REPORT TO ORSC

ACTUARIAL AUDIT
FOR THE
OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM

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September 2015

PTA PENSION TRUSTEE ADVISORS

KMS ACTUARIES LLC

September 14, 2015

Ohio Retirement Study Council
88 East Broad Street, Suite 1175
Columbus, OH 43215

Re: OPERS Actuarial Audit of the Pension and Health Benefits as of December 31, 2013

Dear Councilmembers:

We have completed our actuarial audit of the Ohio Public Employees Retirement System (OPERS) pursuant to R.C. §171.04(E). As shown in the attached findings, we have matched actuarial calculations quite closely, and have several related comments. None of the comments reflects a critical concern. Our audit finds that actuarial calculations were reasonable, consistent and accurate.

The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards to provide this statement of actuarial opinion.

We are available to answer any questions you may have regarding our findings and recommendations of the actuarial audit.

Sincerely,

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President
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cc: Ohio Public Employees Retirement System

Table of Contents

TABLE OF CONTENTS I

SECTION 1 – GENERAL FINDINGS 1

SECTION 2 – AUDIT OF ACTUARIAL METHODS, FACTORS AND ASSUMPTIONS 4

ACTUARIAL METHODS 4
ACTUARIAL ASSUMPTIONS 6
DEMOGRAPHIC ASSUMPTIONS 6
ECONOMIC ASSUMPTIONS 10
POST-EMPLOYMENT HEALTHCARE ASSUMPTIONS 15
DISCLOSURE OF ACTUARIAL ASSUMPTIONS AND METHODOLOGY 17

SECTION 3 – AUDIT OF COMPILATION OF ACTUARIAL VALUATIONS 20

SECTION 4 – OTHER CONSIDERATIONS 24

ACTUARIAL REPORT 24
ACTUARIAL AUDIT PROCESS 25
CONCLUSIONS 26

APPENDIX A – DIVISION RESULTS 27

Section 1 – General Findings

The Ohio Statutes require that the Ohio Retirement Study Council (ORSC) contract for an independent audit of the state retirement systems' actuaries not less than once every ten years. ORSC elaborated that the firm conducting the audit is to express an opinion regarding:

- An overall opinion as to the validity, completeness, and appropriateness of the demographic and financial information used by the consulting actuary to meet PERS' financial objectives,
- An overall opinion as to the reasonableness of the consulting actuary's conclusions and the conformance of the consulting actuary's work with generally accepted actuarial standards and practices, and
- A detailed description of each audit exception and the estimated effects of each exception on PERS, and
- Detailed recommendations for improvement.

Our opinion is that these standards were met, as will be discussed in the following pages.

The Ohio Public Employee Retirement System (OPERS) has some of the most complex plan provisions that are provided by public plans. This is primarily because of three features:

- OPERS provides health care benefits
- OPERS offers an option of a combined plan or member-directed plan in addition to the traditional plan
- OPERS recently underwent major plan changes as a result of Senate Bill 343 and The OPERS Health Care Preservation Plan (HCPP) 3.0 which offered extensive grandfathering provisions, phase-ins, and changes in benefit eligibilities for both pensions and access to retiree health benefits

We have duplicated the December 31, 2013 actuarial valuations conducted by Gabriel, Roeder, Smith & Company (GRS) and the results match quite closely. This match confirms that GRS is able to capture the complexity of OPERS accurately, and that OPERS should have confidence in the actuarial calculations provided to them. Although we found that GRS miscalculated two of the transition rules pertaining to 2010 legislation, the miscalculations were offsetting and the impact was relatively small.

The primary purpose of an actuarial audit is to confirm that there are no significant errors in the actuarial calculations. Based on our replication, we report that we have found no significant discrepancies and conclude that there are no significant errors. This is confirmed on the tables and discussion below.

Our only significant concern is with GRS' disclosure of calculation methods and assumptions, which is addressed in the following sections.

The following tables summarize the actuarial liabilities and normal costs produced by GRS and PTA/KMS actuarial valuations:

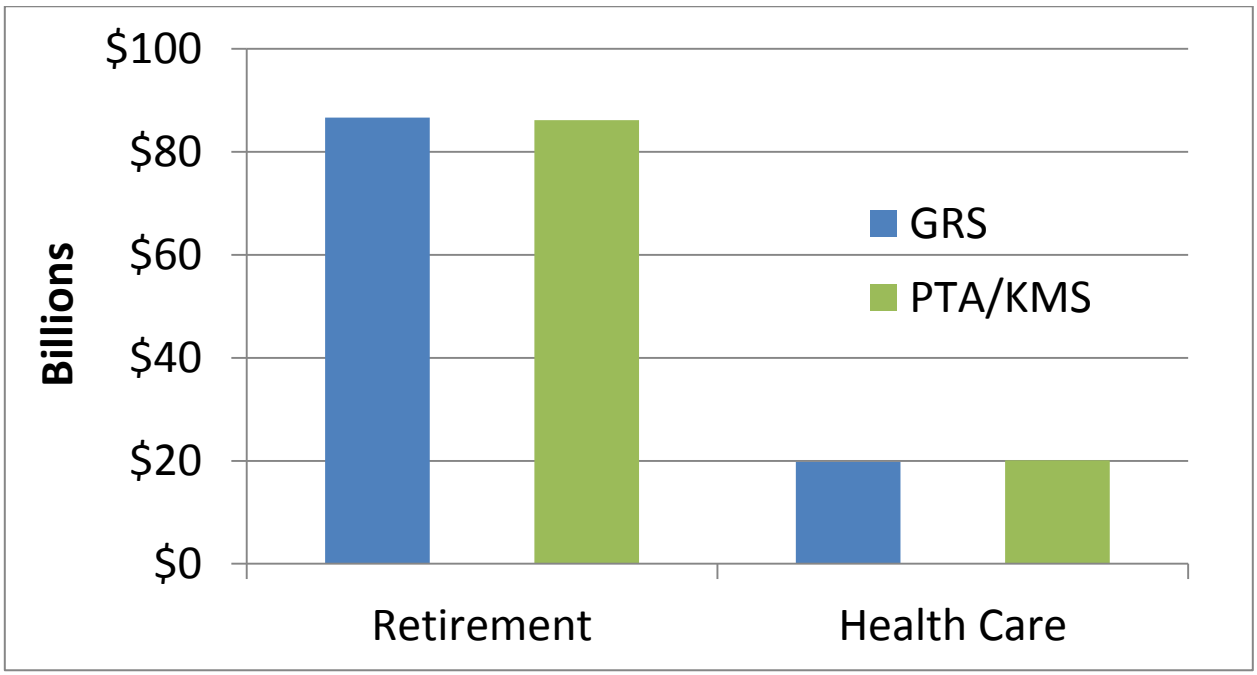
Summary of Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in millions)			
All Divisions - Pensions			
	GRS	**PTA/KMS**	**% Diff.**
Actuarial Liabilities			
Traditional Plan	86,406	85,980	-0.5%
Combined Plan	231	183	-20.8%
Member Directed Plan	7	7	0.0%
Grand Total	86,644	86,170	-0.5%
Normal Cost			
Traditional Plan	13.33%	13.42%	0.7%
Combined Plan	7.47%	7.95%	6.4%
Member Directed Plan	0.00%	0.00%	0.0%

Summary of Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in thousands)			
All Divisions - Health & Medicare Benefits			
	GRS	**PTA/KMS**	**% Diff.**
Actuarial Liabilities			
Actives	7,829	7,668	-2.1%
Retired	11,794	12,286	4.2%
Inactive	161	134	-16.8%
Total Health & Medicare Benefits	19,784	20,088	1.5%
Normal Cost	3.24%	3.19%	-1.7%

The grand total actuarial liability calculated by PTA/KMS was within 0.2% of the same calculated by GRS. Our grand total normal cost was within 0.4% of that calculated by GRS.

