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West Virginia Municipal Pensions Oversight Board

Actuarial Audit Report of the Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia

Produced by Cheiron
July 2017

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July 12, 2017

West Virginia Municipal Pensions Oversight Board
Municipal Policemen's and Firemen's Pension and Relief Funds
301 Eagle Mountain Road, Suite 251
Charleston, West Virginia 25311

Dear Members of the Board:

As requested, Cheiron has performed an independent actuarial audit of the July 1, 2015 actuarial valuation of the Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia prepared by Gabriel Roeder Smith & Company (GRS). We appreciate the cooperation and assistance we received by GRS in the performance of the audit.

Our primary findings are as follows:

1. **In general, we found that based on the adopted assumptions and methods (absent the exception below) used in the July 1, 2015 actuarial valuations, GRS's calculations are generally sound and reasonable and conform to the appropriate Actuarial Standards of Practice.**

2. **However, we find that the Alternative and Conservation funding policies, as defined by West Virginia Code §8-22-20, are not consistent with generally accepted Actuarial Standards of Practice since they do not provide any mechanism to pay off the unfunded actuarial liability over a reasonable period of time.** GRS clearly discloses the risks associated with these funding policies. We recommend that these funding policies be changed to policies that are consistent with the Actuarial Standards of Practice. Continuing these funding policies increases the risk of the funds using these funding policies becoming unsustainable over time. However, we understand that changing the funding policies is under the jurisdiction of West Virginia law and not the West Virginia Municipal Pensions Oversight Board.

3. **Based on the sample lives we tested and the full replication of four of the plans, we found no reason to question the reliability of the July 1, 2015 actuarial valuation results related to the application of the stated plan provisions, assumptions, and methods to the demographic data. However, in Section III, we list a few items that GRS should clarify with regards to certain assumptions.**

The purpose of this report is to present the results of our actuarial audit. Section I of this report describes the review process undertaken by Cheiron. Section II summarizes our findings. Section III provides the supporting analysis for those findings and presents more details on our assessment of the actuarial assumptions and methods employed in the July 1, 2015 Actuarial Valuations, as well as our assessment of GRS's determination of the required contributions for the Fiscal Year Ending June 30, 2017.

West Virginia Municipal Pensions Oversight Board
Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia
July 12, 2017

In preparing this report, we relied on information (some oral and some written) supplied by the West Virginia Municipal Pensions Oversight Board (MPOB) and GRS. This information includes actuarial assumptions and methods adopted by the MPOB, fund provisions, census data, financial statements, the July 1, 2015 annual Consolidated Actuarial Valuation Report, the 2015 Actuarial Valuation Reports for Charleston Police, Huntington Fire, Parkersburg Fire and Vienna Police, and the 2016 Experience Review covering the period July 1, 2009 to July 1 2014.

A detailed description of all information provided for this review is contained in Appendix B.

To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This report was prepared exclusively for the West Virginia Municipal Pensions Oversight Board for the purpose described herein. Other users, of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

Sincerely,
Cheiron

Janet Cranna, FSA, FCA, EA, MAAA
Principal Consulting Actuary

Kevin Woodrich, FSA, EA, MAAA
Principal Consulting Actuary

THE ACTUARIAL AUDIT REPORT OF THE MUNICIPAL POLICEMEN'S AND FIREMEN'S PENSION AND RELIEF FUNDS OF WEST VIRGINIA

SECTION I – REPORT SCOPE

Cheiron was retained by the West Virginia Municipal Pensions Oversight Board (MPOB) to peer review the July 1, 2015 actuarial valuations of the Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia (the Funds) and the most recent experience investigation covering the period July 1, 2009 to July 1, 2014, and to express an opinion whether the results presented were reasonable and accurate.

Specifically, our audit consisted of reviewing the work of GRS to the degree necessary to express opinions regarding the accuracy and/or reasonableness as follows:

- Determine if the actuary's valuation procedures are technically reasonable, conform to general practice, and adhere to Actuarial Standards of Practice promulgated by the Actuarial Standards Board.
- Determine if the census data for the four selected municipal funds used in their valuations are valid, complete and contain the necessary data elements. The four funds selected were Charleston Police, Huntington Fire, Parkersburg Fire and Vienna Police.
- Determine if the demographic and economic assumptions as proposed in the Actuarial Experience Study for the period July 1, 2009 to July 1, 2014 are reasonable and meet applicable Actuarial Standards of Practice.
- Determine if the actuarial methods, including the cost method, asset method and amortization method, meet all applicable Actuarial Standards of Practice where they are not otherwise prescribed by law, as well as being consistent with the Fund's benefit structure and funding policy and objectives as set by West Virginia Code.
- Determine if the fund provisions are being appropriately valued as defined in the West Virginia Code.
- Determine the appropriate application of reported assumptions based on a review of sample test lives and the full replication of the actuarial valuation for the four municipal funds selected.
- Determine if the actuarial liabilities, market value of assets, funded status, and contributions are accurate by independently replicating the results for the four selected municipal funds and reviewing test cases for seven actives, two terminated vesteds and eight retired members.
- Review the contents of the reports for completeness and compliance with Actuarial Standards of Practice (ASOP).

In conducting this audit, Cheiron reviewed the July 1, 2015 actuarial valuation and the experience review covering the five-year period ending July 1, 2014 prepared by GRS in detail as described above. After our review of the fund provisions, we requested detailed individual test cases for several participants (sample test cases) that allowed for an in-depth review of the calculation of the benefits, actuarial liability, normal cost and assumptions.

SECTION II – SUMMARY OF RECOMMENDATIONS

This section summarizes our review of the actuarial valuation and our recommendations. Section III of this report contains detailed analysis and rationale for these recommendations.

Valuation Procedures

Overall, we find that the July 1, 2015 actuarial valuation procedures applied in the report of the funded status and determination of the funding requirements based on the current funding policies and assumptions are technically reasonable and conform to the ASOPs, with the exception of the Alternative and Conservation funding policies as detailed later in this report. This is based on our review of the valuation reports, the census data used in the valuations, our review of the economic and demographic assumptions, our review of the funding methods, a review of the test cases and a full replication of four of the 53 municipal funds.

Census Data

GRS provided us with the data that was used in the July 1, 2015 actuarial valuations. We find that the data used in the valuations are valid and contain the necessary data elements. Where data was missing, such as military service and expected benefit level for deferred vested members, we found the assumptions GRS used to be reasonable. However, we recommend GRS disclose the assumptions for these missing data items in their actuarial valuation reports.

Fund Provisions

We compared the summary of fund provisions shown in the July 1, 2015 actuarial valuation reports to the West Virginia Code. The fund provisions shown in the reports reflect what is in the West Virginia Code. In addition, based on our replication results, we find the actuarial valuations reflect the fund provisions of the West Virginia Code.

Economic and Demographic Assumptions

The July 1, 2015 actuarial valuations were based on GRS's 2016 Experience Review for the period July 1, 2009 to July 1, 2014. Cheiron finds that overall the demographic and economic assumptions are reasonable based on the conclusions set forth in the 2016 Experience Review and meet applicable Actuarial Standards of Practice.

However, we recommend the following assumptions be disclosed in future actuarial valuation reports:

- Determination of the administrative expense assumption.
- Assumption used for service related deaths.

- Retirement assumption used for deferred vested members (those who terminated and are eligible for benefits but who are currently not receiving benefits).
- Rationale of the 12% load applied to the death benefit liability to account for death benefits provided to dependent children.
- Assumptions used for missing information in the census data provided by the municipalities for performing the valuation.
- Assumptions used to project the census data for open group projections, where applicable.

Actuarial Methods

We have reviewed the actuarial cost method, the asset method, and the amortization method. We have two comments regarding the funding policies:

- Under the Standard and Optional funding policies, the unfunded actuarial liability is being amortized as a level dollar amortization according to the GRS actuarial valuation reports. We were not able to determine from the West Virginia Code whether the amortization is to be determined as a level dollar amount or as a level percent of payroll. GRS's calculations reflect a level dollar amortization. The MPOB may want to request that this be clarified in the West Virginia Code or reach a legal interpretation that defers this decision to the MPOB.

- Cheiron finds that the Alternative and Conservation funding policies are not consistent with generally accepted Actuarial Standards of Practice since they do not provide any mechanism to pay off the unfunded actuarial liability over a reasonable period of time. We recommend that these funding policies be changed to policies that are consistent with Actuarial Standards of Practice. Continuing these funding policies increases the risk of these funds becoming unsustainable over time. However, we understand that changing the funding policies is under the jurisdiction of West Virginia legislature and not the West Virginia Municipal Pensions Oversight Board.

Valuation Results

Based on our replication of the July 1, 2015 actuarial valuations for four municipal funds selected, we find that the calculations of the present value of future benefits, actuarial liability and normal cost appear reasonable. We also find the calculations of the assets, funded ratios and employer contributions to be reasonable as well.

SECTION II – SUMMARY OF RECOMMENDATIONS

Contents of Valuation Reports

Overall we find the actuarial valuation reports in compliance with Actuarial Standards of Practice. GRS's actuarial valuation reports provide commentary on the valuation results and numerical results in significant detail through the use of tables and graphs. They also provide projection charts showing future projection trends for assets, liabilities, funded ratios, and contributions. In Section III we provide a few recommendations to further enhance the actuarial valuation reports.

SECTION III – SUPPORTING ANALYSIS

In this section we provide detailed analysis and supporting rationale for the recommendations that were presented in Section II of this report.

Census Data

GRS provided us with the census data that was used in the July 1, 2015 actuarial valuations for the four selected municipal funds. We find that the data used in the valuation is valid and contains the necessary data elements. Where data was missing, such as military service and expected benefit level for deferred vested members, we found the assumptions GRS used to be reasonable. However, we recommend GRS disclose the assumptions used for missing data in future actuarial valuation reports.

Actuarial Methods

Actuarial methods consist of three components: (1) the funding method, which is the allocation of total costs to past, current, and future years; (2) the method of calculating the actuarial value of assets (i.e., asset smoothing); and (3) the amortization basis of the Unfunded Actuarial Liability (UAL).

Funding Method

ERS uses the individual entry age normal (EAN) cost method which allocates the present value of future benefits over the expected salary of active participants, from entry age to assumed retirement age. This method has been approved by the Board. This method is the most widely used cost method among public sector pension plans and is the method required under GASB Statements No. 67 and 68. **We find the individual EAN cost method reasonable and appropriate.**

Asset Smoothing Method

The actuarial value of assets is equal to the market value of assets. Most public plans use a smoothed market value where unanticipated changes in market value (referred to as asset gains and losses) are recognized over a reasonable period of time in the actuarial value of assets. The primary purpose for smoothing out asset gains and losses is that the actuarial value of assets will be less volatile over time than the market value of assets when investment experience fluctuates. **However, using the market value of assets as the actuarial value of assets is acceptable and we concur with its use.**

Amortization Basis/Funding Policy

Four funding policies are available to fund sponsors under West Virginia Code §8-22-20. They are summarized as follows:

SECTION III – SUPPORTING ANALYSIS

- Standard Funding Policy - Employer contributions are equal to the net employer normal cost, plus an amortization of the unfunded actuarial liability, less the State premium tax allocation. The employer contribution cannot be less than the employer normal cost. The amortization is based on a closed period level dollar amortization with 16 years remaining as of July 1, 2015.

- Alternative Funding Policy - Employer contributions are equal to 107% of the prior year's employer contribution. The Alternative funding policy is not consistent with generally accepted Actuarial Standards of Practice because the policy does not reflect emerging experience gains and losses and may not allow the Fund to reach 100% funded over a reasonable period of time.

- Optional Funding Policy - Employer contributions are equal to the net employer normal cost, plus an amortization of the unfunded actuarial liability, less the State premium tax allocation. The closed amortization period as of July 1, 2015 is 16 years for fund sponsors who previously used the Standard funding policy and 34.5 years for fund sponsors who previously used the Alternative funding policy. Funds that elected this funding policy are closed to new entrants and any newly hired members after the adoption date of the Optional funding policy are covered under the Municipal Police Officers and Firefighters Retirement System.

- Conservation Funding Policy – Employer contributions are on a pay-as-you-go basis. Sponsors using the Conservation funding policy are required to assign a portion of the State premium tax allocation and member contributions to an accumulation account that is projected to grow to 100% of the remaining actuarial liabilities at the end of a 35-year projection period. Funds that elected this funding policy are closed to new entrants and any newly hired members after the adoption date of the Conservation funding policy are covered under the Municipal Police Officers and Firefighters Retirement System. The Conservation funding policy is not consistent with generally accepted Actuarial Standards of Practice because the policy does not reflect emerging experience gains and losses and may not allow the Fund to reach 100% funded over a reasonable period of time.

Under the Standard and Optional funding policies, GRS is amortizing the unfunded actuarial liability as a level dollar amount. We were not able to determine from the West Virginia Code §8-22-20 whether the amortization is to be determined as a level dollar amount or as a level percent of payroll. **Cheiron finds the amortization of the unfunded actuarial liability as a level dollar amount reasonable; however, the MPOB may want to have this clarified in the West Virginia Code.**

Actuarial Standards of Practice No.4 Measuring Pension Obligations and Determining Pension Plan Costs or Contributions provides guidance to actuaries with respect to measuring obligations under a pension plan and determining actuarial determined contributions for such plans. It also requires actuaries to provide disclosures in their actuarial communications when relevant and material. Section 3.14 states *"When selecting a cost allocation procedure or*

***contribution allocation procedure**, the actuary should consider factors such as the timing and duration of expected benefit payments and the nature and frequency of plan amendments. In addition, the actuary should consider relevant input received from the principal, such as a desire for stable or predictable **periodic costs** or **actuarially determined contributions**, or a desire to achieve a target funding level within a specified time frame."* It also states that *"When selecting a **contribution allocation procedure**, the actuary should select a **contribution allocation procedure** that, in the actuary's professional judgment, is consistent with the plan accumulating adequate assets to make benefit payments when due, assuming that all actuarial assumptions will be realized and that the plan sponsor or other contributing entity will make **actuarially determined contributions** when due."*

ASOP 4 defines the following terms used in this Actuarial Standard of Practice:

- *Actuarial Cost Method - Actuarial Cost Method—A procedure for allocating the **actuarial present value of projected benefits** (and **expenses**, if applicable) to time periods, usually in the form of a **normal cost** and an **actuarial accrued liability**. For purposes of this standard, a pay-as-you-go method is not considered to be an **actuarial cost method**.*
- *Actuarially Determined Contribution - A potential payment to the plan as determined by the actuary using a **contribution allocation procedure**. It may or may not be the amount actually paid by the plan sponsor or other contributing entity.*
- *Contribution Allocation Procedure – A procedure that uses an **actuarial cost method** and may include an asset valuation method, an **amortization method**, and an **output smoothing method**, to determine the **actuarially determined contribution** for a plan. The procedure may produce a single value, such as **normal cost** plus an amortization payment of the unfunded **actuarial accrued liability**, or a range of values, such as the range from the ERISA minimum required contribution to the maximum tax-deductible amount.*
- *Cost Allocation Procedure" - A procedure that uses an **actuarial cost method**, and may include an asset valuation method and an **amortization method**, to determine the **periodic cost** for a plan (for example, the procedure to determine the net periodic pension cost under accounting standards).*

The Standard funding policy and the Optional funding policy are consistent with generally accepted Actuarial Standards of Practice. However, we do not believe the Alternative funding policy and Conservation funding policy are consistent with Actuarial Standards of Practice. These funding policies do not allocate the actuarial liability to applicable time periods nor do they reflect fund experience gains and losses. Funds using these funding policies may not reach 100% funding over a reasonable period of time. This is clearly demonstrated by the funded ratios of the funds. Based on GRS's Consolidated Actuarial Study as of July 1, 2015, the arithmetic average of the funded ratios for the 53 municipal funds were as follows:

Funding Policy	Number of Plans	Funded Ratio as of July 1, 2015
Standard	5	62%
Alternative	26	22%
Optional from Standard	10	67%
Optional from Alternative	10	28%
Conservation	2	9%
Total	53	22%

Fund sponsors currently using the Alternative, or previously used the Alternative funding policy, and fund sponsors using the Conservation funding policy, have significantly lower funded ratios than fund sponsors using the Standard or Optional from Standard funding policies; although this is in part due to these funds using a lower interest rate. In addition, fund sponsors using the Alternative or Conservation funding policies may find that contributions in the future are unsustainable. Under the Alternative funding policy, contributions will continue to increase 7% a year and contributions under the Conservation funding policy will continue to increase as more members retire and as benefits are adjusted for cost-of-living increases.

