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WV Purchasing Division

**ORIGINAL**

**5.3.2. Title Page**

**West Virginia Consolidated  
Public Retirement Board  
(CPRB)**

**Proposal to Provide Outside  
Actuarial Services  
CRFP CPR2300000002**

**Produced by Cheiron  
8300 Greensboro Drive, Suite 800  
McLean, VA 22102**

**Contact**

**Gene Kalwarski  
[gkalwarski@cheiron.us](mailto:gkalwarski@cheiron.us)**

A handwritten signature in black ink, appearing to read "Gene Kalwarski".

**February 28, 2022**

February 28, 2023

Ms. Melissa Pettrey, Senior Buyer  
Department of Administration  
Purchasing Division  
2019 Washington St. E  
Charleston, WV 25305  
[melissa.k.pettrey@wv.gov](mailto:melissa.k.pettrey@wv.gov)

***Re: CRFP CPR2300000002 Outside Actuarial Services***

Dear Ms. Pettrey:

Please find enclosed one (1) original and five (5) copies of Cheiron's technical proposal to provide outside actuarial services to the West Virginia Consolidated Public Retirement Board (CPRB), as well one (1) original and five (5) copies of Cheiron's cost proposal under separate cover.

If you have any questions, please feel free to call.

Sincerely,  
Cheiron

A handwritten signature in blue ink, appearing to read "Elizabeth Wiley".

Elizabeth Wiley, FSA, EA, MAAA, FCA  
Consulting Actuary

Enclosures

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February 28, 2023

Ms. Melissa Pettrey, Senior Buyer  
Department of Administration  
Purchasing Division  
2019 Washington St. E  
Charleston, WV 25305  
[melissa.k.pettrey@wv.gov](mailto:melissa.k.pettrey@wv.gov)

***Re: CRFP CPR2300000002 Outside Actuarial Services***

Dear Ms. Pettrey,

Cheiron is pleased to present this proposal for actuarial and consulting services to the West Virginia Consolidated Public Retirement Board (CPRB).

We are an employee-owned actuarial consulting firm with a reputation for creativity, technological proficiency, and integrity.

### **Public Sector Experience**

Our founding partners have advised public plans since the 1980s, and 30 of our 72 credentialed actuaries have more than 20 years of experience working with public pension plans.

Cheiron has 144 public sector clients and our consultants have advised plans of comparable size and complexity to your retirement systems. We have worked with many of the nation's largest public pension plans, including the retirement systems under the State of New Jersey Division of Pensions and Benefits, the State of Delaware, the Maine Public Employees Retirement System, the Maryland State Retirement and Pension System, the New York State Teachers' Retirement System, the State Teachers Retirement System of Ohio, and the Pennsylvania Municipal Retirement System.

### **Credentials**

Our commitment to providing the highest quality of work begins with encouraging our actuaries to become Fellows of the Society of Actuaries (FSAs), the highest actuarial credential. To advance to the FSA designation from other credentials requires hundreds of extra hours of study, additional examinations, and a specialty track. More than 60% of all our credentialed actuaries are FSAs.

Gene Kalwarski and Elizabeth Wiley are the proposed co-leads and are Fellows of the Society of Actuaries (FSAs) and Enrolled Actuaries under ERISA (EAs), as well as Members of the American Academy of Actuaries (MAAAs) and Fellows of the Conference of Consulting Actuaries (FCAs). Heath Merlak is the proposed project manager and is also a fully credentialed actuary (FSA, EA, and MAAA). Gene, Elizabeth, and Heath all meet the mandatory requirement of a Fellow of the Society of Actuaries and have 10 years of consulting experience with large public pension plans.

Ms. Melissa Pettrey  
February 28, 2023  
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### **Cutting-edge Tools**

Cheiron's founders were among the first in the nation to develop interactive pension modeling tools more than three decades ago. Our proprietary projection tools *P-Scan* and *R-Scan* let us run thousands of simulations to stress test your plan so you are better prepared to manage adverse situations. We can demonstrate the impact of changes on your plan in real time at board meetings, allowing trustees to make informed decisions to manage the financial risks of your plans.

Our consultants work hard at maintaining our leadership in the industry by developing new tools and guidance. In 2022, we published guidance regarding the Low-Default Risk Obligation Measure (LDROM) required by the recent revision of Actuarial Standard of Practice No. 4. Please see our advisory [here](#).

### **Creativity**

Over the years, some of the most troubled pension plans in the country have sought our help due to our reputation for creativity, including the San Diego City Employees' Retirement System, the City of Detroit, the City of Philadelphia Board of Pensions and Retirement, the five large Illinois public employee retirement systems, and the Maine Public Employees Retirement System.

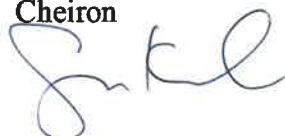
In 2018, the Society of Actuaries recognized Gene Kalwarski and Sandy Matheson, Executive Director of the Maine Public Employees Retirement System, for their paper describing the innovative multiple-employer risk-sharing model they created for MainePERS. The System's implementation of the model ensures the sustainability of the pension plan while managing its risk.

### **Professional Leadership**

Our consultants are active in professional organizations such as the American Academy of Actuaries, the Conference of Consulting Actuaries, and the Society of Actuaries. They speak at industry conferences and also serve on the Pension Committee of the Actuarial Standards Board, the rulemaking body for the actuarial profession. They also volunteer with and speak at conferences of industry organizations such as the National Association of State Retirement Administrators (NASRA), the National Conference on Public Employees Retirement Systems (NCPERS), and the International Foundation of Employee Benefit Plans (IFEBP).

Thank you for considering Cheiron. We are confident we can provide you the best service, and we look forward to answering your questions.

Sincerely,  
Cheiron



Gene Kalwarski, FSA, EA, MAAA, FCA  
CEO and Principal Consulting Actuary



**REQUEST FOR PROPOSAL**  
**WV Consolidated Public Retirement Board (CPRB)**  
**CRFP CPR230000002**

**4.2 Project Goals and Mandatory Requirements: Vendor should describe its approach and methodology to providing the service or solving the problem described by meet the goals/objectives identified below. Vendor's response should include any information about how the proposed approach is superior or inferior to other possible approaches.**

**4.2.1 Goals and Objectives – The project goals and objectives are listed below.**

**4.2.1.1 To procure the services of an actuarial firm with qualified actuaries to prepare the annual July 1st actuarial funding valuation reports for the following defined benefit retirement systems:**

- **Public Employees' Retirement System (PERS)**
- **Teachers' Retirement System (TRS)**
- **Department of Public Safety, Death, Disability and Retirement System (Trooper Plan A)**
- **State Police Retirement System (Trooper Plan B)**
- **Judges' Retirement System (JRS)**

**For the July 1, 2021, Actuarial Funding Valuations for these retirement systems, see the link: <http://www.wvretirement.com/052492FundVa1.html>**

**The TRS valuation must include the development of the State TRS contribution and the School Aid Formula appropriation amounts.**

**All actuarial funding valuation reports must comply with all Actuarial Standards of Practice (ASOPs), including a section regarding ASOP 51 compliance and exhibits displaying the actuarial gain/loss development required by ASOP 4. The data for the actuarial funding valuations will be prepared by the CPRB actuarial group with the outside actuarial team performing a review of the data for consistency and reasonableness. Typically, the CPRB finalizes PERS data around the third week of October, TRS data the second week of November, Trooper Plan A and Trooper Plan B around the first week in December, and JRS by the second week of December. Asset information will be provided by the West Virginia Investment Management Board around the fourth week of September.**

**The consultant must attend a CPRB Board of Trustees' meeting to present the July 1<sup>st</sup> valuation results. Generally, this meeting occurs in mid-January of each year.**

### **Actuarial Valuation**

Our preferred approach to our formal valuation services is as follows.

### **Initial Planning Meeting**

We meet with plan staff in person or in a video meeting before the valuation cycle begins to discuss the agenda for priority items and suggested deadlines for each step of the valuation process. We will share the agenda with your staff in advance. Typically, the agenda will include:

- Identifying key people on your staff and at Cheiron who will be involved in the valuation process. We will share contact information and identify responsibilities.
- Determining if there have been any changes in the plan or funding policy since the prior valuation.
- Reviewing notes made at the end of the prior actuarial valuation regarding specific items to be addressed for the next valuation.
- Discussing timelines and data needed to meet timelines.
- Confirming deliverable dates for the valuation and the date of the Board meeting for presenting the results.

Cheiron's co-lead actuaries and the assigned project manager will attend this meeting.

### **Data Request**

We will prepare an annual data request letter to ensure we receive all the necessary elements to perform the valuations. This will include requests for individual data for each active employee, retiree, disabled retiree, beneficiary, inactive and terminated vested member. We will also request information on any plan changes that have occurred since the prior valuation, any known cost-of-living adjustments that have been calculated but not yet applied to either benefits or salary, and financial information. To assure that the individual data is secure, we use Cheiron's Secure Portal for all data transfer. Alternatively, we can use your portal if you have one.

The project manager will prepare and send the data request. A lead actuary will review the request before it is sent.

### **Data Collection and Data Check**

One of the first steps after receiving the data is to perform an independent check of the census data we obtained from your staff with your database to ensure that we have

both extracted the same total payroll and headcounts.

The last thing we would want is to complete the valuation runs and learn that we either missed data or extracted the incorrect payrolls. After receiving the data, we will discuss any questions with appropriate personnel to make sure we understand what we have received. We will reconcile all the data to the prior year's data and identify any potential data issues.

The assigned analyst and project manager will first review these data questions to determine whether we can resolve any of the issues internally. Only then will we send issues to you that we can't resolve on our own. At this early juncture, we do a broad reasonableness check on the data based on the prior year's totals. We will then perform a final data reconciliation after we receive answers to the data questions from you. The project manager coordinates the data collection and data check and the actuarial analysts assigned to the valuation handle it. The co-lead actuaries discuss any unusual data issues.