This is illustrated by the following chart:

Total Actuarial Liabilities Matched within 0.2%



Although the match was nearly perfect, there is still room for improvement. We make the following recommendations for enhancement in the accuracy of calculations and completeness in the reports:

- Consider early retirement assumption for Public Safety Group B
- Correct minor calculations as discussed in the following pages
- Expand disclosure of methodology and assumptions more rigorously in the next actuarial experience study and valuation reports
- Reconsider certain actuarial assumptions in the next experience study, including:
    - Combined plan offset based on actual balances
    - Reevaluate merit component of salary growth assumptions
    - Early retirement for those retiring after August 1, 2017

Section 2 – Audit of Actuarial Methods, Factors and Assumptions

The first step in the actuarial audit process is to review the actuarial methods, actuarial factors and actuarial assumptions used in the actuarial valuations.

ACTUARIAL METHODS

GRS uses several actuarial methods in determining costs and liabilities for OPERS.

- The actuarial funding method is the Individual Entry Age actuarial cost method
- The actuarial asset valuation method is a four-year smoothed market value
- The amortization of the unfunded actuarial accrued liability is based on level payroll, closed period method
- The method of developing the health care claims cost assumptions is not clearly described in the reports.

Actuarial Funding Method

The Individual Entry Age Normal actuarial cost method is used for both actuarial valuations. This method is designed to maintain constant plan costs throughout each employee's career as a portion of pay. We believe this is a reasonable and appropriate method. It is the most common method used by large public pension systems such as OPERS. GRS is applying the method reasonably, consistently and accurately.

Actuarial Asset Valuation Method

GRS employs a four-year smoothed market value actuarial asset valuation method. Unlike actuarial funding methods, actuarial asset valuation methods are not precisely defined. Most actuaries use what could be categorized as a "five- [or four-] year smoothed market value actuarial asset valuation method" as does GRS, but might use quite different methods. We have reviewed the precise provisions of the method that GRS employs and find them to be reasonable, consistently applied, and accurate.

The GRS method is a very conventional and appropriate application of a four-year smoothed method. They spread any investment gains or losses (relative to the actuarial assumption) over four years and apply a 12% maximum disparity from true market value. This is a reasonable and appropriate method.

Amortization Method for Determining Funding Amounts

In addition to the Entry Age Normal actuarial cost method, GRS and OPERS use a conventional method for amortizing components of unfunded liability. The method was a closed period, which decreased from 26 years as of December 31, 2012 to 24 years as of December 31, 2013. The period is calculated by subtracting the health care cost and

employer normal cost from the total employer contributions, and then measuring how many years it would require to fully amortize the unfunded liability from these contributions. While this would tend to decrease every year (by one year if all actuarial assumptions are met), there will certainly be years when the period rises. OPERS established an initial funding period of 30 years on December 31, 2009, and is currently somewhat ahead of that schedule.

Many if not most statewide pension systems continue to use an open period to amortize the unfunded liability. The closed period approach tends to be more conservative than the open period approach. As discussed in our 2011 Pension Reform Solutions report, we believe that the closed period is appropriate.

The other amortization feature being used is to amortize the costs as a constant percentage of payroll. With payroll growing at an assumed rate of 3.75% per year, this maintains steady costs. An alternative would be to amortize costs in constant dollars, which would result in higher costs in early years when expressed as a percentage of pay. We believe this is an appropriate approach for funding, despite the changes in the GASB rules which will not permit this method for GASB determinations. The 3.75% payroll growth rate is reasonable in the aggregate based on a stable population. We note that the number of covered defined benefit members has dropped somewhat since 2007, for example, from 118,466 and 237,225 in the State and Local Divisions, respectively, to 117,370 and 207,416 in 2013. While this is only a 10% reduction over six years, if the trend continues, it undermines the benefit of assuming that payroll increases by 3.75%. We recommend that GRS explicitly consider this in their next experience study. While 3.75% might be an appropriate price inflation assumption, if population is forecasted to decline, OPERS may wish to adjust its total payroll growth assumption in order to minimize the likelihood of increasing costs.

In conclusion, at this point we find the amortization method reasonable, consistent and accurate.

Amortization Method for GASB Determinations

The Government Accounting Standards Board (GASB) has very specific requirements for its amortization method. GRS and OPERS are using the same amortization method for GASB determinations as for calculating the pension funding requirement. This will change with the 2014 actuarial valuation with the implementation of GASB 67. We find this current practice reasonable and appropriate.

Cost Factors

GRS uses the Entry Age Normal actuarial cost method to determine actuarial cost factors which assign the liability to appropriate years. These "cost factors" are a natural byproduct of the actuarial valuation process and we confirm that they are being calculated correctly.

ACTUARIAL ASSUMPTIONS

We have reviewed the actuarial assumptions used by the actuary and find them to be reasonable, consistent, and accurate.

The actuary uses a large number of actuarial assumptions, including:

- Demographic Assumptions
  - Post-Retirement Mortality
  - Disabled Post-Retirement Mortality
  - Pre-Retirement Mortality
  - Withdrawal From Service Before Retirement
  - Retirement
  - Disability Retirement
  - Withdrawal of Contributions at Termination
  - Other Demographic Assumptions
- Economic Assumptions
  - Investment Return Rate
  - Inflation
  - Wage Inflation
  - Individual Salary Increases
- Post-Employment Healthcare Assumptions
  - Gross Claim Rate Derivation
  - Health Care Cost Trend Rate
  - Morbidity
  - Retiree – Paid Premiums
  - Health Plan Participation Rates and Elections

Detailed comments on each assumption are included below.

DEMOGRAPHIC ASSUMPTIONS

Rates of Post-Retirement Mortality

GRS uses a static post-retirement mortality table which incorporated an average margin of 13% to anticipate future increases in longevity. We find this approach reasonable. Although the table in use is the RP-2000 Mortality Table with 105% of the male

mortality rates for males and 100% of the female mortality rates for females, it is projected to 2020. This results in a margin for future mortality improvement. We find that this table as adjusted is reasonable.

Actuaries are getting more sophisticated in their techniques for anticipating future mortality improvements. GRS is using the traditional method of building in a margin in their static mortality table. This would tend to require that the table be changed every few years to continue to anticipate improved mortality. This approach is very typical. The more sophisticated method would be to use a "generational" mortality table which assigns different mortality probabilities based not only on age but on generation. For example, an 80 year old retiree in 2014 (born in 1934) would have higher mortality rates than a future 80 year old retiree born in 1984. At some point, GRS may wish to change methodologies, but because this adds complexities, many actuaries continue to use the "static" mortality table method that GRS now uses. One consideration in support of using the traditional method is that some benefit amounts are based on actuarial factors, which incorporate mortality assumptions. If a generational table were used, either the factors would change every year, or the policy would need to change.

Although GRS reported a 13% margin anticipated when the assumptions were changed in 2011, that margin is eroding year by year as mortality improves. We expect that GRS will continue to monitor OPERS actual mortality experience carefully in each experience study and gradually modify the tables as mortality improvement continues. This means that there will likely be an increase in actuarial liabilities every five years as the mortality table continues to be adjusted. We would hope that GRS is demonstrating this to the Board with each experience study and providing a basis for the recommendation for the specific projection method and period.

Rates of Disabled Post-Retirement Mortality

GRS' mortality assumption for those disabled appears reasonable, and based on 2,752 deaths in the five year period.