Cheiron finds that the Alternative and Conservation funding policies are not consistent with generally accepted Actuarial Standards of Practice since they do not provide any mechanism to pay off the unfunded actuarial liability over a reasonable period of time. **We recommend that these funding policies be changed to policies that are consistent with Actuarial Standards of Practice. Continuing these funding policies increases the risk of the Funds becoming unsustainable over time. However, we understand that changing the funding policies is under the jurisdiction of West Virginia law and not the West Virginia Municipal Pensions Oversight Board.**

GRS is required to use the funding policies as stipulated in the West Virginia Code. ASOP No. 4, Section 4.1(m) states *"a qualitative description of the implications of the **contribution allocation procedure** or plan sponsor's funding policy on future expected plan contributions and funded status in accordance with section 3.14.2. The actuary should disclose the significant characteristics of the **contribution allocation procedure** or plan sponsor's funding policy, and the significant assumptions used in the assessment".* **We believe GRS adequately discloses the characteristics of the funding policies and provides both qualitative and quantitative analysis about the risks of the funding policies and their implications on the projected funded status and contributions.**

Valuation Results

We reviewed the liabilities, assets, funded ratios and employer contributions. Our review of the actuarial valuation results consisted of analyzing 17 individual sample test lives from the July 1, 2015 actuarial valuations and fully replicating four of the 53 funds to determine the accuracy of the calculations. Individual test lives show the data used in the valuation for the individual and the liability shown by decrement associated with the individual. Individual test lives were selected for actives, retirees and deferred vesteds.

The 17 individual test cases provided to us varied on age and service combinations to determine if the eligibility and benefit provisions were being valued correctly and if the assumptions and the actuarial cost method were being applied correctly. We then fully replicated the liabilities and valuation results for the four funds selected: Charleston Police, Huntington Fire, Parkersburg Fire and Vienna Police. These funds were selected so that we could review the application of each of the four funding policies. They were also selected so we could assess the determination of the interest rate, since the interest rate assumption varies by fund.

SECTION III – SUPPORTING ANALYSIS

The following tables show the comparison of the key valuation results from our replication to that of GRS for the four funds fully replicated.

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia
Charleston Police
Summary of July 1, 2015 Valuation Results

	GRS	Cheiron	Ratio
Member Counts			
Actives	121	121	1.00
Retirees	134	136	1.01
Disableds	39	39	1.00
Surviving Spouses	53	52	0.98
Deferred Vesteds	4	4	1.00
Total	351	352	1.00
Payroll	$ 7,194,432	$ 7,194,432	1.00
Annual Benefits	$ 7,069,149	$ 7,076,122	1.00
Assets and Liabilities			
Present Value of Future Benefits	$ 209,924,517	$ 212,258,288	1.01
Actuarial Liability			
Actives	$ 50,749,187	$ 50,769,298	1.00
Inactives	$ 120,685,205	$ 120,991,783	1.00
Total Actuarial Liability	$ 171,434,392	$ 171,761,081	1.00
Market Value of Assets	$ 16,082,384	$ 16,082,384	1.00
Funded Ratio	9.4%	9.4%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 3,808,064	$ 3,580,574	0.94
(b) Expected Employee Contributions	$ 575,555	$ 575,555	1.00
(c) Net Normal Cost = (a)-(b)	$ 3,232,509	$ 3,005,019	0.93
(d) Amortization Payment	N/A	N/A	
(e) State Insurance Premium Tax	$ 1,698,684	$ 1,698,684	1.00
(f) Estimated Benefits and Expenses	$ 7,247,384	$ 7,252,865	1.00
(g) Employer Contribution*	$ 5,992,897	$ 5,975,925	1.00
Funding Policy	Conservation	Conservation	
Interest Rate	4.5%	4.5%	

* Estimated benefit payments plus expenses less 6.5% member contributions and less portion of State Insurance Premium Tax.

SECTION III – SUPPORTING ANALYSIS

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia

Huntington Fire

Summary of July 1, 2015 Valuation Results

	GRS	Cheiron	Ratio
Member Counts			
Actives	83	83	1.00
Retirees	111	113	1.02
Disableds	22	22	1.00
Surviving Spouses	44	43	0.98
Deferred Vesteds	1	1	1.00
Total	261	262	1.00
Payroll	$ 4,135,510	$ 4,135,510	1.00
Annual Benefits	$ 5,489,044	$ 5,459,278	0.99
Assets and Liabilities			
Present Value of Future Benefits	$ 137,153,852	$ 138,037,783	1.01
Actuarial Liability			
Actives	$ 33,301,224	$ 32,938,098	0.99
Inactives	$ 83,460,033	$ 82,966,552	0.99
Total Actuarial Liability	$ 116,761,257	$ 115,904,650	0.99
Market Value of Assets	$ 18,612,247	$ 18,612,247	1.00
Funded Ratio	15.9%	16.1%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 2,126,081	$ 2,097,850	0.99
(b) Expected Employee Contributions	$ 289,486	$ 289,485	1.00
(c) Net Normal Cost = (a)-(b)	$ 1,836,595	$ 1,808,364	0.98
(d) Amortization Payment	$ 5,532,247	$ 5,483,964	
(e) State Insurance Premium Tax	$ 1,135,084	$ 1,135,084	1.00
(f) Employer Contribution *	$ 6,233,758	$ 6,157,244	0.99
Funding Policy	Optional	Optional	
Interest Rate	4.5%	4.5%	

* Unfunded actuarial liability amortized over 34.5 years as of July 1, 2015

SECTION III – SUPPORTING ANALYSIS

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia
Parkersburg Fire
Summary of July 1, 2015 Valuation Results

	GRS	Cheiron	Ratio
Member Counts			
Actives	56	56	1.00
Retirees	62	64	1.03
Disableds	13	13	1.00
Surviving Spouses	25	22	0.88
Deferred Vesteds	0	0	1.00
Total	156	155	0.99
Payroll	$ 2,774,192	$ 2,773,615	1.00
Annual Benefits	$ 2,720,660	$ 2,759,531	1.01
Assets and Liabilities			
Present Value of Future Benefits	$ 71,729,459	$ 72,119,075	1.01
Actuarial Liability			
Actives	$ 19,134,262	$ 19,071,141	1.00
Inactives	$ 40,643,413	$ 39,882,457	0.98
Total Actuarial Liability	$ 59,777,675	$ 58,953,598	0.99
Market Value of Assets	$ 12,190,212	$ 12,190,212	1.00
Funded Ratio	20.4%	20.7%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 1,305,179	$ 1,274,134	0.98
(b) Expected Employee Contributions	$ 204,042	$ 204,487	1.00
(c) Net Normal Cost = (a)-(b)	$ 1,101,137	$ 1,069,647	0.97
(d) Amortization Payment	N/A	N/A	
(e) State Insurance Premium Tax	$ 654,545	$ 654,545	1.00
(f) Employer Contribution *	$ 2,568,735	$ 2,568,735	1.00
Funding Policy	Alternative	Alternative	
Interest Rate	5.0%	5.0%	

* 107% of prior year's contribution

SECTION III – SUPPORTING ANALYSIS

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia

Vienna Police

Summary of July 1, 2015 Valuation Results

	GRS	Cheiron	Ratio
Member Counts			
Actives	18	18	1.00
Retirees	8	8	1.00
Disableds	4	4	1.00
Surviving Spouses	1	1	1.00
Deferred Vesteds	0	0	1.00
Total	31	31	1.00
Payroll	$ 868,395	$ 868,313	1.00
Annual Benefits	$ 401,520	$ 401,055	1.00
Assets and Liabilities			
Present value of Future Benefits	$ 11,939,681	$ 11,966,363	1.00
Actuarial Liability			
Actives	$ 4,234,548	$ 3,917,969	0.93
Inactives	$ 5,215,726	$ 5,096,027	0.98
Total Actuarial Liability	$ 9,450,274	$ 9,013,996	0.95
Market Value of Assets	$ 6,594,688	$ 6,594,688	1.00
Funded Ratio	69.8%	73.2%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 275,760	$ 272,143	0.99
(b) Expected Employee Contributions	$ 65,174	$ 65,593	1.01
(c) Net Normal Cost = (a)-(b)	$ 210,586	$ 206,550	0.98
(d) Amortization Payment	$ 283,286	$ 240,005	0.85
(e) State Insurance Premium Tax	$ 176,783	$ 176,783	1.00
(f) Employer Contribution = (c)+(d)-(e) *	$ 317,089	$ 269,772	0.85
Funding Policy	Standard	Standard	
Interest Rate	6.5%	6.5%	

* Unfunded actuarial liability amortized over 16 years as of July 1, 2015

SECTION III – SUPPORTING ANALYSIS

Cheiron was able to match most of GRS's results within the generally acceptable standard for the industry. There were just a few items where we were not within 5% of GRS's results. Furthermore, some of Cheiron's member counts were slightly different than those shown by GRS. Cheiron's retiree counts include alternate payees, whereas GRS's counts do not. Cheiron's surviving spouses counts do not include non-spouses (i.e. child dependents) who are beyond the last payment age, whereas GRS's counts include all non-spouses.

Cheiron's results showed a slightly lower normal cost for Charleston Police than GRS's results. However, since Charleston Police uses the Conservation funding policy, contributions are based on a pay-as-you-go basis, and we were within 1% of GRS's calculated employer contribution. Cheiron's results also showed a slightly lower employer contribution for Vienna Police compared to GRS's results. This was due to Cheiron's actuarial liability for Vienna being 5% lower than GRS's actuarial liability. Slight differences in results are to be expected due to differences in actuarial valuation systems. However, we feel that the results are still within a reasonable range.

Cheiron's results for the present value of future benefits for the individual test lives varied by as much as 10% of GRS's results. Based on the data provided to us by GRS, we were not able to determine the reason for the differences. Differences in results are to be expected due to differences in actuarial valuation systems. However, as mentioned above, in total we were able to closely match GRS's results for each of the four selected municipal funds.

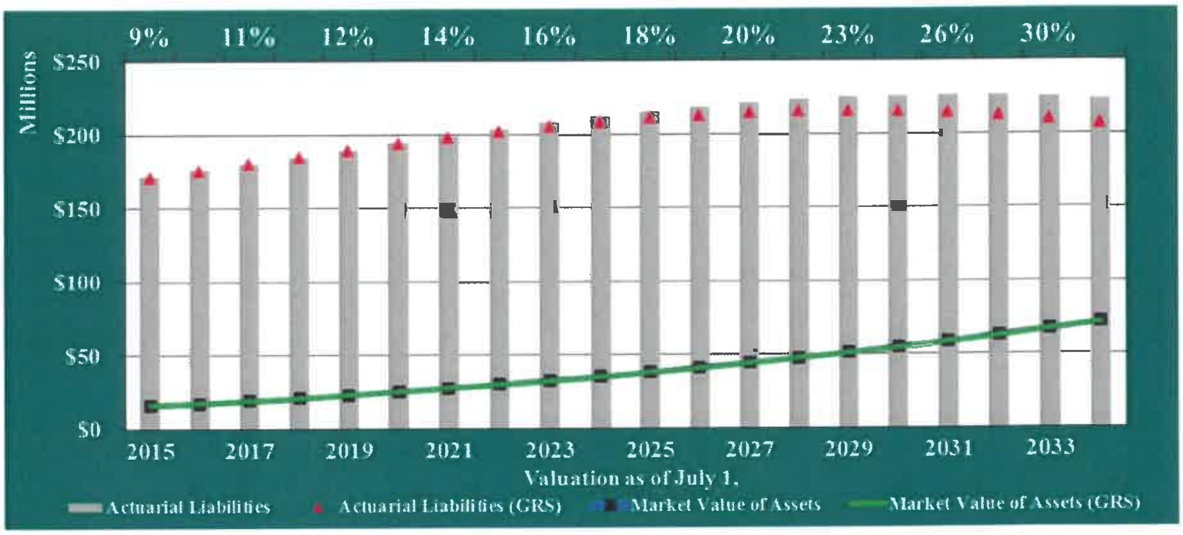
Based on our replication of the July 1, 2015 actuarial valuations for these four funds, we find that the calculations of the present value of future benefits, actuarial liability, and normal cost appear reasonable. We also find the calculations of the assets, funded ratios and employer contributions under the applicable funding policy reasonable as well.

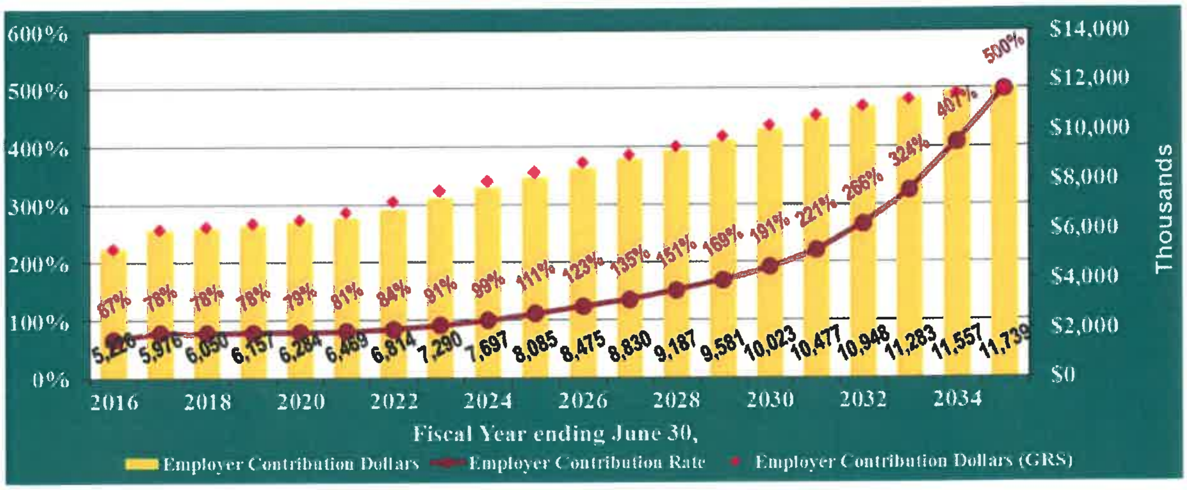
Projections

A funding policy should accumulate sufficient assets during a member's employment to fully finance the benefits the member receives throughout retirement, maintain an increasing funded ratio of fund assets to accrued liabilities, and monitor future demands for liquidity. As part, of our audit, we have prepared projections of the assets, liabilities, funded ratios, and contributions for the four funds we replicated. Note that our projections are to illustrate various trends regarding the different funding policies available to fund sponsors under the West Virginia Code and to determine the reasonability of GRS's projections shown in the respective actuarial valuation reports.