### **Analysis**

Once we reconcile the data we will run our valuation systems, incorporate asset information, and analyze results. The project manager is responsible for overseeing this process. The steps in this process are as follows:

- Cheiron uses ProVal for our valuation processing. The first step is to update the ProVal programming for changes which have occurred since the prior actuarial valuation. These could include plan changes or changes in actuarial assumptions or methods.

We then select sample lives to test our programming. Some of these will be the same sample lives used in the prior valuation, and some will be new sample lives. It is important to select sample lives in such a way that we can review all permutations of benefit formulas and eligibility requirements.

- Once we are satisfied that the programming is correct, we will run the data through the valuation. If changes have occurred in either the plan or actuarial assumptions, we will do additional runs to measure the effects of these changes.
- After we have processed the valuation runs, we will then complete gain/loss analysis. The gain/loss analysis determines what has contributed to deviations between the expected results and the actual results. The gain/loss is important not only in communicating the results of the valuation but could also identify an area that warrants further review before finalizing the valuation results.
- We export the results from ProVal to an *Excel* file where we perform the calculations needed for the valuation report. We compare the funded status,



amortization periods, and other statistics to the prior year and check them carefully for accuracy and reasonableness.

- We also export results from ProVal to *P-Scan* so that we can perform liability and cost projections.
- The project manager checks the programming, selects the sample lives, reviews the sample lives, and checks the setup of the cost worksheet and *P-Scan*.
- The co-lead actuaries assure that the sample lives have been programmed properly and carefully check the programming and results in the cost worksheet and *P-Scan*. They will also make any necessary changes to the cost worksheet or *P-Scan*.

### *P-Scan*

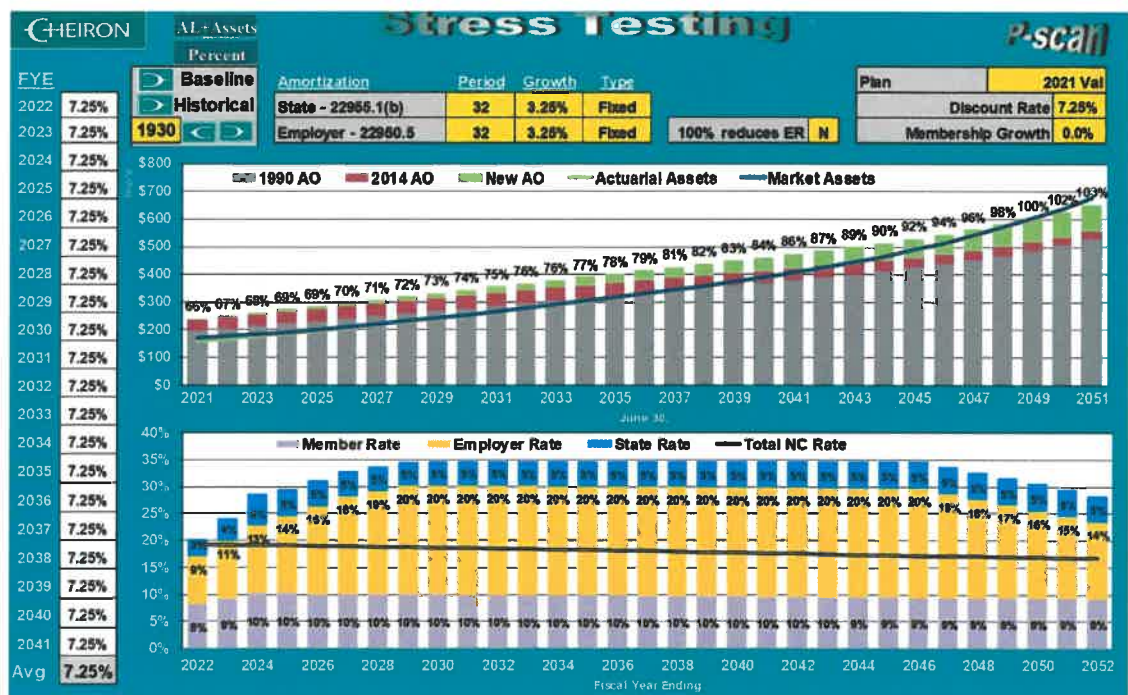
*P-Scan* is our proprietary software that forecasts assets and liabilities based on any user-selected economic scenario. We can also enhance our standard forecasts to include any other projections required, for example, changes in benefits, assumptions, funding methods, and contributions. *P-Scan* can also perform multiple stochastically based forecasts, enabling all our projections to incorporate probabilistic answers.

Our consultants also use *P-Scan* to meet the disclosure of risks as required in ASOP 51. *P-Scan* is able to run unlimited scenarios to quantify risk and demonstrate the impact of different variables on future funded ratios and contributions. Note we can provide an online version of *P-Scan* that would allow CPRB to perform “what if” scenarios.

For plan reviews, audits, and replications, the *P-Scan* modeling can demonstrate the effectiveness of the funding methods and assumptions in meeting explicit or implicit funding policies of the system. The modeling can also easily demonstrate the long-term implications in changing such policies or responding to current or projected economic conditions as well as demonstrate the implications of legislative changes.

The following screenshot from *P-Scan* is intended to illustrate its capabilities and how using this tool in our consulting is different from what our competitors provide. If selected for a finalist presentation, we would be happy to demonstrate the interactive capabilities of this tool.

**WV Consolidated Public Retirement Board (CPRB)**  
**Request for Proposal for Outside Actuarial Services CRFP CPR230000002**  
**February 28, 2023**



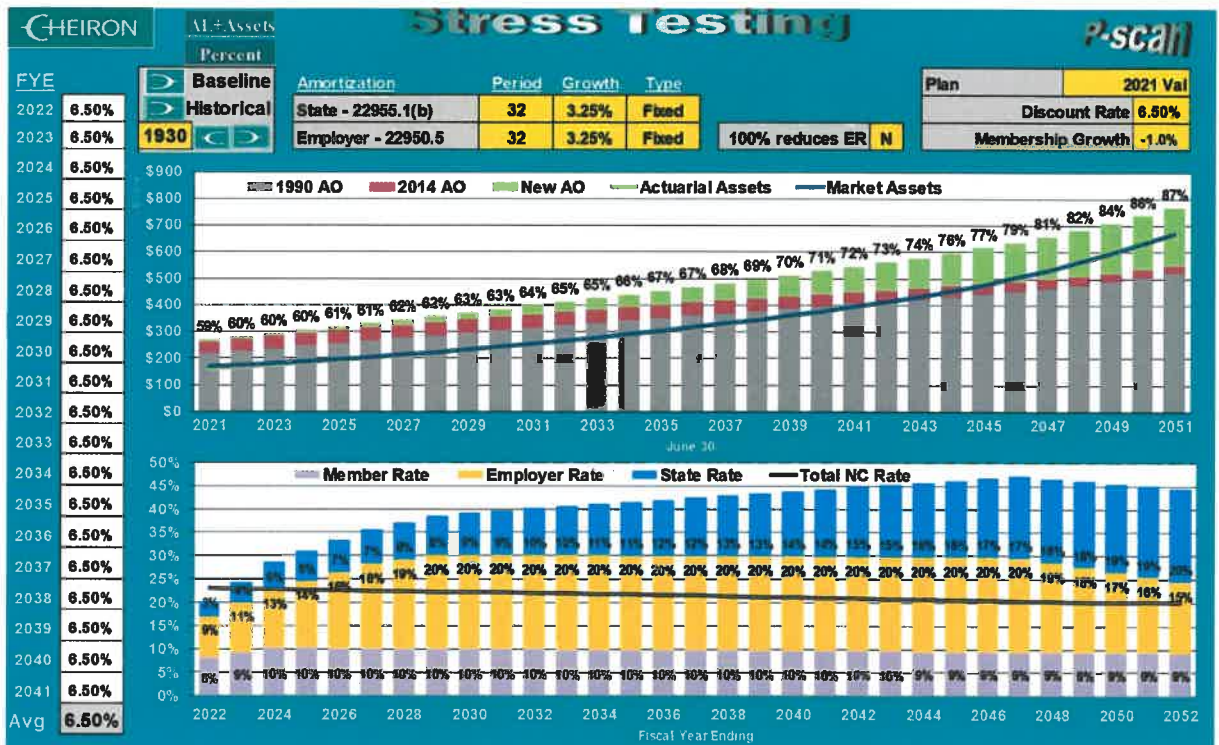
The orange boxes across the top represent variables that can be changed interactively. These variables are customized for the specific topics of a Board meeting. For example, we can program discount rate changes, other assumption changes, or benefit changes for current and/or future members.

The top graph shows the projected actuarial liability by benefit formula change (the gray, red and green bars) and the actuarial and market value of assets (blue and green lines). The numbers above the bars represent the projected funded status. The bottom graph shows the projected contributions for the members, employers, and the state. The black line on this graph represents the contribution attributable to the normal cost. All contributions above the black line are toward the unfunded liability. In this example, the employer and state contributions vary according to parameters set in statute.

On the left side of the screen, the actual investment return is shown for each year of the projection. These returns can be changed to develop different economic scenarios. This particular scenario is the baseline projection using the assumed rate of return of 7.25%.

We believe that communicating the potential risks in a system is fundamental to our work. This includes demonstrating the sensitivity to a variety of scenarios and understanding what could harm the system. The screenshot below shows the same stress test, but assuming the discount rate is reduced to 6.50% and active membership declines by 1% each year. Under the statutory contribution structure, funding levels are much lower even as the state's contribution rate increases significantly.

**WV Consolidated Public Retirement Board (CPRB)**  
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Apart from deterministic scenarios such as those shown above, we use stochastic projections within *P-Scan* to assess the likelihood of events ranging from insolvency to reaching the 120% funded status at which employer contribution rates would drop to the normal cost rate.

**Report Preliminary Results.** Once we get into our valuation work, the co-lead consultants will keep CPRB fully informed of the progress. The first important communication will indicate the preliminary results of the valuation, including funded status and total contribution rate. The discussion of these results allows the consultant to explore your objectives and concerns to ensure that our communications and alternative scenarios available in *P-Scan* help facilitate the appropriate discussions for the Board. This discussion would likely be done by a conference call with the lead actuaries. Following this process, the report and results will be subject to peer review.

