



# Hampton Roads Sanitation District Other Post-Employment Benefits

Actuarial Valuation to Determine  
the Actuarially Determined Contribution  
for FYE 2024

# Bolton

*Submitted by:*

**Rebecca Trauger, FSA, FCA, MAAA**  
Consulting Actuary  
(845) 239-2496  
rtrauger@boltonusa.com

**Kari Szabo, CEBS**  
Senior Actuarial Consultant  
(443) 573-3919  
kszabo@boltonusa.com



Employee Benefits, Actuarial & Investment Consulting

September 23, 2023

Kassandra Pagan  
Chief of Accounting  
Hampton Roads Sanitation District  
1434 Air Rail Avenue  
Virginia Beach, VA 23455

Dear Kassandra:

The following sets forth the Actuarially Determined Contribution (ADC) for Hampton Roads Sanitation District (HRSD) for the Fiscal Year Ending June 30, 2024. The GASB 75 employer accounting and the GASB 74 plan accounting disclosures are contained in a separate report.

The ADC has decreased from \$1,606,000 in FYE 2023 to \$1,558,000 for FYE 2024. The unfunded liability has decreased from \$(1,265,000) as of July 1, 2022 to \$(2,686,000) as of July 1, 2023. This was largely due to favorable demographic and claims experience over the past year. However, there is still a net asset loss being recognized despite an investment gain in FY2023 due to the asset smoothing method and the large investment loss in FY2022. We expect the ADC to increase to close to \$1.9M by FYE 2028. Please refer to the ten year forecast in Appendix II for more details.

Section I is meant to give a high level of summary of the OPEB valuation. Sections II – IV includes information used to determine the ADC. Section V summarizes the valuation data, Section VI the plan provisions, and Section VII the actuarial methods and assumptions.

### Methodology, Reliance, and Certification

This report has been prepared for HRSD for the purposes of determining the FYE 2024 ADC. It is neither intended nor necessarily suitable for other purposes. Bolton is not responsible for the consequences of any other use or the reliance by another party.

The report is based on July 1, 2023 census data provided by HRSD. We reviewed the data for reasonableness but did not audit the data.

HRSD is responsible for selecting the plan's funding policy and assumptions. For certain demographic assumptions (retirement, termination, disability, and salary scale), we relied upon the assumptions developed for the Virginia Retirement System (VRS). The policies, methods and assumptions used in this valuation are found in Section VII. HRSD is solely responsible for communicating to Bolton Partners, Inc. any changes required thereto. The actuarial methods and assumptions used in this report comply with ASOP 6 and the actuarial standards of practice promulgated by the American Academy of Actuaries.

Future medical care cost increase rates are unpredictable and could be volatile. They will depend upon the economy, future health care delivery systems and emerging technologies. The trend rate selected is based on an economic model developed by a health care economist for the Society of Actuaries. Future medical trend increases could vary significantly from the model. Model inputs will be updated periodically based on the best estimate of the economy at that time. Small changes in the model inputs can result in large actuarial gains or losses. The sensitivity of results to a one percent change in trend is shown in the report.

This report is based on assets, plan provisions, census data, and claims and enrollment information submitted by HRSD and their providers. We have relied on this information for purposes of preparing this report but have not performed an audit. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The plan sponsor is solely responsible for the validity and completeness of this information.

We make every effort to ensure that our calculations are accurately performed. However, given the complexity of these calculations, there may be errors. We reserve the right to correct any potential errors by amending the results of this report or by including the corrections in a future valuation report.

The report is conditioned on the assumption of an ongoing plan and is not meant to present the actuarial position of the plan in the case of plan termination. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience differing from that anticipated by the assumptions; changes in assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

The COVID-19 pandemic has impacted many aspects of OPEB valuations, including increasing mortality rates, fluctuating medical plan costs, creating supply shortages which increased inflation, and causing new trends in turnover and retirement rates. The impact of this pandemic through the valuation date is already reflected in the demographic and claims experience. However, since OPEB valuations are long-term estimates of future costs, we (along with the entire actuarial profession) are closely monitoring experience of all assumptions to determine what the long-term impacts of the COVID-19 pandemic will be. Given the current levels of uncertainty, we have not made any changes to the assumptions to account for any potential long-term impacts but will continue to monitor emerging experience and make changes as necessary.

The Inflation Reduction Act (IRA), which was signed into law in August 2022, is expected to make numerous changes to prescription drug costs, including capping member out of pocket spending, other plan design changes beginning in 2025 that will change the cost sharing arrangement between Medicare, the Part D plan, and participants, and requiring the federal government to negotiate drug prices for certain high-cost drugs starting in 2026. However, the impact of these changes is difficult to quantify at this time as we are still awaiting additional guidance from CMS on how they will be implemented. Therefore, we have not made any adjustments to the current assumptions to account for the potential impact of the IRA at this time.

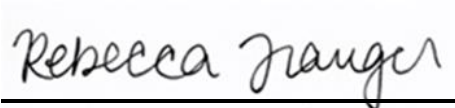
The valuation was completed using both proprietary and third-party models (including software and tools). We have tested these models to ensure they are used for their intended purposes, within their known limitations, and without any known material inconsistencies unless otherwise stated.



Bolton Partners is completely independent of Hampton Road Sanitation District, its programs, activities, or any of its officers or key personnel. We and anyone closely associated with us does not have any relationship which would impair our independence on this assignment.

Rebecca Trauger is a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Respectfully submitted,



---

Rebecca Trauger, FSA, FCA, MAAA  
Consulting Actuary



---

Karolin Szabo, CEBS  
Senior Actuarial Consultant





## Table of Contents

---

	Page
Section I. Executive Summary.....	1
Section II. FYE 2024 Determination of ADC.....	5
Section III. Assets.....	6
Section IV. Amortization Payments.....	8
Section V. Valuation Data.....	9
Section VI. Summary of Principal Plan Provisions.....	11
Section VII. Valuation Methods and Assumptions .....	15
Section VIII. Glossary .....	24
Appendix I. The Actuarial Valuation Process .....	27
Appendix II. Projections.....	29



## Section I. Executive Summary

### Background

Bolton Partners, Inc. has prepared the following report that sets forth the FYE 2024 Actuarial Determined Contribution (ADC) for Hampton Roads Sanitation District. In June 2015, the Government Accounting Standards Board (GASB) released Statements 74 and 75, which went into effect in FYE 2017 and FYE 2018.

The new accounting standard has separated budgeting and accounting. HRSD has elected to set the Actuarially Determined Contribution (ADC) using the same methods as used to determine the ARC under GASB 45. This report provides the ADC results for FY2024. The information required under the GASB 74 and 75 accounting standards are disclosed separately.

The last valuation report, which developed the FYE 2023 ADC, was completed September 19, 2022 by Bolton.

### Contribution Policy

The HRSD's contribution policy is to contribute the ADC to a Trust established to pre-fund OPEB benefits. Contributions are made monthly based on the estimated expense for the year and readjusted with each annual valuation.