For each fund we show two graphs. The first graph shows the funding progress of the fund. The values along the top represent the funded status, the grey bars are the projected liabilities and the blue line is the projected market value of assets from Cheiron's *P-Scan* model. The corresponding projected liabilities and assets from the GRS actuarial valuation reports are shown by the red triangle and green line, respectively. Each projection assumes that all assumptions are realized, most notably that each fund earns the assumed investment return each year. The second graph shows the projected employer contributions as both a dollar amount (yellow bars) and as a percent of pay (red line) from Cheiron's *P-Scan* model. The corresponding dollar amount of employer contributions from the GRS actuarial valuation reports are shown by the red triangle.

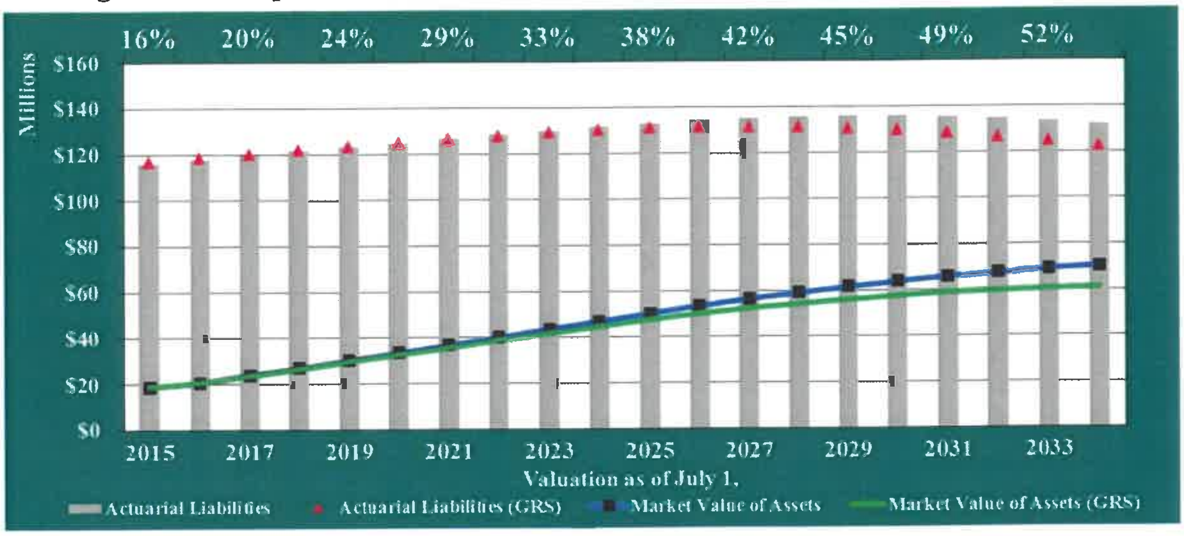
Charleston Police – Conservation, 4.5% Interest Rate

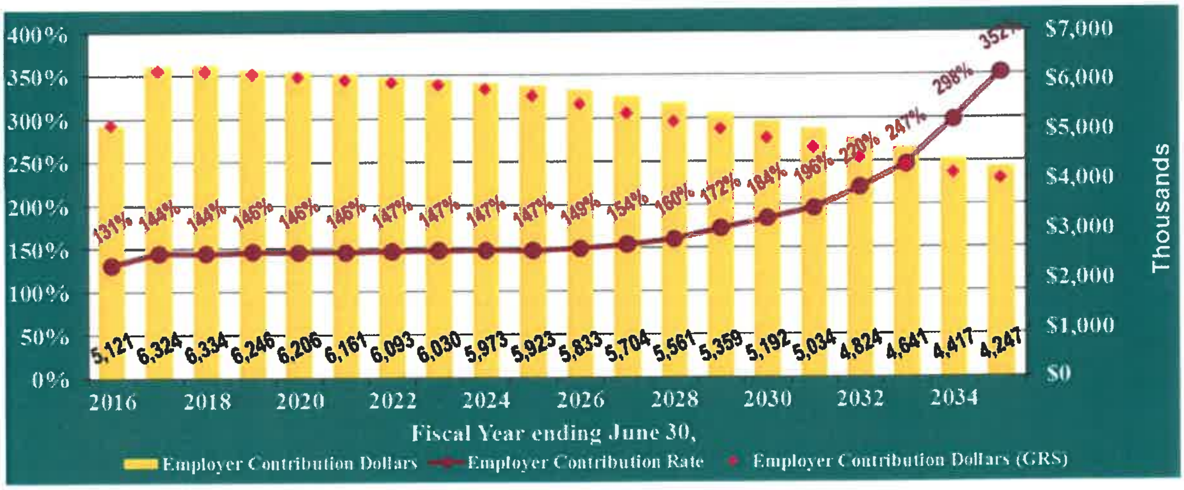




Charleston Police, which uses the Conservation funding policy based on a pay-as-you-go basis, shows very little improvement in the funded ratio over the period shown. Contributions increase significantly over the period as members retire. The contribution as a percent of pay increases due to both the projected growth in dollars and the declining covered payroll due to the fund being closed to new entrants. The fund sponsor should consider whether the required contributions will be sustainable in the future. The Conservation funding policy also does not allocate the cost of the benefits over specific time periods nor does it define the period over which the unfunded actuarial liability will be paid off. The fund sponsor should consider using a funding policy that is consistent with Actuarial Standards of Practice.

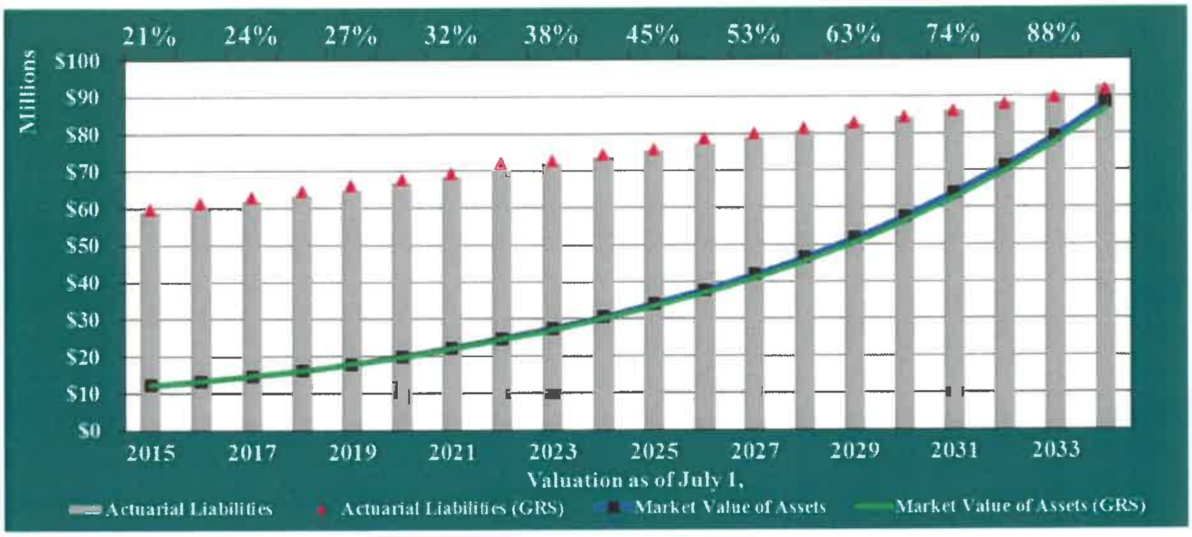
Huntington Fire – Optional, 4.5% Interest Rate

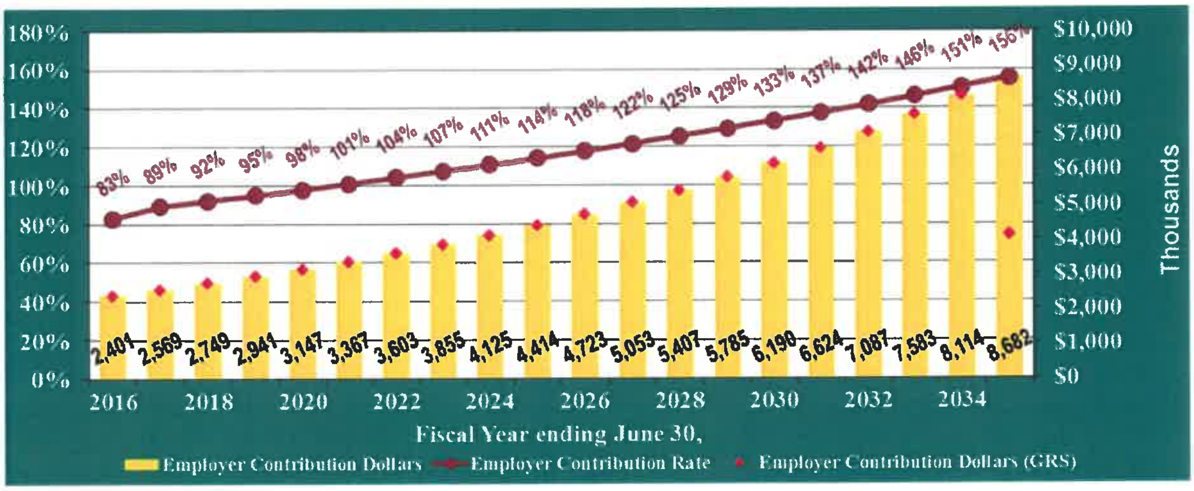




Huntington Fire, which uses the Optional funding policy, shows gradual improvement in the funded ratio while contributions gradually decline over the period. This reduction in the dollar amount of contributions is reflective of the active members retiring and the unfunded actuarial liability decreasing over time, and thus the amortization component of the contribution getting smaller. While the dollar amount of contributions gets smaller over the period, the contribution rate increases since payroll declines over the period as the active members retire and the fund is closed to new entrants. The fund will reach 100% funding in 2050 when the unfunded liability is fully funded.

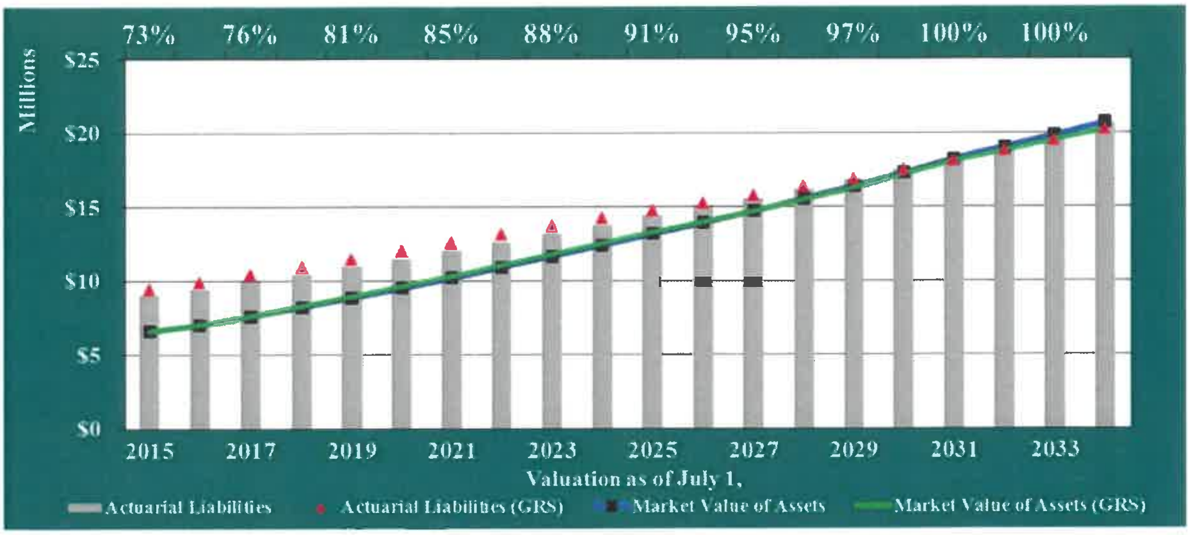
Parkersburg Fire – Alternative, 5.0% Interest Rate

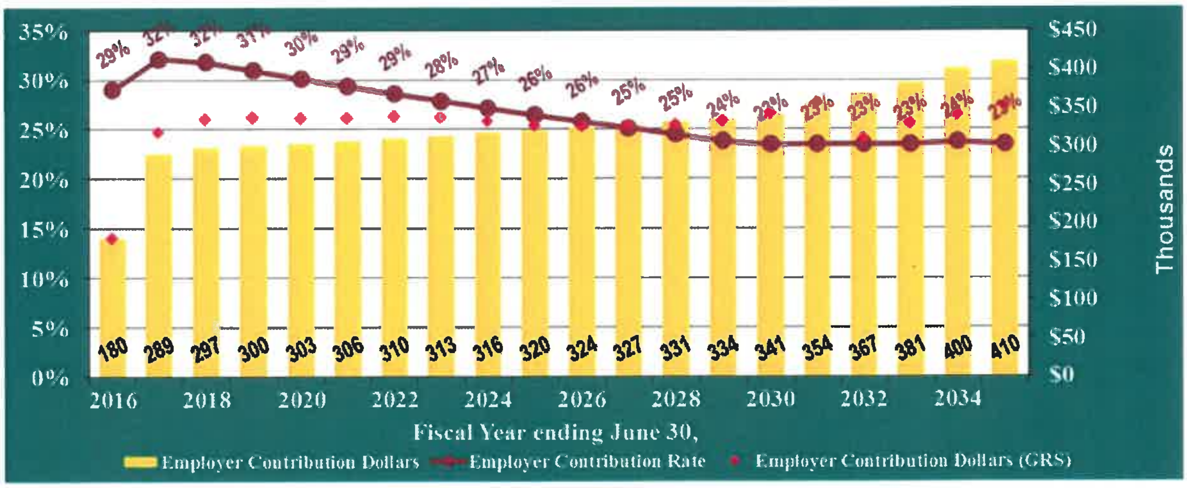




Parkersburg Fire uses the Alternative funding method. Under this method, employer contributions increase 7% a year. While the funded ratio improves over the period, contributions increase significantly over the period. The fund sponsor should consider whether the required contributions will be sustainable in the future. The Alternative funding policy also does not allocate the cost of the benefits over specific time periods nor does it define the period over which the unfunded actuarial liability will be paid off. The fund sponsor should consider using a funding policy that is consistent with Actuarial Standards of Practice.

Vienna Police – Standard – 6.5% Interest Rate





Vienna Police, which uses the Standard funding policy, becomes 100% funded by 2031. This result is indicative of the funding policy amortizing the unfunded actuarial liability as of July 1, 2015 over a 16 year period. Despite employer contributions gradually increasing over the projection period, the rate as a percent of covered payroll decreases over the period and ultimately stabilizes at the employer normal cost rate.

These projections illustrate the different funding patterns of each of the four funding policies.

We compared our projections for the four funds to the projections shown in GRS's valuation reports and find GRS's projections to be reasonable.

Economic Assumptions

Cheiron finds that overall the economic assumptions are reasonable based on the conclusions set forth in the 2016 Experience Review and meet applicable Actuarial Standards of Practice.

