary.

Recognizing that variations in individual sample life results can occur as a result of differences in detailed methodologies, we would have further reviewed more detailed calculations provided when our sample life results for the active members did not closely enough match the results provided by Buck. However, we could not go any further due to Buck's policy not to provide the details.

After receiving the original preliminary report, the board asked Buck to work with us. They suggested that we provide them some of our sample life calculation detail, and they would review it to identify reasons for the differences. As a result, we were able to get comfortable with their PVB for the active member sample calculations, and we submitted this revised preliminary report.

The results of our limited sample life matching are shown in Exhibit 1. The bottom part of the exhibit shows that we were able to match Buck's results for each individual in pay status. The variations in the two sets of PVB for the active sample lives in the top part of Exhibit 1 are not unexpected because there is additional complexity in valuing active participants. Minor differences in methodologies may produce noticeable differences in results on an individual level, but would not be expected to produce significant differences in the aggregate. However, we were able to get within 5% of Buck's PVB for each of the six active members, a close enough match for active members.

Overall, we believe that Buck reflected plan provisions and actuarial assumptions with sufficient accuracy in the September 1, 2012 valuation that the results in that valuation may be comfortably relied upon, except for the reasonable but somewhat understated results due to the mortality assumptions.

Exhibit 1

El Paso City Employees' Pension Fund

Active Member Sample Calculations

			Present Value of Future Benefits			Covered Salary			Present Value of Future Salary		
Type	Age	Service	Buck	R&W	Ratio	Buck	R&W	Ratio	Buck	R&W	Ratio
Tier 1, retirement eligible	52.0	27.1	316,564	316,907	100.1%	42,394	42,359	100%	245,052	263,838	108%
Tier 2, not retirement eligible	36.3	0.1	62,009	60,405	97.4%	58,079	57,883	100%	500,522	527,046	105%
Tier 1, not retirement eligible	56.3	4.9	53,402	52,590	98.5%	22,000	21,955	100%	122,289	137,042	112%
Tier 1, retirement eligible	44.4	23.2	288,547	283,682	98.3%	45,266	45,214	100%	343,089	371,003	108%
Tier 2, not retirement eligible	61.4	0.6	26,240	26,225	99.9%	26,138	26,050	100%	132,097	150,299	114%
Tier 1, not retirement eligible	50.6	1.5	46,870	46,731	99.7%	23,060	22,990	100%	179,542	198,566	111%

Inactive Member Sample Calculations

		Present Value of Future Benefits		
Type	Age	Buck	R&W	Ratio
Retiree, Joint & 2/3%	76.3	323,913	323,944	100.0%
Retiree, Life Annuity	79.8	28,530	28,530	100.0%
Retiree, Joint & 100%	42.7	41,346	41,346	100.0%
Retiree, Joint & 50%	52.8	764,151	764,151	100.0%

V. Actuarial Communications

Review Process

We reviewed the Buck six-year experience study presentation dated April 2011, their September 1, 2012 actuarial valuation report dated January 14, 2013, and their October 5, 2011 letter regarding the estimated September 1, 2011 valuation results. In this part of our actuarial review, we examined the content of Buck's actuarial communications. ASOP No. 41, Actuarial Communications, includes three statements shown below that are relevant to our review.

Section 3.1.1 Form and Content – The actuary should take appropriate steps to ensure that the form and content of each actuarial communication are appropriate to the particular circumstances, taking into account the intended users.

Section 3.1.2 Clarity – The actuary should take appropriate steps to ensure that each actuarial communication is clear and uses language appropriate to the particular circumstances, taking into account the intended users.

Section 3.2 Actuarial Report – The actuary should complete an actuarial report if the actuary intends the actuarial findings to be relied upon by any intended user. The actuary should consider the needs of the intended user in communicating the actuarial findings in the actuarial report.

An actuarial report may comprise one or several documents. The report may be in several different formats (such as formal documents produced on word processing, presentation or publishing software, e-mail, paper, or web sites). Where an actuarial report for a specific intended user comprises multiple documents, the actuary should communicate which documents comprise the report.

In the actuarial report, the actuary should state the actuarial findings, and identify the methods, procedures, assumptions, and data used by the actuary with sufficient clarity that another actuary qualified in the same practice area could make an objective appraisal of the reasonableness of the actuary's work as presented in the actuarial report.

Findings

The summary conclusions of our review of the actuarial communications by Buck are that for the most part the valuation report is clear, appropriate, and well written. It provided both a summary and adequate detail for a valuation report. The observations of our review include three significant recommendations for the valuation report, four documentation recommendations for the experience study, and some "fine tuning" recommendations that would improve all three of the actuarial communications that we reviewed.

September 1, 2012 Actuarial Valuation Report

Our first significant recommendation for the valuation report is for Buck to include some discussion of investment risk and reward and its potential effects on the amortization period in future valuations. One of the investment risk issues that could be explained is the expected effect of the difference between the market value of assets and the smoothed actuarial value of assets (AVA). The theory behind the AVA method is to allow time for investment gains and losses to partially offset each other. In practice, the pattern and amounts of gains and losses usually result in irregular effects on the AVA and the UAAL from year to year. Projections could be made of the amortization period in the next two biennial valuations under various scenarios of market value rates of return to get some insight to those irregular effects.

These kinds of projections are most helpful when there is a large net deferred gain or loss that will be recognized over the next four years. For example, in the September 1, 2010 Fund valuation, the deferred loss was $75.5 million, which was 15% of the market value of assets. Projections of the amortization period in the next two biennial valuations based on the September 1, 2010 valuation would have shown varying amounts of increases in the amortization period, depending upon what the market value of assets rates of return might be in the plan years ending 2011, 2012, 2013, and 2014.

Even when the net deferred gain or loss is relatively small as in the September 1, 2012 valuation (deferred gains were 1% of market value), projections of the amortization period could be useful for planning. Several investment return scenarios over the next four plan years could be used to see what effect they would have on the amortization period. As the remaining amortization period gets shorter over time and the funded ratio increases, the amortization period will become increasingly more sensitive to investment gains and losses. A four-year projection of the amortization period as a regular part of each actuarial valuation report would help prepare the board for a plausible range of results in the next four years. We have found this kind of projection useful for board members.

A related recommendation on risk is for Buck to include a disclosure that future actuarial measurements may differ significantly from the current measurements presented in the valuation report. Buck has omitted this disclosure (which is required according to ASOP No. 4., Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, Section 4.1.l). Their required disclosures should have included that they did not perform an analysis of the potential range of such future measurements. However, if they begin including a four-year projection of the amortization period under several scenarios, then they could add to the required disclosures, “We provided projected amortization periods for the next two biennial actuarial valuations under several investment return scenarios.” We recommend that Buck add this required disclosure to their valuation report in order to comply with Section 4.1.l of ASOP No. 4.

Our second significant recommendation is for the valuation report analysis of change in funding cost to include and separately quantify the cost-reducing effect of rolling the amortization period from 28 years to 30 years. The analysis of change in funding cost on page 6 of the September 1, 2012 valuation report separately identifies the effect of six changes or types of experience that either increased or decreased the 30-year funding cost over the two years from September 1, 2010 to September 1, 2012. One relevant piece of the analysis is missing and should be there in every report, the cost-reducing effect of rolling the amortization period from 28 years to 30 years. The September 1, 2010 cost of 12.26%, based on a 30-year period for amortizing the UAAL, would have been replicated as of September 1, 2012 if there had been no plan amendments, if the plan experience had exactly matched the actuarial assumptions, and if a 28-year period had been used for amortizing the UAAL. Two years had elapsed, so there were 28 years remaining in the 30-year period that began September 1, 2010. Using a new 30-year period is similar to the refinancing of a 30-year mortgage and getting a new 30-year period. The extension of the period reduces the required contributions. We estimate that the effect of rolling the amortization period from 28 to 30 years reduced the cost by 0.30% of payroll.