**Actuarial Standards of Practice No. 51 (ASOP 51).** One of Cheiron’s key strengths is effectively and efficiently communicating risks of retirement systems for our clients. We have been providing this type of information to our clients since our company started in 2002 and well before the requirements of ASOP 51. Our standard actuarial valuation report includes all required disclosures and analysis as required by ASOP 51. With *P-Scan*’s robust capabilities, we can identify and quantify risks efficiently for each retirement system and we effectively communicate this

information in easy to follow graphs that allows retirement boards to make informed decisions to address and monitor these risks.

Cheiron's standard actuarial report includes a section dedicated to identification and assessment of risk. This section of the actuarial report includes:

- Descriptions of the types of risks, how the risk impacts the valuation results, and quantifies the impact of the risk on results;
- Summary of changes to the unfunded accrued liability which helps identifies drivers for the current funded ratio of the system;
- Plan maturity measures;
- Net cash flow analysis; and
- Deterministic projections (stress testing) where different variables are modeled to quantify these risks over the projection period.

The deterministic projections we model are based on each systems specific details as well as input from system staff and/or Board.

**Board Presentation.** We believe that the presentation of results to the CPRB, in person, is the most important communication we provide. The written report itself is also very important, but in practice we find very few Board members read the report from cover to cover, instead using it as a reference. The presentation will be drafted by the lead actuaries with input from other team members. We present key valuation results including funded status, contribution rates, and changes in the Unfunded Actuarial Accrued Liability (UAAL). We then present a historical review of past results to put the current valuation's results into the context of the long-term trends of the fund and conclude with projections of future contribution rates and funded status assuming all assumptions are met. As noted earlier, we have developed sophisticated interactive tools for presenting the valuation results,

We also always bring our projection model to Board meetings, if the Board wishes to explore investment return scenarios, other than the expected rate of return. We believe these projections are a critical part of communicating the potential risks in the future to the Board so they are fully informed and can make whatever policy decisions are appropriate. Each *P-Scan* is customized so that it reflects the current operation of the plan and can have a variety of policy options programmed in to facilitate the Board's discussion of alternatives.

*P-Scan* has been developed to allow our consultants the flexibility they need to consult effectively with their clients. The interactive tool allows us to change inputs such as salary increases, rate of inflation, and asset returns "on the fly" which helps the Board see the interaction of these inputs on results. We typically develop the *P-Scan* baseline projection based on the assumptions used for the current valuation. From that point, we can make adjustments to quantify the impact of experience being different than the assumptions. For example, if the plan's salary increase assumption is 4% per year but we know the latest contract indicates pay increases will be 5% for the next 3 years, *P-Scan* can model this impact for the Board's review.

**Final Results.** The final report is sent to the Board. The report follows a standard model used by Cheiron, which includes a board summary with charts that show comparisons to prior valuations, as well as projection graphs. However, the report will include any exhibits, charts, or information that is specific and necessary for each system. The project manager is responsible for putting the initial draft report together which is then reviewed carefully by the lead actuaries. Also, prior to being issued, the report is peer reviewed by a senior level actuary who has not been involved in the valuation process, in order to provide a clearly independent review.

We are also happy to provide clients with an alternative online version of their valuation report, an example of which is shown in this recent summary valuation [presentation](#). The online valuations include all the information contained in the written report, as well as additional interactive exhibits.

**4.2.1.2 To procure the services of an actuarial firm with qualified actuaries to prepare the annual June 30 GASB Statement No. 67 and 68 Actuarial Reports (generally rolled forward from the July 1<sup>st</sup> actuarial valuation reports noted in Goal 1, above. These reports must be issued no later than September 25<sup>th</sup> of each year.**

**For the June 30, 2022, GASB Statements No. 67 and No. 68 Actuarial Reports for these retirement systems, see the link: <http://www.wvretirement.com/052492GASB.html>**

We typically provide the Government Accounting Standards Board (GASB) 67/68 report as a separate document to ensure you have the information you need for the financial statements in a timely fashion.

We will work with CPRB Staff to obtain the preliminary asset schedules and employer-related payroll and contribution amounts as soon as they are available. At the same time, we will roll-forward the Total Pension Liability results from the prior valuation, and then produce a draft of the GASB 67/68 schedules and report using this preliminary information.

Our work product will include all schedules necessary to complete the actuarial portions of the Plan's GASB 67 disclosures, as well as the schedules necessary for the CPRB to determine the proportionate share for participating employers as required by GASB 68. The schedules included will be as follows for CPRB in total:

- Net Pension Liability (NPL)
- Pension expense
- Deferred outflows and inflows of resources
- Schedule of reconciliation of NPL
- Schedule of recognition of changes in total NPL (not for each employer)
- Allocation of changes in total NPL (not for each employer)

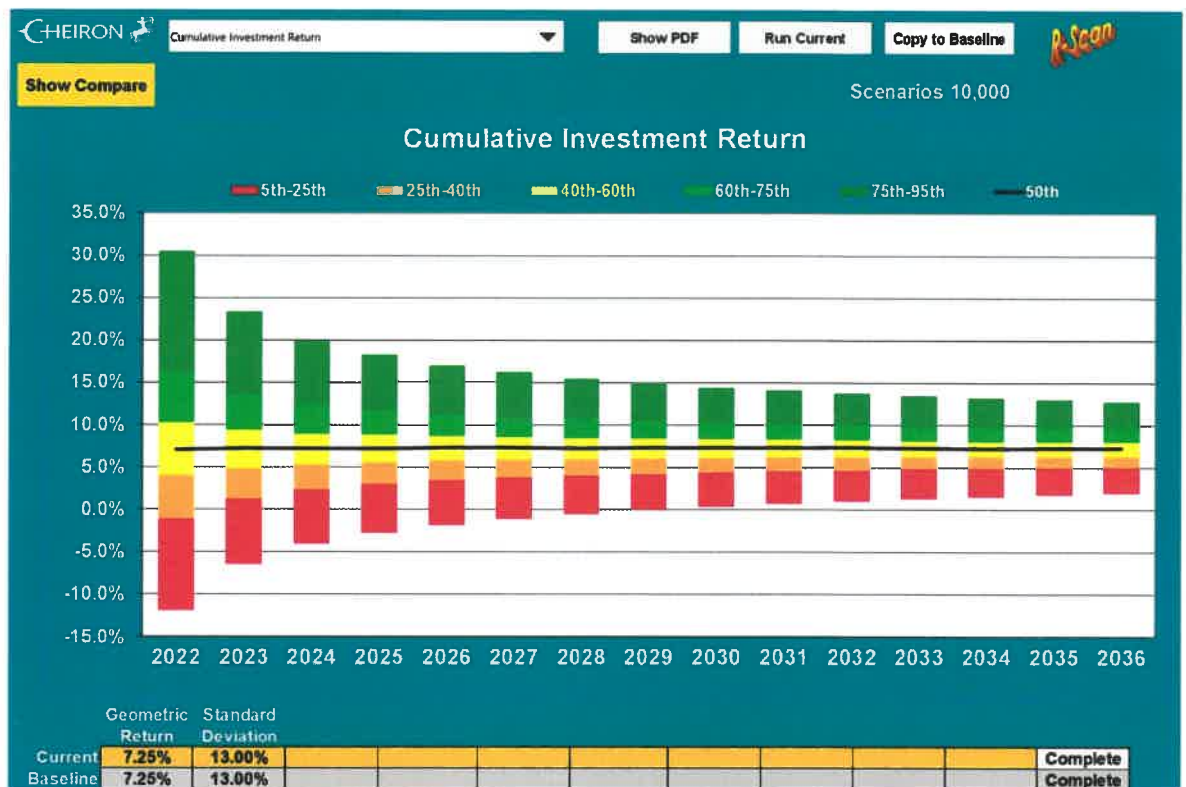
We provide a draft of the GASB 67 and 68 report within 3-4 weeks of the receipt of the preliminary asset information. Once the final asset information is available, we finalize and distribute the report, and any other necessary schedules, such as the annual ACFR letter. Based on the expectation that all data is available by the last week of August, the GASB reports will be available no later than September 25<sup>th</sup> each year.

**4.2.1.3 To procure the services of an actuarial firm with qualified actuaries to prepare an annual investment return projection and an annual inflation rate projection, based on a 10-year, 20-year, and a 30-year time horizon. The analysis should include the 25<sup>th</sup> percentile, 50<sup>th</sup> percentile, 75<sup>th</sup> percentile, expected return, and standard deviation based on arithmetic and geometric averages. These projections should be based on the June 30 investment summaries provided by the West Virginia Investment Management Board and include any investment restrictions identified in the investment portfolio. The projections are normally formalized each year by mid-August.**

We can provide the investment return and annual inflation rate projection using our *R-Scan* model. *R-Scan* is based on our *P-Scan* model that adds stochastic projection modeling. Similar to *P-Scan*, *R-Scan* will be customized to each retirement system and designed to provide the information needed by CPRB.

In the example below, *R-Scan* is providing the cumulative investment return over the next 15 years. To meet the goal of 4.2.1.3, we can vary the time horizon and the underlying capital market assumptions to calculate the expected returns, requested percentiles, and standard deviations. We can provide this information graphically as shown below or as a table of results showing each return and standard deviation.

