Hampton Roads Sanitation District Post-Employment Medical Benefits Actuarial Valuation to Determine Actuarially Determined Contribution For FY2018

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BOLTON PARTNERS

October 23, 2017

Jay Bernas
Director of Finance
Hampton Roads Sanitation District
1436 Air Rail Avenue
Virginia Beach, VA 23455-3002

Dear Jay:

The following sets forth the Actuarially Determined Contribution (ADC) for Hampton Roads Sanitation District (HRSD) for the Fiscal Year Ending June 30, 2018. Starting in FY2018 the GASB45 employer accounting standard will be replaced by the GASB75 employer accounting standard. We have also included Plan accounting results under GASB74 for Plan Accounting.

The ADC has increased from $2,557,565 in FYE 2017 to $2,729,493 for FYE 2018. The unfunded liability has increased from $6,065,030 as of June 30, 2016 to $6,834,624 as of June 30, 2017.

Section 1 is meant to give a high level of summary of the OPEB valuation. Sections 2 – 4 includes information used to determine the ADC. Most of the information needed for the CAFR as required by the GASB74 accounting standard is provided in Section 5 of the report. Section 6 summarizes the valuation data, Section 7 the plan provisions, and Section 8 the actuarial methods and assumptions.

This report has been prepared for HRSD for the purposes of determining the FYE 2018 ADC and to assist in complying with the GASB74 accounting requirement. It is neither intended nor necessarily suitable for other purposes. Bolton Partners is not responsible for the consequences of any other use or the reliance by another party.

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 report is based on July 1, 2017 census data. The census data and medical premiums for fiscal year 2017 were submitted by HRSD. In preparing the valuation we relied on demographic and claims data provided by HRSD. We reviewed the data for reasonableness, but did not audit the data. 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.

In general, post-employment medical valuations are based on assumptions for medical increases. If medical costs increase at a rate greater than our assumption there could be a dramatic increase in the cost. The healthcare cost trend rate selected for this valuation is consistent with prevalent practices. Standard actuarial practice is to assume an “ultimate trend” which is consistent with the best estimate of GNP growth. However, the number of years until the ultimate trend is attained and the rate of decrease are not known. There is a significant probability that between now and the next actuarial valuation we will not observe the anticipated amelioration of medical trend. If this is the case, typical practice is to reset the initial trend and to defer the year that the ultimate trend rate is attained. If this occurs annual actuarial losses of 5% to 15% of liabilities due to the revised trend rate can be expected.

Bolton Partners is completely independent of HRSD, 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.

Kevin Binder 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,

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1. Executive Summary

Background

In June 2015, the Government Accounting Standards Board (GASB) released Statements 74 and 75. GASB Statement 74 replaces Statement 43 for post-employment benefits other than pensions (OPEB) for plan accounting. GASB Statement 75 replaces Statement 45 for post-employment benefits other than pensions (OPEB) for employer accounting. The GASB 74 standard applies starting in FYE 2017 and the GASB 75 standard applied to GASB 75 to post-employment medical benefits that are provided to HRSD retirees.

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 GASB45. This report provides the ADC results for FY2018.

The last valuation report, which developed the FYE 2017 ARC, was completed August 19, 2016 by Bolton Partners.

Contribution Policy

The HRSD’s contribution policy is to contribute the ARC under the previous GASB45 accounting standard to a trust established to pre-fund these benefits. Contributions are made monthly based on the estimated expense for the year and readjusted with each annual valuation.

Discount Rate Assumption

Because the plan is close to being 100 percent funded with an established funding policy, the long-term expected rate of return on assets of 6.0% can be used as the discount rate.

Measurement Date

GASB 74 liabilities are calculated as of the last date of the plan year (June 30, 2017).

Assets

Asset information as of July 1, 2017 and the asset reconciliation for the fiscal year ending 2017 was provided by HRSD.

The market value of assets is smoothed over a five-year period to determine the ADC. Asset gains and losses are determined by comparing the expected value of assets to the market value of assets. As of 6/30/2017 the actuarial value of assets is $42,468,376. The market value of assets is $42,923,098 as provided by HRSD.

