



**Cavanaugh Macdonald**  
CONSULTING, LLC

*The experience and dedication you deserve*

## **UTAH RETIREMENT SYSTEMS**

**REPORT OF THE ACTUARIAL AUDIT  
OF THE JANUARY 1, 2012 ACTUARIAL VALUATION**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

August 27, 2013

Mr. Daniel D. Anderson  
Executive Director  
Utah Retirement Systems  
540 East 200 South  
Salt Lake City, UT 84102-2099

**Subject: Report of the Audit of Actuarial Consultant for the Utah Retirement Systems**

Dear Mr. Anderson:

Cavanaugh Macdonald Consulting, LLC was selected by the Utah Retirement Systems (URS) to provide this independent actuarial audit of the work performed by URS' actuary, Gabriel, Roeder Smith and Company (GRS). The audit primarily reviewed the reasonableness and soundness of GRS's work in preparing the January 1, 2012 actuarial valuation.

The scope of the requested audit was limited to four groups of employees: 1) state public employees in Tier I Public Employees Noncontributory Retirement System, 2) employees who are members of the Tier I Public Safety Noncontributory Retirement System, 3) Tier II Public Employees' Retirement System, and 4) Tier II Public Safety and Firefighter Retirement System. The scope of the audit was also limited to assessing the reasonableness of valuation results through the in-depth review of a sample set of individual calculations selected from each audited employee group rather than a complete replication of the results. Our findings are outlined in this report's executive summary with the details of our findings and recommendations provided in the section applicable to each audit task.

We would like to thank the URS staff for their responsiveness in providing all items we requested during the course of our review. We would also like to thank GRS for their cooperation and assistance in providing the requested information to us and their timely and thoughtful responses to our questions. We look forward to presenting our report to the Board of Trustees and to answering any questions concerning the information provided herein.



Mr. Daniel D. Anderson

August 27, 2013

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The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report.

Sincerely,

A handwritten signature in blue ink that reads 'Thomas J. Cavanaugh'.

Thomas J. Cavanaugh, FSA, FCA, MAAA, EA  
Chief Executive Officer

A handwritten signature in blue ink that reads 'John J. Garrett'.

John J. Garrett, ASA, FCA, MAAA  
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Todd B. Green'.

Todd B. Green, ASA, FCA, MAAA  
Principal and Consulting Actuary

TC/JG/TG:kc

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## 1. EXECUTIVE SUMMARY

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As independent auditing actuary, Cavanaugh Macdonald Consulting, LLC (CMC) has been tasked to provide a general overview and express an opinion of the reasonableness and soundness of the work performed by Gabriel, Roeder Smith and Company (GRS) for the Utah Retirement Systems (URS). In addition to providing our findings, we are requested to also provide appropriate recommendations for improvements to the work performed by GRS.

Specifically, the following scope for the audit was identified in the request for proposals:

1. To provide a determination as to whether GRS's 2012 valuation procedures are technically sound and based on generally accepted actuarial standards to include:
  - Verification of the valuation results including the review of the data used, and checking that appropriate mathematical calculations are being made accurately, but not a duplication of valuation runs; verification that all appropriate benefits are being valued; (Audit Task 1 in this report);
  - Review of demographic and economic actuarial assumptions for consistency, reasonableness and compatibility (Audit Task 2 in this report);
  - Evaluation of the actuarial cost method and the actuarial asset valuation method in use and whether other methods would be more appropriate for URS (Audit Task 3 in this report).
2. To provide a determination as to whether the retirement plans' financial objectives are being met by the current funding policy (Audit Task 4 in this report).
3. The auditing actuary is not expected to duplicate the valuation results but to compare and confirm GRS's results for real and hypothetical test lives (included in Audit Task 1).
4. To provide an opinion as to whether the valuation report prepared by GRS conforms to contemporary practices and is comprehensive and to include recommended improvements (Audit Task 5 in this report).

The scope of the requested audit was limited to four groups of employees: 1) state public employees in Tier I Public Employees Noncontributory Retirement System, 2) employees who are members of the Tier I Public Safety Noncontributory Retirement System, 3) Tier II Public Employees' Retirement System, and 4) Tier II Public Safety and Firefighter Retirement System.