1. *Interest Rate*

The interest rate assumption (also called the investment return or discount rate) is the most impactful assumption affecting the liabilities. The interest rate ranges from 4.0% to 6.5% (with the exception of one fund which uses a 7.0% interest rate) depending on the funded ratio as of the valuation date, liquidity ratio, equity exposure and projected funded ratio. This is a decrease from the prior interest rate assumption which ranged from 4.5% to 7.0% amongst the different municipalities. The following chart (reprinted from the GRS 2016 Experience Review) shows the determination of the interest rate.

Funded Ratio as of Valuation Date[1]	***Liquidity Ratio***[2]	***Equity Exposure***[3]	***Projected Funded Ratio after 15 Years***[1]	***Discount Rate***
60% or more	*10*	*50% or more*	*70% or more*	*6.5%*
40% or more	*8*	*40% or more*	*60% or more*	*6.0%*
30% or more	*6*	*30% or more*	*50% or more*	*5.5%*
15% or more	*4*	*n/a*	*40% or more*	*5.0%*
Less than 15%	*n/a*	*n/a*	*15% or more*	*4.5%*
Less than 15%	*n/a*	*n/a*	*Less than 15%*	*4.0%*

[1] *Funded ratios are based on an investment return assumption of 6.5 percent under the current policy and 6.0 percent under the proposed policy for plans using an actuarially sound funding policy (standard or optional). For plans using the alternative or conservation funding policy, the funded ratios are based on an investment return assumption of 6.0 percent under the current policy and 5.5 percent under the proposed policy.*

[2] *Liquidity ratio equals assets as of the valuation date divided by expected benefits for the upcoming year.*

[3] *Based on investment policy. Includes equities and alternative investments.*

Actuarial Standards of Practice No. 27 Selection of Economic Assumptions for Measuring Pension Obligations provides guidance on the selection of the interest rate. The interest rate assumption should reflect future market experience. It should also reflect factors specific to the measurement including the fund's investment policy, which includes asset allocation, and cash flow timing of contributions and benefit payments and liquidity needs.

SECTION III – SUPPORTING ANALYSIS

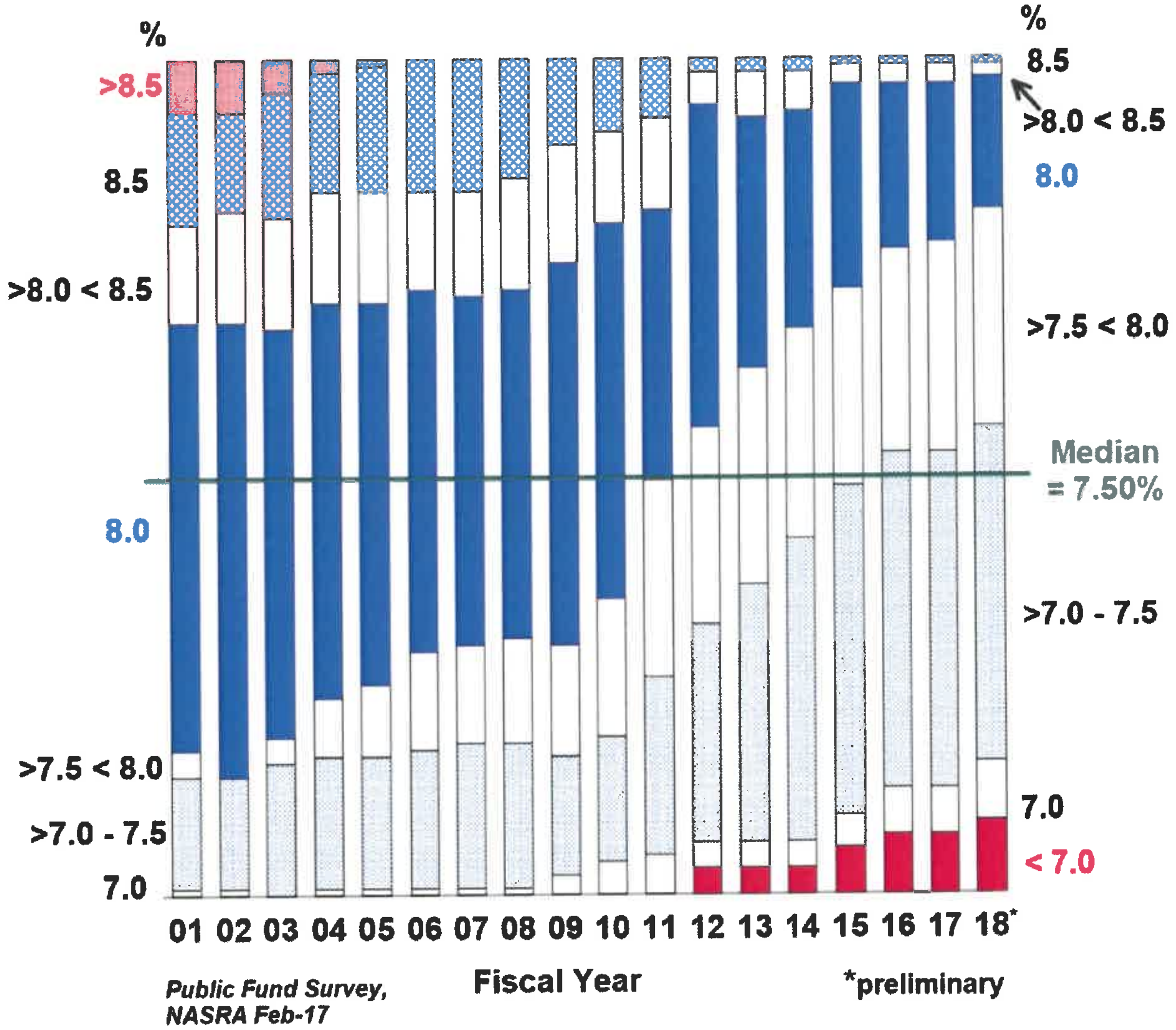
Cheiron finds the determination of the interest rate is reasonable and reflects market data and each funds' specific characteristics that would impact the expected investment rate of return.

Our rationale for this recommendation is as follows:

- In GRS's 2016 Experience Review, it presented the results from their stochastic projection over a 30-year time horizon for two representative investment policies – one with a moderately funded fund (60% funded ratio) with a funding policy that complies with the ASOPs (Standard or Optional funding policies) and a low funded fund (30% funded ratio) with a funding policy that does not comply with ASOPs (Alternative or Conservation policies). Based on that analysis, for the 30 year time horizon, the rate of return for the 25th percentile, 50th percentile and 75th percentile was 4.82%, 6.34% and 7.89% for the moderately funded fund and 4.53%, 5.81%, and 7.10% for the low funded fund, respectively. However, since not all funds are funded using funding policies that comply with ASOPs, GRS also reflected each fund's funded ratio, investment policy and liquidity ratio in the determination of the interest rate assumption. This analysis demonstrates that a lower funded fund can expect to have a lesser investment return than a better funded fund despite being similarly invested.

- The National Association of State Retirement Administrators (NASRA) conducts an annual survey of public funds. The latest Public Fund Survey covers 127 retirement plans. Over the period shown in the latest survey, there continues to be a pattern of reducing investment return assumptions and indicates that the average interest rate is 7.52%. The following chart shows the distribution of investment return assumptions for the last 18 years of the survey. The latest data includes results collected through February 2017.

SECTION III – SUPPORTING ANALYSIS



The survey is consistent with experience of other Cheiron clients, with which there has been a significant trend to reduce the investment return assumption in the last several years. However, the interest rates used for the 53 municipal funds are lower partly due to the poor funded ratios resulting in higher liquidity needs.

- There has been an emerging trend throughout the country in reducing the discount rates even below the level that the investment consultants believe is achievable. This is because of the very low interest rate environment we are currently in as well as the risk preference of the fund sponsor. The lower the interest rate environment, the greater the investment risk that must be taken to achieve an assumed rate of return. For example, yields on ten-year Treasury bonds (a proxy for a risk free investment) were 6.74% in 1996. In 2016, these yields were 1.46%. This means, back in 1995 in order to achieve 7.00%, a system only had to earn 0.26% more than the ten year Treasury yields ("risk free" rates), whereas today a system would have to earn 5.54% above this "risk free" rate. By reducing the investment return assumption, funds are more likely to meet their funding goals without requiring investment performance so much in excess of the risk free rate.

- In addition to taking pressure off of the investment process, there is a growing concern that long-term interest rates will eventually rise. A pattern of rising interest rates generally results in declining bond returns. This in turn will result in even greater investment risks on the equity side of the assets to compensate for both declining bond returns and the need to earn 5.54% above the risk free rates of return.

- In the case of maturing pension funds, some of the funds are experiencing negative cash flows measured as contributions less benefits and expenses. Negative cash flows result in actuarial returns (i.e., dollar weighted returns) being less than "time weighted" returns, which is what investment consultants generally base their reported and projected returns on. So as a result, even if an investment consultant's expected long-term return horizon is 7.0%, that is expressed as a time weighted return figure, and for funds with negative cash flows, we would expect the dollar weighted returns to be measurably less.

2. *Inflation Assumption*

The inflation assumption impacts the discount rate, salary increase assumption, cost-of-living adjustment and projected increase in State Insurance Premium Tax. GRS lowered the inflation assumption from 3.00% to 2.75% effective with the 2015 actuarial valuations.

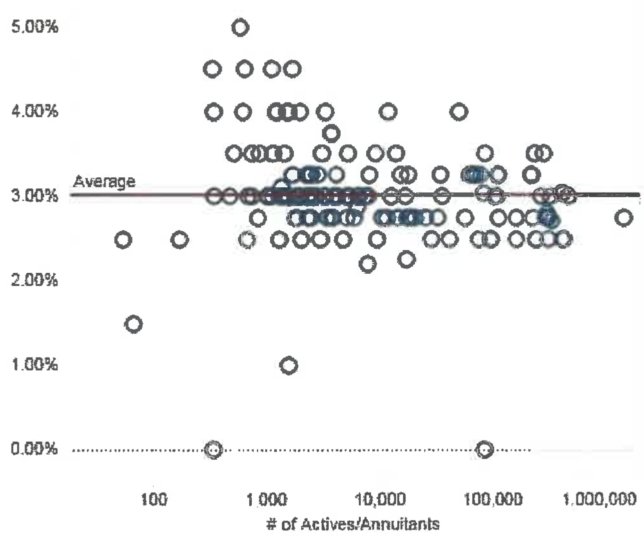
Cheiron finds the inflation assumption of 2.75% reasonable in the long term.

Our rationale for concurring with the 2.75% assumption:

- The 2015 Old-Age, Survivors, and Disability Insurance Trustees Report projects that over the long-term (next 75 years) inflation will average somewhere between 2.0% and 3.4%.

- The *National Conference on Public Employers Retirement Systems* (NCPERS) December 2016 study provides the following graphic of respondents' inflation assumptions:

SECTION III – SUPPORTING ANALYSIS



This shows that the average inflation assumption was 3.0%, down .2% from 2015.

- One of the factors leading to investment consultants tempering their capital market assumptions is a lower expected inflation level. The decrease from 3.0% to 2.75% is in line with this trend.

3. *Payroll Growth Assumption and Salary Increase Assumption*

The payroll growth assumption was reduced from 4.00% to 3.75% to reflect the reduction in the inflation assumption.

Individual rates of the proposed salary increases for merit, longevity and promotions are based on service and range from 20.00% to 0.00%. These increases are in addition to the wage inflation of 3.75% per annum. The salary increases for merit, longevity and promotions were increased based on the results of the 2016 Experience Review as best shown on pages 17 and 19 of the GRS report.

Cheiron finds the payroll growth assumption and salary increase assumption reasonable and reflective of the experience of the fund for the five-year period ending July 1, 2014.

4. *Administrative Expense Assumption*

Administrative expenses are paid from the funds. However, the 2016 Experience Review did not address this assumption. We received information from GRS showing the determination of the administrative expense assumption for the four funds we fully replicated. The methodology used to determine the administrative expense assumption was different for each of the four funds. For Charleston Police, the administrative expense assumption was based on the average of the administrative expenses over the last three years. For Huntington Fire, the administrative expense assumption was 25% of the average of the administrative expenses over the last three years. For Parkersburg Fire, the administrative expense assumption was 0.4% of total normal cost. For Vienna Police, the administrative expense assumption was 1% of total normal cost.

The Board's actuary should analyze the administrative expense assumption in the next experience review and have a uniform approach for setting this assumption for all 53 municipal funds. This assumption should be disclosed in future communications.

Demographic Assumptions

The July 1, 2015 actuarial valuations were based on GRS's 2016 Experience Review for the years July 1, 2009 to July 1, 2014. The data for all 53 funds were aggregated for the purpose of the experience review. The assumptions would typically be based on each fund's specific experience since these funds are not cost sharing funds. However, due to the small size of the municipal funds, there may not be sufficient credible data to warrant separate assumptions for each municipal fund.

In conducting this audit, Cheiron reviewed GRS's 2016 Experience Review for the years July 1, 2009 to July 1, 2014. We did not replicate the results of the experience review.

Cheiron finds that overall the demographic assumptions are reasonable based on the conclusions set forth in the 2016 Experience Review and meet the requirements of ASOP No. 35 Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations.

In the annual consolidated actuarial valuation reports, GRS reported the aggregate liability gain or loss, however, they did not report much detail about the sources of the gain or loss, i.e., how much of the gains or losses were due to mortality experience different than expected, retirements different than expected, salaries different than expected, etc. While GRS prepared an experience review, providing a running composite of experience over several years, separated by decrement, in the actuarial valuation report would provide the Board with trend analysis. This will give an early indication as to whether certain assumptions need to be modified, possibly before the next scheduled experience review. As an example, there were net experience gains of $8.7 million (0.7% of expected liabilities), $13.7 million (1.1% of expected liabilities) and $5.6 million (0.4% of expected liabilities), in the 2013, 2014 and 2015 consolidated actuarial valuations, respectively. In all years, the sources of the gains were salary growth less than expected and cost-of-living adjustments less than expected. It is possible that if such trend is expected to continue in the future, the Board may want to revisit these assumptions prior to the next experience review.

SECTION III – SUPPORTING ANALYSIS

1. *Post-Retirement Mortality Assumption*

Post-retirement healthy mortality is based on the RP-2014 Blue Collar Healthy Mortality Table projected generationally with MP-2014. Disabled mortality is based on the RP-2014 Blue Collar Healthy Mortality Table, set forward four years, projected generationally with MP-2014. These are standard mortality tables and mortality improvement scales. It should be noted that the Society of Actuaries has developed subsequent mortality improvement scales (MP-2015 and MP-2016) which provide for lower future mortality improvement than MP-2014. GRS may want to consider these alternative projection scales in their next experience review. Additionally, the Retirement Plans Experience Committee for the Society of Actuaries is in the process of developing a mortality table based solely on information from public sector pension plans. One of the criticisms of the RP-2014 table is that no public sector data was considered. The public mortality table is expected to be published in early 2019.

Cheiron finds the post-retirement mortality assumption reasonable.

2. *Pre-retirement Mortality*

Pre-retirement mortality is based on the RP-2014 Blue Collar Healthy Mortality Table projected generationally with MP-2014. Pre-retirement mortality is another one of those assumptions where there are not a lot of occurrences for credible assumption changes. We agree with the use of standard tables.