Rates of Pre-Retirement Mortality

GRS' pre-retirement mortality assumption also appears reasonable, and based on 2,299 deaths in the five year period.

Withdrawal from Service before Retirement

We concur that the withdrawal tables used by GRS are reasonable, consistent and accurate. GRS uses a table based on service rather than one based on age during the first five years of employment. We find that this is a sound methodology because individuals do have higher likelihood of termination during their first few years of employment than later in their career. GRS also took the additional step of weighting the experience by the liability rather than simply on the numbers. This would result in

more consistency between overall pension plan experience and that predicted by the actuarial assumptions.

The GRS experience study appropriately balanced prior assumptions with recent experience and considered the credibility of the data effectively.

Retirement

We concur that the retirement tables used by GRS are reasonable, consistent and accurate. GRS uses different retirement tables based on whether they are eligible for an unreduced or reduced retirement benefit. This is a sound method because individuals often are reluctant to retire if the benefit is subject to a reduction for early retirement.

One minor concern is that GRS does not assume that any individuals will retire under an early (reduced) retirement after August 1, 2017 under the new eligibility requirements. While this is not a critical assumption for pensions because the value of such early retirement subsidy is small, the value of early retirements under health care can be significant. Therefore, we would recommend that some future retirees are assumed to retire early. Of course, there is no experience to measure this assumption, as 2017 has not yet arrived. But we would anticipate that indeed some individuals will choose to retire early. Because current actuarial valuations measure liabilities for individuals who will retire later, it is important to predict future retirement incidence as accurately as practical.

Disability Retirement

We concur that the disability tables used by GRS are reasonable, consistent and accurate.

Withdrawal of Contributions at Termination

GRS has an explicit assumption for the likelihood of individuals withdrawing contributions at termination. They assume that all members under 35 and those with less than 5 years will withdraw their contributions. A portion of other members would also withdraw. While these assumptions seem plausible and reasonable, GRS did not disclose their analysis in the experience study, but merely stated that "[a]fter reviewing the actual experience during the previous five years, we recommend no changes …" We recommend that their next experience analysis report be completed by including this analysis.

Other Demographic Assumptions

We reviewed the other demographic assumptions which could be analyzed by GRS. We find their study reasonable, consistent and accurate. These assumptions include:

Marriage Rates – GRS assumes 70% of future male retirees and 60% of future female State and Local retirees would be married. For Law Enforcement members, it was assumed that 90% are married. Current retirees use actual marriage data at the time of valuation. We support this approach. GRS offered no support for this assumption in its experience study report. We recommend that this be included by studying the recent retiree population.

Age Difference between Husbands and Wives – GRS assumes husbands are 3 years older than wives. We find GRS' analysis reasonable. Three years is a widely established norm. But given the large volume of OPERS data available, we recommend that GRS make some effort to demonstrate support for this assumption rather than merely rely on anecdotal norms.

Number of Dependents – GRS did not disclose an assumption of dependent children in the actuarial valuation report or the experience study. Based on our analysis of test cases, we learned that GRS assumes that no members have dependent children for pension and health care purposes. For death after disability purposes, GRS assumes that the benefits are paid as either a 35% or 20% survivor plan depending on whether they are in the pre-1992or post-1992 plan. No documented support for this assumption was provided, although it may be reasonable given the plan provisions.

Because the various survivor benefits are greater when there are dependent children, we recommend that this assumption be analyzed in the experience study, and that some assumption be made. For example, GRS could assume that members have two dependent children from when they are ages 25 to 47, then one from 47 to 50, then none once they become age 50. Keep in mind, however, that very few members die when they are likely to have dependent children and collect these benefits. So although we believe some consideration should be made for dependents, the financial implication is small. Further, no assumption for dependent children is made in the health care valuation, but there are 494 dependent children of retired members receiving health benefits as of the most recent valuation. Many of these dependent children receive health benefits until age 26, but there are a number of them, presumably disabled, who receive health benefits for life. Based on our discussions with GRS, we understand that children under age 18 are valued to age 22, children ages 18-22 are valued to age 22, children over the age of 22 are valued for one additional year from the valuation date, and children with a relationship field "INC" are valued for life. We recommend that GRS explicitly state these assumptions in the health care valuation report.

Subsidized Service Purchases – GRS applied a 0.36% of payroll load in the normal cost to recognize subsidized service purchases. They did not disclose the numerical basis for this load. This benefit provision has changed since the 2013 actuarial valuation, and

GRS reports that it will be reexamining this load explicitly and modify the assumption as appropriate. We concur that this approach is worthwhile.

ECONOMIC ASSUMPTIONS

Investment Return Rate

GRS uses an 8.00% investment return rate. This assumption is consistent with that used by most systems. Wilshire Associates reports that the mean (average) assumption is 7.65%. According to the Public Funds Survey as of August, 2015, the median assumption for 126 large primarily state systems is 7.90%. In particular:

- 76 of the 126 (60%) use assumptions lower than 8.00%,
- 44 (35%) use an 8.00% assumption, the most commonly used, and
- Only 6 (5%) use an assumption greater than 8.00%.

An 8.00% rate is also used by one other statewide system in Ohio. The other systems' expected rates are:

- School Employees Retirement System of Ohio – 7.75%
- State Teachers Retirement System of Ohio – 7.75%
- Ohio Police and Fire Retirement System – 8.25%
- Ohio Highway Patrol Retirement System – 8.00%

Of course, a simple comparison of what other systems are using is helpful, but not a sufficient criteria for establishing an assumed rate of investment return.

GRS used a robust forward-looking "building block" method, where they developed an inflation assumption, a real return assumption and an assumption for expenses. Each of these components was calculated independently, then summed (subtracted for expenses) to develop the net investment return assumption.

Their 8.00% net return assumption is comprised of 3.00% inflation plus 5.50% real return minus 0.50% administrative expenses. Inflation is discussed in the section below, so we will focus on the real return component and the administrative expense component.

Real Rate of Investment Return – To calculate the assumed real rate of return, GRS reported in its experience study that it used "the OPERS proposed policy portfolio and the capital market assumptions provided in the Appendix". But the appendix reported only the capital market assumptions and not the OPERS proposed policy portfolio. Based on our experience with other pension funds and their policy portfolios, we

believe that the assumptions were reasonable. We recommend that GRS explicitly demonstrate their development of a proposed return (either real or nominal). An example is illustrated by the following table:

Potential method for development of Expected Real Return

Asset Class	Asset Allocation (Weight)	Expected Real Return
Cash	0%	1.5%
US Stocks	20%	7.5%
Non-US Stocks	19%	8.0%
Fixed Income	23%	3.0%
Private Equity	10%	10.5%
Real Assets	11%	7.0%
Hedge Funds / Multi-Asset Strategies	17%	3.0%
Total (Weighted Average)	100%	6.0%

GRS appeared to rely on eight investment consultants, but did not provide any supporting information. This is an appropriate approach, but we would prefer to see explicit calculations to support their reasonable assumption.

Based on our experience, investment consultants continue to pare back their expectations for future returns. This is partially a consequence of continued low inflation expectations and short term fixed income rates, but can also be on a real return basis. Consequently, we would expect that it is likely that the next experience study would suggest a drop in nominal investment return, all other things being equal.

According to the Public Funds Survey as of August, 2015, the median real rate of return assumption for 126 large primarily state systems is 4.50%. Although not specifically asked, this is presumably after reduction for administrative expenses in most responses. In particular:

- 30 of the 126 (24%) use assumptions lower than 4.50%,
- 35 (28%) use a 4.50% assumption, the most common assumption,
- 61 (48%) use an assumption greater than 4.50%, and
- a 5.00% real rate of return is assumed by OPERS and three of the four other Ohio statewide systems.