Our third significant recommendation for Buck’s valuation report was included and explained in Section II, Actuarial Methods. **We recommend that the amortization method for the actuarially determined amortization period be more fully described in the valuation report.**

From our review of the September 1, 2012 valuation report, we have several other recommendations that are more “fine tuning” in nature that would improve the communications in the actuarial valuation reports of the future.

- An incomplete description of the withdrawal rates assumption on page 20 should be corrected. The increases in the illustrated rates for the first and second years of employment of 6% and 2%, respectively, shown on page 20 are correct only for ages under 43. The correct increases for ages 43 and above are missing and are 7% and 3%, respectively, for ages 43-47 and 8% and 4%, respectively, for ages 48 and above. Buck has already said they will expand and correct the description in the next report.

- There is an awkward part of the description of the mortality assumption, both in the cover letter and on page 20, that reads, “…with Scale AA forecasts of mortality improvement ten years from 2007.” It would read better if Buck would use the same phrase they used in the experience study presentation, “…projected to 2017 with Scale AA.”

- The summary of benefits for both Tier 1 and Tier 2 mention unused sick leave may be converted to service under the plan. In addition, the census data for the valuation included unused sick leave. We learned that Buck does not use the sick leave data. Buck might consider clarifying in their summary of actuarial assumptions that they do not recognize the effects of unused sick leave until a member retires. Such a disclosure would be comparable to the statement Buck included about children's benefits on page 22: "No children's benefits were valued…" Alternatively, since the census data includes unused sick leave, Buck could study the unused sick leave of those near retirement and make an assumption about the average increasing effect on benefits of those retiring in the future due to the conversion of unused sick leave to benefit service.

- The summary of benefits could be improved to add that a disability that is not job related results in a refund of contributions if the member has less than seven years of service.

- Section 802.101 of the Texas Government Code, Title 8, Subtitle A has general requirements for actuarial valuations of public retirement systems. A glossary of actuarial terms should be added to future valuation reports to comply with subsection (b), "The actuary shall define each actuarial term."

Six-Year Experience Study Communication

Buck presented their six-year experience study and recommendations using a PowerPoint presentation dated April 2011 and there was no other written document to supplement the PowerPoint document. Of course a PowerPoint document does not contain as much detail as a written report, but the verbal presentation probably added some detail not in the PowerPoint document. We have recommendations that would improve the written communications. These changes could be made to the PowerPoint document or in a letter or report accompanying it or following it.

- **Documentation of the experience study should include more detail to support the recommended mortality assumption.** The recommended assumption was a published mortality table but with an age adjustment to "fit" the Fund's experience. Then projection for mortality improvement was added. The awkward description of the mortality assumption in the valuation report ("the RP-2000 combined mortality table set forward two years with Scale AA forecasts of mortality improvement projected ten years from 2007") implies that the age adjustment to the base tables projected to 2007, the center of the six-year observation period, "fit" the Fund's experience, and then ten years of mortality improvement was added to the assumption. However, no detail was given of the "fit" of the Fund's experience to the base table projected to 2007.

- **Buck's report of their review of the investment return assumption should include disclosure of their assumed long-term real rates of return for each of the four asset classes shown on page 9** so that a reader could better understand how Buck arrived at the 4.41% real rate of return for the target allocation. In addition, some historical support of the expenses assumption would be helpful.

- **The experience study report should include full sets of withdrawal rates, disability rates, and the non-published disabled lives mortality rates to document what was recommended and adopted. Then the valuation report can show rates for only sample ages and refer to the experience study report.**

- **The disabled lives mortality assumption, even though a relatively minor assumption, should be mentioned in the experience study report.** For example, a simplified assumption could be used, and it could be mentioned in the same way as the mortality assumption for active members was in relation to the mortality assumption for service retirees, "The same table will be used for disabled annuitants as for service retirees."

- Four relatively minor demographic assumptions were mentioned on page 19, and proposed changes to three of the four were described on page 20. It would improve the communications to include a reason for these proposed changes.

- The summary of the assumption changes on page 23 was very good in showing the change in the UAAL as of September 1, 2010 due to the change in each assumption. However, the report was incomplete in not showing the aggregate effect of the assumption changes on the normal cost rate and on the UAAL amortization period.

- In Buck's written responses to the 2008 actuarial audit, they had agreed with the recommendation of the auditing actuary and ended with this sentence: "Future experience study reports will be expanded to include more information about the source of the information and more discussion regarding our rationale for determining the proposed new assumptions." However, we found these deficiencies of documentation above, some of which were similar to what was cited in the 2008 actuarial audit.

Estimated September 1, 2011 Valuation Results

- It would have been helpful to board members for Buck to separately show the effects of (1) the changes in assumptions, (2) the changes in benefit provisions, and (3) the asset experience for one year. Alternatively Buck could have referred in this letter to reports previously provided to the board that separately showed the effects of the changes in assumptions and the effects of changes in benefit provisions.

- It is unusual to offer estimated numbers for GASB No. 25 purposes. The September 1, 2011 estimated results do not appear on page 8 of the September 1, 2012 valuation report, but they did appear in the Fund's audited financial statements as of August 31, 2012 (pages 12 and 19).

- The actuarial value of assets apparently was not estimated, and the development of that number could have been shown in an attached exhibit.

buckconsultants A Xerox Company

November 20, 2013

VIA OVERNIGHT DELIVERY

Mr. Robert B. Ash
Pension Administrator
El Paso City Employees' Pension Fund
400 W. San Antonio, Suite B
El Paso, TX 79901

Re: Response to Revised Preliminary Actuarial Audit Report

Dear Mr. Ash:

As you requested, we have reviewed the revised preliminary Actuarial Audit Report dated October 24, 2013 as prepared by Rudd and Wisdom for the El Paso City Employees' Pension Fund (Fund). The draft report contains Findings and Recommendations in several areas. A summary of the Statement of Key Findings and Statement of Key Recommendations on pages 1 – 3 of the draft report is shown below along with our response to each issue.

1. Healthy Participant Mortality Assumption

   Rudd and Wisdom states that the mortality assumption for non-disabled participants should be revised to clearly comply with Actuarial Standard of Practice (ASOP) No. 35 by the next actuarial valuation. Later in the draft report, Rudd and Wisdom states that we gave full credibility to client experience that included only 454 deaths among healthy retirees.

   As stated in the cover letter to the 2012 valuation report, under Assumptions and Methods, revised assumptions (including mortality) were adopted by the Board on April 20, 2011 as a result of an experience study. The mortality assumption, and all other assumptions, will be reviewed when the next experience study is prepared and will reflect the provisions of ASOP No. 35. The practice of conducting experience studies at regular intervals and updating assumptions accordingly must be borne in mind in assessing compliance with the requirements of ASOP 35.

   The assertion that we gave full credibility to the City's mortality experience is incorrect. The mortality assumption is based on adjustments to a standard mortality table (RP-2000) where the adjustments reflect future mortality improvement and still allow for some margin for continued future mortality improvement. We note that if the suggested mortality assumption was adopted, the impact on the 2012 valuation would have been an increase in

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the funding period from 21 to 23 years and an increase in the unfunded liability of $13.6 million from $206.5 million to $220.1 million.