**WV Consolidated Public Retirement Board (CPRB)**  
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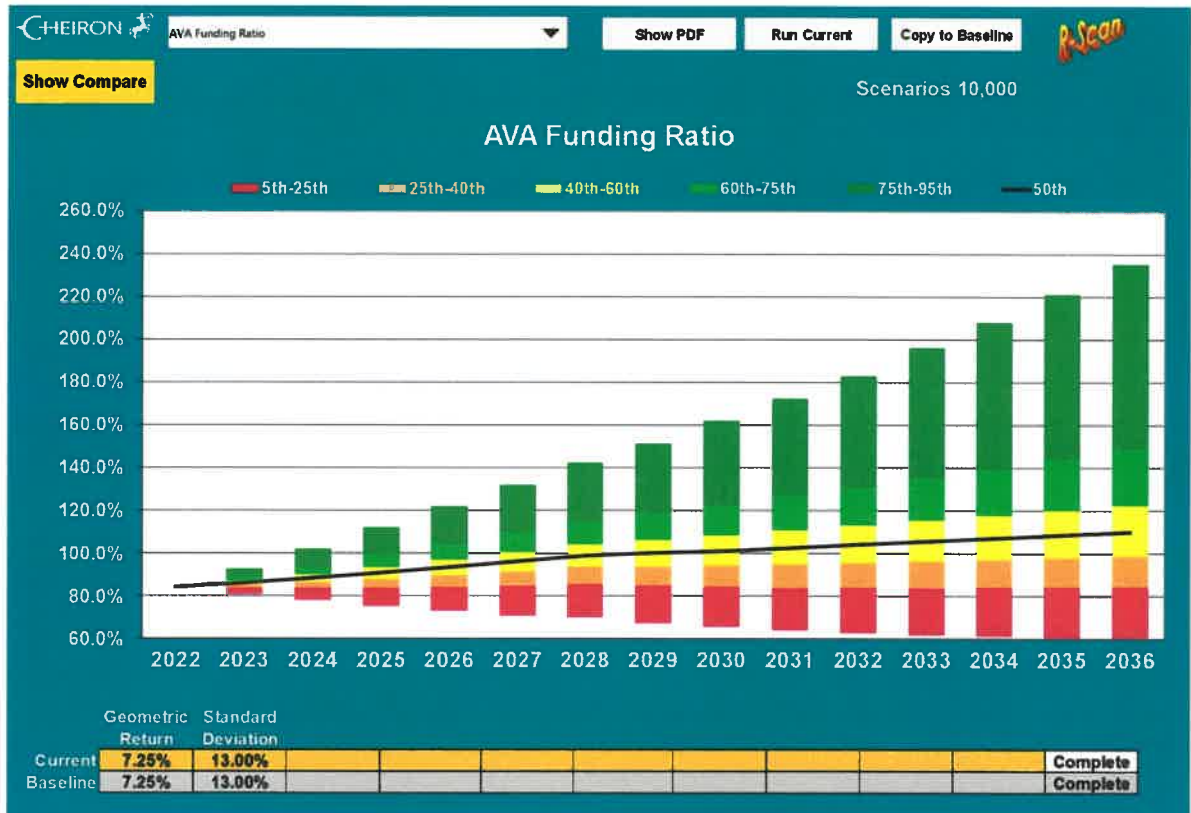


In order to produce the numbers used in the chart, Cheiron inputs the target asset allocation for the fund under review and the most recently available capital market assumptions. The capital market assumptions are generally provided either by the client’s own investment consultant or are taken from surveys of investment professionals. Capital market assumptions are usually the expected mean and variance of each asset class, and a covariance matrix showing the interdependence of each asset to each other assets. It has become common industry practice to publish both a shorter-term set of capital market assumptions, usually a ten-year horizon and a longer-term set which are used for 20- and 30-year projection periods. The capital market assumptions as described are sufficient for a multivariate normal or lognormal statistical model. Cheiron believes that the multivariate lognormal model is appropriate for projecting return distributions and that the returns each year are independent of the results of the prior year. We do not believe that models that use an autoregressive conditional heteroskedasticity (an approach where past returns are assumed to influence future returns) provide better prediction than using the assumption of independence and have a tendency to overlook market dislocations.

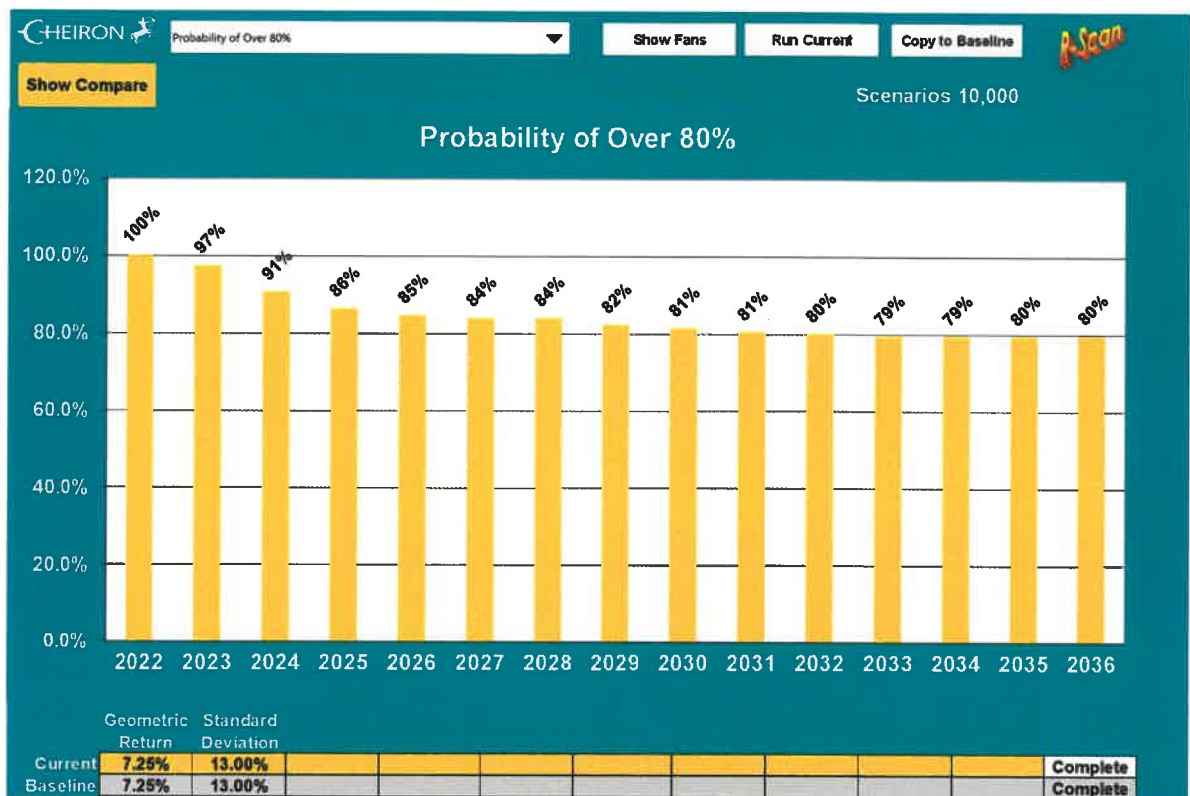
We usually will assume that the portfolio is continually rebalanced. However, we are not limited to this assumption and can work with rules-based rebalancing strategies that allow the actual asset allocation to change before rebalancing will occur.

In addition to providing the expected investment returns, *R-Scan* can also provide

other information based on the stochastic analysis such as funded ratio, contribution amounts, or other important metrics specific to your system. In the first example below, it provides the expected funded ratio for each of the next 15 years. In the second example, the probability that the system is above 80% funded is measured. *P-Scan* and *R-Scan* will be tailored specifically to each system.







**4.2.1.4 To procure the services of an actuarial firm with qualified actuaries to prepare experience studies, under the following timeline:**

- **Public Employees' Retirement System (PERS) to be completed by June 30, 2024 for implementation in the June 30, 2024 GASB Statements No. 67 and No. 68 Actuarial Report and the July 1, 2024 Actuarial Funding Valuation Report.**
- **Teachers' Retirement System (TRS) to be completed by June 30, 2025 for implementation in the June 30, 2025 GASB Statements No. 67 and No. 68 Actuarial Report and the July 1, 2025 Actuarial Funding Valuation Report.**
- **West Virginia Uniformed Services Defined Benefit Plans:**
  - **Department of Public Safety, Death, Disability and Retirement System (Trooper Plan A)**
  - **State Police Retirement System (Trooper Plan B)**
  - **Deputy Sheriffs Retirement System (DSRS)**
  - **Emergency Medical Services Retirement System (EMSRS)**
  - **Municipal Police Officers and Firefighters Retirement System (MPFRS)**
  - **Natural Resources Police Officers Retirement System (NRPORS), to be completed by June 30, 2026 for implementation in the June 30, 2026 GASB Statements No. 67 and No. 68 Actuarial Reports**

and the July 1, 2026 Actuarial Funding Valuation Reports.

- **Judges' Retirement System (JRS) to be completed by June 30, 2026 for implementation in the June 30, 2026 GASB Statements No. 67 and No. 68 Actuarial Report and the July 1, 2026 Actuarial Funding Valuation Report.**

Generally, the experience studies are a joint project between the outside actuarial firm team and the CPRB actuarial group, where the outside actuarial firm Lead Actuary and Board Actuary both sign off on all assumption changes from the experience study. The outside actuarial firm will review the demographic assumptions including an analysis of recent experience from mortality, disability, retirement rates and turnover.