Administrative Expenses – GRS assumed that OPERS administrative expenses would be 0.50%. We found no documented support in the experience study for this critical assumption. In the 2013 actuarial valuation report, for example, it is reported that administrative expenses (which appear to include investment expenses) were only $103 million. With an asset base of over $80 billion, this is only about twelve basis

points (0.12%). It might be that some other type of investment expenses is not being explicitly reported, which would raise the actual expenses closer to 0.50%. But we could not find any evidence of this. The OPERS Financial Reports indicate that total expenses, including both investment expenses and other administrative expenses are in this $100 million range. We also note that the table of return assumptions by asset class, included in the GRS experience study appendix had each asset class (ranging from cash to hedge funds) with a management fee deduction of 0.40%. We recommend that GRS research this and develop a more robust expense assumption. We find that 0.50% is reasonable, although likely conservative.

We recommend that GRS develop the expense assumption explicitly using an approach such as the following:

History of Administrative and Investment Expenses ($millions)

Fiscal Year Ending December31 :	Administrative Expenses	Investment Expenses	Assets at End of Year	Expense Ratio (to average assets)
2010			$76,316	
2011	$70	$27	$73,997	0.13%
2012	$70	$33	$80,399	0.13%
2013	$68	$34	$88,471	0.12%
2014	$74	$36	$90,774	0.12%
Average				0.13%

We recommend continuing to monitor the expenses and expense ratios. Changes in asset allocation may increase or reduce investment expenses.

Combined Plan Expenses – GRS indicated that a 1% of payroll load was included to reflect administrative costs. Based on $2.5 million in expenses and $331 million in payroll from 2013, it may be possible that this load could be reduced to approximately 0.75%. We recommend that GRS analyze this explicitly in its next experience study as 1% of payroll is a very significant load and justifies thorough analysis.

Health Care Plan Rate of Investment Return – GRS uses a 5.00% investment return assumption for the healthcare valuation. GRS indicated in OPERS communications that this is lower than the pension investment return assumption because it is based on the short term return of employer assets. Currently, the OPERS February 2014 health care investment policy indicates that over half of the assets are allocated to equity-type investments. It may be that an assumption more proximate to the pension return assumption could be appropriate. We recommend that GRS also develop this assumption more rigorously in the next experience study report. Notwithstanding our

recommendation for more robust development, we find the assumption to be reasonable, and possibly slightly conservative.

Inflation

We reviewed the confirmation of the 3.00% inflation rate developed by GRS. We find that the methodology used by GRS is reasonable, consistent and accurate. GRS developed this primarily by looking at historical CPI and the Social Security Trustees report. We recommend that GRS also consider forward looking data such as the yields on inflation-indexed treasury bonds, and economist forecasts to the extent that they are not purely short term. The end result is similar in this case. Data supported a reduction from the 3.00% - 3.50% range to the 2.50% - 3.25% range. As a result of the 2010 experience study, an inflation assumption of 3.00% was adopted. Because of the continued low inflation environment, we would anticipate some probability of a further reduction in the next experience study. This could lead to a reduced nominal investment return also.

According to the Public Funds Survey as of August, 2015, the median inflation assumption for 126 large primarily state systems is 3.00%. In particular:

- 24 of the 126 (19%) use assumptions lower than 3.00%,
- The most common assumption is 3.00%, which is used by 50 (40% of the total), and
- 52 (41%) use an assumption greater than 3.00%.

A 3.00% rate is also used by one other statewide system in Ohio. The other systems' expected inflation rates are:

- School Employees Retirement System of Ohio – 3.25%
- State Teachers Retirement System of Ohio – 2.75%
- Ohio Police and Fire Retirement System – 3.25%
- Ohio Highway Patrol Retirement System – 3.00%

Wage Inflation

GRS proposes a real wage inflation, or payroll growth rate, of 0.75%, based substantially on the Social Security Administration's data over the last fifty years. When added to 3.00% inflation, this results in a total payroll growth assumption of 3.75%. GRS refers to this as "wage inflation". We find this to be reasonable, consistent and accurate. As mentioned above, however, this wage inflation assumption is also used for the amortization policy. If the population continues to decline, this may not be appropriate.

Individual Salary Increases

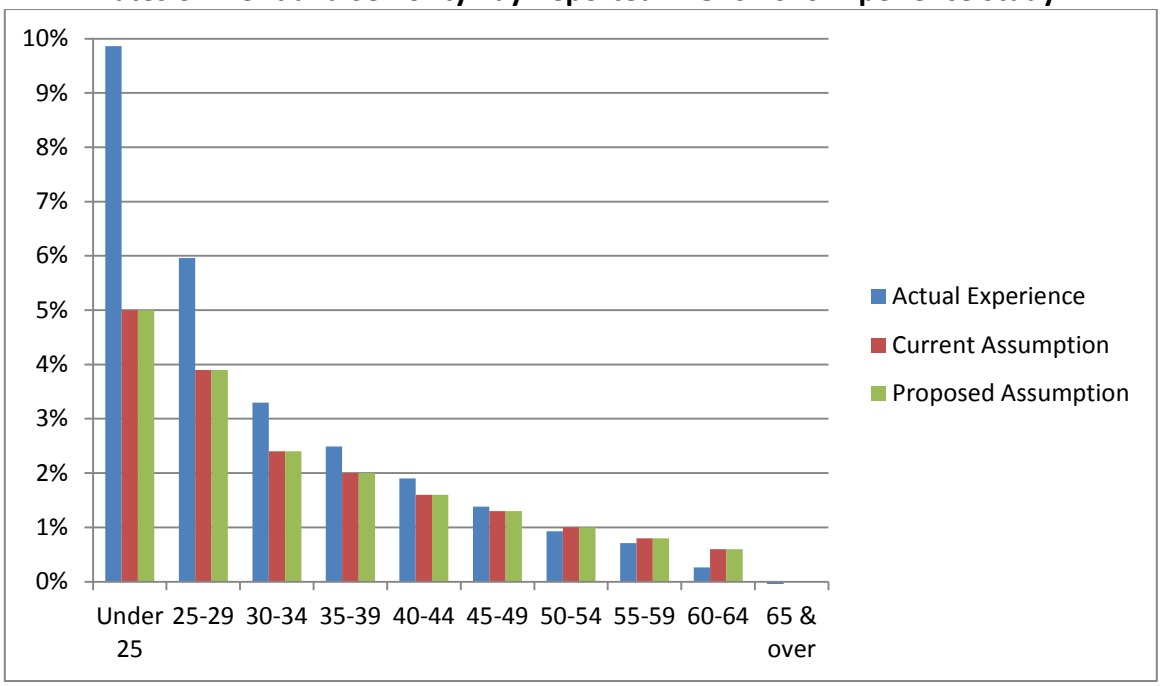
GRS analyzed individual salary increase rates, and found them to be appropriate and not needing to be change. Although not explicitly disclosed, they developed the merit

salary after subtracting the experienced pay inflation during the period. GRS indicated that:

> *Experience was analyzed by both age and service (please see pages 11 and 12). The current age-based structure was deemed appropriate given the experience. Actual merit and seniority increases were somewhat greater than assumed at younger ages, but very close to the assumed rates at higher ages.* ***Based on the experience, it is recommended that current rates remain unchanged for all ages****.*

The following chart illustrates the experience for the Local Division (the largest division with over 1 million observations):

Rates of Merit and Seniority Pay Reported in GRS 2010 Experience Study



We understand from conversations with GRS that the Under 25 data might have reporting issues with part time or first year employees. We recommend that GRS analyze this more closely and document the findings. Although mentioned in the narrative ("see pages 11 and 12"), we did not find the service-based analysis disclosed in the report. Many systems have found that a service-based approach is appropriate for individual pay growth assumptions. An examination of the results of the experience study actually show that individual pay increases were higher than expected at the younger ages and lower than expected at the older ages. We recommend that GRS actually demonstrate how the age-based approach is appropriate rather than merely asserting that it is appropriate. Fortunately, the rate of pay increase in the first few years of employment is not a critical component of cost determination (because most members are beyond that period). Consequently, the implications of a change in this assumption are likely not significant.