### Asset Information

Asset information as of July 1, 2023 and the asset reconciliation for the fiscal year ending 2023 was provided by HRSD.

The ADC is based on the actuarial value of assets (AVA). The market value of assets (MVA) is smoothed over a five-year period to determine the AVA. Asset gains and losses are determined by comparing the expected value of assets to the market value of assets. As of June 30, 2023 the actuarial value of assets is \$70,460,000. The market value of assets is \$67,422,637 as provided by HRSD.

### Plan Provisions

Employees who retired after July 1, 2002 with unreduced pension or disability benefits from the Virginia Retirement System and have at least 15 years of HRSD service are eligible for benefits. Retiring employees must also be participants in the employee health plan. Eligible dependents of participants may be covered under this Plan.

The underlying medical plan is the Cigna Surround Plan for Medicare eligible retirees and a high deductible health plan for pre-Medicare retirees.

For retiree only coverage, post Medicare, the retiree contribution is equal to the maximum VRS Health Insurance Credit of \$45 per month. For pre-Medicare, retiree only coverage, the retiree contribution is \$120 per month. See Section VII for more details.



## Section I. Executive Summary

### Comparison with Previous Valuation

The prior valuation was based on July 1, 2022 data and completed September 19, 2022. The ADC has decreased slightly from \$1,606,000 for FYE 2023 to \$1,558,000 for FYE 2024. The ADC decrease is mainly due to favorable demographic and claims experience, which was partially offset by the updated healthcare cost trend assumption. The demographic experience was favorable despite an increase in the number of participants; this may be due to active terminations who had accrued more service towards attaining eligibility for benefits at retirement being replaced with new hires whose average liability is much smaller. The net gain due to updated claims experience is due to lower than anticipated pre 65 benefit costs, which were partially offset by slightly higher than expected post-65 costs.

The following table compares the data and reconciles the ADC. Amounts shown are rounded to the nearest thousand.

Comparison of Current and Previous Valuations		
Valuation Date Fiscal Year Ending	July 1, 2022 2023	July 1, 2023 2024
<b>Census Data</b>		
Active Employees		
Currently enrolled in medical coverage	702	734
Not currently enrolled in medical coverage	63	90
Retirees		
Retirees under age 65 <sup>1</sup>	112	111
Retirees age 65 or greater <sup>1</sup>	128	137
Total Active Employees and Retirees	1,005	1,072
<b>Reconciliation of ADC</b>		
FYE 2023 ADC		\$ 1,606,000
Expected Increase/(Decrease) <sup>2</sup>		79,000
Increase/(Decrease) due to Investment Experience		(32,000)
Increase/(Decrease) due to Demographic Experience		(103,000)
Increase/(Decrease) due to Claims Experience		(236,000)
Increase/(Decrease) due to Updated Trend Assumption		244,000
<b>FYE 2024 ADC</b>		<b>\$ 1,558,000</b>

The following table reconciles the unfunded accrued liability. Amounts shown are rounded to the nearest thousand.

Reconciliation of Unfunded Accrued Liability (UAL)	
July 1, 2022 Unfunded Accrued Liability (UAL)	\$ (1,265,000)
Expected Increase due to Passage of Time	(793,000)
Increase/(Decrease) due to Investment Experience	(357,000)
Increase/(Decrease) due to Demographic Experience	(478,000)
Increase/(Decrease) due to Claims Experience	(1,891,000)
Increase/(Decrease) due to Updated Trend Assumption	2,098,000
<b>July 1, 2023 Unfunded Accrued Liability (UAL)</b>	<b>\$ (2,686,000)</b>

<sup>1</sup> Spouses of retirees are not included in these counts. Disabled retirees are also excluded from the counts as of July 1, 2022.

<sup>2</sup> Includes impact of contributions in excess of expected and lower than anticipated benefit payments, and impact of recognition of past investment gains in actuarial smoothing method.



## Section I. Executive Summary

### Census Data

Census data as of July 1, 2023 was provided to us by the Hampton Roads Sanitation District. This data included retirees who are currently receiving benefits through the HRSD OPEB Plan and their dependents. Although we have not audited this data, we have no reason to believe that it is inaccurate.

### Cost Information

The FY2023 premiums for each plan as well as monthly paid claims and enrollment information for active employees and pre-65 retirees through June 30, 2023 were supplied by HRSD. The per capita claims costs for pre-65 retirees were based on claims experience, and the costs for post-65 retirees are based on the premiums provided for the Medicare plans. The published insurance rates for persons prior to Medicare eligibility are based on a blend of active and pre-Medicare retiree experience, and because there are significantly more active employees, the rates are primarily based on their healthcare usage. However, because retirees tend to use healthcare at a higher rate than active employees, using these blended rates creates an implicit subsidy for the retiree group. Actuarial Standards of Practice (ASOP) 6 and GASB 74/75 require that the claims assumption we use for this valuation be based on the retiree cost. Therefore, we have age-adjusted the premiums and claims information provided for active employees and retirees to determine a retiree-only per capita cost.

### Demographic Assumptions

All employees are assumed to participate in the State of Virginia Retirement System (VRS). Therefore, the retirement, termination, and disability assumptions are based on those developed for VRS State Employees in the most recent experience study performed for VRS in 2021. The mortality assumption is based on the SOA Pub 2010 headcount-weighted mortality tables developed for general employees, projected using mortality improvement scale MP-2021.

95% of employees are assumed to have coverage at the time of retirement and continue that coverage into retirement. 35% of employees are assumed to cover a spouse.

Additional information regarding these assumptions is provided in Section VII.





## Section I. Executive Summary

### Economic Assumptions

The expected rate of return assumption of 6% was selected by the plan sponsor.

The healthcare cost trend assumption was developed using the Society of Actuaries (SOA) 2022 Getzen Long-Term Healthcare Cost Trend Model with baseline assumptions. This model is designed to estimate the trend after 2024. The trend rate for 2023 and 2024 was set to 7.5%. This trend is greater than initial trends in the past valuation due to recent inflation, which we estimate will result in higher medical costs as providers renew their contracts. This rate is expected to decrease to 5.01% by 2030 and 4.64% by 2050, ultimately leveling off at 3.94% in 2075.

The SOA Long-Term Healthcare Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-term baseline projection and input variable ranges have been developed under the guidance of an SOA Project Oversight Group. Model inputs will be updated periodically based on the best estimate of the economy at that time.

Payroll is assumed to increase at 2.5% per annum. This assumption is used to determine the level percentage of payroll amortization factor.

### Inflation Reduction Act (IRA)

The Inflation Reduction Act (IRA), which was signed into law in August 2022, is expected to make numerous changes to prescription drug costs, including capping member out of pocket spending, other plan design changes beginning in 2025 that will change the cost sharing arrangement between Medicare, the Part D plan and participants, and requiring the federal government to negotiate drug prices for certain high-cost drugs starting in 2026. However, the impact of these changes is difficult to quantify at this time as we are still awaiting additional guidance from CMS on how they will be implemented. Therefore, we have not made any adjustments to the current assumptions to account for the potential impact of the IRA at this time.