We requested full participant and financial data of the pertinent employee groups from URS along with reports, plan descriptions and applicable statutes pertaining to the plans. We also requested from GRS participant data as reconciled for the 2012 valuation as well as complete



## 1. EXECUTIVE SUMMARY

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descriptions of assumptions, methods and valuation procedures. Once we had reviewed the data, we requested a set of detailed individual calculations of participants, called test lives, pertaining to all audited participant groups with specific demographics to allow for in-depth review of the accuracy of benefit calculations, the development of the present value of benefits, the normal cost and the actuarial accrued liability, as well as the correct application of assumptions.

It is our belief an audit should not focus on finding differences between actuarial processes and procedures utilized by two different actuaries but rather to find improvements to the process and procedures utilized by the Systems' actuary. In performing this audit, we attempt to limit discussions concerning differing opinions and focus more on the accuracy of calculations, the completeness and reliability of reporting, and the compliance with acceptable actuarial principals and standards in all work reviewed.

We summarize our findings for each major audit task as follows:

**1. Provide a determination as to whether GRS's 2012 valuation procedures are technically sound and based on generally accepted actuarial standards.**

Our findings are based on a review of the participant and financial data; our in-depth review of test lives; our review of the assumptions and methods developed in the URS Actuarial Experience Study for the period ending December 31, 2010 and as used in the January 1, 2012 actuarial valuation; and the review of the development of the valuation results. *We find that GRS's actuarial valuation work is technically sound and complies with generally accepted actuarial standards.* In Section 2, we provide the details of the audit of the valuation procedures and 4 recommendations for improvements to the process.

**2. Provide a review of the demographic and economic actuarial assumptions for consistency, reasonableness and compatibility.**

Based on our general review of the Actuarial Experience Study for the period ending December 31, 2010 and our review of the assumptions and methods utilized in the January 1, 2012 actuarial valuation, *we find the demographic and economic assumptions are consistent, reasonable and compatible.* In Section 4, we provide further discussion of our findings and our suggestions for improvements in the development of the valuation assumptions. In Section 3 we provide our findings and recommendations for this audit task.



## 1. EXECUTIVE SUMMARY

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### **3. Provide a review of the actuarial cost method and asset valuation method for reasonableness and appropriateness for URS' purposes. If necessary, we discuss appropriate alternatives to the methods utilized.**

Based on our review of the most recent experience study and 2012 actuarial valuation, *we find that use of the entry age normal cost method (as a level percentage of salary) and the 5-year smoothing of the difference between actual and expected market return on investments (with a 25% market value corridor) is both reasonable and appropriate for URS' purposes.* We note that there are several alternative methods that may also be reasonable and appropriate; each alternative represents a variation of the balance between the enhancement of funding progress and stability of required funding. In our opinion, no other alternative cost method or asset valuation method would be expected to better fit the current financing objectives of URS. In Section 4 of this report, we provide our opinions pertaining to this audit task.

### **4. Provide a determination as to whether the retirement plans' financial objectives are being met by the current funding policy.**

The Board's current funding policy includes the following financial objectives:

- To maintain a stable or increasing funded ratio;
- To accumulate sufficient assets to finance the benefits promised to members and beneficiaries;
- To sustain a pattern of relatively constant contribution rates expressed as a percentage of member salary;
- To provide intergenerational equity for taxpayers with respect to system costs;
- To manage investment risk with a diversified asset allocation and asset smoothing;
- To require employers to contribute the greater of the actuarial calculated contribution rate or the previous year's contribution rate until the Systems reach a 110% funded ratio. Once a 110% funded ratio is attained, the employer contribution rate shall be adjusted such that it is sufficient to maintain a 100% funded ratio.

Based on our review of the Board's financial objectives as listed above, the 2011 and 2012 actuarial valuations, the assumptions and methods as utilized in those valuations, and the applicable state statutes; *it is reasonable to expect that the above financial objectives will be met over the long-term future years through continued application of the current funding policy.* We also concur with GRS that consideration should be given to modification of the amortization method which could be analyzed as part of the next experience study. In Section 5, we provide additional discussion and recommendations concerning our review of URS' funding policy.