POST-EMPLOYMENT HEALTHCARE ASSUMPTIONS

Gross Claim Rate Derivation

It is common practice for actuaries to project future claim costs by measuring past experience and adjusting it to reflect the effects of inflation and plan design. It is not well documented in the actuarial report how GRS set the expected claims costs.

Because retiree health care actuarial valuations are a more recent development than pension actuarial valuations, common actuarial practice is less robust in terms of disclosure of methods and assumptions. The GRS disclosure of health assumptions is consistent with general practice, but not as strong as their disclosure of pension assumptions or ideal practice.

Based on discussions with GRS and review of certain calculations, we find that the health care claim cost assumption is reasonable. However we recommend that this be more rigorously documented either in an actuarial experience study for healthcare or through expanded disclosure in the actuarial reports or both.

In order to develop the core health care claims cost assumption, GRS took the following steps.

- Develop a Per Member Per Month (PMPM) cost for each plan type and tier (Non-Medicare Eligibles, Medicare A&B Eligibles, Medicare B Only Eligibles)
- Adjust the PMPM with trend and administrative fees to arrive at a claims cost per member
- Apply Morbidity Factors to the Assumed 2014 Monthly Rates to arrive at the Gross Rates

We have reviewed the resulting gross rates and find them reasonable, appropriately calculated and accurate.

Health Care Cost Trend Rate

To properly measure future liabilities, actuaries apply trend rates (health inflation) to the base claim costs described above. Standard practice is to use prevailing national trend rates and grade down to an ultimate trend rate that is slightly higher than prevailing CPI rates. It is reasonable to alter these national rates by applying population-based credibility factors to the Plan's experience and using a blended set of trend rates. GRS disclosed the following with respect to the establishment of the trend assumption:

"The trend assumption is established primarily by reviewing the Plan's historical trends, in conjunction with trends obtained from other sources (e.g. Sykes Health Plan Services Trend Report) since the Plan is of sufficient size and stability to be fully credible. Trends based on the past five years' claims experience were analyzed when setting the initial trend used in

the valuations. Objective and comparative trends obtained from a variety of resources including trend surveys from major benefit consulting firms were also used. This information is added to information we have collected from analysis done in conjunction with many retiree health care valuations we have completed for other clients."

We find this approach reasonable and the trend rates which it produces reasonable. GRS further notes *"in the not too distant future, health plan cost trend will decrease to a level at or near wage inflation. It is on this basis that we project premium rate increases will continue to exceed wage inflation for approximately the next decade, but by less each year until leveling off at an ultimate rate, assumed to be 3.75% in this valuation."*

Morbidity

In a health insurance valuation, morbidity is sometimes defined as the difference in claims costs at different ages. Morbidity rates are also known as aging factors. They are used to transform average health cost assumptions to health care cost assumptions which vary by age and gender. GRS did not disclose in the valuation report what data was used for development of aging factors.

We encourage GRS to review these factors in the next experience investigation to the extent data is available. At the very least, we would recommend that the experience study report disclose the process used for choice of these aging factors. We reviewed the aging factors developed by GRS and found them appropriate.

Retiree – Paid Premiums

The true measure of a plan's liability is the difference between total claims costs and the amount that retirees contribute to offset those total costs.

In developing the Plan's liability, GRS used the OPERS allowance percentage prescribed in HCPP 3.0 times the total claims cost. For pre-Medicare costs and costs prior to 2016 for all ages, we recommend GRS develop the plan liability as the difference between total claims costs and the amount that retirees contribute, based on the allowance percentage prescribed in HCPP 3.0.

Health Plan Participation Rates and Elections

GRS assumes that 90% of pre-65 retirees eligible for retiree health benefits elect coverage and 100% of post-65 retirees eligible for retiree health benefits elect coverage. No supporting documentation is provided for this assumption. Further, GRS assumes 100% of retirees currently under age 65 and not covered under an OPERS health plan will elect coverage under the Medicare Connector at the later of 2016 and attainment of age 65.

HCPP 3.0 will not be fully implemented until 2018. However, we recommend that GRS perform a more rigorous analysis of these assumptions at least by the time HCPP 3.0 is fully implemented.

DISCLOSURE OF ACTUARIAL ASSUMPTIONS AND METHODOLOGY

GRS' disclosure of the majority of actuarial assumptions (and methods) was robust. But because of the complexity of OPERS, it is necessary for GRS to make dozens of additional assumptions regarding arcane and/or barely-material plan provisions. Many of these were either undisclosed or not supported in writing.

Actuarial Standard of Practice (ASOP) No. 41 on Actuarial Communications states:

> *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.*

For the most part, the actuarial valuation report and experience study report did provide this information. That is because the dozens of assumptions and methods which were not fully disclosed were nearly negligible. (e.g., whether husbands are 3.0 or 2.5 years older than wives doesn't make much difference for a plan which is 53,000 male and 65,000 female). But several assumptions and methods did rise to the level of materiality and we believe should be more rigorously disclosed and supported. These include:

- Development of health care discount rate of 5%
- Development of 0.50% administrative expenses implicit in investment return assumption
- Development of 1% of Normal Cost load for Combined Plan Expenses
- Determination of spread between pay inflation and price inflation for analysis of salary experience data
- Disclosure of cost-of-living-adjustments for individuals retiring on or before January 7, 2013
- Methodology for valuing healthcare HCPP 3.0 transition benefits on an aggregate basis

If OPERS were ever to change actuaries from GRS, the new actuary might not be able to confirm the reasonableness of GRS calculations without the above information. Even in the amicable process of an actuarial audit, the limited disclosure required extensive back-and-forth questions with GRS as to how specific assumptions and methods were applied. The fact that OPERS had actuaries on staff was extremely helpful.

Because much of our items of concern are nearly immaterial, we do not necessarily recommend that GRS expand the actuarial valuation report and experience study report to address the more arcane concerns. A better approach might be for GRS to provide the OPERS actuaries with a supplemental methodology and assumption report documenting the dozens of assumptions and

methods used which do not rise to the level required by ASOP 41. We are not aware of all of these, because they were not disclosed, but those which we were able to discover include:

Pension Valuation:

1. Disclose that for members in the Traditional Plan who switched to the Combined Plan when it first started in 2003, members were allowed to use their Traditional Plan service for eligibility purposes but not for Combined Plan benefit service. Therefore, GRS capped Combined Plan benefit service for a member to 11 years in the 2013 valuation (valuation year – 2002).

2. Disclose the assumption and rationale for adjusting the OPERS-provided Final Average Salary (FAS) for Transition Group A or Transition Group B members where the FAS was computed using five years.

3. Disclose the assumption that the disability decrement stops at 30 years of service for employees in the post-92 disability program and at age 60 for employees in the pre-92 disability program.

4. Include active present value of future benefits and accrued liabilities by plan and division in the body of the report.

5. Disclose when the service-based or age-based retirement probabilities are used for Transition Group B and Transition Group C.