The West Virginia Code provides for death benefits for members who die with at least five years of service. However, if death is service related, there is no service requirement. The death benefits are the same regardless of whether the death is service related or not, after 5 years of service. GRS does not have separate assumptions for service related deaths and non-service related deaths. While we do not believe this is material, GRS may want to confirm this in their next experience review.

Cheiron finds the post-retirement mortality assumption reasonable. The Board's actuary should review the data in the next experience review to determine the number of deaths that are service related.

3. *Retirement*

Retirement rates are 45% for age 50, 30% for ages 51 to 55, 35% for ages 56 to 59 and 100% at age 60. The 2016 Experience Review and 2015 Actuarial Valuation Reports do not state the retirement assumption used for members who terminated and are eligible for benefits but who are currently not receiving benefits.

Cheiron finds the retirement assumption reasonable based on the data. GRS should disclose the retirement assumption used for members who terminated and are eligible for benefits but who are currently not receiving benefits.

SECTION III – SUPPORTING ANALYSIS

4. Withdrawal

Withdrawal rates are based on age. Although the experience for the five-year period ending July 1, 2014 (as shown on page 26 of the GRS experience review report) shows a correlation to age, it may be worthwhile for GRS to look at how behavior ties to service to see if it is a better indicator.

Cheiron finds the withdrawal assumption reasonable based on recent experience.

5. Disability Retirement

Disability rates are based on age. 60% of disabilities are duty related.

Cheiron finds the disability retirement assumption reasonable based on recent experience as reported in GRS's experience review report.

6. Percent Married

90% of employees are assumed to be married with the female being three-years younger than the male.

This assumption was not addressed in the 2016 Experience Review.

The Board's actuary should look at this assumption in the next experience review and also determine if the same assumption should be used for both male and female members.

7. Death Benefits

There is a 12% load applied to the death benefit liability to account for death benefits provided to dependent children; however, there is no analysis of this in the 2016 Experience Review and this is not disclosed in the valuation reports.

The Board's actuary should review this assumption in the next experience review and disclose this assumption in the valuation reports.

8. New Entrant Assumptions for Open Group Projections

GRS shows projections of the liabilities in the valuation reports. However, there is no description of the assumptions used to project the census data for open group projections.

GRS should disclose the assumptions used for open group projections in the valuation reports.

9. Missing Data

GRS makes assumptions for missing data, such as military service and expected benefit payments for deferred vested members.

We find the assumptions GRS used to be reasonable. However, we recommend GRS disclose the assumptions used for missing data in their actuarial valuation reports.

Valuation Report Content

The GRS actuarial valuation reports provide commentary on the valuation results and numerical results in significant detail through the use of tables and graphs. They also provide projection charts showing the future trends for assets, liabilities, funding ratios, and contributions. This enables the Board and fund sponsors to see how their goal of attaining full funding will be reached. This also enables the Board and fund sponsors to see how contributions are expected to change in the future.

We have a few recommendations to further enhance the actuarial valuation reports:

- Enhance the Summary section of the report to provide historical trend graphs of membership, assets, liabilities, funded ratios and employer contributions. This will enable the reader to place the current valuation results in better perspective.
- Provide the sources of the actuarial liability gains and losses to enable the reader to understand why the liabilities and contributions have changed from the prior valuation.
- Disclose the characteristics of the new entrant population for funds that provide open group projections.
- Disclose the rates for death in service.
- Disclose the retirement age for members who terminated and are eligible for benefits but who have not commenced benefits.
- Disclose the administrative expense assumption.
- Disclose the assumptions used for missing data.
- Disclose the liability load for death benefits for dependent children.

GASB 67 and 68

Cheiron reviewed the assumptions and methods used in the GASB 67 and 68 disclosures for the four funds we replicated, including the determination of the discount rate.

The liabilities were determined based on the Entry Age Normal funding method which is required under GASB 67 and 68.

The discount rates used to determine the liabilities were based on the procedures set forth in paragraphs 39-45 of GASB 67. For Huntington Fire, Parkersburg Fire and Vienna Police, the discount rates used were equal to the long term rate of return on assets. For Charleston Police, the single equivalent discount rate used was 3.8228% and was based on the Bond Buyer 20-Bond GO Index of 2.85% as of June 30, 2016 for benefits paid from the pay-as-you-go Benefit Account, a long term rate of return of 4.5% for benefits paid from the Accumulation Account before 2046 and 6.0% for benefits paid out of the Accumulation Account after 2046. The long term rate of return of 6.0% assumes assets in the Accumulation Account will be invested in a portfolio with 40% to 50% in equities by 2046.

Based on our review, we find the assumptions and methods reasonable and in compliance with GASB 67 and 68.

APPENDIX A – FUNDING POLICIES

FUNDING POLICIES
(Reproduced from GRS's Consolidated Actuarial Study as of July 1, 2015)

The four funding policies available to fund sponsors are summarized below:

- West Virginia Code §8-22-20(c)(1) defines the Standard funding policy. Under this policy, employer contributions equal the net employer normal cost, plus an amortization of the unfunded actuarial liability, and less the State premium tax allocation applicable to the plan year. The amortization is based on a 40-year closed period from July 1, 1991, using a level dollar amortization (16 years remaining as of July 1, 2015). The Standard funding policy is consistent with generally accepted actuarial standards of practice .

- West Virginia Code §8-22-20(c)(1) defines the Alternative funding policy. Under this policy, employer contributions equal 107% of the prior year's employer contribution. The Alternative funding policy is not consistent with generally accepted actuarial standards of practice because the policy does not reflect emerging experience gains and losses, and may not produce an actuarially sound pattern of contributions or funded ratio.

- West Virginia Code §8-22-20(e)(1) defines the Optional funding policy, which allows plan sponsors, using either the Standard funding policy or Alternative funding policy, to close the current local Plan, and finance obligations on an actuarially determined basis as follows: The actuarially determined employer contribution is equal to the net employer normal cost, plus an amortization of the unfunded actuarial liability, less the State premium tax allocation applicable to the plan year. The closed amortization period as of July 1, 2015, is 16 years for sponsors who previously used the Standard funding policy and 34.5 years for sponsors who previously used the Alternative funding policy. Members hired after the adoption date of the Optional funding policy are covered in the statewide pension plan – The Municipal Police Officers and Firefighters Retirement System.

- West Virginia Code §8-22-20(f)(1) defines the Conservation funding policy, which allows plan sponsors using the Alternative funding policy, to close the current local plan, and finance obligations on a pay-as-you-go basis. Sponsors using the Conservation funding policy are required to assign a portion of the State premium tax allocation and member contributions to an accumulation account that is projected to grow to 100% of the remaining actuarial liabilities at the end of a 35-year projection period. Members hired after the adoption date of the Conservation funding policy are covered in the recently established statewide pension plan – the Municipal Police Officers and Firefighters Retirement System.

APPENDIX B – INFORMATION RELIED UPON IN PREPARING THIS REPORT

- West Virginia Code Applicable to the Municipal Pensions Oversight Board:

- Files received from MPOB (either directly or from the website):

    - Gabriel Roeder & Smith 2013, 2014 and 2015 Consolidated Actuarial Valuation Reports
    - Gabriel Roeder & Smith 2014 and 2015 Actuarial Valuation Reports for Charleston Police, Huntington Fire, Parkersburg Fire and Vienna Police
    - Gabriel Roeder & Smith June 30, 2016 GASB 67 and 68 Reports
    - Gabriel Roeder & Smith 2016 Experience Review for the Years July 1, 2009 to July 1, 2014
    - Valuation data for the 2015 actuarial valuations
    - Assets as of June 30, 2015

- Files received from Gabriel Roeder & Smith:

    - Census data for the July 1, 2015 actuarial valuations
    - Sample test lives for the 2015 actuarial valuations
    - Projections of benefit payments and payroll as of July 1, 2015 for Charleston Police, Huntington Fire, Parkersburg Fire, and Vienna Police.
    - Assets as of June 30, 2015 for Charleston Police, Huntington Fire, Parkersburg Fire, and Vienna Police.

- Other:

    - December 2016 *National Conference on Public Employees Retirement Systems* (NCPERS) Public Retirement Systems Study
    - February 2017 Survey published by the National Association of State Retirement Agencies (NASRA)
    - June 2015 *Old-Age, Survivors and Disability Insurance Trustees Report* (OASDI)

APPENDIX C – GLOSSARY OF TERMS

1. **Actuarial Assumptions**

   Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, investment income, and salary increases. Demographic assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

2. **Actuarial Gain (Loss)**

   The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial funding method.

3. **Actuarial Liability**

   The Actuarial Liability is the present value of all benefits accrued as of the valuation date using the methods and assumptions of the valuation. It is also referred to by some actuaries as the "accrued liability" or "actuarial accrued liability."

4. **Actuarial Present Value**

   The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

5. **Actuarial Value of Assets**

   The Actuarial Value of Assets equals the Market Value of Assets adjusted according to the smoothing method. The smoothing method is intended to smooth out the short-term volatility of investment returns in order to stabilize contribution rates and the funded status.

6. **Actuarial Cost Method**

   A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future fund benefits" between the actuarial present value of future normal costs and the actuarial liability. It is sometimes referred to as the "actuarial funding method."

APPENDIX C – GLOSSARY OF TERMS

7. Funded Status

The Actuarial Value of Assets divided by the Actuarial Liability. The Funded Status can also be calculated using the Market Value of Assets. In this case, the Actuarial Value of Assets is equal to the Market Value of Assets.

8. Governmental Accounting Standards Board

The Governmental Accounting Standards Board (GASB) defines the accounting and financial reporting requirements for governmental entities. GASB Statement No. 67 defines the plan accounting and financial reporting for governmental pension plans, and GASB Statement No. 68 defines the employer accounting and financial reporting for participating in a governmental pension plan.

9. Market Value of Assets

The fair value of the Fund's assets assuming that all holdings are liquidated on the measurement date.

10. Normal Cost

The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. It is sometimes referred to as "current service cost." Any payment toward the unfunded actuarial liability is not part of the normal cost.

11. Present Value of Future Benefits

The estimated amount of assets needed today to pay for all benefits promised in the future to current members of the Fund, assuming all Actuarial Assumptions are met.

12. Present Value of Future Normal Costs

The Actuarial Present Value of retirement system benefits allocated to future years of service.

13. Unfunded Actuarial Liability (UAL)

The difference between the Actuarial Liability and the Actuarial Value of Assets. This is sometimes referred to as the "unfunded accrued liability."

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June 23, 2017

Mr. Blair M. Taylor
Executive Director
Municipal Pensions Oversight Board
301 Eagle Mountain Road, Suite 251
Charleston, WV 25311

CONFIDENTIAL

Subject: Actuarial Audit – July 1, 2015, Actuarial Valuations

Dear Blair:

In accordance with your request, we have reviewed Cheiron's draft report of the Actuarial Audit of the Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia which includes an audit of the July 1, 2015, actuarial valuations produced by GRS.

We appreciate the opportunity to respond to Cheiron's report.

In general, we agree with most of Chieron's recommendations. Following are Cheiron's key recommendations and our responses.

On pages 2 and 3 of their draft report, Cheiron recommends that GRS include more disclosure for the following items in future actuarial valuation reports:

1. Determination of administrative expense assumption.
2. Assumptions used for service related deaths.
3. Retirement assumptions used for deferred vested members.
4. Rationale of 12% load applied to death benefit liability to account for death benefits provided to dependent children.
5. Assumption for missing census data.
6. Assumptions used to project data for the open group valuations.

We agree with Cheiron's preceding recommendations and will add additional disclosures to our July 1, 2016, actuarial valuation reports.

On page 23 of their draft report, Cheiron recommends that: "The Board's actuary should analyze the administrative expense assumptions in the next experience review and have a uniform approach for setting this assumption for all 53 municipal funds. This assumption should be disclosed in future communications." We agree with Cheiron's recommendation and will review the administrative expense assumption.

On page 24 of their draft report, Cheiron recommends that: "The Board's actuary should review the data in the next experience review to determine the number of deaths that are service related." We agree with Chieron's comment and will request data on duty and non-duty related deaths. However, given the small size of the group, this data may not be entirely credible.

On page 25 of their draft report, Cheiron comments on the 90% married assumption and females being three years younger assumption and recommends that: "The Board's actuary should look at this assumption in the next experience review and also determine if the same assumption should be used for both male and female members." We will review the experience between male and female members. However, given the low number of female plan members the data may not be entirely credible.

On page 26 of their report, Cheiron recommends that future actuarial valuation reports include: "historical trend graphs of membership, assets, liabilities, funded ratios and employer contributions." Our actuarial valuation reports include comparative information for the prior plan year. Including historical trend information for each plan would take a considerable amount of additional effort and expense.

On page 26 of their report, Cheiron recommends that future actuarial valuation reports: "provide the sources of actuarial liability gain and losses." Our valuation shows gains and losses due to investment performance and aggregate demographic experience. Including experience gains and loss by source - such as retirement, termination, disability and death – for each plan would take a considerable amount of additional effort and expense. Also, given the small size of certain plans, this information may not be as useful when compared to larger plans.

Again, we appreciate the opportunity to respond to Cheiron's draft report. Please let us know if you have any questions or comments.

Sincerely,

Alex Rivera

Alex Rivera, FSA, EA, MAAA, FCA
Senior Consultant

Daniel J. Siblik ASA, EA, MAAA, FCA
Consultant

cc: Lance J. Weiss, Gabriel, Roeder, Smith & Company

West Virginia Municipal Pensions Oversight Board

CHEIRON

Classic Values, Innovative Advice

Actuarial Audit of the Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia

August 2, 2017

Janet Cranna, FSA, FCA, EA, MAAA
Kevin Woodrich, FSA, EA, MAAA

Today's Discussion

- Background
- Summary of Key Findings
  - Valuation Reports
  - Projections
  - Experience Review

Background

- Cheiron was retained to perform an actuarial audit of the 2015 annual valuations and the most recent experience review
- Full replication of four funds
  - Charleston Police - Conservation Funding Policy
  - Huntington Fire – Optional Funding Policy
  - Parkersburg Fire – Alternative Funding Policy
  - Vienna Police – Standard Funding Policy
- 17 sample test lives covering actives, retired and terminated vested members

Summary of Key Findings

Valuation Reports

Calculations and Results

- In general, we found that based on the adopted assumptions and methods (absent the exception below) used in the 2015 actuarial valuations, GRS's calculations are generally sound and reasonable and conform to the ASOPs
- However, we find that the Alternative and Conservation funding policies, as defined by West Virginia Code 8-22-20, are not consistent with the ASOPs since they do not provide any mechanism to pay off the unfunded actuarial liability (UAL) over a reasonable period of time
  - Risk that funds using these funding policies may become unsustainable over time

Calculations and Results

- Based on the replications and sample test lives, we found no reason to question the reliability of the valuation results related to the application of the stated fund provisions, assumptions and methods
  - However, GRS should clarify a few assumptions in their reports which they stated they will do in their June 23 response letter

Funding Policy Objectives

- Accumulate enough assets during a member's employment to finance the benefits the member receives throughout retirement
- Maintain an increasing funded ratio
- Meet liquidity demands

Funding Policy Compliance

- Standard (5 Plans) and Optional (20 Plans)
  - Complies with ASOPs
- Alternative (26 Plans) and Conservation (2 Plans)
  - Does not comply with ASOPs
    - Does not allocate the actuarial liability to applicable time periods
    - Does not reflect emerging experience gains and losses
    - May not allow the Fund to reach 100% funding over a reasonable period of time