## Section II. FYE 2024 Determination of ADC

Below is a summary of the calculation of the Plan's ADC as of June 30, 2023 under current plan provisions using a 6.00% EROA. Item 6 shows the ADC if the medical trend assumption was increased 1 percent. Amounts shown are rounded to the nearest thousand.

		FYE 2024
(1)	Expected Rate of Return	6.00%
(2)	Accrued Liability	
	(a) Active Employees	\$ 31,924,000
	(b) Retirees	35,850,000
	<b>(c) Total Liability (a + b)</b>	<b>\$ 67,774,000</b>
(3)	Actuarial Value of Assets	70,460,000
(4)	Unfunded Accrued Liability (UAL) (2 – 3)	\$ (2,686,000)
(5)	Actuarially Determined Contribution (ADC)	
	(a) Normal Cost	\$ 1,801,000
	(b) Amortization of Unfunded Accrued Liability	(243,000)
	<b>(c) Total ADC (a + b)</b>	<b>\$ 1,558,000</b>
(6)	1% Sensitivity (ADC)	\$ 2,939,000

## Section III. Assets

### Market Value of Assets Reconciliation

Below is a reconciliation of market value of assets from last year to this year as well as the asset gain/(loss) development. Amounts shown are rounded to the nearest thousand.

	FYE 2023
(1) Expected Rate of Return	6.00%
(2) Market value of assets beginning of year	\$ 62,137,000
(3) Employer Contributions	2,467,000
(4) Retiree premiums received by HRSD	526,000
(5) Investment gains/(losses)	5,286,000
(6) Benefit payments paid from Trust	(2,855,000)
(7) Investment expenses	(138,000)
(8) Market value of assets end of year (2) + (3) + (4) + (5) + (6)	\$ 67,423,000
(9) Expected investment gains/(losses)	3,732,000
(10) Asset (gain)/loss (9) – (5) – (7)	\$ (1,416,000)

### Actuarial Value of Assets Calculation

Below is a table showing how the actuarial value of assets as of June 30, 2023 was calculated. Amounts shown are rounded to the nearest thousand.

	FYE 2023
(1) Market value of assets (MVA) end of year	\$ 67,423,000
(2) Prior asset (gain)/loss deferred	
(a) 80% of FYE 2022 (gain)/loss	(1,133,000)
(b) 60% of FYE 2021 (gain)/loss	8,519,000
(c) 40% of FYE 2020 (gain)/loss	(4,314,000)
(d) 20% of FYE 2019 (gain)/loss	(35,000)
(e) Total deferred asset (gain)/loss	3,037,000
(3) Actuarial value of assets (AVA) end of year (1) + (2)	\$ 70,460,000
(4) AVA as percent of MVA	104.5%



## Section III. Assets

### Asset Bases

Below are the initial bases for the asset (gains)/losses that are still being recognized. Amounts shown are rounded to the nearest thousand.

FYE	Asset (Gain)/Loss Base
2023	\$ (1,416,000)
2022	14,198,000
2021	(10,785,000)
2020	(175,000)



## Section IV. Amortization Payments

### Development of Experience Loss (Gain)

An initial unfunded liability base was established on July 1, 2020. This base is amortized over a closed 10-year period as a level percentage of total payroll. Each subsequent year, a new base is established for gains and losses due to actual experience differing from expected and changes in assumptions. Each base will be amortized over a 15-year period as a level percentage of total payroll. Since both experience and assumption gains and losses are amortized over the same period, they are determined in aggregate for simplicity. The calculation of the new base that will be established due to the difference between expected and actual experience and changes in assumptions for FYE 2023 is detailed below. Amounts shown are rounded to the nearest thousand.

(1) Expected rate of return	6.00%
(2) Unfunded Accrued Liability (UAL) last year	\$ (1,265,000)
(3) Interest on UAL	(76,000)
(4) Last year Normal Cost (EOY)	1,717,000
(5) Employer Contributions	(1,606,000)
(6) Expected UAL (2) + (3) + (4) + (5)	\$ (1,230,000)
(7) Actual UAL (Exhibit 2 item 4)	\$ (2,686,000)
(8) Experience/Assumption Loss (Gain) (7)-(6)	\$ (1,456,000)

### Unfunded Amortization Liability (UAL) Bases as of July 1, 2023

Below are the initial bases for the experience and assumption (gains)/losses that are still being recognized. Amounts shown are rounded to the nearest thousand.

Date Established	Description	Original Base Amount	Outstanding Base Amount	Years Remaining	Recognized in FYE 2024
7/1/2020	Initial UAL	\$163,000	\$128,000	7	\$22,000
7/1/2021	Experience/Assumption (gain)/loss	(1,662,000)	(1,561,000)	13	(154,000)
7/1/2022	Experience/Assumption (gain)/loss	209,000	204,000	14	19,000
7/1/2023	Experience/Assumption (gain)/loss	(1,456,000)	(1,456,000)	15	(130,000)
<b>Total</b>			<b>(\$2,685,000)</b>		<b>(\$243,000)</b>

## Section V. Valuation Data

### Comparison of Current and Prior Valuation Data

The following table compares the census data used in the current and prior valuations.

Data as of	July 1, 2022	July 1, 2023
(1) Number of Participants		
(a) Active Employees	765	824
(b) Healthy Retirees <sup>1</sup>	240	242
(c) Disabled Retirees	8	6
(d) Spouses	41	54
<b>(e) Total</b>	<b>1,054</b>	<b>1,126</b>
(2) VRS Plan 1 Participants		
(a) Number of Employees	295	270
(b) Average Age	52.9	53.3
(c) Average VRS Service	23.9	24.3
(3) VRS Plan 2 Participants		
(a) Number of Employees	157	155
(b) Average Age	43.0	43.9
(c) Average VRS Service	11.2	12.0
(4) Hybrid Plan Participants		
(a) Number of Employees	313	399
(b) Average Age	36.4	36.5
(c) Average VRS Service	4.1	3.9
(5) Total Active Employees		
(a) Number of Employees	765	824
(b) Average Age	44.1	43.4
(c) Average VRS Service	13.2	12.1
(6) Retiree Statistics		
(a) Healthy Retiree Average Age	66.5	67.0
(b) Disabled Retiree Average Age	65.1	64.9
(c) Total Retiree Average Age	66.4	66.9

<sup>1</sup> Includes surviving spouses

## Section VI. Valuation Data

### Active Age – Service Distribution

Shown below is a distribution by age and years of VRS service as of July 1, 2023 for all HRSD active employees who will be eligible for benefits upon retirement.