6. Support for 0.36% load for service purchase.

7. Support for 20% and 35% death after disability assumption.

8. Support for three-year age difference assumption between males and females.

9. Justification for mortality projection to 2020.

10. Justification for 60%, 70% and 90% marriage rates assumption.

11. Disclosure of capital market assumptions cited in experience study report.

12. Support for assumption that all members under 35 and those with less than 5 years will withdraw their contributions.

13. Justify lack of retirement assumptions for many transition groups such as Transition Group A Public Safety – ages 52 – 61 with 15-24 years of service.

14. Provide support for not including the unreduced Group B eligibility condition at age 52 with 31 years.

15. Justify lack of retirement assumptions for unreduced and reduced age and service retirement for Transition Group B and Transition Group C.

16. Disclose assumption for number of survivors assumed for pension death benefit.

Health Care Valuation:

1. Provide greater detail on the development of the Gross Rates, including the methodology for development of the Gross Rates for Medicare B Only Eligibles.

2. Disclose the unreduced and reduced retirement eligibility requirements for Transition Group A.

3. Disclose the assumption regarding valuation of future children's benefits.

4. Document support for plan participation rates and elections.

5. Disclose the eligibility criteria for current retirees, spouses and dependents for the various healthcare benefits.

6. Disclose the current allowance percentages, prior to transition and implementation of HCPP 3.0.

Disclose any other of the items discussed in Section 2 above that GRS believes are important enough to be disclosed in the actuarial report rather than the experience study or supplemental report.

Section 3 – Audit of Compilation of Actuarial Valuations

The cornerstone of an actuarial audit is a replication of the actuarial valuation. As mentioned above, we matched quite closely the costs and liabilities developed by GRS for the retirement system. Consequently, we conclude that the valuation results are reasonable, accurate and consistent.

The following table summarizes the actuarial liability and normal cost for the Defined Benefit Pensions produced by GRS and PTA/KMS actuarial valuations.

Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in millions)			
All Divisions - Pension			
	GRS	**PTA/KMS**	**% Diff.**
Traditional Plan			
Actives	31,544	31,221	-1.0%
Retired	52,404	52,385	0.0%
Inactives	2,458	2,374	-3.4%
Total Traditional Plan	86,406	85,980	-0.5%
Normal Cost	13.33%	13.42%	0.7%
Combined Plan			
Actives	216	171	-20.8%
Retired	6	6	0.0%
Inactives	9	7	-22.2%
Total Combined Plan	231	183	-20.8%
Normal Cost	7.47%	7.95%	6.4%
Member Directed Plan			
Actives	0	0	0.0%
Retired	7	7	0.0%
Inactives	0	0	0.0%
Total Member Directed Plan	7	7	0.0%
Grand Total	86,644	86,170	-0.5%

The following table summarizes the actuarial liability and normal cost for the Retiree Health and Medicare Benefits produced by GRS and PTA/KMS actuarial valuations.

Summary of Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in thousands)			
All Divisions - Health & Medicare Benefits			
	GRS	**PTA/KMS**	**% Diff.**
Actuarial Liabilities			
Actives	7,829	7,668	-2.1%
Retired	11,794	12,286	4.2%
Inactive	161	134	-16.8%
Total Health & Medicare Benefits	19,784	20,088	1.5%
Normal Cost	3.24%	3.19%	-1.7%

Summary of Deviation of Results

	Pension Benefits Valuation Results	Retiree Health & Medicare Valuation Results
Accrued Liability	0.5%	1.5%
Normal Cost	0.7%	1.7%

Actuaries generally use a 5% deviation as an acceptable range of error. As the total actuarial liabilities and normal costs deviations calculated by PTA/KMS were well within this "margin of error", we are quite satisfied that numbers are appropriate.

Although we did match quite closely, there are several areas which we would encourage GRS to explore further:

- In valuing the Pension and Retiree Health benefits, the following are a few items we uncovered that could be corrected, but overall would be immaterial to the valuation results:

  1. In developing the transition Groups, utilize the age 52 with 15 years of service eligibility criteria for Group B Public Safety and Law Enforcement members.

  2. Include reduced retirement eligibility criteria and related retirement decrement assumptions. For example, Public Safety employees in Group A may retire early with a reduced benefit at age 52 with 15 years of service, however, there are no retirement rates assumed until such member would have 25 years of service (on or after age 52) or is age 62 (with 15 or more years of service).

3. Consider development of the health care plan liability as the difference between total age-adjusted claims costs and the amount that retirees contribute, based on the allowance percentage prescribed in HCPP 3.0.

Appendix A contains tables by division comparing the actuarial liability and normal costs detailed in the GRS valuations and PTA/KMS actuarial valuations.

OPERS provided us with the System data for all active members and pensioners along with detailed data layouts that identified all the data elements used by GRS. GRS also provided us with the data files they utilized in performing the valuations. In performing our replication, we utilized the System files provided by OPERS.

The following table summarizes the demographic statistics for the Defined Benefit Pension and Retiree Health and Medicare Benefits valuations produced by GRS and PTA/KMS actuarial valuations. Appendix A contains data tables by division comparing the demographic statistics detailed in the GRS valuations with the OPERS-provided data used by PTA/KMS.

Active Members as of December 31, 2013

All Divisions ($ in Millions)

Plan	Number			Active Payroll		
	GRS	PTA/KMS	% Diff.	GRS	PTA/KMS	% Diff.
Traditional Plan	325,181	325,667	0.15%	12,000	12,003	0.0%
Combined Plan	7,239	7,239	0.00%	331	331	0.0%
Member Directed Plan	0	0	0.00%	0	0	0.0%
Grand Total	332,420	332,906	0.15%	12,331	12,334	0.0%

Retired Members in Defined Benefit Plan Valuation as of December 31, 2013						
All Divisions ($ in Thousands)						
Fund/Type of Allowance	**Number**			**Current Monthly Benefits**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan						
A & PR Fund						
Superannuation Retirement	160,739	159,956	-0.49%	332,337	331,897	-0.1%
Disability Retirement	22,800	22,800	0.00%	51,733	51,733	0.0%
Money Purchase	3,364	3,364	0.00%	1,560	1,560	0.0%
Total A & PR Fund	186,903	186,120	-0.42%	385,630	385,191	-0.1%
Total SBF	14,938	14,950	0.08%	14,633	14,633	0.0%
Traditional Plan Total	201,841	201,070	-0.38%	400,263	399,824	-0.1%
Combined Plan						
A & PR Fund						
CMDB	100	100	0.00%	25	25	0.0%
CMDC	64	64	0.00%	17	17	0.0%
Total A & PR Fund	164	164	0.00%	42	42	0.0%
Combined Plan Total	164	164	0.00%	42	42	0.0%
Member Directed Plan						
A & PR Fund	131	131	0.00%	45	45	0.0%
Member Directed Plan Total	131	131	0.00%	45	45	0.0%
Grand Total	202,136	201,365	-0.38%	400,350	399,911	-0.1%

Section 4 – Other Considerations

ACTUARIAL REPORT

For the most part, we found the GRS actuarial valuation reports and experience study reports to be well written, and focusing on important issues. Actuarial Standard of Practice (ASOP) No. 41 provides extensive guidance to actuaries regarding actuarial communications. We find that the GRS reports generally comply with the guidance of ASOP 41.

We would recommend a few modifications to enhance the completeness of the actuarial valuation reports. These include items discussed in Section 3 as well as the following:

- Clarify the transition from active member to retired member for those in the member directed plan. While the report says that benefits are "based on" various account values, it does not include a description that it is also based on annuity conversion factors determined by the OPERS Board.