## 1. EXECUTIVE SUMMARY

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**5. Provide an opinion as to whether the actuary's reports conform to contemporary practices and are comprehensive; provide any recommendations for improvement in the report.**

We primarily reviewed the January 1, 2012 actuarial valuation report and the report of the experience study for the five-years ending December 31, 2010. The 2012 valuation report contains complete results for all defined benefit Systems and Plans within URS with separate results presented by System/Plan as well as by applicable participating employer group. There are several necessary complexities included in the development of the valuation results and the sheer amount of information necessary to be provided for the development of the numerous rates contained in the report is initially a bit overwhelming, even to actuaries. However, in our opinion, the valuation results are provided in a well organized and comparative format necessary for the consideration and certification of employer contribution rates. *In our opinion, the actuarial valuation report is comprehensive and conforms to current accepted practice. We have no recommendations that would provide meaningful improvements to the report.* In Section 6 we provide further discussion and recommendations concerning the valuation report.

Based on our review of the work performed by GRS within the scope of the audit, we find GRS's work to be based on reasonable processes, technically sound, and fairly presented. We have no findings of material discrepancies with generally accepted actuarial principles and professional standards. Our recommendations are limited to suggesting minor improvements to an already good valuation process.

The remainder of this report provides the basis for our findings and recommendations for each of the five major audit tasks and our conclusions.





## **2. AUDIT TASK 1 – VERIFICATION OF JANUARY 1, 2012 ACTUARIAL VALUATION**

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The review of the January 1, 2012 actuarial valuation is to provide a determination as to whether GRS's actuarial valuation procedures are technically sound and based on generally accepted actuarial standards. This section provides our findings and recommendations for Audit Task 1 which includes the verification of the valuation results, the review of the data used, confirmation that appropriate mathematical calculations are being made accurately (but not a duplication of valuation runs), and the verification that all appropriate benefits are being valued.

The actuarial calculations required to produce an actuarial valuation are extremely complex; even on the individual participant level. Acceptable actuarial principals and standards provide actuaries with guidance and a framework for performing the calculations but there often exist differences as to precisely how the calculations are performed by different actuaries. Some of these differences are due to differing opinions and judgment while other differences exist within the details of the highly complex calculations and programming routines of valuation software. Where measurable differences occurred in our review of calculations, we have discussed those differences with GRS. Material differences, if any, not satisfactorily reconciled with GRS would be included in our findings; there were none. Other less material differences are included in our recommendations for future consideration and improvements.

### **Review of Data**

We received the participant and financial data as transmitted by the Systems to GRS for the plan year ended December 31, 2011. GRS also supplied us with active, inactive, terminated vested, retired and beneficiary data for the audited employee groups as of December 31, 2011 to review the data processes and procedures they used to prepare the System's data for the valuation.

The data provided by the Systems appears to be clean and complete with a few exceptions. We independently applied typical data handling processes and find that the data procedures used to determine the participant data included in the valuation are reasonable.

The following table provides a comparison of the data processing of URS data for the employee groups audited.



## 2. AUDIT TASK 1 – VERIFICATION OF JANUARY 1, 2012 ACTUARIAL VALUATION

<b>Summary of Data Reconciliation Results</b>			
<b>Active Records</b>			
<b>Fund</b>	<b>GRS</b>	<b>CMC</b>	<b>Diff</b>
Tier I Public Employees Noncontributory - State and School	68,358	68,350	(8)
Tier I Public Safety Noncontributory - State	2,467	2,466	(1)
Tier II Public Employees - State and School	3,724	3,725	1
Tier II Public Safety - State	60	60	0
Tier II Firefighters	27	27	0
<b>LTD Records</b>			
<b>Fund</b>	<b>GRS</b>	<b>CMC</b>	<b>Diff</b>
Tier I Public Employees Noncontributory - State and School	710	710	0
Tier I Public Safety Noncontributory - State	6	6	0
<b>Vested Inactive Records</b>			
<b>Fund</b>	<b>GRS</b>	<b>CMC</b>	<b>Diff</b>
Tier I Public Employees Noncontributory - State and School	29,524	29,539	15
Tier I Public Safety Noncontributory - State	1,232	1,233	1
<b>Non-Vested Inactive Records</b>			
<b>Fund</b>	<b>GRS</b>	<b>CMC</b>	<b>Diff</b>
Tier I Public Employees Noncontributory - State and School	965	965	0
Tier I Public Safety Noncontributory - State	1	1	0
<b>Regular Retire Records</b>			
<b>Fund</b>	<b>GRS</b>	<b>CMC</b>	<b>Diff</b>
Tier I Public Employees Noncontributory - State and School	28,850	28,850	0
Tier I Public Safety Noncontributory - State	1,191	1,191	0
<b>Disabled Retiree Records</b>			
<b>Fund</b>	<b>GRS</b>	<b>CMC</b>	<b>Diff</b>
Tier I Public Employees Noncontributory - State and School	710	710	0
Tier I Public Safety Noncontributory - State	28	28	0
<b>Beneficiaries/Alternate Payee Records</b>			
<b>Fund</b>	<b>GRS</b>	<b>CMC</b>	<b>Diff</b>
Tier I Public Employees Noncontributory - State and School	2,545	2,545	0
Tier I Public Safety Noncontributory - State	134	134	0