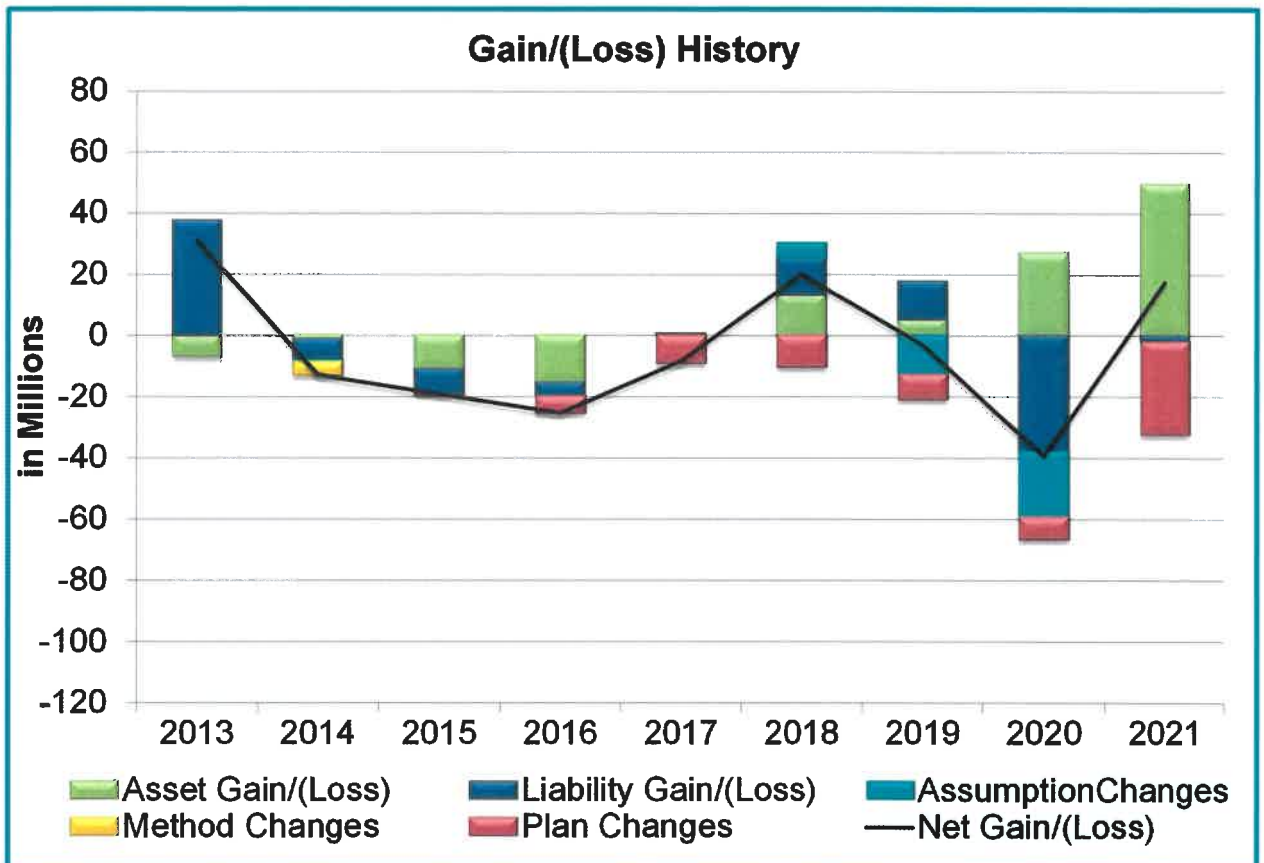
The CPRB actuarial group will review the economic assumptions including an analysis of interest rates, salary scale expectations and service loadings from military service and unused leave converted to additional benefit service and additionally for the Uniformed Services Plans, the probabilities of duty and non-duty related disability retirements and pre-retirement deaths.

The experience study reports will be completed by the Board Actuary with demographic experience exhibits provided by the outside actuarial team. For each of the experience studies outlined above, PERS, TRS, Uniformed Services and JRS, there will be a one-day meeting, typically in-person, between the outside actuarial firm team and CPRB actuarial group to jointly develop the recommendations. An experience study is performed at least once every five years for each defined benefit plan administered by the CPRB. A typical five-year experience study cycle would be PERS year 1, TRS year 2, Uniformed Services and JRS year 3, no experience study in years 4 and 5. The next cycle begins with PERS in calendar year 2024.

Cheiron will complete an experience study for each system as outlined above. We propose to provide our standard experience study report for the demographic assumptions. The report will provide the necessary experience exhibits and basis for our recommendations for the Board Actuary's review. Our study will include:

- Investigation and analysis of each demographic assumption including retirement, death, disability, mortality, and turnover – comparing actual experience to assumed experience.
- To the extent available, we include prior study results graphically to look for long-term changes in trends.
- We will comment on the actual experience compared to the actuarial assumptions and make recommendations where the assumptions should be changed to reflect changing experience.

In our experience analysis, we first look at historic gains and losses in the two broad areas of economic and demographic experience. In the sample chart below, gain or loss sources are identified over the last nine years. This analysis helps determine if we are seeing any consistent gains or losses which may suggest assumptions or methodologies that need to be refined to better capture plan experience.



Next, we analyze the historical demographic experience of the systems compared to the current assumptions including:

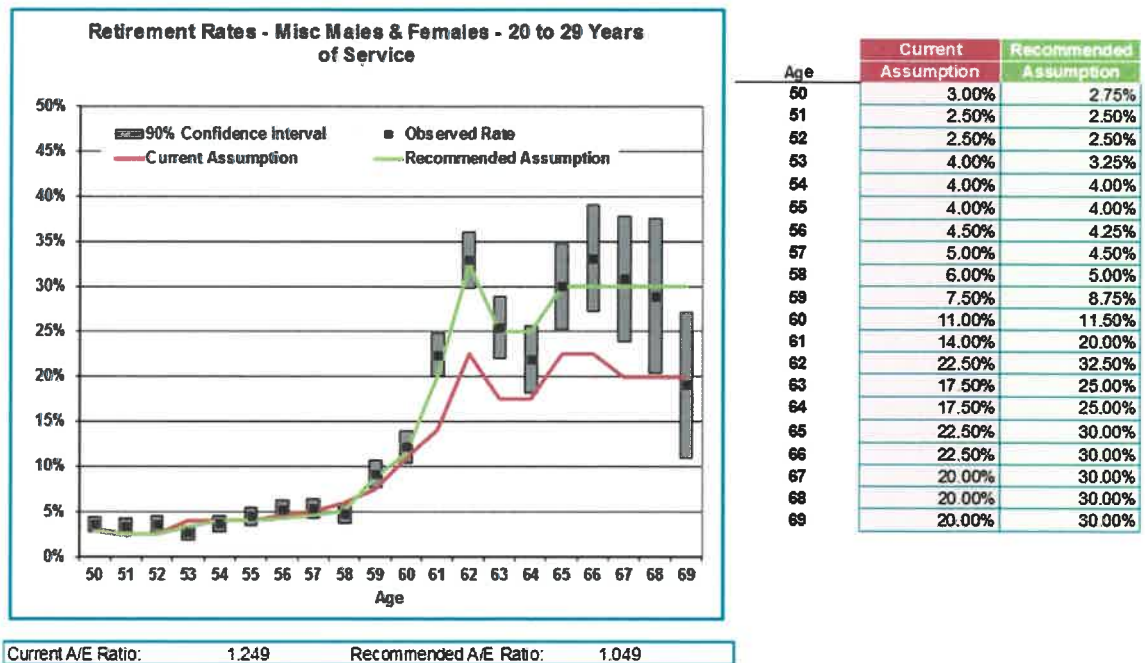
- Mortality rates (pre-retirement, post-retirement and disability retirement)
- Retirement rates,
- Termination rates, and
- Disability incidence rates.

One of the measures we include in our experience analysis that we do not typically see among our competitors is a determination of the credibility of the data trends – what is referred to as confidence intervals. We measure whether there is enough data to reasonably determine if a trend or shift in experience is real or if it simply represents a few events that are outside the norm.

For these demographic assumptions, we examine the experience of the system and compare the 90% confidence interval around the observed experience to the current assumption. Generally, if the current assumption is not within the 90% confidence interval, we recommend a change to the assumption. Because the current assumption reflects prior experience, we often recommend a change moving part way to the new experience unless there are other key factors supporting a larger change (e.g., changing early retirement provisions). This approach is also effective as more data becomes available with the COVID pandemic. Although many of our clients have recently experienced liability gains due to mortality experience, we do not want to put too much weight on recent experience that lowers liability only to have it reverse a few years later which creates unnecessary contribution volatility.

In the following sample chart, the black squares represent the actual experience observed and the gray bars represent the 90% confidence interval around that experience. The red and green lines represent the current and recommended assumptions respectively. Where there is sufficient experience data, the confidence interval is relatively narrow, and where there is little experience, the confidence interval can be very wide. The range of the confidence interval allows Board members and other users of the report to understand where the data provides a strong indication of what the assumption should be and where significant judgment or estimation must be used because there is less certainty based on a relatively small data set.

At the bottom of the chart, the ratio of actual retirements to expected retirements (A/E Ratio) is shown for the current and proposed assumptions. For assumptions like mortality, disability, and termination, we normally reference data from previous studies to shape our assumptions if the system's experience is insufficient to develop assumptions at each age or year of service.



This historical experience may also need to be adjusted for changes in benefit structure or other external forces that may make future experience different from the immediate past, such as adjustments related to events such as the COVID-19 pandemic.

Once the Board Actuary reviews and approves our recommended assumption changes, we calculate the cost impact of the demographic assumptions on the normal cost rate as well as the impact on the UAAL and funded ratio. Our recommendations for changes in assumptions will be presented with our rationale for making such changes.

For the economic assumptions, we will review the Board Actuary’s recommendations in addition to our review. As part of our review, we propose to complete our typical analysis to facilitate our review of the Board Actuary’s recommendations.

We will drill down to the specific economic assumptions by first looking at historical experience and future expectations for some of the factors that drive your economic experience including:

- Price inflation,
- Wage inflation, and
- Investment returns for applicable asset classes.

Inflation is reviewed by looking at what other peer groups are using along with inflation expectations among investment professionals.

The assumption that normally has the most impact on valuation results is the investment return assumption. Our analysis of the assumption involves the following:

- Review of historical returns of the fund to provide context,
- Review of survey information that shows investment return assumptions adopted by other large public sector retirement plans to provide additional context, and
- A forward-looking view of investment returns using capital market assumptions developed by the system's investment consultant and applying the Fund's own asset allocation policy.

Using the forward-looking capital market assumptions, we develop a suggested range for the investment return assumption based on the range of expected returns over a 30-year period. The selection of the appropriate investment return assumption within this range depends on, among other factors, the degree of risk tolerance acceptable to the Board.

Salary is typically looked at in terms of a general wage increase plus merit/seniority increases in a building block approach. Merit/seniority increases are projected by first looking at historical pay increases and determining whether the increases vary by age, service or other factors. We then determine if the actual salary increases differ from our prior assumptions and whether adjustments should be made for future expectations.