2. Disabled Lives Mortality Assumption

   Rudd and Wisdom recommends that the disabled lives mortality assumption be reviewed and changed to a more appropriate assumption by the next actuarial valuation.

   We note that the small number of disabled lives means that we cannot derive credible experience solely from the client data. Further, we note that the impact of this assumption on costs and liabilities is quite small. Nonetheless, as we do in every experience study, we will revisit the assumption in the next experience study and determine whether a basis then exists to recommend that a new disabled life mortality assumption be used.

3. Discussion of Investment Risk and Reward

   Rudd and Wisdom expressed the opinion that the valuation report should include some discussion of investment risk and reward and its potential effects on the amortization period in future valuations to give the board and the city insights into the next two actuarial valuations. They also recommended that we include a disclosure that future actuarial measurements may differ significantly from the current measurements presented in the valuation report (per Actuarial Standard of Practice No. 4).

   As you know, after each valuation (including interim valuations), we prepare projected valuation results assuming different asset returns for the upcoming year. The projections are based on asset returns ranging from 20% to -20%, by 5% increments and take account of existing asset gains and losses. The projections show future funded percentages and funding periods. We believe this provides an adequate indication of the impact of investment risk and reward on the funded status of the Fund in the future, and of the variability of future valuation results. However, we do not object to the addition of the recommended disclosure per ASOP No. 4.

4. 30-year Funding Cost

   Rudd and Wisdom believes the valuation report should include in the analysis of change in the 30-year funding cost the cost-reducing effect of rolling the amortization period from 28 to 30 years.

As described in the footnote at the bottom of page 4 of the 2012 actuarial valuation report, the 30-year funding cost is determined for accounting purposes only. It is equal to the employer normal cost rate plus a 30-year amortization of the unfunded actuarial accrued liability, all expressed as a level percentage of pay. As a level percentage of pay, the 30-year funding cost, absent any plan or assumption changes or experience gains or losses, would be expected to remain level from one valuation to the next. Thus, we believe the current presentation of the change in 30-year funding cost as shown on page 6 of the 2012 valuation report is appropriate.

5. Description of Amortization Method

   Rudd and Wisdom states that the amortization method for determining the period required to amortize the UAAL should be more fully described in the valuation report.

   While the determination of the funding period is described in the footnote at the bottom of page 4, we do not object to the inclusion of additional detail, such as including the rates for Tier 2 members.

6. Description of Withdrawal Rates Assumption

   Rudd and Wisdom states that the description of the withdrawal assumption in the 2012 valuation report is incomplete and that the description should be clarified in the next valuation report. The footnote describing the adder for the first and second year of employment is missing the following: the adder after age 42 is 7% and 3% for ages 43 - 47 and is 8% and 4% for ages 48 and later.

   We noticed this issue when we sent a complete set of assumptions to Rudd and Wisdom. The description of the adder for the withdrawal assumption will be expanded when we prepare the next valuation report.

7. Experience Study Report and the Recommended Mortality Assumption

   Rudd and Wisdom states that the experience study report should include more detail to support the recommended mortality assumption, specifically as it relates to the two-year set forward.

   We agree with the recommendation of Rudd and Wisdom and will include such additional detail in the next experience study report.

8. Experience Study Report and the Investment Return Assumption

   Rudd and Wisdom states that the experience study report should include disclosure of the assumed long-term real rates of return by asset class.

   While the experience study report did disclose our assumed long-term real rate of return for the total portfolio, we have no objection to the recommendation of Rudd and Wisdom and will show the assumption for each asset class in the portfolio in the next experience study report.

9. Experience Study Report and the Complete Set of Rates

   Rudd and Wisdom states that the experience study report should include full sets of withdrawal rates, disability rates, and disabled lives mortality rates to document what was recommended and adopted in the experience study report.

   Withdrawal rates were completely described in the experience study report, so there is no change to implement. The disability rates were not specified in their entirety in the experience study report since they were not changed from those proposed in the prior experience study. The experience study report specifically notes that the number of actual disability retirements is too few to provide credible experience. Finally, the disabled mortality table was not mentioned in the experience study report since the assumption did not change from that proposed in the prior experience study report. As in all experience studies performed for the system, the disabled mortality table assumption will be reviewed in the next experience study report and we will make specific mention of the outcome of the review in that report.

Comments on other findings in the report are discussed below:

a. Description of Mortality Assumption (page 13 of revised preliminary report)

   Rudd and Wisdom suggested that we change the description of the mortality table assumption shown in the cover letter and on page 20 of the valuation report to mirror the description of the assumption used in the experience study report.

   We have no objection to this suggestion.

b. Conversion of Unused Sick Leave (page 14)

Rudd and Wisdom noted that the summary of benefit provisions describes the conversion of unused sick leave to service at retirement. In addition, the census data supplied by the City includes amounts of unused sick leave for each individual. However, we do not use this information in calculating the Fund's liability. They suggested that we either disclose this in the assumptions section of the report or study the potential effect of the unused sick leave on participant's retirement benefits.

We note that the amount of unused sick leave on the census data is minimal (the average unused sick leave is less than 2 months and the greatest amount of sick leave currently accumulated by any active member is 16 months). Based on this information, we believe that the conversion of unused sick leave would have a minimal impact on the valuation results. However, we would be happy to include a specific statement that benefits attributable to unused sick leave for future retirees are not included in the valuation.

c. Summary of Disability Benefit (page 14)

Rudd and Wisdom suggested that we make it clearer that a participant who becomes disabled with less than 7 years of service where the disability is not job-related is only entitled to a refund of contributions.

While we believe that result is implied in the summary of benefit provisions, we do not object to the inclusion of a specific statement to this effect.

d. Glossary of Actuarial Terms (page 14)

Rudd and Wisdom suggested that we add a glossary of actuarial terms to the next valuation report to comply with Section 802.101 of the Texas Government Code, Title 8, Subtitle A.

We believe that each actuarial term used in the report is already defined in the body of the report, but we have no objection to the addition of a separate glossary as an appendix.

e. Other Demographic Assumptions (page 15)

Rudd and Wisdom suggested that we add more discussion of the proposed changes to the minor demographic assumptions shown on page 20 of the experience study report (job-related vs. non job-related disability, form of payment, and overtime load assumptions).

We have no objection to this suggestion.

f. Impact of Proposed Assumption Changes (page 15)

In the experience study report, we showed a summary of the impact of the proposed assumption changes on the unfunded actuarial accrued liability. Rudd and Wisdom suggested that we also show the impact of the proposed assumption changes on the normal cost rate and the funding period.

We do not object to this suggestion.

g. Documentation in the Experience Study Report (page 15)

In our response to the 2008 draft actuarial audit report, we had agreed to include more documentation of the reasons for proposed new assumptions in future experience study reports. Rudd and Wisdom believed that the documentation in the 2011 experience study report was still deficient.

The documentation in the 2011 experience study report was expanded from that included in the prior experience study report and, in our opinion, was sufficient. However, there are areas of the 2011 report where the documentation could have been expanded, as discussed in some of the responses to prior comments (for example, items 7, 8, 9, e, and f).

h. Impact of Proposed Assumption Changes (page 15)
We prepared an estimated September 1, 2011 interim valuation results letter based on actual assets as of September 1, 2011 and a roll forward of liabilities from the 2010 valuation. Rudd and Wisdom suggested that the results letter could have shown separately the impact of assumption changes, plan changes, and asset experience, or alternatively, could have referred to other reports and letters that contained this information.