## 2. AUDIT TASK 1 – VERIFICATION OF JANUARY 1, 2012 ACTUARIAL VALUATION

Although there are a few instances of missing data, we believe the procedures and assumptions disclosed by GRS regarding missing information are appropriate. It is our opinion that the minor difference between the data preparation of GRS and our process would not result in material differences in the valuation results of the Systems audited.

We note that 4 participant data records contain contradictory information. The records involve retirees who have returned to active employment having had pension benefits suspended but have been indicated in the retiree data as deceased. These participants also have an active record for the period of reemployment. GRS treated the retiree records as deceased, releasing the associated liability, and included the active records for the reemployment period in the valuation. These records were also flagged in the Systems’ data for additional review which would likely result in a future correction to the records and the correct liability determined by GRS in a future valuation. We did not identify other similar cases. We recommend that data flags such as “deceased” indicators be restricted and not multi-use. We also recommend that GRS and URS discuss remedies to this and any similar sources of conflicting data indicators. Again, we feel the extremely limited nature of this occurrence does not materially impact the valuation results.

### Accuracy of Calculations

The review of the accuracy of the actuarial calculations and the inclusion of all appropriate benefits was based upon the detailed review of a sample set of individual members called test lives. The sample set of 101 test lives was carefully selected from the complete data to ensure the review of all significant calculations and to confirm that all benefits are appropriately valued. The table below provides a summary of the selection of test lives.

Summary of Requested Test Lives				
Fund	Records Requested			LTD
	Active	Retired	Vested Inactive	
Tier I Public Employees Noncontributory - State and School	23	12	2	5
Tier I Public Safety Noncontributory - State	20	6	1	2
Tier II Public Employees - State and School	20			
Tier II Public Safety - State	7			
Tier II Firefighters	3			

We utilized our actuarial software to independently produce relevant factors and check appropriate utilization of actuarial assumptions to assist with our assessment of the detailed test lives GRS provided. We should note that we expect to find non-material differences reflecting



## **2. AUDIT TASK 1 – VERIFICATION OF JANUARY 1, 2012 ACTUARIAL VALUATION**

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the utilization of different software, differences in rounding and differences in programming routines. Below we provide recommendations for process and procedure improvements we noted during our review of the test lives.

Based on our reconciliation of the calculations in the sample test lives with GRS, we are confident that the individual calculations performed by GRS are technically sound and any differences we identified would not materially impact the valuation results. Therefore, based on our review of the test lives, in our opinion, GRS's results of the detailed calculations provided in the sample set of test lives are reasonable, accurate calculations and include all appropriate benefits.

Overall, the valuation processes and procedures used by GRS are technically sound and produce reasonable results. Based upon our analysis of test cases, we infer that the development of the normal costs and liabilities for the audited Systems is also reasonable. We have reviewed and agree with the development of the System's assets at both market value and actuarial value. Finally, we have reviewed the development of the contribution rates as shown in the 2012 actuarial valuation for the audited Systems and find the results accurately presented.

We provide the following recommendations as suggested improvements to the individual calculations we reviewed:

1. We note that the COLA provision granting annual increases in the anniversary month of retirees after one-year of retirement is applied in GRS's programming through an assumption that the first increase occurs the July 1<sup>st</sup> following their first anniversary. This is an appropriate assumption for active members where the actual month of retirement is unknown; however for actual retirees, we recommend that GRS consider a modification to their calculation that better reflects the actual timing of the first annual COLA for new retirees that is based on their actual date of retirement. This results in a minor understatement of the liabilities for new retirees. In our opinion, based on the data we reviewed, we do not find the current calculation materially understates the liabilities of the plans.
2. We note that GRS is not correctly applying the assumed percentage of in line of duty and not in line of duty deaths for the test lives we reviewed in Tier I Public Safety. This would be expected to result in a minor overstatement in the value of death benefits for these employees. The ancillary death benefits represent a small portion of the System's liabilities, and in our opinion, this does not result in a material difference in the System's valuation results. In our discussion with GRS, they advised us that they recognized this problem during their work in preparing the 2013 actuarial valuation and have corrected the application of the percentage of deaths assumed to occur in line of duty and not in line of duty in the most recent valuation.