1. Executive Summary (cont.)

Comparison with Previous Valuation

The prior valuation was based on July 1, 2017 data and completed August 19, 2016. The ADC has increased from $2,557,565 for FYE 2016 to $2,734,970 for FYE 2017. The ADC increase is mainly due to unfavorable demographic experience. Favorable claims experience decreased the ADC. The overall effect was an increase in the ADC.

The following table compares the data and reconciles the expense.

Comparison of Current and Previous Valuations		
Valuation Date	July 1, 2016	July 1, 2017
Fiscal Year Ending	2017	2018
Demographic Data (participants with medical coverage)		
Employees	694	708
Retirees Less Than Age 65 *	68	72
Retirees Age 65 or Greater *	63	80
Reconciliation of Expense (ADC)		
FYE 2017 ADC		$2,557,565
Expected Increase due to Passage of Time		78,266
Increase/(Decrease) due to Investment Experience		(16,394)
Increase/(Decrease) due to Demographic Experience		394,856
Increase/(Decrease) due to Claims Experience		(284,800)
FYE 2018 ADC		$2,729,493

* *Spouses of retired employees with husband/wife (or family) coverage are not included in these counts.*

1. Executive Summary (cont.)

Comparison with Previous Valuation (cont.)

The following table reconciles the unfunded accrued liability.

Reconciliation of Unfunded Accrued Liability (UAL)	
7/1/2016 Unfunded Accrued Liability (UAL)	$6,065,030
Expected Increase due to Passage of Time	(52,071)
Increase/(Decrease) due to Investment Experience	(185,335)
Increase/(Decrease) due to Demographic Experience	3,164,000
Increase/(Decrease) due to Claims Experience	(2,157,000)
7/1/2017 Unfunded Accrued Liability (UAL)	$6,834,624

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 8 for more details.

1. Executive Summary (cont.)

Demographic Data

Demographic data as of July 1, 2017 was provided to us by the Hampton Roads Sanitation District. This data included retirees who currently receive benefits through the HRSD OPEB Plan. Although we have not audited this data we have no reason to believe that it is inaccurate.

Claims Data

Monthly paid claims and enrollment for employees and retirees from July 1, 2016 to June 30, 2017 were supplied by the carrier. The over age 65 costs are based on the premiums for the Medicare plan.

Although we have not audited the claims data we have no reason to believe that it is inaccurate.

Impact of Health Care Reform

We have adjusted the pre-65 medical care trend due to the projected impact of the "Cadillac Tax". The Cadillac Tax is one of the provisions of the Affordable Care Act (ACA) of 2010. The Cadillac Tax provision is effective in 2020. The Cadillac Tax only applies to plans that cost $10,200 or more for an individual or $27,500 per family. There will be a 40 percent excise tax for expenditures over these thresholds. The cost thresholds are indexed by general inflation each year after 2020. Because medical trends are projected to be higher than general inflation we would expect the percentage of the premium that is subject to the premium tax to increase over time. We have assumed that general inflation will average 2.8 percent per annum for purposes of estimating the impact of the excise tax.

There are other provisions of the ACA that could impact future costs. Some of the provisions (for example risk adjustment charges for plans that cover healthier populations) could increase costs, while others (for example, less uninsured care costs might be passed on to those with insurance) may reduce costs over time. Because the impact of these provisions is unclear at this time, we have made no other adjustments to the medical care trend.

Implicit Subsidy

The published insurance rates for persons prior to Medicare eligibility are based primarily on the healthcare usage of active employees. Since retirees use healthcare at a rate much higher than employees, using these blended rates creates an implicit subsidy for the retiree group. ASOP 6 requires that the claims assumption we use for this valuation be based on the actual per-capita retiree cost. The difference between the actual usage of healthcare by retirees and the assumption built into the published rates is identified as the implicit subsidy amount.

1. Executive Summary (cont.)

Demographic Assumptions

The demographic assumptions are based on those used for State Employees in the Virginia Retirement System (VRS). Demographic assumptions used mirror those used for the VRS pension plan.