Funding Policy Observations

- Funds using Alternative and Conservation funding policies have lower funding ratios than Funds using Standard and Optional funding policies
- Employer contributions using Alternative and Conservation funding policies continue to increase over time
  - Future contributions may be unsustainable

Risk Disclosure

- GRS adequately discloses the characteristics of the funding policies as required by the ASOPs
- GRS provides both qualitative and quantitative analysis about the risks of the funding policies and their implications on the projected funded status and contributions

Funding Policy Recommendations

- Funding policies under jurisdiction of West Virginia law, not MPOB
- Work with legislature to change funding policies so they are consistent with the ASOPs

Replication

- Cheiron was able to match most of GRS's results within generally acceptable standards (within 5%)

- Slight differences in results are to be expected due to differences in actuarial valuation systems

Replication - Charleston Police

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia
Charleston Police
Summary of July 1, 2015 Valuation Results

	GRS	Cheiron	Ratio
Member Counts			
Actives	121	121	1.00
Retirees	134	136	1.01
Disableds	39	39	1.00
Surviving Spouses	53	52	0.98
Deferred Vesteds	4	4	1.00
Total	351	352	1.00
Payroll	$ 7,194,432	$ 7,194,432	1.00
Annual Benefits	$ 7,069,149	$ 7,076,122	1.00
Assets and Liabilities			
Present Value of Future Benefits	$ 209,924,517	$ 212,258,288	1.01
Actuarial Liability			
Actives	$ 50,749,187	$ 50,769,298	1.00
Inactives	$ 120,685,205	$ 120,991,783	1.00
Total Actuarial Liability	$ 171,434,392	$ 171,761,081	1.00
Market Value of Assets	$ 16,082,384	$ 16,082,384	1.00
Funded Ratio	9.4%	9.4%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 3,808,064	$ 3,580,574	0.94
(b) Expected Employee Contributions	$ 575,555	$ 575,555	1.00
(c) Net Normal Cost = (a)-(b)	$ 3,232,509	$ 3,005,019	0.93
(d) Amortization Payment	N/A	N/A	
(e) State Insurance Premium Tax	$ 1,698,684	$ 1,698,684	1.00
(f) Estimated Benefits and Expenses	$ 7,247,384	$ 7,252,865	1.00
(g) Employer Contribution*	$ 5,992,897	$ 5,975,925	1.00
Funding Policy	Conservation	Conservation	
Interest Rate	4.5%	4.5%	

* Estimated benefit payments plus expenses less 6.5% member contributions and less portion of State Insurance Premium Tax.

Replication - Huntington Fire

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia
Huntington Fire
Summary of July 1, 2015 Valuation Results

	GRS	Cheiron	Ratio
Member Counts			
Actives	83	83	1.00
Retirees	111	113	1.02
Disableds	22	22	1.00
Surviving Spouses	44	43	0.98
Deferred Vesteds	1	1	1.00
Total	261	262	1.00
Payroll	$ 4,135,510	$ 4,135,510	1.00
Annual Benefits	$ 5,489,044	$ 5,459,278	0.99
Assets and Liabilities			
Present Value of Future Benefits	$ 137,153,852	$ 138,037,783	1.01
Actuarial Liability			
Actives	$ 33,301,224	$ 32,938,098	0.99
Inactives	$ 83,460,033	$ 82,966,552	0.99
Total Actuarial Liability	$ 116,761,257	$ 115,904,650	0.99
Market Value of Assets	$ 18,612,247	$ 18,612,247	1.00
Funded Ratio	15.9%	16.1%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 2,126,081	$ 2,097,850	0.99
(b) Expected Employee Contributions	$ 289,486	$ 289,485	1.00
(c) Net Normal Cost = (a)-(b)	$ 1,836,595	$ 1,808,364	0.98
(d) Amortization Payment	$ 5,532,247	$ 5,483,964	
(e) State Insurance Premium Tax	$ 1,135,084	$ 1,135,084	1.00
(f) Employer Contribution *	$ 6,233,758	$ 6,157,244	0.99
Funding Policy	Optional	Optional	
Interest Rate	4.5%	4.5%	

* Unfunded actuarial liability amortized over 34.5 years as of July 1, 2015

Replication - Parkersburg Fire

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia Parkersburg Fire Summary of July 1, 2015 Valuation Results	GRS	Cheiron	Ratio
Member Counts			
Actives	56	56	1.00
Retirees	62	64	1.03
Disableds	13	13	1.00
Surviving Spouses	25	22	0.88
Deferred Vesteds	0	0	1.00
Total	156	155	0.99
Payroll	$ 2,774,192	$ 2,773,615	1.00
Annual Benefits	$ 2,720,660	$ 2,759,531	1.01
Assets and Liabilities			
Present Value of Future Benefits	$ 71,729,459	$ 72,119,075	1.01
Actuarial Liability			
Actives	$ 19,134,262	$ 19,071,141	1.00
Inactives	$ 40,643,413	$ 39,882,457	0.98
Total Actuarial Liability	$ 59,777,675	$ 58,953,598	0.99
Market Value of Assets	$ 12,190,212	$ 12,190,212	1.00
Funded Ratio	20.4%	20.7%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 1,305,179	$ 1,274,134	0.98
(b) Expected Employee Contributions	$ 204,042	$ 204,487	1.00
(c) Net Normal Cost = (a)-(b)	$ 1,101,137	$ 1,069,647	0.97
(d) Amortization Payment	N/A	N/A	
(e) State Insurance Premium Tax	$ 654,545	$ 654,545	1.00
(f) Employer Contribution *	$ 2,568,735	$ 2,568,735	1.00
Funding Policy	Alternative	Alternative	
Interest Rate	5.0%	5.0%	

* 107% of prior year's contribution

Replication - Vienna Police

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia
Vienna Police
Summary of July 1, 2015 Valuation Results

	GRS	Cheiron	Ratio
Member Counts			
Actives	18	18	1.00
Retirees	8	8	1.00
Disableds	4	4	1.00
Surviving Spouses	1	1	1.00
Deferred Vesteds	0	0	1.00
Total	31	31	1.00
Payroll	$ 868,395	$ 868,313	1.00
Annual Benefits	$ 401,520	$ 401,055	1.00
Assets and Liabilities			
Present value of Future Benefits	$ 11,939,681	$ 11,966,363	1.00
Actuarial Liability			
Actives	$ 4,234,548	$ 3,917,969	0.93
Inactives	$ 5,215,726	$ 5,096,027	0.98
Total Actuarial Liability	$ 9,450,274	$ 9,013,996	0.95
Market Value of Assets	$ 6,594,688	$ 6,594,688	1.00
Funded Ratio	69.8%	73.2%	
Contributions FY 2017			
(a) Gross Normal Cost (incl expenses)	$ 275,760	$ 272,143	0.99
(b) Expected Employee Contributions	$ 65,174	$ 65,593	1.01
(c) Net Normal Cost = (a)-(b)	$ 210,586	$ 206,550	0.98
(d) Amortization Payment	$ 283,286	$ 240,005	0.85
(e) State Insurance Premium Tax	$ 176,783	$ 176,783	1.00
(f) Employer Contribution = (c)+(d)-(e) *	$ 317,089	$ 269,772	0.85
Funding Policy	Standard	Standard	
Interest Rate	6.5%	6.5%	

* Unfunded actuarial liability amortized over 16 years as of July 1, 2015

Replication Comments

- Participant counts slightly different
  - Cheiron included alternate payees in retiree counts
  - Cheiron's surviving spouses does not include child dependents who are beyond last payment age

Replication Comments

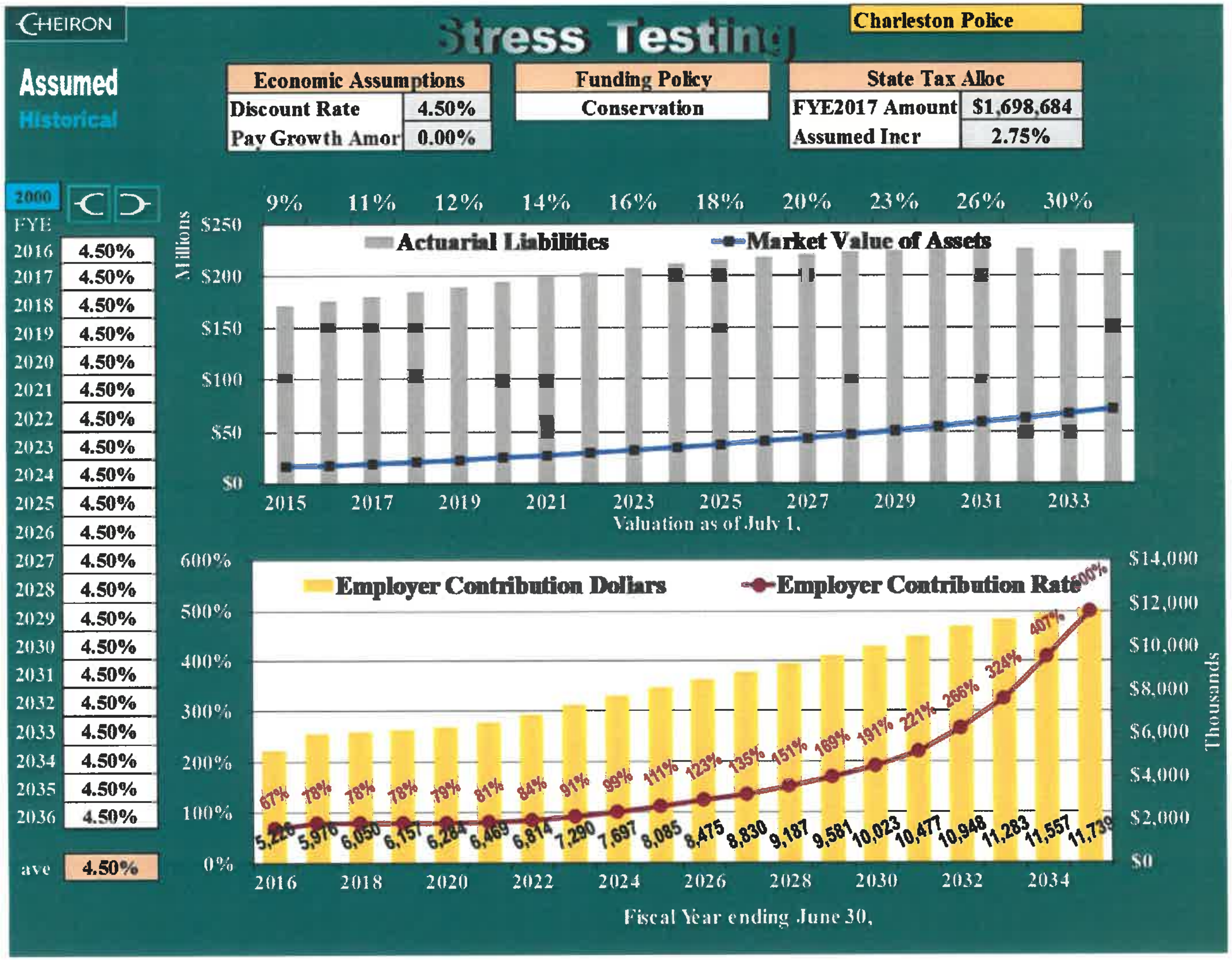
- Cheiron's results showed slightly lower normal cost for Charleston Police
  - However, employer contributions based on pay-as-you-go and Cheiron was within 1% of GRS's employer contribution results
- Cheiron's results showed a slightly lower employer contribution for Vienna Police
  - Due to Cheiron's actuarial liability being slightly lower than GRS but still within a reasonable range
  - Difference in actuarial liability is exaggerated though in calculation of employer contribution

Projections

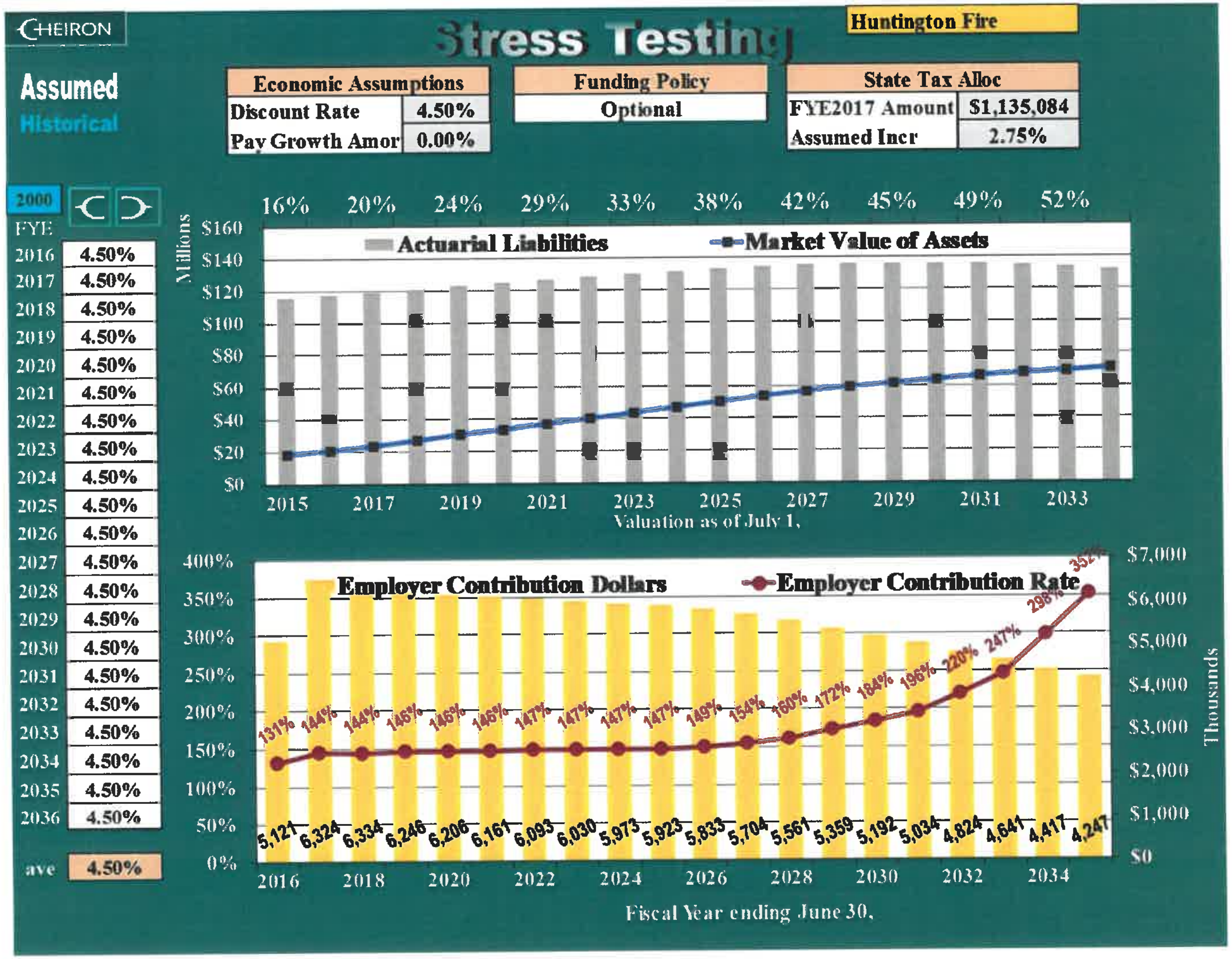
- Illustrate trends under the different funding policies