Age	Years of VRS Service								Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	26	18	2	0	0	0	0	0	46
25 - 29	22	37	18	0	0	0	0	0	77
30 - 34	21	27	46	16	1	0	0	0	111
35 - 39	11	23	39	28	16	0	0	0	117 <sup>1</sup>
40 - 44	8	14	24	24	32	5	0	0	107
45 - 49	5	11	16	18	14	18	10	0	92
50 - 54	4	9	13	18	23	18	15	13	113
55 - 59	1	5	8	7	10	6	21	17	75
60 - 64	3	3	7	8	7	6	9	25	68
65+	0	1	1	3	5	4	1	3	18
<b>Total</b>	<b>101</b>	<b>148</b>	<b>174</b>	<b>122</b>	<b>108</b>	<b>57</b>	<b>56</b>	<b>58</b>	<b>824</b>

### Retiree and Spouse Age Distribution

Shown below is a distribution by age of retirees and spouses who are currently receiving medical and Rx benefits from HRSD.

Age	Retirees <sup>2</sup>	Spouses	Total
<45	0	0	0
45 – 50	0	3	3
50 – 55	2	4	6
55 – 60	40	7	47
60 – 65	69	18	87
65 – 70	63	14	77
70 – 75	36	6	42
75 – 80	27	2	29
80+	11	0	11
<b>Total</b>	<b>248</b>	<b>54</b>	<b>302</b>

<sup>2</sup> Includes healthy retirees, disabled retirees, and surviving spouses.



## Section VI. Summary of Principal Plan Provisions

The following summary describes principal plan provisions assumed in calculating the cost of this Plan.

### General Eligibility Requirements

In order to receive retiree medical benefits from the HRSD Plan (the “Plan”), an employee of Hampton Roads Sanitation District (HRSD) must:

- (1) Qualify for an unreduced retirement benefit from the Virginia Retirement System (VRS),
- (2) Be covered by the HRSD group health plan for active employees at retirement,
- (3) Have 15 or more years of service with HRSD, or have at least 10 years of service with HRSD and 10 or more years of service with a VRS employer with a retiree health plan, and
- (4) Be at least age 55.

Eligible participants may cover themselves and any eligible dependents in the HRSD Plan. Participating dependents are also entitled to continue coverage under the Plan after the death of the retired employee.

### Virginia Retirement System (VRS) Retirement Eligibility

VRS has three benefit structures for members:

- VRS Plan 1 – employees hired prior to July 1, 2010 and vested<sup>1</sup> by January 1, 2013, or previous VRS members who did not take a refund of employee contributions.
- VRS Plan 2 – employees hired on or after July 1, 2010 plus employees not vested by January 1, 2013.
- Hybrid Retirement Plan – any employee hired for the first time in a covered position, with no prior VRS creditable service, on or after January 1, 2014. This includes judges appointed or elected to an original term on or after January 1, 2014, but members of SPORS and VaLORS, as well as political subdivision employees who have enhanced hazardous duty coverage, are exempt from this provision.

Members in VRS Plan 1 or VRS Plan 2 may elect to transfer to the Hybrid Retirement Plan.

Below is a summary of the retirement eligibility conditions from VRS.

#### *VRS Plan 1*

Unreduced pension – earlier of:

- Attain age 65 with 5 years of VRS creditable service, or
- Attain age 50 with 30 years of VRS creditable service.

Reduced pension – earlier of:

- Attain age 55 with 5 years of VRS creditable service, or
- Attain age 50 with 10 years of VRS creditable service

<sup>1</sup> Vesting under VRS (VRS Plan 1, VRS Plan 2 and the Hybrid Retirement Plan) requires 5 years of service credit.





## Section VI. Summary of Principal Plan Provisions

### General Eligibility Requirements (continued)

#### Virginia Retirement System (VRS) Retirement Eligibility

##### *VRS Plan 2 and Hybrid Retirement Plan*

Unreduced pension – earlier of:

- Attain Social Security Normal Retirement Age with 5 years of VRS creditable service, or
- Age plus years of VRS creditable service equal 90.

Reduced pension:

- Attain age 60 with 5 years of VRS creditable service.

#### **Disability Retirement**

There are two types of disability retirement under VRS, work related and non-work related. There is no age or service requirement for disability retirement. However, the amount of benefit from VRS will depend upon years of service and type of disability retirement.

Participants eligible for disability retirement from VRS must have 15 or more years of service with HRSD to be eligible for this Plan.

#### **VRS Health Insurance Credit**

The Virginia Retirement System (VRS) offers a Health Insurance Credit (HIC) to eligible members. The HIC is a cash reimbursement to assist members with the cost of retiree health insurance premiums. The credit is added to the member's monthly retirement benefit from VRS.

The monthly credit is calculated as a dollar amount for each year of VRS service. The credit ends upon the member's death and cannot exceed the amount of the member's individual health insurance premium. The credit applies to the retiree portion of the premium only. Currently, the monthly credit is \$1.50 per year of VRS service, up to a maximum of \$45.

To be eligible for the HIC, the member must have a minimum of 15 years of VRS creditable service at retirement. Members retiring on VRS disability or receiving a long-term disability benefit through the Virginia Sickness & Disability Program (VSDP) also are eligible.

Disabled participants are eligible for the maximum health insurance credit, regardless of actual years of service.

The VRS HIC reduces the amount a retired employee pays out of pocket. It has no effect on the explicit subsidy provided by HRSD.



## Section VI. Summary of Principal Plan Provisions

### Retiree Contributions

HRSD shares the cost of coverage under the Plan with participating retirees. HRSD pays the difference between the contributions it requires retirees to make toward the cost of their coverage and the cost to HRSD of providing that coverage. Retirees must pay almost all of the cost for their covered dependents.

A retiree's contribution towards the cost of retiree only coverage after attaining Medicare eligibility corresponds to the typical retiree's VRS HIC. The table below summarizes the monthly retiree health insurance premiums that covered retirees must pay for the fiscal year ending June 30, 2023.

Monthly Retiree Contributions		
	Retiree	Spouse
Pre Age 65	\$120	\$415
Post Age 65	45	397

Surviving spouses pay the same premium as dependent spouses.

The retiree is responsible for the payment of any applicable deductibles and co-payments in addition to the retiree's monthly contribution.

### Benefits Covered

Retirees are eligible for medical, Rx, dental, and vision benefits through the Plan. HRSD expressly reserves the right to add, modify or eliminate the benefits provided under the Plan.

#### Medical & Rx

Active employees participate in a wellness program, and employees who satisfy the wellness program requirements are placed in Plan A which has lower deductibles than Plan B. Retirees are not eligible for the wellness program and therefore all pre-Medicare retirees are in Plan B. All Medicare eligible participants are required to enroll in both Medicare Part A and Part B. Medicare eligible participants are enrolled in the Cigna Medicare Surround and Cigna Medicare Rx (PDP) Supplement Plan. The Cigna plan is secondary to Medicare.

Additional detail on the provisions for the retiree plans is shown on the following page.