While the estimated results letter for the interim valuation is not meant to be a full valuation report, we could refer to previous letters and reports that contained the reconciliation information. If the Board wishes, we can add this information to future interim valuation results letters.

i. GASB No. 25 Estimated Results Changes (page 15)
In the interim valuation results letter, we included GASB No. 25 information for the interim year. Rudd and Wisdom suggested that it was unusual to include estimated results for GASB No. 25 purposes.

Since we provide estimated GASB No. 25 results for other clients, we would not characterize this practice as unusual. In fact, the auditors have used this estimated information in the Fund's audited financial statements, as noted by Rudd and Wisdom in their comments.

j. Estimated Actuarial Value of Assets (page 16)
Rudd and Wisdom comments that the actuarial value of assets apparently was not estimated in the interim valuation results letter and suggested that the development of the actuarial value of assets could have been included in an attached exhibit.

We disagree with this comment, since the actuarial value of assets was calculated and the amount was shown in the interim valuation results letter. We do not see any benefit of attaching a schedule to the interim valuation results letter that shows the calculation of this amount.

The report was prepared under the supervision of Stephen J. Prullage, an Enrolled Actuary, a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries, who has met the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice.

If you have any questions or would like additional information, please let us know.

Sincerely,

Stephen J. Prullage, F.S.A., E.A., M.A.A.A.
Director, Consulting Actuary

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cc: Ms. Carmen Arrieta-Candelaria
Mr. Mark Fenlaw
Mr. Rene Pena

El Paso
Firemen & Policemen's Pension Fund

ACTUARIAL AUDIT

October 24, 2013

Rudd and Wisdom, Inc.
CONSULTING ACTUARIES

9500 Arboretum Boulevard., Suite 200
Austin, Texas 78759

Rudd and Wisdom, Inc.

CONSULTING ACTUARIES

October 24, 2013

Via E-mail: rstanton@elpasofireandpolice.org
Board of Trustees
c/o Mr. Robert J. Stanton
Executive Director
El Paso Firemen and Policemen's Pension Fund

Re: Actuarial Audit – Revised Preliminary Report

Dear Mr. Stanton:

In accordance with our contract with the City of El Paso, we have prepared this revised preliminary report of our audit of the actuarial valuations, studies, and reports related to the El Paso Firemen and Policemen's Pension Fund (the Fund) for the five years ending in 2013. Rudd and Wisdom, Inc. was selected for this project to provide an actuarial audit as an independent actuary. This actuarial audit was conducted to comply with the requirements of Section 802.1012 of the Texas Government Code.

The actuarial services for the Fund during the five years have been provided by Buck Consultants (Buck). When we refer to Buck, we are referring collectively to the actuaries who provided the actuarial services. This report includes a discussion of our review of the methods, assumptions, calculations, and communications that were involved in Buck's actuarial services for Fund over five years. The majority of the emphasis of our actuarial review (which is a more appropriate description than actuarial audit), was on the most recent actuarial valuations as of January 1, 2012 and the review of actuarial assumptions in the June 2010 report of the actuarial experience study for the six-year period ending December 31, 2009. The Executive Summary contains the scope of the actuarial review, a summary of our key findings, and a summary of our key recommendations.

This report is the revised preliminary report to be reviewed by the board and by Buck. The final report to the city will include the response to this preliminary report from the

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board, probably with the assistance of Buck. We welcome the input of Buck to correct or clarify anything we have written in this preliminary report.

We are members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

Mark R. Fenlaw

Mark R. Fenlaw, F.S.A.

Coralie A. Taylor

Coralie A. Taylor, A.S.A.

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I. Executive Summary

Scope of the Actuarial Review

The scope of the project the City of El Paso engaged us to complete includes analyzing the recent actuarial services provided by Buck for the board. The audit must consider the following items:

- A review of the actuarial valuations, studies, and reports for the five years ending in 2013
- Testing of various valuation calculations by using sampling (full replication of the valuation not required)
- Appropriateness of the actuarial cost method used to calculate the normal cost and actuarial accrued liability
- Appropriateness of the method used to develop the actuarial value of assets
- Appropriateness of the assumptions used in the actuarial valuations
- Completeness of the valuation reports and any additional items which the reviewing actuary believes should be included in future valuation reports
- Whether the valuations were performed in accordance with the requirements of the Pension Review Board's "Guidelines for Actuarial Soundness", and relevant Actuarial Standards of Practice
- A critique of the actuaries' judgment concerning the Fund's exposure to risk

Statement of Key Findings

Our review of Buck's actuarial services for the board was detailed in many respects, and, as a result of our findings, this report includes a number of recommendations that deal with details. Even though our review of the testing of the valuation results by using sampling may be of most interest to you, this report should be considered as a whole. When we compared our sample lives calculations to those made by Buck, the comparison was one part of our review to assist us in judging the appropriateness of Buck's valuations.

Based upon our review of the January 1, 2012 actuarial valuations by Buck and of the actuarial assumptions and methods used in the valuations, the actuarial valuations by Buck provided a reasonable assessment of the actuarial condition of both the Firemen's Pension Fund and the Policemen's Pension Fund. Our findings can be summarized as follows:

- The sample actuarial calculations (limited to present value of future benefits)
  - accurate
- The asset valuation method
  - appropriate
  - correctly applied
- The actuarial cost method and amortization method
  - appropriate
  - limited in review of application by Buck's not sharing their calculations
- The actuarial assumptions
  - appropriate
  - correctly applied
- The valuation results
  - reasonable
- The actuarial communications in the actuarial valuation reports
  - appropriate and well written
  - generally clear
  - complete with these exceptions
    - discussion of investment risk and reward should be included
    - cost-reducing effect of rolling amortization period was not identified
    - ASOP No. 4 required language on risk was omitted
    - amortization method should be more fully described
- The actuarial communications in the experience study report
  - lacked identification of responsible actuary required by ASOP No. 41
  - appropriate
  - generally clear
  - more detail desirable in some parts (similar to 2008 recommendation)
- The actuarial valuations
  - complied with Texas Government Code except for a glossary of terms
  - complied with PRB "Guidelines for Actuarial Soundness"
  - complied with relevant Actuarial Standards of Practice except for the ASOP No. 4 required language on risk being omitted

Statement of Key Recommendations

The key recommendations resulting from our review are in order of importance and are summarized below.

- The valuation reports should include some discussion of investment risk and reward and its potential effects on the amortization period in future valuations to give the board and the city insights into the next two actuarial valuations.

- The valuation reports should include in the analysis of change in funding cost the cost-reducing effect of rolling the amortization period from 28 years to 30 years.

- The amortization method for determining the period required to amortize the UAAL should be more fully described in the valuation reports.

- Documentation of the experience study, a PowerPoint presentation, lacked any indication of the responsible actuary, a violation of Actuarial Standard of Practice (ASOP) No. 41, Actuarial Communications (Section 3.1.4).

- Documentation of the experience study had other deficiencies:
    - absence of the ratio of actual to expected for proposed assumptions (termination, retirement, male pensioner mortality)
    - no disclosure of some of the then-current assumptions (disability, pensioner mortality, actives mortality)
    - no comparison of the normal cost rate prior to assumption changes and including assumption changes

- Buck's report of their review of the investment return assumption should include disclosure of their assumed long-term real rates of return by asset class.