## **2. AUDIT TASK 1 – VERIFICATION OF JANUARY 1, 2012 ACTUARIAL VALUATION**

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3. We note the maximum annual compensation limit for defined benefit plans under IRS Section 401(a)(17) is not used to limit the annual compensation taken into account in the valuation calculations of benefits under all plans. This would result in overstating the normal cost and liability calculated on very highly compensated individuals. The annual limit for 2012 was \$250,000. We find only 15 participants in the active data of URS with annual compensation over \$225,000 reported as of December 31, 2011 who could reasonably reach the applicable compensation limit in a future year. There are potentially several more participants that may be projected to exceed the indexed limit in future years. We find that this affects extremely few participants and is not material to the valuation results but in our opinion it is an easy modification to programming and would prevent the rare cases of overstating the individual results of such participants in future years.
  
4. We note that for only Tier I Public Employees of those plans audited, GRS applies a limit to the retirement benefits of 100% of final average monthly compensation. As the plan provisions do not contain this limit, we recommend its removal for purposes of consistency with the applicable provisions. This recommendation does not have a material impact on the valuation results as it would be extremely rare for a participant to earn the substantial years of credited service necessary to exceed this limit. We find several participants in the data that could potentially exceed this limit; however they would be far more likely to retire well before this would occur.



### **3. AUDIT TASK 2 – REVIEW OF DEMOGRAPHIC AND ECONOMIC ACTUARIAL ASSUMPTIONS**

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This section provides our findings and recommendations for Audit Task 2 – the review of demographic and economic actuarial assumptions for consistency, reasonableness and compatibility. In performing this task we reviewed the report of the Actuarial Experience Study for the Five-Year Period Ending December 31, 2010 and the application of the assumptions as presented in the test lives.

We reviewed all recommended assumptions and methods presented in the report with particular attention paid to the most material assumptions to include the investment rate of return, salary increases, retirement rates, and post-retirement mortality assumptions.

We find the development of the economic and demographic assumptions contained in the report of the experience study conforms with generally accepted actuarial principles and the Actuarial Standards of Practice (ASOPs) as currently maintained by the American Academy of Actuaries. We find the report provides sufficient discussion of GRS’s findings and analysis to support their recommendations. In our opinion, the recommendations presented in the report are reasonable, consistent and compatible. We also find in the course of reviewing detailed individual test lives that the assumptions are accurately implemented in the calculations we reviewed.

Below we provide recommendations for improvement pertaining to the development and utilization of the valuation assumptions.

1. We note one minor assumption, the percentage of deaths and disabilities that are assumed to occur in the line of duty, is stated to have been reviewed and determined to remain reasonable with no recommendation for change. We recommend that available analysis supporting such a finding be provided in the report. This is a minor assumption in the URS valuation. We are unsure if this assumption has any materiality in the development of the LTD funding requirement as that is beyond the scope of our audit. In our opinion, recommendations regarding an assumption that is based on the analysis of data should be included in the experience study report.
2. The following items are solely typographical errors in the tables presenting the retirement assumptions contained in the January 1, 2012 valuation report:
  - Page 73 of the report discloses the retirement rates applicable to Tier II Public Employees. We recommend that the footnote applicable to the unreduced rates state that the first year eligible rate increase applies only on the 35 years of service eligibility and not at age 65.
  - Page 74 discloses the Tier I Public Educators retirement rates in a table beginning at age 50 but we note that there are rates developed and utilized for eligible participants prior to age 50. We recommend GRS consider appropriate modifications or comments to the table.