#### Dental and Vision

Retirees may elect dental and/or vision coverage, but the costs are entirely paid for by retirees (there is no employer subsidy for dental or vision coverage). Therefore, there is no liability to HRSD for these benefits and they are not included in this valuation.

### Changes in Plan Provisions Since Prior Valuation

None.



## Section VI. Summary of Principal Plan Provisions

	Cigna Open Access Plus HDHPQ Plan (Pre-Medicare Retirees)		Cigna Medicare Surround Medical Plan & Rx Medicare Plan <sup>1</sup>
	In-Network	Out-of-Network	
Deductible	\$2,500 Individual \$5,000 Family	\$5,000 Individual \$10,000 Family	\$226 <sup>2</sup>
Coinsurance	0%	20%	0%
Out of Pocket Limit	\$5,000 Individual <sup>3</sup> \$10,000 Family	\$10,000 Individual <sup>3</sup> \$20,000 Family	N/A
Preventive Care	0%	20%	\$0
Primary Care Physician	0%	20%	Up to \$20
Specialist Office Visits	0%	20%	Up to \$20
Urgent Care	0%	0%	Up to \$20
Emergency Room	\$250 copay	\$250 copay	Up to \$50 <sup>4</sup>
Ambulance	0%	0%	\$0
Inpatient Hospital	0%	20%	\$0
Outpatient Hospital	0%	20%	\$0
Skilled Nursing Facility	0% (limited to 180 days per year)	5% (limited to 180 days per year)	\$0 (limited to 100 days per year)
Hospice Care	0%	0%	\$0
Generic Drugs			
30-day supply (retail)	\$10	Not covered	\$10
90-day supply (mail order)	\$20		\$20
Preferred Brand Drugs			
30-day supply (retail)	\$30	Not covered	\$20
90-day supply (mail order)	\$60		\$40
Non-Preferred Brand Drugs			
30-day supply (retail)	\$50	Not covered	\$60
90-day supply (mail order)	\$100		\$120
Specialty Drugs			
30-day supply (retail)	\$75	Not covered	\$90
90-day supply (mail order)	N/A		N/A

<sup>1</sup> Rx copays only apply before member's True Out-of-Pocket costs are below the annual threshold defined for Medicare Part D coverage. After this, they must pay the standard Medicare Part D copays for the catastrophic phase.

<sup>2</sup> Applies to Medicare Part B services only

<sup>3</sup> \$5,000/\$10,000 out-of-pocket limits apply to individuals with individual coverage. The out-of-pocket limit per individual for participants with family coverage is \$6,750 in network and \$13,500 out of network.

<sup>4</sup> Waived if the insured is admitted to any hospital and the emergency visit is covered as a Medicare Part A expense.



## Section VII. Valuation Methods and Assumptions

### Valuation Date

July 1, 2023

### Measurement Date

June 30, 2023

### Adjustments for Events After the Measurement date

None

### Cost Method

This valuation uses the Projected Unit Credit method, with linear pro-ration to assumed benefit commencement to determine the ADC. However, the GASB 74 and 75 required disclosures (provided in a separate report) use the Entry Age Normal method for the valuation.

### Party Responsible for Assumptions used in this Valuation

HRSD

### Asset Valuation Method

The asset valuation method is the smoothed market value with phase-in method, using a smoothing period of 5 years, as described in paragraph 3.11 of IRS Revenue Procedure 2000-40. This smoothing period is also used by VRS.

The actuarial value of assets will equal the market value of assets with gains subtracted or losses added at the rate described below:

- a) 4/5 of the prior year's gain or loss
- b) 3/5 of the second preceding year's gain or loss
- c) 2/5 of the third preceding year's gain or loss
- d) 1/5 of the fourth preceding year's gain or loss

The gain or loss for a year is determined by calculating the difference between the expected value of assets for the year and the market value of assets at the valuation date. The expected value of assets for the year is the market value of assets brought forward with interest at the valuation interest rate to the current valuation date. If the expected value is less than the market value, the difference is a gain. If the expected value is greater than the market value, there is a loss.

### Expected Rate of Return on Assets

6.00%

### Payroll Growth

2.50%



## Section VII. Valuation Methods and Assumptions

### Election Assumption

For current retirees, actual medical coverage elections provided by HRSD were used.

For future retirees, 95% are assumed to have health insurance at retirement and elect coverage in the Plan.

### Spousal Coverage and Age of Spouse

Actual spouse information provided by HRSD is used for current retirees.

For future retirees, 35% of employees are assumed to cover a spouse upon retirement. Spouses were assumed to be the opposite gender of retirees, and females are assumed to be 3 years younger than male spouses.

### Healthcare Cost Trend

The healthcare cost trend assumption was developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model . The current valuation uses the 2022 version of the model (released in October 2021) with baseline assumptions. The following assumptions were used as input variables into this model:

Rate of Inflation	2.5%
Rate of Growth in Real Income / GDP per capita	1.4%
Excess Medical Growth	1.0%
Expected Health Share of GDP in 2031	19.0%
Health Share of GDP Resistance Point	20.0%
Year for Limiting Cost Growth to GDP Growth	2075

The SOA Long-Term Healthcare Cost Trend Model is designed to estimate the trend after 2024. The trend rate for 2023 and 2024 was set to 7.5%. This 7.5% trend assumption is greater than the past valuation due to recent inflation, which we estimate will result in higher medical costs as providers renew their contracts.

The SOA Long-Term Medical Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-run baseline projection and input variable ranges have been developed under the guidance of an SOA Project Oversight Group.

## Section VII. Valuation Methods and Assumptions

### Healthcare Cost Trend (continued)

The trend for selected years is shown below.

FYE	Medical/Rx Trend Rate
2023	7.50%
2024	7.50%
2025	5.20%
2030	5.01%
2035	4.97%
2040	4.81%
2045	4.70%
2050	4.64%
2055	4.58%
2060	4.54%
2065	4.50%
2070	4.20%
2075+	3.94%

Total medical/Rx costs and premiums are assumed to increase at the trend rates shown above.

### Future Salary Increases

In addition to assumed inflation of 2.50%, salary is assumed to increase at the following rates based on years of service. This assumption is only used in the calculation of EAN liability (required for disclosures under GASB 74 and 75):

Years of Service	Rate of Salary Increase
1-2	5.35%
3	4.75%
4-6	4.45%
7	4.35%
8	4.25%
9-10	4.00%
11-19	3.65%
20+	3.50%

## Section VII. Valuation Methods and Assumptions

### Decrement Assumptions

Below is a summary of decrements used in this valuation. Sample retirement, disability, and termination rates are illustrated in the tables below. The decrement assumptions are based on the decrements used for the Virginia Retirement System (VRS) State Employees, with the exception of the mortality assumption.