- The experience study report should include full sets of withdrawal rates and disability rates to document what was recommended and adopted since only sample ages are shown in the valuation reports.

The rest of this report includes a more detailed discussion of our review of the methods, assumptions, calculations, and communications that were involved in Buck's actuarial work for the board.

II. Actuarial Methods

We reviewed the actuarial cost method, the actuarial asset valuation method, and the amortization method used by Buck in the actuarial valuations we reviewed.

Actuarial Cost Method

The actuarial cost method used by Buck is the entry age actuarial cost method. It is the most common method used by public employee retirement systems in the United States. It has the advantage of more stability from year to year in the normal cost contribution rate than with any other acceptable actuarial cost method. **We believe that the entry age actuarial cost method is reasonable, acceptable, and appropriate for the Fund's benefit design and for meeting the financing objectives implied in Buck's report:** contribution rates by the members and the city, as percents of total salary, are intended to pay the normal cost and to amortize the unfunded actuarial accrued liability (UAAL) over a reasonable period, as a level percent of total payroll. **We were not able to review the correctness of the application of the entry age actuarial cost method because Buck declined to share any sample life calculations of the normal cost.**

Actuarial Asset Valuation Method

The method used to determine the actuarial value of assets in each of the valuations is a smoothing method that spreads annual asset gains and losses over five years. An annual gain or loss is measured as the difference between actual net investment income and expected net investment income based upon the assumed investment return rate in that year. The smoothed actuarial value of assets is not restricted by a corridor around the market value of assets. A corridor is used by many public employee pension plans. However, a corridor is not really required for the five-year smoothing method. **A five-year smoothing method is used by many public employee retirement systems, and we believe it is appropriate for the Fund. We found that the method used for determining the actuarial value of assets is reasonable and consistent with ASOP No. 44.**

Amortization Method

A funding policy includes the amortization of the UAAL, which includes a period and a method. The actuarial valuation reports have included both a 30-year period for determining a 30-year funding cost for the city for accounting purposes and an actuarially determined amortization period because the actual contribution rates are determined in advance and Buck assumed they will continue indefinitely. For the 30-year funding cost the amortization method expects the amortization payments to be level as a percent of covered payroll. The level percent of payroll amortization method is appropriate for a public employee defined benefit pension plan that is expected to continue indefinitely. In addition, it complies with both the Texas Pension Review Board (PRB) "Guidelines for Actuarial Soundness" and the parameters found in the Governmental Accounting Standards Board (GASB) statements on defined benefit pension plan accounting (GASB 25 and 27).

For the actuarially determined amortization period, the sentence describing the amortization method in the footnote on the bottom of page 5 of both of the January 1, 2012 actuarial valuation reports is an incomplete description. **We recommend that this amortization method be more fully described in the valuation report.** There are actually two parts of the projected amortization payments. One part is the percent of pay for the Tier 1 members' projected pay reflecting the excess of the total contribution rate over the Tier 1 normal cost rate. In addition the closed group has an aggregate annual payroll projected to decline each year because it is a closed group. The second part is the percent of pay for the projected Tier 2 members' projected pay reflecting the excess of the total contribution rate over the somewhat lower Tier 2 normal cost rate. In addition since the total number of active members is assumed to remain constant each year, the projected number of Tier 2 members is increasing each year. The net effect of this complex amortization method determination is that total amortization payments are assumed to gradually increase as a percent of aggregate payroll. Technically this increasing percent of payroll method does not comply with the PRB guidelines (amortization "should be level or declining as a percent of payroll over the amortization period"). However, it is appropriate for the two-tier benefit design because the aggregate normal cost rate is expected to gradually decrease as it approaches the Tier 2 normal cost rate.

We were not able to review the correctness of the determination of the 76-year amortization period for the firemen's plan valuation nor of the "never" amortization period for the policemen's plan valuation because Buck declined to share any of the details of their determination and would only describe the methodology.

The 30-year period for amortizing the UAAL for determining the 30-year funding cost for the city is the maximum period allowed currently under GASB 25 and 27. In addition, the 30-year period used to be in the preferred range of the PRB guidelines (25 to 30 years). The PRB guidelines were revised in 2011, and the preferred range for the UAAL amortization period is now 15 to 25 years. The actuarially determined amortization period as of January 1, 2012 was above 40 years for both plans; so the period for both plans not only is greater than the 25-year preferred range maximum but also is above 40 years, the maximum in the PRB guidelines for having an adequate contribution arrangement. **Therefore, the 30-year funding cost amortization period and the amortization methods for the UAAL are appropriate and comply with GASB parameters and PRB guidelines (except for the actuarially determined amortization period being based on an increasing percent of payroll method). Even though the actuarially determined amortization periods do not comply with PRB guidelines, that is no reflection on Buck.**

III. Actuarial Assumptions

Review Process

We reviewed the summary description of the actuarial assumptions used in the January 1, 2012 actuarial valuations. Then we reviewed the PowerPoint presentation of the actuarial experience study for the six-year period ending December 31, 2009 to see how the actuarial assumptions were developed. We also reviewed a June 13, 2012 letter recommending a change in the mortality assumptions.

Actuaries have different opinions and different preferences for setting, reviewing, and adjusting actuarial assumptions, which generally have a range of reasonable alternatives. Actuarial standards of practice for setting, reviewing, and adjusting actuarial assumptions provide guidance to actuaries about the process and considerations, not about the actual assumptions themselves. The two actuarial standards of practice (ASOP) for selecting actuarial assumptions, ASOP Nos. 27 and 35, first became effective in 1997 and 2001, respectively. One of the principles included in both of these ASOPs is that for each valuation the actuary should consider whether the selected assumptions continue to be reasonable. The actuary is not required to do a complete assumption study for each valuation, but a review for reasonableness should be a part of each valuation. (See Sec. 3.12 of ASOP No. 27 and Sec. 3.9 of ASOP No. 35.)

With that background in the ASOPs, the experience studies every six years for the Fund take on added significance. The actuaries have the opportunity to thoroughly review and study the most important of the assumptions and to recommend adjustments to the assumptions, based on the underlying experience, their interpretation of the experience, any trends that are suggested by the experience, and their expectations about the future experience. Ideally, the recommended assumptions will continue to be reasonable and appropriate for the next six years in which there will be three biennial valuations. However, the actuary is still required, for each actuarial valuation, to consider whether the selected assumptions continue to be reasonable.

Findings

The summary conclusions of our review of the actuarial assumptions are that the development of the assumptions reflected quality actuarial services, all of the assumptions are reasonable, and all of them are appropriate for the next actuarial valuation. Our most significant finding of concern is that the experience study document lacked any indication of the responsible actuary, a violation of ASOP No. 41, Actuarial Communications. Our other findings of concern were deficiencies of documentation, similar to what was found five years ago in the previous actuarial audit. In Buck's written response to the 2008 actuarial audit, they had agreed with the recommendation of the auditing actuary and ended with this sentence: "Future experience study reports will be expanded to include more information about the source of the information and more discussion regarding our rationale for determining the proposed new assumptions." Our recommendations about the development of the actuarial assumptions and documentation of their work are included in Section V for Buck's consideration for enhancing the quality of their actuarial services.

IV. Actuarial Calculations

Our review of sample life results for active and inactive members was limited by Buck's policy not to provide sample life detail. Therefore, we were not able to understand any differences in Buck's present value of future benefits for each sample life they provided compared to our calculations of the present value of future benefits for each sample life. We got reasonably close for only three of the eight actives and only two of the eight pensioners. Therefore, we cannot be as sure as we would like to be that the plan provisions and actuarial assumptions were accurately reflected in the January 1, 2012 actuarial valuation for either the firemen's plan or the policemen's plan.