### **3. AUDIT TASK 2 – REVIEW OF DEMOGRAPHIC AND ECONOMIC ACTUARIAL ASSUMPTIONS**

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- Page 75 discloses the retirement rates applicable to Tier II Public Educators. As in the first bullet point above, we recommend that the footnote applicable to the unreduced rates state that the first year eligible rate increase applies only on the 35 years of service eligibility and not at age 65. Also, the superscript footnote number should be included in the column label.
- Page 77 of the report discloses Tier II Public Safety and Firefighters assumed retirement rates. The rates provided for Public Safety with years of service 0 to 19 for ages 40-61 should be corrected (we believe the applicable rates should be 0.00 for these ages with less than 20 years of service). The rates for Public Safety with 30+ years of service for ages 45 to 54 do not match the rates as provided by GRS and used in the calculations. The rates for Firefighters with 0 to 29 years of service for years 40 to 46 and at age 48 should be corrected to the rates provided by GRS and as used in the calculations. Finally, it should be footnoted that the tabular rates are halved when used for reduced eligibility.

GRS stated to us that several typographical errors were corrected in producing the 2013 valuation report. We did perform an abbreviated review of the 2013 valuation report and find that all but the fourth bullet point above to be completely corrected.

In our review, we confirmed the accurate utilization of the assumptions and the above recommendations would not result in changes to valuation results.



#### **4. AUDIT TASK 3 – EVALUATION OF THE ACTUARIAL COST METHOD AND THE ACTUARIAL ASSET VALUATION METHOD**

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In this section we provide our findings and recommendations pertaining to the evaluation of the actuarial cost method and the actuarial asset valuation method in use and whether other methods would be more appropriate for URS.

##### **Actuarial Cost Method**

The actuarial funding method used by URS is the traditional Entry Age Normal actuarial cost method which is the most widely used cost method among large public plans. GRS's implementation of the funding method determines the normal cost as a level percent of salary that, if contributed over the expected career of the members, would satisfy the expected present value of benefits at their expected retirement age.

The selection of an actuarial cost method should be linked to long term financing objectives of the system. In considering appropriate alternatives, we concur with GRS's opinion that this method "is the best method for URS." In our opinion, the use of the Entry Age Normal cost method (as a level percentage of salary) is the best fit for the financial objectives of URS, specifically the stability of contribution rates as a percentage of salary and the promotion of intergenerational equity for taxpayers.

##### **Actuarial Asset Valuation Method**

A primary objective of the Board's funding policy is to have contributions which will remain approximately level as a percent of active member payroll from year to year. Significant market value of asset fluctuations make this difficult to achieve. Thus most actuaries recommend the utilization of an asset valuation method which smoothes out these fluctuations to enhance the year to year stability of required contributions. This is a question of balancing fit (measured against market value) and smoothness of results.

Desirable characteristics of an actuarial asset valuation method include the following:

- The method should be simple to operate. It should be readily calculable from financial statements.
- The actuarial value of assets should be reasonably related to the market value.
- The method should be effective in smoothing the effect of typical market fluctuations.

The asset valuation method utilized by GRS is also commonly used by other large public employee retirement systems. Under this method, the difference between the actual return and the expected return based on the market asset value is determined each year. Twenty percent of this difference is recognized in the actuarial value of assets each year over a five year period.





#### **4. AUDIT TASK 3 – EVALUATION OF THE ACTUARIAL COST METHOD AND THE ACTUARIAL ASSET VALUATION METHOD**

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The method also utilizes a 25% corridor around the market value of assets that restricts the degree which the actuarial value can vary from market value. The selection of a corridor and the maximum percentage of difference from market value allowed should reflect the System's preference for balancing fit and smoothness. We note that a corridor with a larger percentage of allowable difference (or no corridor) would allow greater variance from market value but would be expected to provide a higher degree of smoothness and smoother asset values could be considered a better fit with the financing objectives.

In addition, the method utilized is unbiased, meaning it is not expected to favor understating or overstating market value, and is common to several similar public retirement systems. We prefer the use of this method with most of our clients. As to the length of the smoothing period, we agree with GRS's statement that a 5-year smoothing period is the most common. The specific selection should be based on the System's preference of smoothness of results as compared to variance from market value of assets and within reasonable limits. Further, the method as implemented is in conformance with ASOP No. 44 "Selection and Use of Asset Valuation Methods for Pension Valuations."

In our opinion, the GRS actuarial asset valuation method is reasonable and appropriate for use by URS. We do not believe that an alternative method would be more appropriate but note for future consideration the discussion concerning the current 25% corridor on market value.



## 5. AUDIT TASK 4 - REVIEW OF URS FUNDING POLICY

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In this section of the report we provide our determination as to whether the retirement plans' financial objectives are being met by the current funding policy.