The fundamental risk faced by a pension plan is the inability to pay all benefits when due without experiencing unsustainable contributions. To analyze risk tolerance, the Board needs to address the questions of what level of contributions are deemed unsustainable and what probability of reaching those levels is considered acceptable. Lower investment return assumptions result in higher initial recommended contribution rates, but with an increased probability that rates will decrease rather than increase with future experience.

There is no single right answer for selecting any of the actuarial assumptions. Rather, there are reasonable ranges in which the assumptions could fall. However, selection of a specific assumption within a reasonable range reflects the risk philosophy of the Board. What probability does the Board want for the adopted assumption to be achieved? Is a 50% probability that actual experience will meet expectations acceptable? Or does the Board want a higher probability? These are decisions that Cheiron can help the Board make, and our use of *P-Scan* under various economic scenarios can focus the Board on the implications of any particular decision.

Cheiron and the proposed team have significant experience performing experience studies alongside in-house actuaries at several systems, including the State Teachers Retirement of Ohio, the California State Teachers' Retirement System, and the New York State Teachers' Retirement System (NYSTRS). In the case of NYSTRS,

Cheiron actuaries, including the proposed co-leads for CPRB, provided analysis tools to the in-house actuaries, coordinated with the in-house actuaries in development of the assumptions, and reviewed the final work products in support of the experience study process. We believe that this experience demonstrates our ability to meet this objective for CPRB.

**4.2.1.5 To procure the services of an actuarial firm with qualified actuaries to provide other assistance and consultations to/with the CPRB Actuarial Staff, including but not limited to:**

- **Peer review of the annual July 1<sup>st</sup> Actuarial Funding Valuations prepared by the CPRB Actuarial Staff, for the following plans:**
  - **Deputy Sheriffs Retirement System (DSRS)**
  - **Emergency Medical Services Retirement System (EMSRS)**
  - **Municipal Police Officers and Firefighters Retirement System (MPFRS)**
  - **Natural Resources Police Officers Retirement System (NRPORS)**

As indicated in Addendum No. 2., Cheiron will conduct a high-level review of each actuarial report. This review will consist of both co-leads reviewing the reports. Areas of focus will include, but are not limited to:

- confirming assumptions and methods are reasonable;
- checking all numbers presented in the report;
- reviewing summary of benefits is accurate and complete;
- verifying that all applicable state statutes and actuarial standards of practice have been met; and
- identifying areas that may warrant further review before next year's valuation.

Once we complete our peer review, we will document our review and provide commentary for the CPRB's consideration. We will issue our letter within two weeks of receiving the report from CPRB. Our peer review process includes dedicated internal actuaries outside of the assigned team to provide independent perspective as well as peer review within the assumed team.

- **Peer review of the annual June 30<sup>th</sup> GASB Statements No. 67 and No. 68 Actuarial Reports prepared by the CPRB Actuarial Staff, for the following plans:**
  - **Deputy Sheriffs Retirement System (DSRS)**
  - **Emergency Medical Services Retirement System (EMSRS)**
  - **Municipal Police Officers and Firefighters Retirement System (MPFR)**
  - **Natural Resources Police Officers Retirement System (NRPORS)**

We will follow the same process for our peer review of the GASB reports as for the actuarial valuation reports. We will also confirm that all required disclosures under GASB are met and review the methodology for setting the GASB discount rate. Once we have completed our peer review, we will document our review and provide commentary for the CPRB's consideration. We will issue our letter within two weeks of receiving the report from CPRB.

We note that Cheiron served as a consultant to the State of Texas for its initial implementation of GASB Nos. 67 and 68 for both the Employees Retirement System of Texas and the Teacher Retirement System of Texas, reviewing the work completed by the actuaries for these systems and providing review related to these statements. Elizabeth Wiley, proposed co-lead actuary for CPRB, was one of the two co-lead actuaries on this project.

- **Peer review of the experience study reports for each of the four experience studies outlined in Goal 4 above.**

Please see our suggested approach outlined in Goal 4 for the experience study process. We look forward to working jointly with CPRB to provide experience studies for each system and provide guidance to Board. To ensure a successful project, we suggest holding a planning meeting for each experience study to confirm roles, analysis needed, and timeline. This will allow us to effectively partner with the CPRB in providing this important analysis for the Board. We again note our experience working with in-house actuaries at other systems to review their work as detailed in our response to 4.2.1.4.

- **As needed, assist with the actuarial cost analysis of bills introduced during the regular or special sessions of the West Virginia Legislature. The regular session of the West Virginia Legislature normally commences on the second Wednesday of January and lasts for 60 consecutive days.**

Cheiron, and especially the proposed team, has considerable expertise analyzing the fiscal impact of proposed legislation. We have worked on fiscal impact statements for several states.

We commit to providing timely estimates of the fiscal impact of such legislation to CPRB and discussing proposed legislation with the CPRB or Board and testifying before legislative committees if requested.



A good illustration of our ability to analyze the fiscal impact of legislation is our ongoing work with the City of San Diego. This engagement has demanded a highly diverse set of solutions in a delicate political environment. There was no aspect of the City's pension systems' funding that was not examined, dissected, and explored in detail to analyze the past practices that contributed to the System's current funded status. We addressed each component from funding method to the amortization of past service when we were brought on as their new actuary.

Some other examples of our experience performing similar work are:

### **Maryland**

We provided actuarial consulting services to the Department of Legislative Services and reviewed and provided fiscal impact statements for proposed legislation that would affect the Maryland State Retirement and Pension System, often on tight deadlines.

We reviewed a bill which would move all state employees and teachers to a cash balance plan for future service, and a companion bill which would put new employees into a cash balance plan. We also analyzed legislation that would close the state and teacher defined benefit plans and move all participating employees to a defined contribution plan. We reviewed a bill which would exempt certain retirees from pension offsets upon reemployment and a bill which would increase the mandatory retirement age for judges.

We also analyzed a bill which would transfer some of the state's costs to local government. This analysis included an investigation regarding the GASB Exposure Drafts and how they would handle cost sharing employers and special funding situations.

### **Oregon**

The Governor's office retained us to provide expert testimony and analysis to help defend the State against lawsuits totaling \$9 billion brought by government employees and their unions to challenge the 2003 PERS Reform Legislation. In order to perform this task, we had to review all work performed by the PERS actuary over the past decade and provide an independent assessment of the current and projected financial condition of PERS to a Special Master appointed by the Oregon Supreme Court to hear the case. Ultimately, the court ruled in favor of the State, and in his written decision, the Special Master relied heavily on Cheiron's testimony.

### California

The California State Teachers Retirement System (CalSTRS) retained us to provide an independent assessment and analysis of the actuarial calculations and advice provided by the state's consulting actuary. That involved creating forecasting tools to examine the adequacy of CalSTRS funding practices.

### Washington, D.C.

We were engaged to evaluate the benefits of the general employees who only had a defined contribution plan. We compared the benefits to nearby state and local governments, developed a number of alternative benefit designs, and forecast the cost of each alternative.

### Pennsylvania

The State of Pennsylvania Legislature was looking for a solution to the financial crisis and impact on its over 3,000 municipal retirement systems. We were instrumental in critiquing the alternatives to legislation and identifying areas of relief that could result in excessive risk pushed off too far into the future.

- **Prepare the Annual Comprehensive Financial Report (ACFR) Actuarial Funding Valuation Certification Letters for the five plans outlined in Goal 1 above. Note, the Actuarial Section exhibits, and Financial Section exhibits for each certification letter are prepared by the CPRB and peer reviewed by the outside actuarial firm team.**

We will work collaboratively with the CPRB to ensure timing requirements are met. We will provide a detailed project timeline for each years' work, including what party has responsibility for each item, the target due date, and if the work was completed in the prior year, the date each item was completed that year. Throughout the work annually, we will update and provide this timeline to CPRB staff.

- **Other consultations, as deemed necessary by CPRB Management and/or Board.**

Our philosophy relating to the actuarial consultant is summarized by our firm's mission statement "To empower benefit plan sponsors to understand and better manage their benefit programs and their resulting financial risks through innovative technological applications and unsurpassed professional expertise." Our approach with staff and trustees is key to empowering plan sponsors to implementing our mission

statement. We will be objective, unbiased, and proactive in our dealings with the Board and CPRB.

**4.2.2 Mandatory Project Requirements – The following mandatory requirements relate to the goals and objectives and must be met by the Vendor as a part of its submitted proposal. Vendor should describe how it will comply with the mandatory requirements and include any areas where its proposed solution exceeds the mandatory requirement. Failure to comply with mandatory requirements will lead to disqualification, but the approach/methodology that the vendor uses to comply, and areas where the mandatory requirements are exceeded, will be included in technical scores where appropriate. The mandatory project requirements are listed below.**

**4.2.2.1.Mandatory Requirement 1: Vendor shall provide only "qualified actuaries" for this assignment. A "Qualified Actuary" means an actuary who is an Associate or Fellow member of the Society of Actuaries with at least 3 years of experience with large public pension plans. The "Lead Consultant" should be a Fellow member of the Society of Actuaries and have at least 10 years of consulting experience with large public pension plans.**

Our lead and co-lead actuaries are more than qualified for this assignment. Both are FSAs, ASAs, MAAs, and FCAs. Our CEO Gene Kalwarski, the proposed lead consultant for this assignment, is one of the nation's most respected pension actuaries with more than 45 years of experience working with large public pension plans. Elizabeth Wiley, our proposed co-lead consultant, has 18 years of advising public pension plans.

Gene has worked for nearly 40 years with the Maine Public Employees Retirement System, 20 years with the Maryland State Retirement and Pension System, 10 years with the Florida Retirement System, 5 years each with the State Teachers Retirement System of Ohio and the Kansas Employees Retirement System and 10 years with the New York State Teachers' Retirement System.

Elizabeth has worked for 10 years each with Maine PERS, the Delaware Public Employees' Retirement System, and New York State Teachers' Retirement System and with the Pennsylvania Municipal Retirement System for one year. She also has experience auditing or providing consulting services to the sponsor of several large public pension plans including the Employees' Retirement System of Rhode Island, the Montana Public Employee Retirement System, the Montana Teachers' Retirement System, the Employees Retirement System of Texas, The Teacher Retirement System of Texas, and the five statewide retirement systems in Illinois.