We selected a number of individuals to review for each plan, including a selection of active employees representing a variety of ages, service, compensation and gender, and a selection of inactive participants representing six service retirees with different forms of annuities and two surviving spouses. Our review was performed by independently calculating the present value of future benefits (PVB), the actuarial accrued liability (AAL), and the normal cost (NC) for a representative sample of active participants from both plans and the PVB for a representative sample of inactive participants from both plans. We then requested comparable calculations from Buck so we could compare our results to the results provided by Buck in order to verify that the Buck valuation results accurately reflect the plan provisions and the chosen actuarial assumptions. However, for each sample life Buck would only provide the PVB, and for actives only the salary and the present value of future salary.

Recognizing that variations in individual sample life results can occur as a result of differences in detailed methodologies, we would have further reviewed more detailed calculations provided when our sample life results did not closely match the results provided by Buck. However, we could not go any further due to Buck's policy not to provide the details.

After receiving the original preliminary report, the board asked Buck to work with us. They suggested that we provide them some of our sample life calculation detail and they would review it to identify reasons for the differences. As a result, we were able to get comfortable with their PVB for both the active and inactive member sample calculations, and we submitted this revised preliminary report.

The results of our limited sample life matching are shown in Exhibits 1 and 2. The variations in the two sets of PVB for the active sample lives in Exhibit 1 are not unexpected because there is significant complexity in valuing active participants. Minor differences in methodologies may produce noticeable differences in results on an individual level, but would not be expected to produce significant differences in the aggregate. However, we were able to get within 5% of Buck's PVB for each sample active life. Similarly, we were able to get within 2% of Buck's PVB for each sample inactive life in Exhibit 2.

Overall, we believe that Buck reflected plan provisions and actuarial assumptions with sufficient accuracy in the January 1, 2012 valuations that the results in those valuations may be comfortably relied upon.

Exhibit 1

Active Member Sample Calculations

Firemen's Plan

Type	Age	Service	Present Value of Future Benefits Buck	R&W	Ratio	Covered Salary Buck	R&W	Ratio	Present Value of Future Salary Buck	R&W	Ratio
Tier 1, not retirement eligible	44.6	9.3	355,683	353,533	99.4%	57,811	57,988	100%	583,933	611,107	105%
Tier 2, not retirement eligible	27.3	0.9	153,812	147,815	96.1%	38,140	38,562	101%	760,290	804,968	106%
Tier 1, retirement eligible	46.5	26.0	890,121	930,151	104.5%	93,316	93,140	100%	435,526	475,347	109%
Tier 1, retirement eligible	42.1	20.7	829,677	829,052	99.9%	97,488	97,307	100%	550,978	593,917	108%

Policemen's Plan

Type	Age	Service	Present Value of Future Benefits Buck	R&W	Ratio	Covered Salary Buck	R&W	Ratio	Present Value of Future Salary Buck	R&W	Ratio
Tier 1, not retirement eligible	38.8	12.8	526,086	535,172	101.7%	77,038	77,028	100%	624,832	672,205	108%
Tier 2, not retirement eligible	30.5	3.5	166,925	161,034	96.5%	46,300	46,398	100%	743,491	782,845	105%
Tier 1, retirement eligible	47.3	24.3	722,969	720,218	99.6%	70,351	70,034	100%	223,621	254,760	114%
Tier 1, not retirement eligible	33.0	10.3	385,516	400,278	103.8%	62,092	62,205	100%	638,357	682,274	107%

Exhibit 2

Inactive Member Sample Calculations

Firemen's Plan

Type	Age	Present Value of Future Benefits		
		Buck	R&W	Ratio
Survivor	87.0	114,490	114,490	100.0%
Retiree, Joint & 100%	64.0	545,516	545,516	100.0%
Retiree, Joint & 2/3%	77.6	438,755	438,807	100.0%
Retiree, Life Annuity	48.1	1,041,715	1,019,829	97.9%

Policemen's Plan

Type	Age	Present Value of Future Benefits		
		Buck	R&W	Ratio
Survivor	77.0	589,656	589,656	100.0%
Retiree, Joint & 100%	46.7	678,593	678,593	100.0%
Retiree, Joint & 1/3%	83.8	50,963	51,467	101.0%
Retiree, Joint & 2/3%	74.2	331,297	331,343	100.0%

V. Actuarial Communications

Review Process

We reviewed the Buck six-year experience study presentation dated June 2010, their January 1, 2012 actuarial valuation reports dated October 5, 2012, and their June 13, 2012 letter recommending new mortality tables to comply with the revised ASOP No. 35 to include in the mortality assumption expected mortality improvement after the valuation date. In this part of our actuarial review, we examined the content of Buck's actuarial communications. ASOP No. 41, Actuarial Communications, includes the statements shown below that are relevant to our review.

Section 3.1.1 Form and Content – The actuary should take appropriate steps to ensure that the form and content of each actuarial communication are appropriate to the particular circumstances, taking into account the intended users.

Section 3.1.2 Clarity – The actuary should take appropriate steps to ensure that each actuarial communication is clear and uses language appropriate to the particular circumstances, taking into account the intended users.

Section 3.1.4 Identification of Responsible Actuary – An actuarial communication should clearly identify the actuary responsible for it.

Section 3.2 Actuarial Report – The actuary should complete an actuarial report if the actuary intends the actuarial findings to be relied upon by any intended user. The actuary should consider the needs of the intended user in communicating the actuarial findings in the actuarial report.

An actuarial report may comprise one or several documents. The report may be in several different formats (such as formal documents produced on word processing, presentation or publishing software, e-mail, paper, or web sites). Where an actuarial report for a specific intended user comprises multiple documents, the actuary should communicate which documents comprise the report.

In the actuarial report, the actuary should state the actuarial findings, and identify the methods, procedures, assumptions, and data used by the actuary with sufficient clarity that another actuary qualified in the same practice area could make an objective appraisal of the reasonableness of the actuary's work as presented in the actuarial report.

Findings

The summary conclusions of our review of the actuarial communications by Buck are that for the most part the valuation reports are clear, appropriate, and well written. Each report provided both a summary and adequate detail for a valuation report. The observations of our review include three significant recommendations for the valuation reports, four documentation recommendations for the experience study, and some "fine tuning" recommendations that would improve the actuarial communications that we reviewed.

January 1, 2012 Actuarial Valuation Reports

Our first significant recommendation for the valuation reports is for Buck to include some discussion of investment risk and reward and its potential effects on the amortization period in future valuations. One of the investment risk issues that could be explained is the expected effect of the difference between the market value of assets and the smoothed actuarial value of assets (AVA). The theory behind the AVA method is to allow time for investment gains and losses to partially offset each other. In practice, the pattern and amounts of gains and losses usually result in irregular effects on the AVA and the UAAL from year to year. Projections could be made of the amortization period in the next two biennial valuations under various scenarios of market value rates of return to get some insight to those irregular effects.

These kinds of projections are most helpful when there is a large net deferred gain or loss that will be recognized over the next four years. For example, in the January 1, 2012 Policemen's Pension Fund valuation, the deferred loss was $43.9 million, which was 8% of the market value of assets. Projections of the amortization period (or of the 30-year funding cost when the amortization period is "never") in the next two biennial valuations based on the January 1, 2012 valuation would have shown varying amounts of increases in the 30-year funding cost, depending upon what the market value of assets rates of return might be in the plan years ending 2012, 2013, 2014, and 2015.