The Board's current funding policy includes the following financial objectives:

- To maintain a stable or increasing funded ratio;
- To accumulate sufficient assets to finance the benefits promised to members and beneficiaries;
- To sustain a pattern of relatively constant contribution rates expressed as a percentage of member salary;
- To provide intergenerational equity for taxpayers with respect to system costs;
- To manage investment risk with a diversified asset allocation and asset smoothing;
- To require employers to contribute the greater of the actuarial calculated contribution rate or the previous year's contribution rate until the Systems reach a 110% funded ratio. Once a 110% funded ratio is attained, the employer contribution rate shall be adjusted such that it is sufficient to maintain a 100% funded ratio.

We base our review of the Board's financial objectives above on the results of the 2011 and 2012 actuarial valuations and the assumptions and methods as utilized in those valuations. Similar to the selection of actuarial methods, alternative funding policies that may best satisfy one of the financial objectives would likely be less desirable when considering other objectives. Most of the policy's financial objectives are supported by utilizing assumptions which are matched to the best estimate of future experience and through methods, such as asset valuation methods and Unfunded Actuarial Accrued Liability (UAAL) amortization methods, which dampen the impact of actuarial gains and losses on required funding. In this manner, actuarial gains and losses would be minimized and the impact of unexpected experience on required contribution rates would be smoothed. The actuarial assumptions, actuarial cost method and the asset valuation method are reasonably expected to best support the financial objectives. However, the current UAAL amortization method, although appropriate, would be expected to work counter to some of these objectives in the future.

We highlight our agreement with the following statement made by GRS in the most recent experience study report concerning the 25-year closed (as of 2009) UAAL amortization period: *"the Board may need to revisit this assumption (referring to the amortization method) at the time of the next experience study... and the Board will need to consider whether a change in approach is needed as the period becomes shorter."* At issue is that as the amortization period becomes shorter, new gains and losses measured in future valuations are financed over successively shorter periods which increase the impact of each future gain or loss on contribution rates. In an ideal environment, future gains and losses will offset over future years. This is the expectation of each annual valuation in setting levels of future contribution rates and perhaps the best argument for the use of cost methods which utilize



## 5. AUDIT TASK 4 - REVIEW OF URS FUNDING POLICY

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UAALs. UAALs are where annual unexpected changes in a system's liability are accumulated and financed over a sufficiently long time frame such that much of the impact of the experience is likely to be offset by alternative experience prior to fully impacting the required funding.

Over the longer-term, once the closed UAAL amortization period becomes less than the expected future working lifetime of the active membership (which is effectively the period for which the future normal cost of the system is spread), the purpose of the UAAL to spread the impact of gains and losses over a number of years to enhance contribution stability then becomes a source of greater contribution volatility.

Having a 21-year amortization period and a 77% funded ratio as presented in the January 1, 2013 actuarial valuation report, the last year the substantial 2008 investment losses impacts the valuation results, is enviable when compared to the majority of large public retirement systems. It would not be expected to be detrimental to the future funding progress objective to consider an amortization method which would finance each future valuation's actuarial gain or loss over a closed period of sufficient length to better fit the current financing objectives. Of course, there are many alternatives which could also be considered to achieve similar outcomes; our point is that we agree with GRS that this is an area of the current funding policy that may require modification to maintain funding methods which best balance the current financial objectives.

We also note that the use of level percent of payroll financing of the UAAL conflicts with the first policy goal of a stable or increasing funded ratio until the point in time that the amortization period is short enough to generate a contribution greater than interest on the outstanding UAAL balance. The UAAL contribution rate is determined using the period, the assumed interest rate and the assumed payroll growth rate. As of the 2013 valuation those items are 21 years, 7.50% and 3.50%. Even absent actuarial losses, the funded ratio is expected to decline slightly using level percent of payroll amortization and those inputs until the period is below 18 years.

Our final comment on this topic concerns the last bullet point of the financial objectives: *to require employers to contribute the greater of the actuarial calculated contribution rate or the previous year's contribution rate until the Systems reach a 110% funded ratio. Once a 110% funded ratio is attained, the employer contribution rate shall be adjusted such that it is sufficient to maintain a 100% funded ratio.* This funding policy item is provided for in Section 49-11-301(5) of the Utah Code and we consider this an effective authorization provided to URS to effectively delay any substantial decrease in required funding until a substantial surplus is realized. Our concern is with the last portion of the objective which would allow a future valuation (most likely well into the future) to establish a contribution requirement less than the applicable future normal cost rate.