All employees are assumed to participate in the State of Virginia Retirement System (VRS). Section 8 details the assumptions for electing coverage.

Economic Assumptions

The discount rate assumption is tied to the return expected on the funds used to pay these benefits. The discount rate assumption of 6 percent is the long term expected return on trust assets and is unchanged from the prior actuarial report.

The medical trend assumption was developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model, version 2014_b. The growth in the GDP assumption is set to 0.9% to be more consistent with the payroll growth assumption. The other inputs are the baseline inputs. The following assumptions were used as input variables into the SOA model:

Rate of Inflation	2.2%
Rate of Growth in Real Income / GDP per capita	0.9%
Extra Trend due to Technology and other factors	1.4%
Expected Health Share of GDP in 2020	19.2%
Health Share of GDP Resistance Point	25.0%
Year for Limiting Cost Growth to GDP Growth	2075

The SOA Long-Run 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 variables have been developed under the guidance of an SOA Project Oversight Group.

The pre-65 medical trend was increased to reflect the impact of the Cadillac Tax. For this purpose, general inflation was assumed to be 2.2 percent per annum.

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

2. FYE 2018 Determination of ADC

Below is a summary of the calculation of the Plan's ADC as of June 30, 2017 under current plan provisions using 6.00% discount rate. The unfunded actuarial accrued liability is expected to be fully amortized in 15 years as of 6/30/2017. Item 6 shows the ADC if the medical trend was increased 1 percent.

The ADC is calculated the same way as the Actuarially Required Contribution (ARC) from previous reports.

		FYE 2018
(1)	Interest Rate	6.00%
(2)	Accrued Liability	
	(a) Employees	$30,852,000
	(b) Retirees	$18,451,000
	(c) Totals (a + b)	$49,303,000
(3)	Actuarial Value of Assets	$42,468,376
(4)	Unfunded Accrued Liability (UAL) (2 – 3)	$6,834,624
(5)	Annual Determined Contribution (ADC)	
	(a) Normal Cost	$1,702,000
	(b) Amortization of Unfunded Accrued Liability (see Section 4)	$1,027,493
	(c) Total ADC (a + b)	$2,729,493
(6)	1% Sensitivity (ADC)	$3,989,872

3. Assets

Market Value of Assets Reconciliation

Below is a reconciliation of market value of assets from last year to this year and the asset gain/(loss) development.

		FYE 2017
(1)	Assumed return on assets	6.0%
(2)	Market value of assets beginning of year	37,398,190
(3)	Employer Contributions	2,557,565
(4)	Retiree premiums received by HRSD	292,121
(5)	Investment gains/(losses)	4,050,236
(6)	Benefit payments paid from Trust	(1,678,975)
(7)	Investment expenses	(92,749)
(8)	Market value of assets end of year *(2) + (3) + (4) + (5) + (6)*	42,526,387
(9)	Expected investment gains/(losses)	2,202,286
(10)	Asset (gain)/loss *(9) – (5) – (7)*	(1,755,201)

Actuarial Value of Assets Calculation

			FYE 2017
(1)	Market value of assets (MVA) end of year		42,526,387
(2)	Prior asset (gain)/loss deferred		
	(a)	80% of FYE 2016 (gain)/loss	(1,404,161)
	(b)	60% of FYE 2015 (gain)/loss	872,664
	(c)	40% of FYE 2014 (gain)/loss	473,485
	(d)	20% of FYE 2013 (gain)/loss	0
	(e)	Total deferred asset (gain)/loss	(58,011)
(3)	Actuarial value of assets (AVA) end of year *(1) + (2)*		42,468,376
(4)	AVA as percent of MVA		99.9%

3. Assets (cont.)

Asset bases

FYE	(Gain)/Loss Base
2017	(1,755,201)
2016	1,454,440
2015	1,183,714
2014	N/A
2013	N/A

4. Amortization Payments

Development of Experience Loss (Gain)

An initial unfunded liability base was established on 7/1/2014. 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 experience losses and gains. Each base will be amortized over a 15-year period as a level percentage of total payroll. Assumption changes will also be amortized over 15 years as a level percentage of total payroll. This change was made to reduce expense volatility. The following determines the new base that will be established due to the difference between expected and actual experience for FYE 2017.