- No description is given for the development of the Annual Required Contribution for the Member Directed Plan. We were able to match the calculation for the past three years, but it appears that the methodology changed with the December 31, 2011 actuarial valuation. We recommend that this is at least footnoted or documented in a supplemental report.

- The OPERS statute has changed considerably in response to Senate Bill 323 and related pension reform. The GRS report includes some obsolete and inaccurate references, including

    - Page III-10, which refers to Code 145.33(B)(2)(b) and (B)(2)(A) for pre senate bill 343. Those sections do not exist.

    - GRS also references new terms such as APD. APD refers to "Alternate Plan Design", meaning the plan designed as a consequence of SB 323. Yet nowhere in the report is APD defined or explained.

    - The report continues to state that certain benefits such as the Long Interest calculation are in effect. The Long Interest calculation is properly referenced as eliminated on III-8, but similar provisions not identified as the "Long Interest" calculation are erroneously listed as provisions in effect on III-9, and III-10.

- We recommend that GRS include the following in the healthcare valuation report:

    - breakout of liabilities by pre-65 and post-65 benefits for actives, deferreds and retirees.

    - a more robust analysis of the impact on the healthcare liabilities as a result of changes in plan provisions or assumptions, particularly with respect to the significant increase (17%) from 2012 to 2013 in the 2016 and later Medicare Connector rates.

Additionally, the reports generally are consistent with Government Finance Officers' guidelines for reporting. The GRS signers of the reports are qualified actuaries.

The actuarial experience study and report were similarly comprehensive, complete and clear.

ACTUARIAL AUDIT PROCESS

GRS, unlike most actuaries at this time, has a policy which does not permit sharing of detailed individual calculations supporting the calculations reported in the actuarial valuation report. We have performed more than a dozen actuarial audits of public pension systems over the past two decades. In virtually all of the cases, the actuary provides detailed calculations for a few select individuals. These detailed calculations provide hundreds of individually specific data-points which make it fully transparent exactly how calculations are being performed. This full transparency makes it possible for the auditing actuary to understand the precise calculations.

In the case of OPERS and GRS, rather than providing hundreds of detailed numbers for specified individuals, only ten numbers are provided. This means that rather than reviewing the actuaries work, the auditing actuary must try to replicate the number without any specific information other than written descriptions in the report and statute. GRS tried to accommodate this obstacle by reviewing our calculations (we do not have such a no-sharing policy) in some instances and identifying differences. But as a consequence of this lack of information, (1) we cannot confirm that GRS is properly making the calculations, only that our calculations match within a reasonable margin, and (2) the audit process is much more tedious, time-consuming and drawn out than normally.

We understand that there may be sound business, competitive or legal reasons for GRS to have this non-disclosure policy. We also understand that at least one major actuarial firm (which does not consult to public pensions) has a similar policy. However it is important to point out that this policy makes actuarial audits much more problematic, lengthy and dubious than normal, as indicated in the previous paragraph. It would probably be helpful if future auditors were aware of the limits on shared information in advance.

These limits on audit disclosures plus the dozens of nuances in the assumptions and methodologies which are not currently disclosed make OPERS very dependent on GRS. This could be problematic should OPERS at some point choose to use a different actuary. We believe that supplemental report to OPERS in-house actuaries (which could be shared with future auditors) would alleviate this risk.

In order to strengthen the technical capabilities of OPERS internal actuaries, PTA/KMS will share our detailed coding of the valuation software system.

CONCLUSIONS

We found GRS' work to be strong. It was reasonable, consistent and accurate. We do not believe that any methods, assumptions, or calculations are erroneous to the level of necessary recalculations.

As indicated above, our primary recommendations are:

- Correct the transition rules for Law Enforcement and Public Safety members
- Clarify certain language in the actuarial valuation report
- Document the development of health care claim costs more rigorously either in the actuarial reports or in the experience study or both
- Examine several actuarial assumptions (discussed above) more rigorously in the next experience study
- Correct minor discrepancies in the next actuarial valuation
- Prepare a supplemental report from GRS to OPERS internal actuaries detailing minor assumptions and actuarial methods which are not otherwise disclosed
- Alert future auditors of the limits in disclosure

Gabriel Roeder Smith & Co, the Ohio Retirement Study Council and particularly the Ohio Public Employees Retirement System staff were fully cooperative and responsive, which assisted in the process. Finally, we wish to reaffirm that the work done by GRS was reasonable, consistent and accurate.

Appendix A – Division Results

The following tables summarize the actuarial liability and normal cost for the Defined Benefit Pensions for each division produced by GRS and PTA/KMS actuarial valuations.

Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in millions)

All Divisions - Pension

	GRS	PTA/KMS	% Diff.
Traditional Plan			
Actives	31,544	31,221	-1.0%
Retired	52,404	52,385	0.0%
Inactives	2,458	2,374	-3.4%
Total Traditional Plan	86,406	85,980	-0.5%
Normal Cost	13.33%	13.42%	0.7%
Combined Plan			
Actives	216	171	-20.8%
Retired	6	6	0.0%
Inactives	9	7	-22.2%
Total Combined Plan	231	183	-20.8%
Normal Cost	7.47%	7.95%	6.4%
Member Directed Plan			
Actives	0	0	0.0%
Retired	7	7	0.0%
Inactives	0	0	0.0%
Total Member Directed Plan	7	7	0.0%
Grand Total	86,644	86,170	-0.5%

Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in millions)			
State Division - Pension			
	GRS	**PTA/KMS**	**% Diff.**
Traditional Plan			
Actives	12,017	11,816	-1.7%
Retired	21,200	21,193	0.0%
Inactives	1,013	984	-2.9%
Total Traditional Plan	34,230	33,993	-0.7%
Normal Cost	13.32%	13.35%	0.2%
Combined Plan			
Actives	91	68	-25.3%
Retired	2	2	0.0%
Inactives	4	3	-25.0%
Total Combined Plan	96	72	-25.0%
Normal Cost	7.56%	7.95%	5.2%
Member Directed Plan			
Actives	0	0	0.0%
Retired	2	2	0.0%
Inactives	0	0	0.0%
Total Member Directed Plan	2	2	0.0%
Grand Total	34,328	34,067	-0.8%

Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in millions)			
Local Government Division - Pension			
	GRS	**PTA/KMS**	**% Diff.**
Traditional Plan			
Actives	18,038	17,953	-0.5%
Retired	29,067	29,062	0.0%
Inactives	1,418	1,364	-3.8%
Total Traditional Plan	48,523	48,379	-0.3%
Normal Cost	12.98%	13.13%	1.2%
Combined Plan			
Actives	124	102	-17.7%
Retired	4	5	25.0%
Inactives	5	4	-20.0%
Total Combined Plan	134	110	-17.9%
Normal Cost	7.42%	7.95%	7.1%
Member Directed Plan			
Actives	0	0	0.0%
Retired	5	5	0.0%
Inactives	0	0	0.0%
Total Member Directed Plan	5	5	0.0%
Grand Total	48,662	48,494	-0.3%

Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in millions)			
Public Safety Division - Pension			
	GRS	**PTA/KMS**	**% Diff.**
Traditional Plan			
Actives	7	7	0.0%
Retired	43	44	2.3%
Inactives	0	0	0.0%
Total Traditional Plan	50	51	2.0%
Normal Cost	16.12%	15.91%	-1.3%
Combined Plan			
Actives	0	0	0.0%
Retired	0	0	0.0%
Inactives	0	0	0.0%
Total Combined Plan	0	0	0.0%
Member Directed Plan			
Actives	0	0	0.0%
Retired	0	0	0.0%
Inactives	0	0	0.0%
Total Member Directed Plan	0	0	0.0%
Grand Total	50	51	2.0%

Actuarial Liabilities and Normal Cost as of December 31, 2013 ($ in millions)			
Law Enforcement Division - Pension			
	GRS	**PTA/KMS**	**% Diff.**
Traditional Plan			
Actives	1,483	1,445	-2.6%
Retired	2,094	2,091	-0.1%
Inactives	27	26	-3.7%
Total Traditional Plan	3,604	3,562	-1.2%
Normal Cost	18.45%	18.63%	1.0%
Combined Plan			
Actives	0	0	0.0%
Retired	0	0	0.0%
Inactives	0	0	0.0%
Total Combined Plan	0	0	0.0%
Member Directed Plan			
Actives	0	0	0.0%
Retired	0	0	0.0%
Inactives	0	0	0.0%
Total Member Directed Plan	0	0	0.0%
Grand Total	3,604	3,562	-1.2%

The following summarizes the demographic statistics, by division, detailed in the GRS valuations with the OPERS-provided data used by PTA/KMS.