#### Mortality

Status	Description
Active Employees	SOA Pub-2010 General Employees Headcount-Weighted Mortality Table projected on a fully generational basis with mortality improvement scale MP-2021
Healthy Retirees	SOA Pub-2010 General Retirees Headcount-Weighted Mortality Table projected on a fully generational basis with mortality improvement scale MP-2021
Disabled Retirees	SOA Pub-2010 General Disabled Retirees Headcount-Weighted Mortality Table projected on a fully generational basis with mortality improvement scale MP-2021

#### Retirement<sup>1</sup>

##### Male Employees in VRS Plan 1

Age	Years of Service					
	5	6-9	10	11-29	30	31+
<50	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
50	0.00000	0.00000	0.02167	0.02167	0.12500	0.12500
55	0.03000	0.03000	0.03000	0.02333	0.08000	0.09000
60	0.03000	0.03333	0.03333	0.03333	0.11500	0.09000
65	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000
70	0.20000	0.22000	0.22000	0.22000	0.22000	0.22000
75	0.20000	0.22000	0.22000	0.22000	0.22000	0.22000
80+	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

<sup>1</sup> Retirement decrement begins (and termination decrement ends) when the employee reaches earliest retirement eligibility. Based on consultation with HRSD staff, the VRS retirement rates for VRS Plan 1 were reduced by a third for the age and service combinations in which employees are eligible for reduced retirement benefits but not yet eligible for unreduced retirement benefits.

## Section VII. Valuation Methods and Assumptions

### Decrement Assumptions

#### Retirement<sup>2</sup>

##### *Female Employees in VRS Plan 1*

Age	Years of Service					
	5	6-9	10	11-29	30	>30
< 50	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
50	0.00000	0.00000	0.02667	0.02667	0.07500	0.07500
55	0.03333	0.03333	0.03333	0.02667	0.07500	0.08000
60	0.03333	0.03667	0.03667	0.03667	0.12000	0.12500
65	0.27500	0.27500	0.27500	0.27500	0.27500	0.30000
70	0.25000	0.27000	0.27000	0.27000	0.27000	0.27000
75	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000
80+	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

##### *Male Employees in VRS Plan 2 or Hybrid Plan*

Age	<4	5	6-24	30	35	40+
< 50	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
50	0.00000	0.00000	0.00000	0.00000	0.00000	0.08000
55	0.00000	0.00000	0.00000	0.00000	0.08000	0.08000
60	0.00000	0.08000	0.08000	0.08000	0.08000	0.08000
65	0.00000	0.20000	0.20000	0.25000	0.25000	0.25000
70	0.00000	0.25000	0.20000	0.20000	0.20000	0.20000
75	0.00000	0.25000	0.20000	0.20000	0.20000	0.20000
80+	0.00000	1.00000	1.00000	1.00000	1.00000	1.00000

<sup>2</sup>Retirement decrement begins (and termination decrement ends) when the employee reaches earliest retirement eligibility. Based on consultation with HRSD staff, the VRS retirement rates for VRS Plan 1 were reduced by a third for the age and service combinations in which employees are eligible for reduced retirement benefits but not yet eligible for unreduced retirement benefits.





## Section VII. Valuation Methods and Assumptions

### Decrement Assumptions

#### Retirement

*Female Employees in VRS Plan 2 or Hybrid Plan*

Age	<4	5	6-24	30	35	40+
< 50	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
50	0.00000	0.00000	0.00000	0.00000	0.00000	0.08000
55	0.00000	0.00000	0.00000	0.00000	0.08000	0.08000
60	0.00000	0.08000	0.08000	0.08000	0.08000	0.08000
65	0.00000	0.20000	0.20000	0.25000	0.25000	0.25000
70	0.00000	0.25000	0.20000	0.20000	0.20000	0.20000
75	0.00000	0.25000	0.20000	0.20000	0.20000	0.20000
80+	0.00000	1.00000	1.00000	1.00000	1.00000	1.00000

#### Disability

Age	Male	Female
15	0.00098	0.00083
20	0.00098	0.00083
25	0.00180	0.00250
30	0.00228	0.00528
35	0.00323	0.00703
40	0.00530	0.00885
45	0.00858	0.01185
50	0.01243	0.01573
55	0.01573	0.01855
60	0.01725	0.01838
65	0.01643	0.01633
70	0.01430	0.02103

The disability rates are equal to 2.5 times the disability rates used in the valuation of VRS. All disability is assumed to be not in the line of duty.



## Section VII. Valuation Methods and Assumptions

### Decrement Assumptions

#### Termination Male Employees

Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	10+
15	0.27455	0.24436	0.21876	0.19618	0.17376	0.15141	0.13019	0.11442	0.10694	0.11166	0.13006
20	0.27455	0.24436	0.21876	0.19618	0.17376	0.15141	0.13019	0.11442	0.10694	0.11166	0.13006
25	0.23974	0.21579	0.19409	0.17424	0.15524	0.13693	0.11975	0.10595	0.09746	0.09732	0.10701
30	0.19848	0.17836	0.15985	0.14343	0.12952	0.11720	0.10578	0.09487	0.08505	0.07808	0.07539
35	0.17716	0.15218	0.13247	0.11805	0.10829	0.10087	0.09383	0.08541	0.07535	0.06447	0.05388
40	0.16592	0.13267	0.10974	0.09619	0.08963	0.08644	0.08292	0.07677	0.06737	0.05473	0.03929
45	0.15975	0.11918	0.09302	0.07949	0.07467	0.07461	0.07339	0.06905	0.06126	0.04945	0.03331
50	0.15528	0.11158	0.08401	0.07030	0.06578	0.06661	0.06592	0.06272	0.05733	0.04934	0.03819
55	0.15197	0.11087	0.08483	0.07159	0.06658	0.06381	0.06149	0.05872	0.05613	0.05509	0.05439
60	0.15091	0.11838	0.09735	0.08612	0.08094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.15304	0.13450	0.12193	0.11472	0.11037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.16014	0.16414	0.16565	0.16590	0.16406	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

#### Termination Female Employees

Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	10+
15	0.31051	0.30337	0.28078	0.24487	0.20381	0.16715	0.14191	0.11957	0.10836	0.11872	0.15981
20	0.31051	0.30337	0.28078	0.24487	0.20381	0.16715	0.14191	0.11957	0.10836	0.11872	0.15981
25	0.27376	0.26249	0.24118	0.21199	0.18029	0.15160	0.13004	0.11112	0.09997	0.10375	0.12876
30	0.23050	0.21033	0.18887	0.16746	0.14755	0.12956	0.11392	0.10015	0.08933	0.08403	0.08671
35	0.20766	0.17777	0.15365	0.13514	0.12123	0.10996	0.09994	0.09070	0.08104	0.07066	0.05980
40	0.19406	0.15556	0.12786	0.10975	0.09881	0.09213	0.08715	0.08194	0.07420	0.06178	0.04364
45	0.18340	0.13974	0.10951	0.09110	0.08142	0.07776	0.07634	0.07404	0.06888	0.05803	0.04010
50	0.17198	0.12790	0.09781	0.08001	0.07116	0.06882	0.06860	0.06763	0.06550	0.06030	0.05125
55	0.16001	0.12044	0.09383	0.07856	0.07120	0.06731	0.06491	0.06383	0.06463	0.06942	0.07765
60	0.14937	0.11902	0.09937	0.08896	0.08486	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.14142	0.12453	0.11513	0.11187	0.11326	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.13651	0.14019	0.14662	0.15441	0.16495	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