Even when the net deferred gain or loss is relatively small, projections of the amortization period or of the 30-year funding cost could be useful for planning. Several investment return scenarios over the next four plan years could be used to see what effect they would have on the amortization period or on the 30-year funding cost. As the remaining amortization period gets shorter over time and the funded ratio increases, the amortization period will become increasingly more sensitive to investment gains and losses. A four-year projection of the amortization period as a regular part of each actuarial valuation report would help prepare the board for a plausible range of results in the next four years. We have found this kind of projection useful for board members.

A related recommendation on risk is for Buck to include a disclosure that future actuarial measurements may differ significantly from the current measurements presented in the valuation report. Buck has omitted this disclosure (which is required according to ASOP

No. 4., Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, Section 4.1.l). Their required disclosures should have included that they did not perform an analysis of the potential range of such future measurements. However, if they begin including a four-year projection of the amortization period under several scenarios, then they could add to the required disclosures, "We provided projected amortization periods for the next two biennial actuarial valuations under several investment return scenarios." We recommend that Buck add this required disclosure to their valuation reports in order to comply with Section 4.1.l of ASOP No. 4.

Our second significant recommendation is for the valuation report analysis of change in funding cost to include and separately quantify the cost-reducing effect of rolling the amortization period from 28 years to 30 years. The analysis of change in funding cost on page 7 of the January 1, 2012 valuation reports separately identifies the effect of four changes or types of experience that either increased or decreased the 30-year funding cost over the two years from January 1, 2010 to January 1, 2012. One relevant piece of the analysis is missing and should be there in every report, the cost-reducing effect of rolling the amortization period from 28 years to 30 years. For example, the January 1, 2010 cost of 25.01% for the Policemen's Pension Fund, based on a 30-year period for amortizing the UAAL, would have been replicated as of January 1, 2012 if there had been no plan amendments, if the plan experience had exactly matched the actuarial assumptions, and if a 28-year period had been used for amortizing the UAAL. Two years had elapsed, so there were 28 years remaining in the 30-year period that began January 1, 2010. Using a new 30-year period is similar to the refinancing of a 30-year mortgage and getting a new 30-year period. The extension of the period reduces the required contributions. For example, we estimate that the effect of rolling the amortization period from 28 to 30 years reduced the cost by 0.52% of payroll for the policemen's plan.

Our third significant recommendation for Buck's valuation reports was included and explained in Section II, Actuarial Methods. **We recommend that the amortization method for the actuarially determined amortization period be more fully described in the valuation reports.**

From our review of the January 1, 2012 valuation reports, we have one other recommendation that would improve the communications in the actuarial valuation reports of the future and also comply with state law.

- Section 802.101 of the Texas Government Code, Title 8, Subtitle A has general requirements for actuarial valuations of public retirement systems. A glossary of actuarial terms should be added to future valuation reports to comply with subsection (b), "The actuary shall define each actuarial term."

Six-Year Experience Study Communication

Buck presented their six-year experience study and recommendations using a PowerPoint presentation dated June 2010 and there was no other written document to supplement the PowerPoint document. Of course a PowerPoint document does not contain as much detail as a written report, but the verbal presentation probably added some detail not in the PowerPoint document. We have recommendations that would improve the written communications. These changes could be made to the PowerPoint document or in a letter or report accompanying it or following it.

- **Our most significant finding of concern is that the document lacked any indication of the responsible actuary, a violation of ASOP No. 41, Actuarial Communications (Section 3.1.4) and of Precept 5 of the Code of Professional Conduct for Actuaries in the United States of America.**

- **Our other findings of concern were deficiencies of documentation, similar to what was found five years ago in the previous actuarial audit.** In Buck's written responses to the 2008 actuarial audit, they had agreed with the recommendation of the auditing actuary and ended with this sentence: "Future experience study reports will be expanded to include more information about the source of the information and more discussion regarding our rationale for determining the proposed new assumptions." However, we found the deficiencies of documentation listed below, some of which are similar to what was cited in the 2008 actuarial audit.

- **Documentation of the experience study should include more detail to support the recommended assumptions.**

    - The presentation omitted the ratio of actual to expected for three of the proposed assumptions (termination, retirement, male pensioner mortality).

    - The presentation showed police and fire salary increase experience separately with noticeable differences. Yet Buck recommended the same salary increase assumption for both fire and police without giving any reasons.

    - When a mortality assumption is a published table, it is good practice to include in a report the full name of the current assumption and the full name of the proposed assumption.

    - There was no disclosure of the current or the proposed mortality assumption for female pensioners or for male and female active participants. Similarly, it was not mentioned that Buck was recommending that assumed mortality rates for disabled annuitants be the same as for healthy annuitants.

- **Buck's report of their review of the investment return assumption should include disclosure of their assumed long-term real rates of return (as well as those of Summit Strategies cited in the report) for each of the eight asset classes shown on page 9** so that a reader could better understand how Buck arrived at the 4.70%-5.00% real rate of return range for the target allocation. In addition, some historical support of the expenses assumption would be helpful.

- **The experience study report should include full sets of withdrawal rates and disability rates, as well as the full names of published mortality tables, to document what was recommended and adopted. Then the valuation reports can show rates for only sample ages and refer to the experience study report.**

- Three relatively minor demographic assumptions were mentioned on page 25, and proposed changes to one of the three were described. It would improve the communications to include a reason for these proposed changes.

- The summary of the effect of the assumption changes on page 26 was good in showing the change in the UAAL as of January 1, 2010 due to the recommended changes in assumptions. However, the report was incomplete in not showing the aggregate effect of the assumption changes on the normal cost rate. In addition, it might have been better to show the effects of the assumption changes on the January 1, 2008 actuarial valuations since the January 1, 2010 actuarial valuations were not completed in June 2010.

Change in Mortality Assumption (Letter of June 13, 2012)

- It would have been helpful to board members for Buck to compare the then-current mortality assumptions to the recommended assumptions in some way in addition to their estimating the 0.5% reduction in the total actuarial present value of future benefits. For example, comparing the ratios of actual deaths to expected deaths in the prior six-year experience study would have shown one understandable comparison, including indications of the margins for mortality improvement based on the healthy pensioner experience. As another example, sometimes actuaries use comparisons of remaining life expectancies for an array of sample ages to compare two different mortality assumptions.

- The letter did not make it clear that there were separate mortality tables for males and for females in the recommended tables.

- The letter did not make it clear that this approach to the mortality assumption means the mortality tables may change every two years to update the projection of mortality improvement.

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EL PASO FIREMEN & POLICEMEN'S PENSION FUND

November 14, 2013

Mr. Robert J. Stanton
Executive Director
El Paso Firemen & Policemen's Pension Fund
201 E. Main, Suite 1616
El Paso, TX 79901-1340

Re: Response to Draft Actuarial Audit Report

Dear Mr. Stanton:

As you requested, we have reviewed the revised preliminary Actuarial Audit Report dated October 24, 2013 as prepared by Rudd and Wisdom for the El Paso Firemen and Policemen's Pension Fund (Fund). The draft report contains Findings and Recommendations in several areas. A summary of the Statement of Key Findings and Statement of Key Recommendations on pages 1 – 3 of the draft report is shown below along with our response to each issue.