State Division

Active Members as of December 31, 2013 State Division ($ in Millions)						
Plan	**Number**			**Active Payroll**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan	114,748	114,802	0.05%	4,604	4,605	0.0%
Combined Plan	2,622	2,623	0.04%	141	141	0.0%
Member Directed Plan	0	0	0.00%	0	0	0.0%
Grand Total	117,370	117,425	0.05%	4,745	4,746	0.0%

Retired Members in Defined Benefit Plan Valuation as of December 31, 2013 State Division ($ in Thousands)						
Fund/Type of Allowance	**Number**			**Current Monthly Benefits**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan						
A & PR Fund						
Superannuation Retirement	55,429	55,411	-0.03%	135,473	135,470	0.0%
Disability Retirement	8,763	8,763	0.00%	20,567	20,567	0.0%
Money Purchase	815	815	0.00%	436	436	0.0%
Total A & PR Fund	65,007	64,989	-0.03%	156,476	156,473	0.0%
Total SBF	4,673	4,674	0.02%	5,321	5,321	0.0%
Traditional Plan Total	69,680	69,663	-0.02%	161,797	161,794	0.0%
Combined Plan						
A & PR Fund						
CMDB	28	28	0.00%	7	7	0.0%
CMDC	12	12	0.00%	3	3	0.0%
Total A & PR Fund	40	40	0.00%	11	11	0.0%
Combined Plan Total	40	40	0.00%	11	11	0.0%
Member Directed Plan						
A & PR Fund	34	34	0.00%	14	14	0.0%
Member Directed Plan Total	34	34	0.00%	14	14	0.0%
Grand Total	69,754	69,737	-0.02%	161,821	161,818	0.0%

Local Division

Active Members as of December 31, 2013						
Local Division ($ in Millions)						
Plan	**Number**			**Active Payroll**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan	202,799	203,231	0.21%	6,944	6,946	0.0%
Combined Plan	4,617	4,616	-0.02%	190	190	0.0%
Member Directed Plan	0	0	0.00%	0	0	0.0%
Grand Total	207,416	207,847	0.21%	7,134	7,136	0.0%

Retired Members in Defined Benefit Plan Valuation as of December 31, 2013						
Local Government Division ($ in Thousands)						
Fund/Type of Allowance	**Number**			**Current Monthly Benefits**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan						
A & PR Fund						
Superannuation Retirement	102,521	101,756	-0.75%	187,676	187,240	-0.2%
Disability Retirement	12,398	12,398	0.00%	26,170	26,170	0.0%
Money Purchase	2,549	2,549	0.00%	1,125	1,125	0.0%
Total A & PR Fund	117,468	116,703	-0.65%	214,971	214,535	-0.2%
Total SBF	9,837	9,846	0.09%	8,816	8,816	0.0%
Traditional Plan Total	127,305	126,549	-0.59%	223,787	223,351	-0.2%
Combined Plan						
A & PR Fund						
CMDB	72	72	0.00%	17	17	0.0%
CMDC	52	52	0.00%	14	14	0.0%
Total A & PR Fund	124	124	0.00%	31	31	0.0%
Combined Plan Total	124	124	0.00%	31	31	0.0%
Member Directed Plan						
A & PR Fund	97	97	0.00%	32	32	0.0%
Member Directed Plan Total	97	97	0.00%	32	32	0.0%
Grand Total	127,526	126,770	-0.59%	223,850	223,413	-0.2%

Public Safety Division

Active Members as of December 31, 2013						
Public Safety Division ($ in Millions)						
Plan	**Number**			**Active Payroll**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan	85	85	0.00%	4	4	0.0%
Combined Plan	0	0	0.00%	0	0	0.0%
Member Directed Plan	0	0	0.00%	0	0	0.0%
Grand Total	85	85	0.00%	4	4	0.0%

Retired Members in Defined Benefit Plan Valuation as of December 31, 2013						
Public Safety Division ($ in Thousands)						
Fund/Type of Allowance	**Number**			**Current Monthly Benefits**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan						
A & PR Fund						
Superannuation Retirement	32	32	0.00%	55	55	0.0%
Disability Retirement	39	39	0.00%	117	117	0.0%
Money Purchase	0	0	0.00%	0	0	0.0%
Total A & PR Fund	71	71	0.00%	172	172	0.0%
Total SBF	100	102	2.00%	128	128	0.0%
Traditional Plan Total	171	173	1.17%	300	300	0.0%
Combined Plan						
A & PR Fund						
CMDB	0	0	0.00%	0	0	0.0%
CMDC	0	0	0.00%	0	0	0.0%
Total A & PR Fund	0	0	0.00%	0	0	0.0%
Combined Plan Total	0	0	0.00%	0	0	0.0%
Member Directed Plan						
A & PR Fund	0	0	0.00%	0	0	0.0%
Member Directed Plan Total	0	0	0.00%	0	0	0.0%
Grand Total	171	173	1.17%	300	300	0.0%

Law Enforcement Division

Active Members as of December 31, 2013						
Law Enforcement Division ($ in Millions)						
Plan	**Number**			**Active Payroll**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan	7,549	7,549	0.00%	448	448	0.0%
Combined Plan	0	0	0.00%	0	0	0.0%
Member Directed Plan	0	0	0.00%	0	0	0.0%
Grand Total	7,549	7,549	0.00%	448	448	0.0%

Retired Members in Defined Benefit Plan Valuation as of December 31, 2013						
Law Enforcement Division ($ in Thousands)						
Fund/Type of Allowance	**Number**			**Current Monthly Benefits**		
	GRS	**PTA/KMS**	**% Diff.**	**GRS**	**PTA/KMS**	**% Diff.**
Traditional Plan						
A & PR Fund						
Superannuation Retirement	2,757	2,757	0.00%	9,132	9,132	0.0%
Disability Retirement	1,600	1,600	0.00%	4,879	4,879	0.0%
Money Purchase	0	0	0.00%	0	0	0.0%
Total A & PR Fund	4,357	4,357	0.00%	14,011	14,011	0.0%
Total SBF	328	328	0.00%	368	368	0.0%
Traditional Plan Total	4,685	4,685	0.00%	14,379	14,379	0.0%
Combined Plan						
A & PR Fund						
CMDB	0	0	0.00%	0	0	0.0%
CMDC	0	0	0.00%	0	0	0.0%
Total A & PR Fund	0	0	0.00%	0	0	0.0%
Combined Plan Total	0	0	0.00%	0	0	0.0%
Member Directed Plan						
A & PR Fund	0	0	0.00%	0	0	0.0%
Member Directed Plan Total	0	0	0.00%	0	0	0.0%
Grand Total	4,685	4,685	0.00%	14,379	14,379	0.0%