**4.2.2.2. Mandatory Requirement 2: Vendor shall provide a succession plan in the event the firm's actuaries are unable to perform the work due to illness, an accident, cessation of employment or for any other reason as determined by the vendor or by the CPRB.**

We service our clients with teams headed by co-lead consultants. This structure has a built-in succession plan in case one of the consultants falls ill, cannot perform the work due to an emergency or leaves the firm. It also ensures you can reach us anytime and one of our lead consultants will always be available. Using co-lead consultants also provides you with two different perspectives on issues. For larger clients such as CPRB, we assign a project manager who is a fully credentialed actuary with extensive experience, further ensuring continuity of service.

**4.3 Qualifications and Experience: Vendor should provide information and documentation regarding its qualifications and experience in providing services or solving problems similar to those requested in this RFP. Information and documentation should include, but is not limited to, copies of any staff certifications or degrees applicable to this project, proposed staffing plans, descriptions of past projects completed (descriptions should include the location of the project, project manager name and contact information, type of project, and what the project goals and objectives were and how they were met.), references for prior projects, and any other information that vendor deems relevant to the items identified as desirable or mandatory below.**

**4.3.1 Qualification and Experience Information: Vendor should describe in its proposal how it meets the desirable qualification and experience requirements listed below.**

**4.3.1.1 Qualification and Experience Desirable 1: Please describe the firm, the firm's qualifications for this engagement, the firm's experience in providing actuarial valuations/studies to state sponsored retirement systems, and the firm's experience working with government retirement systems.**

Cheiron is an independent, employee-owned pension and health actuarial consulting firm. We celebrated our 20<sup>th</sup> anniversary in November 2022. We earn about half of our revenues from public pension and health plans. We usually serve as the plan's actuary, conducting annual actuarial valuations, experience studies, and other services similar to those requested in this RFP. We also conduct special studies and independent actuarial audits of the work of other actuarial firms.

Please see the two tables below for a list of public retirement clients. Table 1 is a list of our state-sponsored retirement clients. Table 2 is a list of federal, municipal and county public pension clients.

**WV Consolidated Public Retirement Board (CPRB)**  
**Request for Proposal for Outside Actuarial Services CRFP CPR2300000002**  
**February 28, 2023**

<b>State Sponsored Clients</b>	<b>Assets</b>	<b>Participants</b>	<b>Hired</b>	<b>Years with Cheiron</b>
<b>Maine Public Employees Retirement System</b>	\$15,075,604,606	155,822	03/01/05	18
<b>Delaware Public Employees Retirement System</b>	\$9,696,899,100	72,767	06/01/06	17
<b>Pennsylvania Municipal Retirement System</b>	\$2,151,378,000	15,908	10/01/06	16
<b>The New York State Teachers' Retirement System</b>	\$115,468,360	428,579	02/13/13	10
<b>Washington State Council of Fire Fighters Employee Benefit Trust</b>	\$18,130,000	11,068	05/22/14	9
<b>State Teachers Retirement System of Ohio</b>	\$74,916,301,830	515,960	05/23/18	5
<b>State of New Jersey Division of Pensions and Benefits</b>	\$36,128,167,241	421,579	08/01/18	4

<b>Government Clients</b>	<b>Assets</b>	<b>Participants</b>	<b>Hired</b>	<b>Years with Cheiron</b>
<b>Metropolitan Washington Council of Governments</b>	\$67,410,311	193	04/01/03	20
<b>U.S. Court of Appeals for Veterans Claims</b>	\$53,562,311	20	04/01/03	20
<b>Arlington County Retirement System</b>	\$3,187,900,000	8,440	04/03/03	20
<b>Fairfax County Retirement Systems</b>	\$7,399,044,443	32,797	07/01/03	20
<b>United States Army Nonappropriated Fund Employee Retirement Plan</b>	\$1,567,700,000	55,882	08/01/03	19
<b>Washington Metropolitan Area Transit Authority, Local 922 Retirement Plan</b>	\$269,128,418	737	06/01/04	19
<b>Maine Public Employees Retirement System Retiree Group Life Insurance</b>	\$15,634,064	8,087	03/01/05	18
<b>Employees Retirement System of the City of Baltimore</b>	\$1,740,450,176	18,292	05/05/05	18
<b>City of Norfolk Employees Retirement System</b>	\$1,388,869	9,332	06/01/05	18
<b>San Diego City Employees Retirement System</b>	\$8,447,780,696	20,771	06/14/06	17
<b>Amalgamated Transit Union Local 900 Pension Plan</b>	\$6,798,916	153	01/01/07	16

WV Consolidated Public Retirement Board (CPRB)  
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Government Clients	Assets	Participants	Hired	Years with Cheiron
<b>City of Kansas City, Missouri Employees Retirement System</b>	\$1,340,662,410	6,512	01/01/07	16
<b>City of Kansas City, Missouri Firefighters Pension System</b>	\$669,546,458	1,991	01/01/07	16
<b>Port Authority of Allegheny County Retirement and Disability Allowance Plan for Employees Represented by Local 85 of the Amalgamated Transit Union</b>	\$785,515,147	5,298	01/01/07	16
<b>Retirement Plan for Pace West Division Employees</b>	\$19,574,522	442	01/01/07	16
<b>DART Contributory Pension Plan</b>	\$50,556,919	933	05/07/07	16
<b>City of Philadelphia Municipal Retirement System</b>	\$4,872,977,000	66,321	08/07/07	15
<b>City and County of San Francisco Employees Retirement System</b>	\$22,410,000,000	70,994	07/01/08	15
<b>Washington Metropolitan Area Transit Authority Retirement Plan</b>	\$355,531,494	1,704	07/01/09	14
<b>Washington Metropolitan Area Transit Authority, Local 2 Retirement Plan</b>	\$148,050,475	425	07/01/09	14
<b>Hampton Employees Retirement System</b>	\$141,924,882	1,130	08/27/09	13
<b>Newport News Employees Retirement Fund</b>	\$1,152,141,192	12,265	06/03/10	13
<b>City of Allentown Pension Plans</b>	\$284,395,284	944	07/12/10	13
<b>City of San Jose Federated City Employees Retirement System</b>	\$2,069,332,000	9,213	08/12/10	12
<b>Employees Retirement System of the City of St. Louis</b>	\$797,777,721	12,487	10/01/10	12
<b>City of San Jose Police and Fire Department Retirement Plan</b>	\$3,479,134,000	5,850	05/05/11	12
<b>Westchester County Health Care Corporation</b>	\$343,307,000	3,313	08/01/11	11
<b>Knoxville Utilities Board Pension Plan</b>	\$53,812,088	2,135	11/15/11	11
<b>City of Wilmington Pension System</b>	\$206,576,675	2,744	12/28/11	11
<b>City of Baltimore Fire and</b>	\$2,645,458,353	10,278	03/30/12	11

WV Consolidated Public Retirement Board (CPRB)  
Request for Proposal for Outside Actuarial Services CRFP CPR230000002  
February 28, 2023

Government Clients	Assets	Participants	Hired	Years with Cheiron
<b>Police Employees</b>				
<b>The Police Retirement System of St. Louis</b>	\$798,650,278	3,219	06/01/12	11
<b>Alameda-Contra Costa Transit District Employees Retirement Plan</b>	\$746,853,000	4,564	01/01/13	10
<b>Marin County Employees Retirement Association</b>	\$2,480,900,000	6,670	01/01/13	10
<b>Merced County Employees Retirement Association</b>	\$9,198,000,000	5,591	01/01/13	10
<b>Pasadena Fire Fighters Association Benefit Trust</b>	\$7,905,746	261	01/01/13	10
<b>Sacramento Regional Transit District</b>	\$298,355,348	2,241	01/01/13	10
<b>San Diego Transit Corporation Pension Plan</b>	\$165,921,800	824	01/01/13	10
<b>San Joaquin County Employees Retirement System</b>	\$3,244,361,827	14,523	01/01/13	10
<b>Santa Barbara County Employees Retirement System</b>	\$25,853,349	7,002	01/01/13	10
<b>Santa Clara Valley Transportation Authority ATU Pension Plan</b>	\$632,627,301	3,226	01/01/13	10
<b>Stanislaus County Employees Retirement Association</b>	\$2,182,200,000	9,793	01/01/13	10
<b>Peace Officers Research Association of California Retiree Medical Trust</b>	\$102,421,000	6,518	02/04/13	10
<b>Beverly Hills Police Officers Association Supplemental Benefit Trust</b>	\$17,380,746	207	02/05/13	10
<b>City of Cupertino</b>	\$25,770,114	314	02/19/13	10
<b>Golden Gate Transit-Amalgamated Retirement Plan</b>	\$103,122,655	683	04/01/13	10
<b>Oakland Police and Fire Retirement System</b>	\$378,975	768	09/18/13	9
<b>County of Los Angeles</b>	\$52,744,000	160,535	11/07/13	9
<b>Firefighters Retirement Plan of the City of St. Louis</b>	\$43,948,104	682	06/25/14	9
<b>Oxnard Peace Officers Association Retiree Medical Trust</b>	\$26,000,000	333	07/07/14	9

**WV Consolidated Public Retirement Board (CPRB)**  
**Request for Proposal for Outside Actuarial Services CRFP CPR230000002**  
**February 28, 2023**