1. Discussion of Investment Risk and Reward

   Rudd and Wisdom expressed the opinion that the valuation reports should include some discussion of investment risk and reward and its potential effects on the amortization period in future valuations to give the board and the city insights into the next two actuarial valuations. They also recommended that we include a disclosure that future actuarial measurements may differ significantly from the current measurements presented in the valuation report (per Actuarial Standard of Practice No. 4).

   We do not object to the addition of discussion related to investment risk and reward and its potential effects on future valuations. We also have no objection to the addition of the recommended disclosure per ASOP No. 4.

2. 30-year Funding Cost

   Rudd and Wisdom believes the valuation reports should include in the analysis of change in the 30-year funding cost the cost-reducing effect of rolling the amortization period from 28 to 30 years.

   As described in the footnote at the bottom of page 5 of the 2012 actuarial valuation reports, the 30-year funding cost is determined for accounting purposes only. It is equal to the employer normal cost rate plus a 30-year amortization of the unfunded actuarial accrued

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liability, all expressed as a level percentage of pay. As a level percentage of pay, the 30-year funding cost, absent any plan or assumption changes or experience gains or losses, would be expected to remain level from one valuation to the next. Thus, we believe the current presentation of the change in 30-year funding cost as shown on page 7 of the 2012 valuation reports is appropriate.

3. Description of Amortization Method

   Rudd and Wisdom states that the amortization method for determining the period required to amortize the UAAL should be more fully described in the valuation reports.

   While the determination of the funding period is described in the footnote at the bottom of page 5, we do not object to the inclusion of additional detail, such as the rates for Tier 2 members.

4. Experience Study Report Documentation Issues

   Rudd and Wisdom noted that the experience study report lacked any documentation of the actuary responsible for the study.

   We note that the "report" to which Rudd and Wisdom refers was prepared as a PowerPoint presentation for a Board meeting and was not intended to be a stand-alone report. However, since there was no subsequent report prepared, this presentation was in essence the Experience Study report and we agree that it should have identified the actuary who was responsible for its preparation.

5. Experience Study Report and the Proposed Demographic Assumptions

   Rudd and Wisdom states that the experience study report should include disclosure of the ratio of actual to expected decrements for proposed termination, retirement, and mortality assumptions.

   While the experience study report did include sufficient detail to infer the actual to expected ratios for the proposed termination and retirement assumptions, we do not object to the specific presentation of such ratios in future experience study reports for the decrements referenced.

6. Experience Study Report and the Disability and Mortality Assumptions

   Rudd and Wisdom states that the experience study report should include disclosure of the current disability and mortality assumptions.

   We do not object to this recommendation.

7. Experience Study Report and the Normal Cost Rate

   Rudd and Wisdom states that the experience study report should include a comparison of the normal cost rate before and after assumption changes. They also suggest that it might have been better to show the impact of the assumption changes on the 2008 actuarial valuations since the 2010 valuations had not been completed yet.

   The experience study report did disclose the effect of the assumption changes on the actuarial accrued liability, unfunded actuarial accrued liability, funded ratio, and funding period, which are the items that were of most interest to the Funds. We agree that the addition of the normal cost rate to that schedule would provide additional, useful disclosure. We believe that the impact the proposed assumption changes would have had on the 2010 valuation is more relevant in consideration of those assumptions than the impact their use would have had on 2008 results, since the 2010 information is most current.

8. Experience Study Report and the Investment Return Assumption

   Rudd and Wisdom states that the experience study report should include disclosure of the assumed long-term real rates of return by asset class.

   While the experience study report did disclose our assumed long-term real rate of return for the total portfolio, we have no objection to the recommendation of Rudd and Wisdom and will show the assumption for each asset class in the portfolio in the next experience study report.

9. Experience Study Report and the Complete Set of Rates

   Rudd and Wisdom states that the experience study report should include full sets of withdrawal rates and disability rates to document what was recommended and adopted in the experience study report.

Other than one cohort of ages for Police and two cohorts of ages for Fire, the withdrawal rates were completely described in the experience study report. As discussed in item 7, the disability rates were not documented in the experience study report since they were not changed from those proposed in the prior experience study. The experience study report notes that the number of actual disability retirements is too few to provide credible experience. Nonetheless, we are willing to include full specification of all decrement tables – including those not being reviewed due to limited exposure - in the next experience study report if the Board wishes us to do so.

Comments on other findings in the report are discussed below:

a. Glossary of Actuarial Terms (page 14)

   Rudd and Wisdom suggested that we add a glossary of actuarial terms to the next valuation reports to comply with Section 802.101 of the Texas Government Code, Title 8, Subtitle A.

   We believe that each actuarial term used in the reports is already defined in the body of the reports but we have no objection to the addition of a separate glossary as an appendix.

b. Documentation in the Experience Study Report (page 15)

   In our response to the 2008 draft actuarial audit report, we had agreed to include more documentation of the reasons for proposed new assumptions in future experience study reports. Rudd and Wisdom believed that the documentation in the 2010 experience study report was still deficient.

   The documentation in the 2010 experience study report was expanded from that included in the prior experience study report and, in our opinion, was sufficient. However, there are areas of the 2010 report where the documentation could have been expanded, as discussed in some of the responses to prior comments (for example, items 4, 5, 6, 7, 8, 9, c, d, and e).

c. Salary Increase Experience (page 15)

   The experience study report presented separate salary increase experience for Fire and Police. Rudd and Wisdom stated that there were noticeable differences in the experience between Fire and Police but that we recommended the same assumption be used for both groups without explanation.

Since the report was prepared as a Board presentation, there were likely instances where items were discussed verbally that were not documented in the report. Future experience study reports will contain additional documentation so the report may stand on its own. We must also note that in setting assumptions we are primarily guided by the need to make the most realistic estimates possible of <u>future</u> experience, and differences in past experience between two groups does not indicate that one cannot expect their future experience to be so similar that the same assumption could not be applied to both.

d. Mortality Assumption Description (page 15)

Rudd and Wisdom state that the experience study report does not disclose the current or proposed mortality assumption for female pensioners or for male and female active participants. They also state that the report does not mention that the disabled annuitant mortality table is the same as for healthy annuitants.

The report states that the proposed mortality table change is for males, which implies that the female mortality is unchanged. We understand that this could have been made clearer with additional disclosure about the current assumptions and what was not changing. We did note that the report did not mention the disabled mortality assumption. We agree that it would be useful to add discussion regarding that assumption to future reports.

e. Other Demographic Assumptions (page 16)

Rudd and Wisdom suggested that we add more discussion of the proposed changes to the other minor assumptions shown on page 25 of the experience study report (percent married, participant/spouse age difference, and overtime load assumptions).

We have no objection to this suggestion and are willing to include more detail and discussion in future experience studies.

f. Change in Mortality Assumption Letter (page 16)

In 2012, we recommended a change in the mortality assumption from the assumption proposed in the experience study report. Rudd and Wisdom suggested that it would have been helpful for the letter to include a comparison of the actual to expected deaths or remaining life expectancies under the current and proposed assumptions. They also suggested that the letter was not clear that there were separate male and female mortality tables in the recommended assumption. Finally, they suggest that the letter did not make it clear that the proposed mortality assumption would change every two years due to the projection of mortality improvement.

We have no objection to these suggestions and will include additional detail of this type in future letters.

The report was prepared under the supervision of Stephen J. Prullage, an Enrolled Actuary, a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries, who has met the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice.

If you have any questions or would like additional information, please let us know.

Sincerely,

Stephen J. Prullage, F.S.A., E.A., M.A.A.A.
Director, Consulting Actuary

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