## Section VII. Valuation Methods and Assumptions

### Expected Per Capita Costs

The per capita claims cost assumptions for pre-Medicare retirees are claims and enrollment data through June 30, 2023. This information was provided separately for active employees retirees, and claims were split between medical and prescription drug benefits. Administrative fees paid were also provided. Per capita costs were developed separately for medical and Rx, and were calculated as follows:

- Total claims for each period were divided by the number of participants in the plan based on the valuation data and then projected to 2023 using 5% trend for medical and 8% trend for prescription drug benefits.
- Expected per capita costs were developed based on a weighted average of experience during FY2022 and FY2023, with equal weighting assigned to each year.

The resulting average per capita claims costs were age adjusted using the Yamamoto aging curve. An additional load of 5% was applied to the costs to account for administrative fees. Per capita costs for dependent spouses were assumed to be the same as those for a retiree of the same age.

Retiree contributions were based on the average premiums for the plans using a blend of the 2023 premium rates based on enrollment as of the valuation date. Pre-Medicare spouses were assumed to contribute 2.80 times the cost of individual coverage based on the difference in the premiums for individual vs family coverage.

Since the Medicare plans are fully-insured, the per capita costs for Medicare-eligible participants were based on the premium rates we received from HRSD. Administrative fees were assumed to be included in the premium rates provided. The FY2023 premiums were trended to the midpoint of the projection period using 5% trend for medical and 8% trend for prescription drug benefits. This amount was then age adjusted to determine a retiree per capita cost. Retiree contributions were also based on the

The following chart shows the average premiums (based on published rates), and total retiree medical and Rx per capita costs.

FY2024 Expected Costs	
<b>Average Premium</b>	
Pre-Medicare Retiree	\$ 9,625
Medicare Retiree	5,902
<b>Total Retiree Medical &amp; Rx Per Capita Costs</b>	
Under age 50	\$ 8,886
Age 50-54	10,956
Age 55-59	13,404
Age 60-64	16,350
Age 65-69	5,557
Age 70-74	6,032
Age 75-80	6,447
Age 80-84	6,785
Age 85+	6,882

## Section VII. Valuation Methods and Assumptions

### Other Assumptions

- For participant records that were provided without a gender code, the gender code provided on the prior year's census was used
- For participant records where Date of Birth changed from the prior valuation, the date provided on the current census was assumed to be correct.

### Changes in methods and assumptions since prior valuation

- The per capita cost assumption was updated to reflect FY2023 premium rates and claims and enrollment experience through June 30, 2023.
- The short-term trend rates were updated to reflect recent inflation and the expected impact on medical costs in the short-term.



## Section VIII. Glossary

### Actuarially Determined Contribution:

For Plans with irrevocable trusts, the recommended contribution to the Plan (determined in conformity with Actuarial Standards of Practice) that is projected to result in assets equaling the actuarial accrued liability within a period of time.

### Covered Group:

Plan members included in an actuarial valuation.

### Discount Rate:

The rate used to adjust a series of future payments to reflect the time value of money.

### Election Rate:

The percentage of retiring employees assumed to elect coverage.

### Employer's Contributions:

Contributions made in relation to the actuarially determined contributions of the employer (ADC). An employer has made a contribution in relation to the ADC if the employer has (a) made payments of benefits directly to or on behalf of a retiree or beneficiary, (b) made premium payments to an insurer, or (c) irrevocably transferred assets to a trust, or an equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator.

### Entry Age Normal Funding Method:

A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit.

### Funded Ratio:

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

### Healthcare Cost Trend Rate:

The rate of change in per capita health claim costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

### Measurement Date:

A day selected by the entity from the last day of the prior fiscal year to the last day of the current fiscal year. The measurement date is not necessarily the same date as the valuation date.

## Section VIII. Glossary

### OPEB Plan:

An OPEB plan having terms that specify the amount of benefits to be provided at or after separation from employment. The benefits may be specified in dollars (for example, a flat dollar payment or an amount based on one or more factors such as age, years of service, and compensation), or as a type or level of coverage (for example, prescription drugs or a percentage of healthcare insurance premiums).

### Other Post-Employment Benefits:

Post-employment benefits other than pension benefits. Other post-employment benefits (OPEB) include post-employment healthcare benefits, life insurance, regardless of the type of plan that provides them, and all post-employment benefits provided separately from a pension plan, excluding benefits defined as termination offers and benefits.

### Pay-as-you-go (PAYGO):

A method of financing a benefit plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.

### Payroll Growth Rate:

An actuarial assumption with respect to future increases in total covered payroll attributable to inflation; used in applying the level percentage of projected payroll amortization method.

### Plan Liabilities:

Obligations payable by the plan at the reporting date, including, primarily, benefits and refunds due and payable to plan members and beneficiaries, and accrued investment and administrative expenses. Plan liabilities do not include actuarial accrued liabilities for benefits that are not due and payable at the reporting date.

### Plan Members:

The individuals covered by the terms of an OPEB plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

### Post-employment:

The period between termination of employment and retirement as well as the period after retirement.

### Post-employment Healthcare Benefits:

Medical, dental, vision, and other health-related benefits provided to terminated or retired employees and their dependents and beneficiaries.

## Section VIII. Glossary

### Select and Ultimate Rates:

Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8% for year 2000, 7.5% for 2001, and 7% for 2002 and thereafter, then 8% and 7.5% are select rates, and 7% is the ultimate rate.

### Service Cost:

That portion of the Actuarial Present Value of plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

### Valuation Date:

The as-of date for employee census data. Under GASB 75, the valuation date must be within 30 months of the last day of the fiscal year.

## Appendix I. The Actuarial Valuation Process

### Step 1 – Determining the Present Value of Benefits

The first step of the actuarial valuation process is to determine the Present Value of Benefits (PVB). The PVB represents the estimated amount needed to provide all future OPEB benefits.

For a retiree it is based on the following assumptions:

- The current cost of medical benefits
- How fast medical costs will increase (medical trend)
- Mortality

For an employee it *also* considers the following assumptions:

- How many employees will leave before becoming eligible for the benefit
- At what age will employees retire
- What percentage of eligible retirees will elect coverage
- What percent of eligible retirees will have spouse coverage

Based on these assumptions, the actuary estimates a payment stream for each year in the future.

The streams of payments are discounted to the valuation date using a discount rate. The discount rate is similar to the rate of return you would expect to earn on funds in a bank or other investment vehicle. The sum of the discounted payment stream is the PVB.