## **5. AUDIT TASK 4 - REVIEW OF URS FUNDING POLICY**

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Specifically, after a system attains a 110% funded ratio, the employer contribution requirement would be the sum of the annual normal cost rate plus the applicable amortization rate of the surplus (a negative rate of payroll); the result is the contribution rate is less than the normal cost rate. We recommend consideration be given to requiring a minimum contribution equal to the system's normal cost rate. In our opinion, this requirement would enhance the stability of funding after a system attains a surplus funded position.

In summary, for this audit task, it is our opinion that it is reasonable to expect that the financial objectives contained in the current funding policy will be met over the long-term through continued application of the current funding policy with consideration of a modification to the UAAL amortization methodology similar in effect to that discussed above.



## **6. AUDIT TASK 5 – REVIEW OF ACTUARY’S REPORTS**

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In this section we provide our opinion as to whether GRS’s reports conform to contemporary practices and are comprehensive. We also include any recommendations for improvement in the report presentation. Our review of reports is limited to the January 1, 2012 actuarial valuation report (the most recent at the start of our audit) and the report of the experience study for the five-years ending December 31, 2010. The 2012 valuation report contains the valuation results for all defined benefit Systems and Plans within URS with separate results presented by System/Plan as well as by applicable participating employer group.

In order to appropriately demonstrate the development of each resulting contribution rate, the report must provide sufficient detail including asset transfers for paired contributory and noncontributory funds, additional funding required under the 3% Substantial Substitute applicable to state funded employee groups, the additional liability due to the Restoration of Purchasing Power on a decreasing closed group of retirees, the determination of the Firefighters and Judges Offsets derived from allocated fire premium taxes and court fees, and the determination of the annual allocation to the Public Safety Retirees’ Cost of Living Increases Restricted Account. In short the valuation process necessary to produce results is significantly more complex than the typical public retirement system.

We assume the single valuation report of URS has been modified over many years to accommodate incremental complexity added from time to time to arrive at the current voluminous report. Still, in our opinion, the valuation results are provided in as well an organized and comparative format as possible and as necessary for the consideration and certification of the employer contribution rates. We do not have a recommendation to materially improve the single report without exacerbating the report’s complexity and size.

One consideration would be to prepare several smaller reports (e.g., Tier I Public Employees Valuation Report, Tier I Public Safety Valuation Report, Tier II Public Employees Valuation Report, etc.) and separately provide a supplemental report containing the desired exhibits which aggregate the reporting in a easier to review format (and font size). The smaller reports could then include additional detailed analysis of actuarial gains and losses by each material source (e.g., retirement experience, salary increases, mortality experience, etc.) without getting lost in the voluminous details of the current report. In our view, the detailed analysis of gains and losses would improve a reader’s understanding of the changes in the valuation results from year to year and is also useful in generally assessing the effectiveness of the actuarial assumptions. Another consideration favoring smaller reports is that the actuary can provide expanded discussion of the valuation’s key findings pertaining to each separately reported System.

We also reviewed the most recent experience study report and find the report provides the necessary discussion and analysis to support the recommendations provided. We find the experience study, although very comprehensive, not as difficult to review in one single report as the valuation report. We suggest the actuarial impact of the recommendations provided in Section IV of the report show the individual impact of the more material assumptions in a way that permits readers to better understand the components that are primarily responsible for the



## **6. AUDIT TASK 5 – REVIEW OF ACTUARY’S REPORTS**

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overall changes. We also suggest GRS increase the utilization of graphical representations of their analysis rather than primarily relying on tables of data to support their analysis.



## 7. CONCLUSION

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As stated in the RFP, “the purpose of this audit is to provide a general overview of the actuarial work performed by the URS actuary, Gabriel, Roeder, Smith & Company.” As the firm selected to conduct the audit, URS expects our opinion regarding the reasonableness of the assumptions, methodology, and actuarial reports. The sections contained in our report cover various aspects of the audit but consistently find the work performed by GRS and reviewed in the scope of this audit to be based on reasonable processes, to be technically sound, and to be fairly presented.

To reiterate, we have no findings of material discrepancies with generally accepted actuarial principles and professional standards and our recommendations are limited to suggesting minor improvements to an already good valuation process.