- Determined that GRS's projections shown in valuation report are reasonable

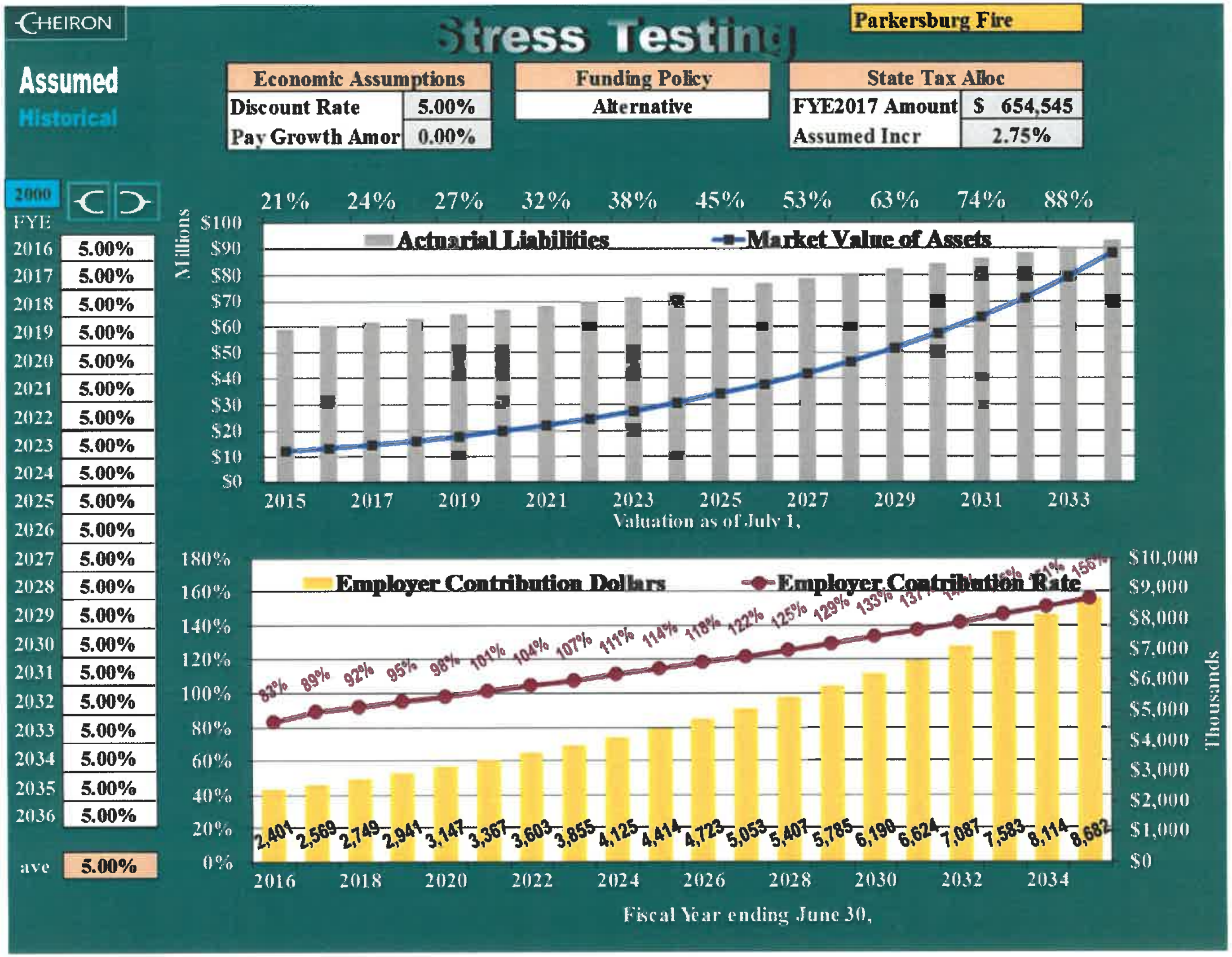
Charleston Police – Conservation, 4.5%



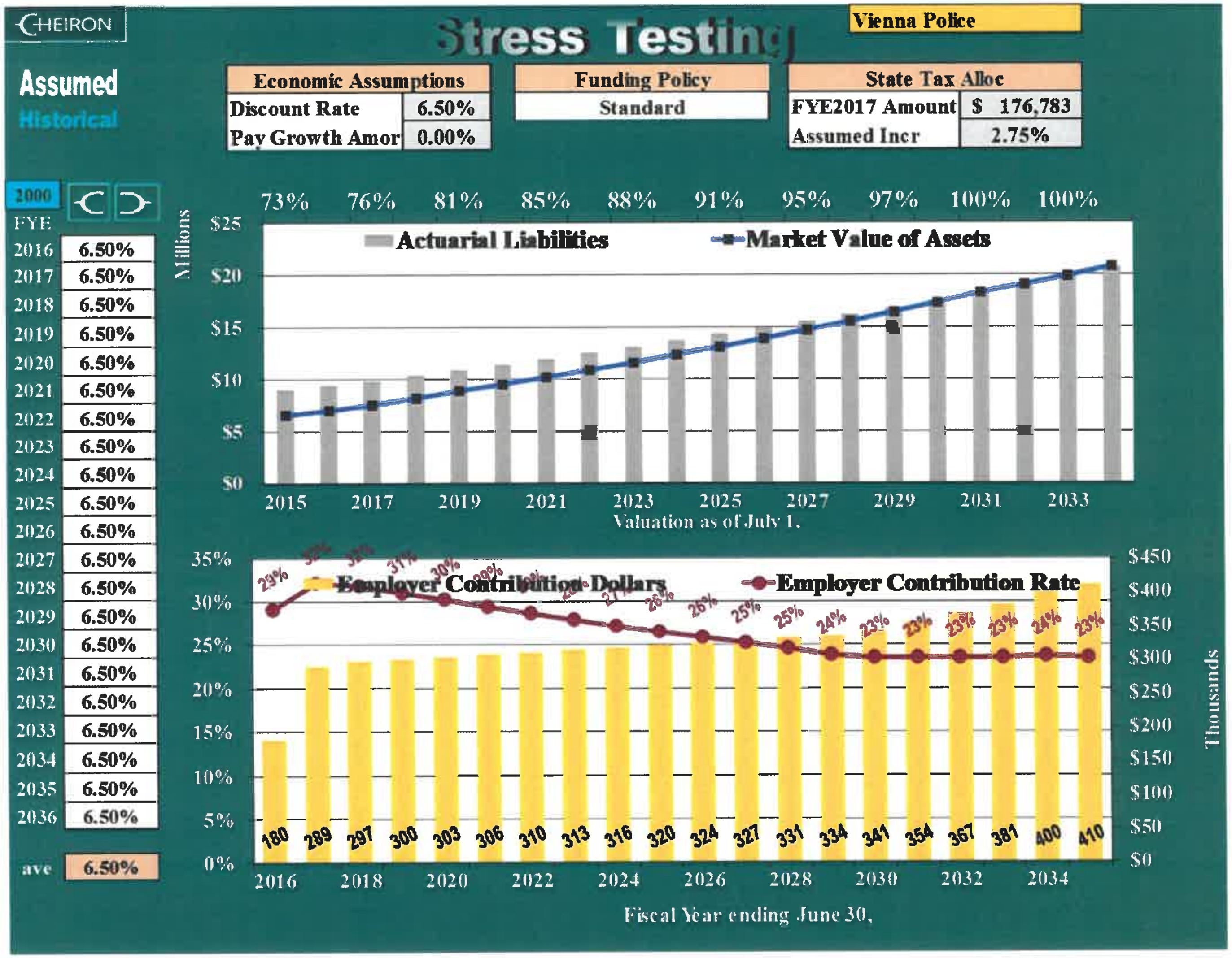
Huntington Fire – Optional, 4.5%



Parkersburg Fire – Alternative, 5.0%



Vienna Police – Standard, 6.5%



Valuation Report Recommendations

- Enhance the executive summary and provide historical trends to put the current results in perspective
- Provide sources of actuarial liability gains and losses to show why liabilities have changed from the prior valuation
  - Gives early indication if certain assumptions may need to be modified
- Disclose the characteristics of the new entrant group for open projections
- Disclose the rates of death in service

Report Recommendations

- Disclose the retirement age for members who terminated and are eligible for benefits, but who have not commenced benefits
- Disclose the administrative expense assumption and consider a uniform assumption in the future
- Disclose the assumptions used for missing data
- Disclose the liability load for death benefits for dependent children

GASB 67 and 68

- Liabilities based on entry age normal
- Discount rate based on GASB 67 methodology
  - Huntington Fire, Parkersburg Fire and Vienna Police based on long term rate of return.
  - Charleston Police used a single equivalent discount rate of 3.8%
    - Bond Buyer 20-Bond GO Index of 2.85% for benefits paid from the pay-as-you-go Benefit Account.
    - Long term rate of return of 4.5% for benefits paid from Accumulation Account before 2046 and 6.0% thereafter
- Methods and assumptions are reasonable and in compliance with GASB 67 and 68

Summary of Key Findings

Experience Review

General Conclusions

- In general, we found that the recommended assumptions are reasonable and meet the requirements of the ASOPs

Interest Rate Methodology

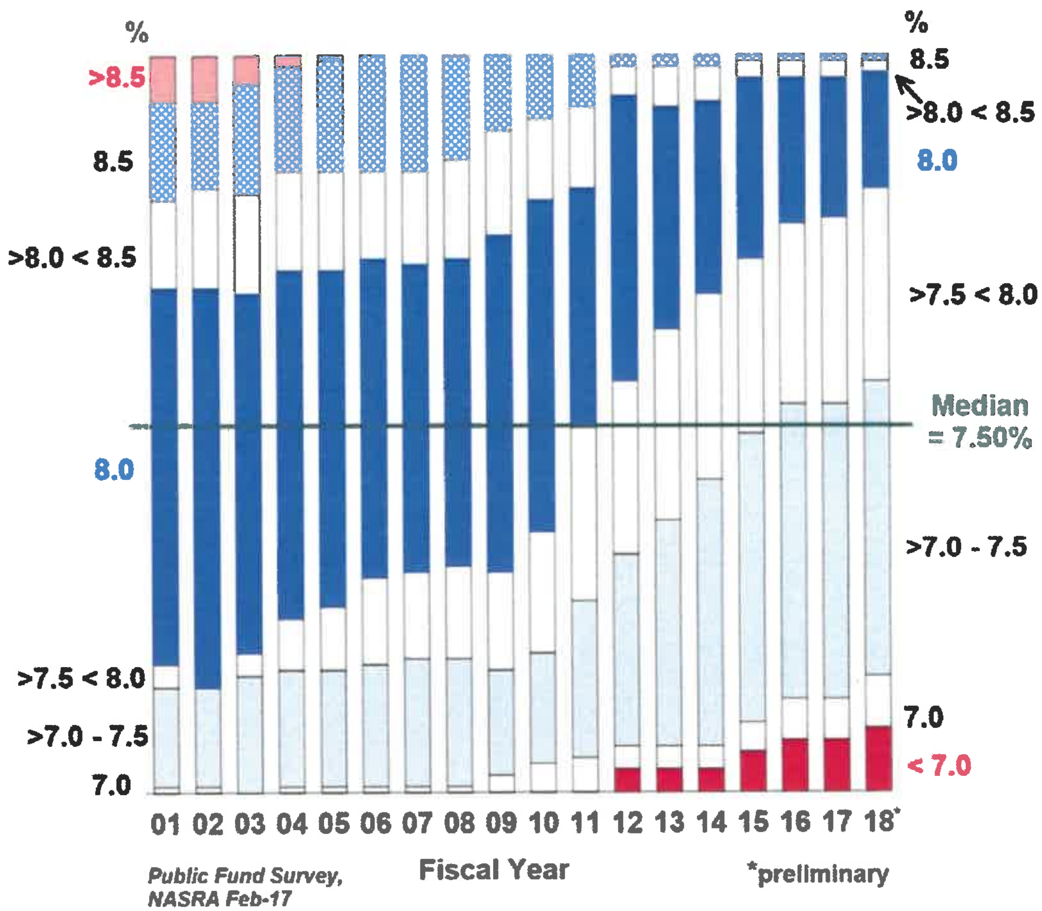
- Interest rate ranges from 4.0% to 6.5% (with the exception of one fund which uses 7.0%)
- Interest rate based on
  - Funded ratio at valuation date
  - Liquidity ratio
  - Equity exposure
  - Projected funded ratio

Interest Rate Methodology

- Determination of interest rate is reasonable and complies with ASOP No. 27
  - Reflects market data
  - Reflects each funds specific characteristics that would impact the investment rate of return

NASRA Investment Return

- Since 2009, many plans have reduced their investment return assumption
- As of the most recent data, the average assumption was 7.52%
- The number of plans assuming 7.5% or lower has increased significantly



Payroll Growth and Salary Increase

- Payroll growth assumption was reduced from 4.00% to 3.75% to reflect the reduction in the inflation assumption
- Individual salary increases for merit, longevity and promotion are based on service and range from 20% to 0%
- These assumptions are reasonable based on the data

Administrative Expenses

- Not addressed in the experience study or valuation report
- Additional information received from GRS showed different methodologies to determine the administrative expense assumption
  – Charleston Police – 3-year average
  – Huntington Fire – 25% of the 3-year average
  – Parkersburg Fire – 0.4% of total normal cost
  – Vienna Police – 1.0% of total normal cost

Administrative Expenses

- GRS should analyze this assumption in the next experience review
- Consider having a uniform approach for setting this assumption
- Disclose this assumption in future actuarial communications

Demographic Assumptions

- In general, we agree with GRS's recommended assumptions and comply with ASOP No. 35
- Data for all 53 funds was aggregated for the experience review
  - Assumptions typically based on each fund's specific experience since these funds are not cost sharing funds
  - Due to small size of funds, there may not be sufficient credible data

Demographic Assumptions

- Healthy mortality is based on the RP-2014 Blue Collar Healthy Mortality Table projected generationally with MP-2014
  - Society of Actuaries has developed subsequent mortality improvement scales (MP-2015 and MP-2016) which provide for lower future mortality improvement
  - Society of Actuaries is developing a mortality table based solely on public plan data (expected to be released in 2018)
  - Consider the above in the next experience review

Demographic Assumptions

- There are several assumptions for which no analysis is provided or disclosed
  - Retirement age for members who terminated and are eligible for benefits but who have not commenced benefits
  - Liability load for death benefits for dependent children
  - Rates of death in service
  - Percent married
  - Assumptions used for missing data
  - Characteristics of the new entrant group for open projections

Reliance

In preparing this presentation, we relied on information supplied by WV MPOB and GRS.

To the best of our knowledge, this presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

Cheiron's presentation was prepared exclusively for the West Virginia Municipal Pensions Oversight Board for the purposes described herein. Other users of this presentation are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Janet Cranna, FSA, FCA, EA, MAAA
Principal Consulting Actuary

Kevin Woodrich, FSA, EA, MAAA
Principal Consulting Actuary

State of West Virginia
Agency Contract

Order Date: 2017-03-21

CORRECT ORDER NUMBER MUST APPEAR ON ALL PACKAGES, INVOICES, AND SHIPPING PAPERS. QUESTIONS CONCERNING THIS ORDER SHOULD BE DIRECTED TO THE DEPARTMENT CONTACT.