<b>Government Clients</b>	<b>Assets</b>	<b>Participants</b>	<b>Hired</b>	<b>Years with Cheiron</b>
<b>Tulare County Employees</b>	\$1,587,476,000	9,805	05/06/15	8
<b>Sussex County Employee Pension Plan</b>	\$82,759,578	810	02/01/16	7
<b>Jackson County Revised Pension Plan</b>	\$374,207,055	3,887	05/01/16	7
<b>Sacramento County Employees</b>	\$9,979,379,000	29,173	05/11/17	6
<b>Tri-County Metropolitan Transportation District of Oregon</b>	\$693,134,687	3,857	02/28/18	5
<b>San Diego County Public Safety Retiree Medical Trust</b>	\$10,729,292	3,519	07/01/18	5
<b>Cincinnati Retirement System Pension</b>	\$1,799,975,000	8,547	08/08/18	4
<b>Denver Employees Retirement Plan</b>	\$2,441,690,000	19,496	12/11/18	4
<b>Contra Costa County Employees Retirement Association</b>	\$8,149,985,793	23,045	01/11/19	4
<b>Modesto Irrigation District</b>	\$423,811	963	04/01/19	4
<b>Police &amp; Fire Retirement System of Wichita, Kansas</b>	\$805,749,251	2,236	07/15/19	4
<b>Wichita Employees Retirement System</b>	\$667,029,106	3,075	07/15/19	4
<b>Maryland-National Capital Park and Planning Commission</b>	\$1,133,896,632	4,691	01/06/20	3

**4.3.1.2 Qualification and Experience Desirable 2: Please provide at least three references. Please provide the contact information for the pension plan name, a contact person, their address, telephone number, and email.**

<b>Client:</b>	<b>Maine Public Employees Retirement System</b>
<b>Contact:</b>	Kathy J. Morin Director, Actuarial & Legislative Affairs P.O. Box 349 Augusta, ME 04332-0349 <a href="mailto:kathy.morin@mainepers.org">kathy.morin@mainepers.org</a> / 207-512-3108

<b>Client:</b>	<b>Delaware Public Employees' Retirement System</b>
<b>Contact:</b>	Ms. Joanna Adams, Pension Administrator McArdle Building 860 Silver Lake Blvd, Suite 1 Dover, DE 19904-2402 <a href="mailto:Joanna.Adams@delaware.gov">Joanna.Adams@delaware.gov</a> / 302-739-4208



<b>Client:</b>	State Teachers Retirement System of Ohio
<b>Contact:</b>	Lynn Hoover Deputy Executive Director – Finance & CFO 275 E. Broad Street Columbus, OH 43215-3771 <a href="mailto:hooverl@strsoh.org">hooverl@strsoh.org</a> / 614-227-2843

**4.3.1.3 Qualification and Experience Desirable 3: Please provide a proposed staffing plan for this project, including the biographies of all staff identified for this project.**

We are proposing our CEO **Gene Kalwarski** as lead consultant, **Elizabeth Wiley** as co-lead consultant, and **Heath Merlak** as project manager. Their biographies are on the following pages.

**Gene Kalwarski, FSA, EA, MAAA, FCA**  
**Chief Executive Officer / Principal Consulting Actuary**

Gene Kalwarski is CEO and co-founder of Cheiron Inc., and one of the most well-regarded pension actuaries in the nation.

For more than four decades he has advised many of the nation's largest public pension funds. He is often hired as an expert to help financially troubled funds. He popularized the use of interactive projection modeling and was one of the first actuaries to encourage plans to conduct stress testing to manage risk. He also designed Cheiron's proprietary interactive pension projection tool, *P-Scan*.

He has testified many times before Congress, and regularly addresses state legislatures and Boards of Trustees on behalf of state pension funds.



His roster of clients include the New York State Teachers' Retirement System, the State Teachers Retirement System of Ohio, the Maine Public Employees Retirement System, the San Diego City Employees' Retirement System, the San José Police and Fire Department Retirement Plan, the San Francisco City and County Employees' Retirement System, the Delaware Public Employees Retirement System, the Maryland State Retirement and Pension System, the Florida Retirement System, the Kansas Public Employees Retirement System, the Vermont Municipal Employees' Retirement System, the District of Columbia, and the State Actuary for the State of Illinois, reporting to the Office of Auditor General.

He is often quoted in the press and has written commentaries about pension plans in publications such as Pensions & Investments, The Hill, and Forbes.

Before co-founding Cheiron, he worked for more than two decades at Milliman Inc., where he set up the firm's Washington office and served on its board of directors.

He is a Fellow in the Society of Actuaries, an Enrolled Actuary under ERISA, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries. He graduated with a Bachelor of Science in Mathematics from St. Bonaventure University.

**Contact**

8300 Greensboro Drive, Suite 800  
McLean, VA 22102  
[gkalwarski@cheiron.us](mailto:gkalwarski@cheiron.us) / 877-243-4766 ext. 1013

**Elizabeth Wiley, FSA, EA, MAAA, FCA**  
**Consulting Actuary and Public Pension Coordinator**

**Elizabeth Wiley** has 18 years of experience working with public pension plans. Her experience includes funding and accounting valuations for public plans, special studies including benefit and funding changes, administrative support for system staff, and legislative support of clients. She also has performed actuarial audits of both state and local plans and provided support for state auditors.



Her clients include the Delaware State Employees' Retirement System, the Maine Public Employees Retirement System, the City of Baltimore Fire & Police Employees' Retirement System, and the City of Alexandria (VA) Firefighters and Police Officers Pension Plan.

She speaks frequently at the annual conferences of the National Association of State Retirement Administrators, the National Council on Teacher Retirement, the National Conference on Public Employee Retirement Systems, and the International Foundation of Employee Benefit Plans. She has also written articles and papers on public pensions, and co-authored *The Hybrid Handbook*, an overview of public sector hybrid retirement plans.

She holds positions at several professional associations including the American Academy of Actuaries, the Society of Actuaries, and the Conference of Consulting Actuaries. As the firm's Public Pension Coordinator, she manages the firm's relationships with trade associations, research organizations, professional bodies, and government organizations, and keeps abreast of regulatory and legislative developments affecting public pension plans.

She joined Cheiron in March 2013.

She is a Fellow of the Society of Actuaries, an Enrolled Actuary under ERISA, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries. She received a Master of Arts in Actuarial Mathematics from the University of Texas at Austin, and a Bachelor of Arts with majors in Economics and Psychology and a minor in Mathematics from Austin College in Sherman, TX.

**Contact**

8300 Greensboro Drive, Suite 800  
McLean, VA 22102  
[ewiley@cheiron.us](mailto:ewiley@cheiron.us) / 877-243-4766 ext. 1025

**Heath Merlak, FSA, EA, MAAA, FCA**  
**Principal Consulting Actuary**

**Heath Merlak** has nearly three decades of experience advising large complex public sector, governmental and private pension plans and postretirement medical plans.

His experience includes funding and accounting valuations, developing financial projection models, special studies including benefit and funding changes, union negotiations, and de-risking.

He also advised public plans on cost-of-living or COLA designs, DROPs, experience studies, and funding strategy. He evaluated the impact of design changes on plan costs and participants' retirement benefits. He conducted numerous cost projections to evaluate funding strategies to ensure the long-term sustainability of plans.



His clients include the Illinois Office of the Auditor General, Austin Fire Fighters Relief and Retirement Fund, City of Kansas City, Missouri Employees' Retirement System, and City of Kansas City, Missouri Firefighters Pension System.

He joined Cheiron in August 2022. He was previously head of Nyhart's Defined Benefit Practice, focusing on public and private retirement plans.

He is a Fellow of the Society of Actuaries, an Enrolled Actuary under ERISA, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries. He graduated from the University of Illinois at Urbana-Champaign with a Bachelor of Science in Actuarial Science.

**Contact**

[REDACTED]  
[hmerlak@cheiron.us](mailto:hmerlak@cheiron.us) / 877-243-4766 ext. 1143

**4.3.2 Mandatory Qualification/Experience Requirements – The following mandatory qualification/experience requirements must be met by the Vendor as a part of its submitted proposal. Vendor should describe how it meets the mandatory requirements and include any areas where it exceeds the mandatory requirements. Failure to comply with mandatory requirements will lead to disqualification, but areas where the mandatory requirements are exceeded will be included in technical scores where appropriate. The mandatory qualifications/experience requirements are listed below.**

**4.3.2.1 Mandatory Qualification and Experience Requirement 1: The firm must have provided actuarial services to governmental defined benefit pension plans for the past five years or more.**

Cheiron has provided actuarial consulting services to governmental defined benefit pension plans since its inception in 2002. See our response for 4.3.1.1 for details of our current governmental defined benefit pension clients.

**4.3.2.2 Mandatory Qualification and Experience Requirement 2: The firm must have sufficient depth regarding Qualified Actuaries and Lead Consultants to ensure Goals are met in a timely manner and to provide adequate resources for the consulting team.**

Our founding partners have advised public plans since the 1980s, and 30 of our 72 credentialed actuaries, 30 have more than 20 years of public experience and a total of 60 perform pension actuarial services. Of these 72, 30 work at least 50% of their time on public plans. We encourage our actuaries to attain the highest professional credentials and 45 of our 72 credentialed actuaries—more than 60 percent—are FSAs. Both our lead consultants are FSAs, ASAs, MAAAs, and FCAs. Together they have more 60 years of consulting experience.

Credentialed Actuaries at Cheiron								
FSA	ASA	EA	MAAA	MS	CERA	CFA	FCA	FSPA
44	23	53	63	1	3	1	19	1

*Appendix A*

*6.8 Availability of Information Form*

**REQUEST FOR PROPOSAL**  
**(Agency Name and RFP #)**

**6.8. Availability of Information:** Proposal submissions become public and are available for review immediately after opening pursuant to West Virginia Code §5A-3-11(h). All other information associated with the RFP, including but not limited to, technical scores and reasons for disqualification, will not be available until after the contract has been awarded pursuant to West Virginia Code of State Rules §148-1-6.3.d.

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Cheiron Inc.  
(Company)

Gene Kalwarski, CEO and Principal Consulting Actuary  
(Representative Name, Title)



(877) 243-4766 ext. 1013 / (703) 893-2006  
(Contact Phone/Fax Number)

February 28, 2023  
(Date)

***Appendix B***  
***Addendum Acknowledgement Form***



4

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: CPR230000002**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

(Check the box next to each addendum received)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input checked="" type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

\_\_\_\_\_  
Cheiron Inc.

Company



\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
February 28, 2023

Date

**NOTE:** This addendum acknowledgment should be submitted with the bid to expedite document processing.