### Step 2 – The Actuarial Funding Method

If the entire present value of benefits was deposited into a trust when every new employee was hired, there would be (in the absence of actuarial losses caused by experience different than that assumed) no cost after the first year. The goal of an actuarial funding method is to spread the present value of benefits throughout the employee's career.

Accordingly, the second step of an actuarial valuation is to divide the Present Value of Benefits into three components:

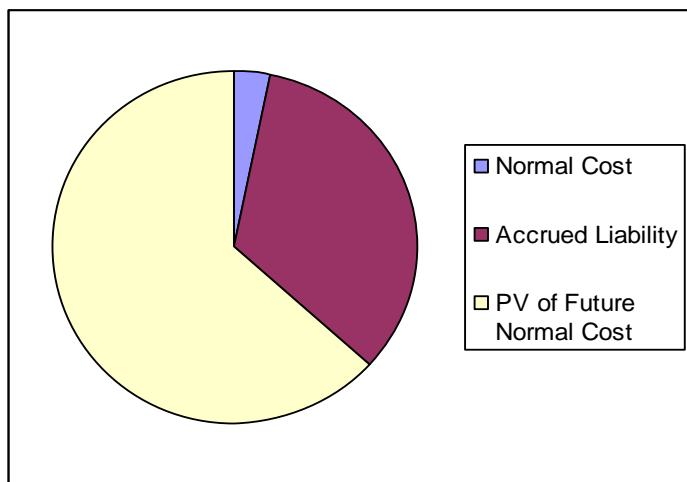
- The normal cost (the liability accrual for the year)
- The accrued liability (the liability amount allocated for past service)
- The present value of future normal costs (the liability amount allocated to the future)



## Appendix I. The Actuarial Valuation Process

### Step 2 – The Actuarial Funding Method

The following chart illustrates the 3 components of the Present Value of Benefits:



For a retired employee, the present value of benefits equals the accrued liability.

The ADC is determined using the Projected Unit Credit Actuarial Funding method. The GASB 75 accounting standard requires the use of the Entry Age Normal Actuarial Funding Method.

#### The Projected Unit Credit (PUC) Actuarial Funding Method

The PUC method allocates the present value of benefits by the service at valuation date divided by the service at retirement. So, for an employee with 10 years of service who is expected to retire in 20 years with 30 years of service, the actuarial accrued liability would be one third (10 divided by 30) of the present value of benefits.

#### The Entry Age Normal (EAN) Actuarial Funding Method

The goal of the EAN method is that the annual accrual (or normal cost) be a level percent of pay throughout an employee's career. This method requires a salary increase assumption. The normal cost percentage is equal to the present value of benefits divided by the present value of future salary determined when the employee was hired. The actuarial accrued liability is equal to the present value of benefits minus the normal cost percentage times the present value of future salaries at the valuation date.

While it depends upon the discount rate and the salary increase assumption generally the EAN method has a higher actuarial accrued liability than the PUC Method.

## Appendix II. Projections

### ADC Projection (based on 2023 Valuation)

FYE	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	7/01/2023	7/01/2024	7/01/2025	7/01/2026	7/01/2027	7/01/2028	7/01/2029	7/01/2030	7/01/2031	7/01/2032	7/01/2033
	6/30/2024	6/30/2025	6/30/2026	6/30/2027	6/30/2028	6/30/2029	6/30/2030	6/30/2031	6/30/2032	6/30/2033	6/30/2034
<b>Assumptions:</b>											
Trust Investment Return	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Discount Rate	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Payroll growth	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Ultimate Trend	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%
<b>Unfunded Accrued Liability:</b>											
APBO BOY	67,774,000	70,453,000	73,120,000	75,797,000	78,543,000	81,323,000	84,399,000	87,625,000	90,966,000	94,459,000	98,036,000
Assets (AVA) BOY	70,460,000	72,511,000	74,540,000	74,404,000	77,155,000	79,635,000	82,389,000	85,267,000	88,208,000	91,270,000	94,384,000
Unfunded APBO (UAL)	(2,686,000)	(2,058,000)	(1,420,000)	1,393,000	1,388,000	1,688,000	2,010,000	2,358,000	2,758,000	3,189,000	3,652,000
Percent Funded	103.96%	102.92%	101.94%	98.16%	98.23%	97.92%	97.62%	97.31%	96.97%	96.62%	96.27%
<b>End of Year Annual Expense:</b>											
Normal Cost (EOY)	1,801,000	1,872,000	1,946,000	2,023,000	2,103,000	2,186,000	2,272,000	2,362,000	2,455,000	2,552,000	2,653,000
Amortization of unfunded liability	(243,000)	(201,000)	(206,000)	(211,000)	(216,000)	(221,000)	(227,000)	(258,000)	(265,000)	(271,000)	(278,000)
<b>ADC</b>	<b>1,558,000</b>	<b>1,671,000</b>	<b>1,740,000</b>	<b>1,812,000</b>	<b>1,887,000</b>	<b>1,965,000</b>	<b>2,045,000</b>	<b>2,104,000</b>	<b>2,190,000</b>	<b>2,281,000</b>	<b>2,375,000</b>
<b>Trust Assets:</b>											
Beginning of Year MVA	67,423,000	69,838,000	72,267,000	74,687,000	77,155,000	79,635,000	82,389,000	85,267,000	88,208,000	91,270,000	94,384,000
Return on Investments	4,045,000	4,190,000	4,336,000	4,481,000	4,629,000	4,778,000	4,943,000	5,116,000	5,292,000	5,476,000	5,663,000
Employer Contributions	1,558,000	1,671,000	1,740,000	1,812,000	1,887,000	1,965,000	2,045,000	2,104,000	2,190,000	2,281,000	2,375,000
Benefit Payments with Interest	(3,188,000)	(3,432,000)	(3,656,000)	(3,825,000)	(4,036,000)	(4,279,000)	(4,511,000)	(4,729,000)	(4,920,000)	(5,143,000)	(5,391,000)
End of Year MVA	69,838,000	72,267,000	74,687,000	77,155,000	79,635,000	82,389,000	85,267,000	88,208,000	91,270,000	94,384,000	97,471,000
<b>Benefit Payments (no interest)</b>	<b>3,096,000</b>	<b>3,333,000</b>	<b>3,551,000</b>	<b>3,715,000</b>	<b>3,920,000</b>	<b>3,874,000</b>	<b>3,992,000</b>	<b>4,156,000</b>	<b>4,293,000</b>	<b>4,510,000</b>	<b>4,809,000</b>

\* These calculations assume (1) a stable population, (2) no changes to plan provisions, methods or assumptions in any future year, (3) HRSD will continue to contribute the ADC to the OPEB Trust in each future year.

\* The Plan's actual expense may be different than the figures estimated above due to for example, demographic changes, changes in assumptions or methods, asset returns, or changes in laws/regulations.

\* For these calculations we used the same data, methods, assumptions and plan provisions as described in this valuation report.