Order Number:	ACT 0946 0946 MPO1700000001
Procurement Folder:	267330
Document Name:	Actuarial Audit Services
Reason for Modification:	
Document Description:	Actuarial Audit- Professional Services
Procurement Type:	Agency Contract - Fixed Amt
Buyer Name:	Karen LeAnne Neccuzi
Telephone:	(304) 356-2422
Email:	leanne.k.neccuzi@wv.gov
Shipping Method:	Best Way
Effective Start Date:	2017-02-28
Free on Board:	FOB Ship Pt, Freight Prepaid
Effective End Date:	2018-02-27

VENDOR	DEPARTMENT CONTACT
Vendor Customer Code: VS0000011435 Cheiron Inc 1750 Tysons Blvd Ste 1100 McLean VA 22102 US **Vendor Contact Phone:** (703) 893-1456 **Extension:** 1024 **Discount Percentage:** 0.0000 **Discount Days:** 0	**Requestor Name:** Blair Taylor **Requestor Phone:** (304) 356-2422 **Requestor Email:** blair.m.taylor@wv.gov

INVOICE TO	SHIP TO
ADMINISTRATIVE ASSISTANT 304-356-2422 MUNICIPAL PENSIONS OVERSIGHT BOARD 301 EAGLE MOUNTAIN ROAD, SUITE 251 CHARLESTON WV 25311 US	ADMINISTRATIVE ASSISTANT 304-356-2422 MUNICIPAL PENSIONS OVERSIGHT BOARD 301 EAGLE MOUNTAIN ROAD CHARLESTON WV 25311 US

Total Order Amount:	$80,000.00

DEPARTMENT AUTHORIZED SIGNATURE

SIGNED BY: Blair Taylor

DATE: 2017-03-21

ELECTRONIC SIGNATURE ON FILE

Extended Description:

Actuarial Audit Services MPO1700000001/MPOB#1297 for one year with no option for renewal.

Line	Commodity Code	Quantity	Unit	Unit Price	Total Price
1	80101512	0.00000			$80,000.00

Service From	Service To	Manufacturer	Model No	Delivery Date
2017-02-28	2018-02-27			02/27/18

Commodity Line Description: Actuarial consulting services

Extended Description:

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

AGREEMENT

WEST VIRGINIA MUNICIPAL PENSIONS OVERSIGHT BOARD

and

CHEIRON, INC.

THIS AGREEMENT (Agreement) made this 28th day of February, 2017, is between the **WEST VIRGINIA MUNICIPAL PENSIONS OVERSIGHT BOARD** (MPOB), Charleston, West Virginia, and **CHEIRON, INC.** (CHEIRON), 1750 Tysons Boulevard, Suite 1100, McLean, VA 22102.

WHEREAS, Pursuant to the provisions of *W. Va. Code §* 8-22-18a(b)(6), the MPOB is exempt from provisions of article three, chapter five-a of the Code for the purpose of contracting for actuarial services, including the services of a reviewing actuary and pursuant to the provisions of *W. Va. Code §* 8-22-20(a), the MPOB shall contract with or employ a qualified actuary to annually prepare an actuarial valuation report on each pension and relief fund. The selection of contract vendors to provide actuarial services, including the reviewing actuary as provided in subsection (c) of this section, shall be by competitive bid process but is specifically exempt from purchasing provisions of article three, chapter five-a of the Code and pursuant to the provisions of *W. Va. Code §* 8-22-20(c)(5), the oversight board shall hire an independent reviewing actuary to perform an actuarial audit of the work performed by the qualified actuary no less than once every seven years; and

WHEREAS, on or about October 27, 2016, the MPOB issued Request for Proposal MPO1700000003 MPOB#1297 soliciting proposals from qualified actuarial consultants pursuant to **West Virginia Code** §8-22-20(c)(5) to procure the services of a qualified actuarial firm to perform a level one, full-scope actuarial audit and evaluation of the actuarial services provided to the MPOB by its current actuarial consultant, Gabriel Roeder Smith & Company hereinafter referred to as "GRS". The audit will include an evaluation of the reasonableness and accuracy of GRS's most recent valuations (including actuarial accrued liabilities), experience studies and employer contribution rate recommendations. The audit will result in a written report that provides a detailed evaluation of the services provided by GRS; express an actuarial opinion regarding the reasonableness, accuracy and actuarial methods; and makes any recommendations for improvements by MPOB or its actuarial consultant; and

WHEREAS, in response to RFP MPO1700000003 MPOB#1297, CHEIRON submitted a proposal dated December 15, 2016, offering services as the primary provider of the services desired (CHEIRON proposal); and

WHEREAS, the CHEIRON Proposal received the highest total point score in the evaluation of all proposals received by the MPOB as described in RFP MPO1700000003 MPOB#1297; and

WHEREAS, the parties now desire to formalize the terms and conditions of their agreement for such services.

NOW THEREFORE, THIS AGREEMENT, WITNESSETH:

That for and in consideration of the terms included herein, the parties do hereby covenant and agree as follows:

PART I – SPECIFIC CONTRACT TERMS

1-1. AGREEMENT:

a. As reflected in the Purchase Order, the contract between the parties in its entirety consists of the following documents, in the order listed:
   1. This Agreement;
   2. RFP MPO1700000003 MPOB#1297 and Addendum No. 1 issued November 18, 2016, by reference;
   3. CHEIRON Proposal, by reference; and
   4. CHEIRON's Attachment C: Cost Sheet.

b. Any ambiguities or questions shall be resolved by reference to the documents in the order listed in this Section, unless otherwise specified in this Agreement.

1-2. SERVICES:

a. CHEIRON agrees to provide the level one, full-scope actuarial audit and evaluation of the actuarial services provided to the MPOB by is current actuarial consultant and described in the RFP MPO1700000003 MPOB#1297, reference to which is hereby made and incorporated herein.

b. The MPOB reserves the right to alter, modify, eliminate, add, change, and amend the Services as mutually agreed between MPOB and CHEIRON to reflect the needs of the MPOB. The parties shall comply with all applicable federal and state laws, rules, regulations, and policies. The MPOB reserves the right to unilaterally accept, reject, cancel, prohibit or stop any and all work performed under this Agreement without penalty with thirty (30) days written notice to CHEIRON.

1-3. ACTUARIAL AUDIT AND EVALUATION TIMELINE:

a. As stated in RFP MPO1700000003 MPOB#1297, CHEIRON agrees to provide the actuarial audit and evaluation by
   i. Reviewing Data – Cheiron will review both raw data from municipal pensions as well as processed data used by GRS. Cheiron will comment on the degree to which the data is sufficient to support the conclusions in the valuation report.

ii. Reviewing Actuarial Assumptions – Cheiron will collect the full set of actuarial assumption tables from GRS to compare to those reported in the valuation and experience study reports. The review will conform to the standards set forth in Actuarial Standard of Practice (ASOP) #35 and #27.
iii. Reviewing for Compliance – Cheiron will test to see if the actuarial methods conform to ASOP where they are not otherwise prescribed by law, as well as being consistent with the benefit structure of the plans and the objectives of the MPOB and the employers.
iv. Reviewing and Analysis of Valuation Reports Including Methods – Cheiron will perform the review and analysis using its proprietary P-Scan to perform the review and analysis.
v. Preparation and Delivery of Final Report – Cheiron will provide a full audit report, a PowerPoint presentation for the MPOB Board members, and will use the P-Scan model to provide as assessment of the plan's risks and how to minimize and mitigate the risks.

b. Cheiron will complete the project within 20 weeks.

1-4. **TERM**:

This Agreement will be effective upon award and shall terminate once the final report has been formally accepted by the members of the MPOB. In no case shall the agreement extend beyond a one (1) year period. This Agreement is subject to the general termination and extension rights reserved to the MPOB in this contract.

1-5. **COMPENSATION**:

Pursuant to section Attachment C Cost Sheet of RFP MPO1700000003 MPOB#1297, CHEIRON shall be compensated for the Services it provides as specified on Cost Sheet C, attached hereto and made a part hereof and included as Exhibit B to this Agreement. All billing shall be in arrears and at the conclusion of the project.

1-6. **INSTITUTIONAL REQUIREMENTS**:

a. **Proof of Good Standing and Authorization to do Business**: CHEIRON agrees to remain in good standing with all regulatory and governmental entities and be authorized to do business in West Virginia. The MPOB reserves the right to request copies of all required business licenses, certificates, registrations, and declarations pages demonstrating applicable insurance coverage, including but not limited to, workers compensation, premises, professional liability, omissions and errors and general liability.

b. **Insurance Requirements**: CHEIRON agrees that it will hold and maintain general liability insurance policies in an amount of $500,000 or more. Such coverage shall remain in effect during the entire term of this Agreement unless otherwise advised in writing by the MPOB. CHEIRON agrees to provide copies of its insurance certificates to the MPOB prior to the execution of this Agreement.

1-7. MANDATORY REQUIREMENTS:

a. **Qualified Actuaries**: CHEIRON shall provide only "qualified actuaries" for this project. A "Qualified Actuary" means only an actuary who is a member of the Society of Actuaries or the American Academy of Actuaries. CHEIRON stated in its response (page 19) to RFP MPO1700000003 MPOB#1297 that each of the four actuaries assigned to the engagement are "qualified actuaries".

b. **Previous Public Sector Audit Experience within the last two years**: CHEIRON listed nine (9) separate pension systems it had performed actuarial audits for within the last two years in its response (page 19) to RFP MPO1700000003 MPOB#1297.

PART 2 – GENERAL CONTRACT TERMS AND CONDITIONS

a. **Mandatory Forms**: CHEIRON, its agents, employees and subcontractors, agree to be bound by the terms and conditions of all other applicable forms required by the MPOB and/or the State of West Virginia, including, but not limited to, the Purchasing Affidavit and the WV-1 Vendor Registration form.

b. **General Terms and Conditions**: In addition to the mandatory forms, CHEIRON agrees to be bound by Section Three of RFP MPO1700000003 MPOB#1297, attached hereto as Exhibit A, unless otherwise modified in this Agreement.

WITNESS THE FOLLOWING SIGNATURES:

Cheiron	**Municipal Pensions Oversight Board**
By: PRHardcastle	**By:** [signature]
Title: VP & CFO	**Title:** Executive Director
Date: 2/27/2017	**Date:** 2/28/2017

EXHIBIT A

RFP MPO1700000003 MPOB#1297, Section Three

SECTION THREE: GENERAL TERMS AND CONDITIONS

1. CONTRACTUAL AGREEMENT: Issuance of an Award Document signed by the MPOB and approved as to form by the Attorney General's office, if required, constitutes acceptance of this Contract made by and between the State of West Virginia' Municipal Pensions Oversight Board and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or **"Agencies"** means the Municipal Pensions Oversight Board (MPOB) of the State of West Virginia that is identified on the first page of the Solicitation.

2.2. "Bid" or "Proposal" means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the MPOB and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Award Document" means the document signed by the Agency that identifies the Vendor as the contract holder.

2.5. "Solicitation" means the official notice of an opportunity to supply the State with goods or service that is published by the MPOB.

2.6. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.7. "Vendor" or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

2.8. "Board" means members of the Municipal Pensions Oversight Board.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this contract below:

Term Contract

Initial Contract Term: This Contract becomes effective upon Award and extends for a period of One (1) year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor. Any request for renewal should be submitted to the Agency thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed Twenty Four (24) months in total. Automatic renewal of this Contract is prohibited.

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

[ ] Fixed Period Contract: This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within ________________________ days.

[ ] **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within ________________________ days. Upon completion, the vendor agrees that maintenance, monitoring, or warranty services will be provided for ________________ successive one year periods or multiple periods of less than one year provided that the multiple renewal periods do not exceed ________________ months in total.

[X] **One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one year.

[ ] **Other:** See attached.

4. NOTICE TO PROCEED: Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

[ ] **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

[X] **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

[ ] **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

[ ] **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

7. EMERGENCY PURCHASES: N/A.

8. REQUIRED DOCUMENTS: All of the items checked below must be provided to the Agency by the vendor as specified below.

[ ] **BID BOND:** All Vendors shall furnish a bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

[ ] **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of ________________. The performance bond must be received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

[ ] **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award. In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under $100,000. Personal or business checks are not acceptable.

[ ] **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

[X] **INSURANCE:** The apparent successful Vendor shall furnish proof of the following insurance prior to Contract award and shall list the state as a certificate holder:

[X] **Commercial General Liability Insurance:** In the amount of $500,000 or more.

[ ] **Builders Risk Insurance:** In an amount equal to 100% of the amount of the Contract.

The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed above.

[ ] **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Agency.

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. LIQUIDATED DAMAGES: N/A.

11. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page uploaded as an attachment or attachments in wvOASIS constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

12. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

13. PAYMENT: Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

14. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

15. CANCELLATION: The MPOB reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The MPOB may also cancel any purchase or Contract upon 30 days written notice.

16. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.

17. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

18. COMPLIANCE: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

19. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

20. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary, no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor. No change shall be implemented by the Vendor until such time as the Vendor receives an approved written change order from the MPOB.

21. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

22. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by the Vendor to the MPOB such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of the Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

23. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency and any other government agency or office that may be required to approve such assignments.

24. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

25. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

26. BANKRUPTCY: In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

27. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/default.html.

28. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by Freedom of Information Act West Virginia Code §§29B-1-1 et seq. DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE. Submission of any bid, proposal, or other document to the MPOB constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The MPOB will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code §47-22-1 et seq. All submissions are subject to public disclosure without notice.

29. LICENSING: In accordance with West Virginia Code of State Rules §148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Agency to verify that the Vendor is licensed and in good standing with the above entities.

30. ANTITRUST: In submitting a bid to, signing a contract with, or accepting an Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

31. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

32. PURCHASING CARD ACCEPTANCE: The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

[X] Vendor is not required to accept the State of West Virginia's Purchasing Card as

payment for all goods and services.

33. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

34. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the MPOB, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

35. PURCHASING AFFIDAVIT: Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of $1,000. **The affidavit must be submitted with the Vendor's bid.** A copy of the Purchasing Affidavit is included herewith.

36. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

37. REPORTS: Vendor shall provide the MPOB with the following reports identified by a checked box below:

[ ] Such reports as the MPOB may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

[ ] Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency.

38. BACKGROUND CHECK: In accordance with W. Va. Code §15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry. After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check. Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

EXHIBIT B

CHEIRON Cost Sheet C from RFP MPO1700000003 MPOB#1297

REQUEST FOR PROPOSAL
Municipal Pensions Oversight Board
Requisition No: MPO1700000003 - MPOB# 1297

Attachment C: Cost Sheet

Cost information below as detailed in the Request for Proposal and submitted as a separate file in the cost section of the Vendor response. The Cost File must be titled as stated in Section 5, 3. Attachment C.

The MPOB requests that the cost bid be on a fixed fee basis. The fee shall be inclusive of all expenses and costs associated with providing the services, including travel expenses. Travel will be the sole responsibility of the vendor and will not be reimbursed by the MPOB. Based on the goals and objectives of this RFP, the vendor will develop a set of deliverables in order to establish a progress payment schedule. (See example provided below. Vendor may have more or less deliverables). The cost evaluation will be scored based on the total cost amount.

	Deliverable	% Completed	Amount	Less: 10% Retainage	Invoice Amount
1	Report and Presentation	100%	$80,000	($8,000)	$72,000
2					
3					
4					
5					
	Total	100%	$80,000	($8,000)	$72,000
Final Invoice for Retainage					$8,000
	Total Cost				$80,000

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