(1)	Discount rate	6.0%
(2)	Unfunded Accrued Liability (UAL) last year	6,065,030
(3)	Interest on UAL	363,902
(4)	Last year Normal Cost (EOY)	1,667,000
(5)	Employer Contributions	(2,557,565)
(6)	Expected UAL *(2)* + *(3)* + *(4)* + *(5)*	5,538,367
(7)	Actual UAL *(6)* + *(7)*	6,834,624

4. Amortization Payments (cont.)

Unfunded Amortization Liability (UAL) Bases as of 7/1/2017

Date Established	Description	Original Base Amount	Outstanding Base Amount	Years Remaining	Payment EOY
7/1/2014	Initial UAL	7,120,320	5,631,230	7	940,976
7/1/2014	Experience (gain)/loss	(1,759,841)	(1,588,404)	12	(167,368)
7/1/2014	Decrement change	(53,000)	(47,838)	12	(5,049)
7/1/2015	FYE 2015 base	96,239	90,385	13	8,944
7/1/2016	FYE 2016 base	1,495,553	1,452,994	14	135,598
7/1/2017	FYE 2017 base	1,296,257	1,296,257	15	114,662
	Total		6,834,624		1,027,493

5. Required GASB74 Disclosures

The following GASB74 Plan Accounting exhibits should be included in the Plan's Stand Alone Financial Statements or if there are no Stand-Alone Plan statements in the CAFR's RSI.

The liability calculated under GASB74 uses the Entry Age Normal (EAN) method. Note that the liability under GASB74 will differ from the liability used to determine the ADC which is determined under the Projected Unit Credit (PUC) funding method.

Net OPEB Liability

	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a)-(b)
Balance as of June 30, 2017 for FYE 2018	$57,416,687	$42,526,387	$14,790,300

Sensitivity of Total OPEB Liability

The following presents the Total and Net OPEB liability of HRSD, as well as what the District's Total and Net OPEB liability would be if it were calculated using a **discount rate** that is 1 percentage point lower or 1 percentage point higher.

	1% Decrease 6.00%	Discount Rate 7.00%	1% Increase 8.00%
Total OPEB Liability	$68,038,930	$57,416,687	$49,008,286
Net OPEB Liability	$25,512,543	$14,890,300	$6,481,899

The following presents the Total and Net OPEB liability of the District, as well as what the District's Total and Net OPEB liability would be if it were calculated using a **health care cost trend rate** that is 1 percentage point lower or 1 percentage point higher. See Section 8 for the complete health care cost trend rate.

	1% Decrease Rate in 2075 of 2.40%	Health Care Cost Trend Rate in 2075 of 3.40%	1% Increase Rate in 2075 of 4.40%
Total OPEB Liability	$48,258,032	$57,416,687	$69,242,308
Net OPEB Liability	$5,731,645	$14,890,300	$26,715,921

5. Required GASB74 Disclosures (cont.)

Schedule of Changes in the Total OPEB Liability and Related Ratios

Last 10 Fiscal Years
(Dollar amounts in thousands)
As of June 30 of Measurement Year

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB liability										
Service Cost	$ 1,188									
Interest Cost	3,208									
Changes in Benefit Terms	-									
Differences Between Expected and Actual Experience	-									
Changes of Assumptions	-	Information for FYE 2016 and earlier is not available								
Benefit Payments	(892)									
Net Change in Total OPEB Liability	3,504									
Total OPEB liability - Beginning of Year	53,913									
Total OPEB Liability - End of Year	57,417									

Plan Fiduciary Net Position
Last 10 Fiscal Years
(Dollar amounts in thousands)
As of June 30 of Measurement Year

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Contributions - Employer	$ 2,558									
Net Investment Income	3,957									
Benefit Payments	(892)									
Administrative Expense	(495)									
Net Change in Fiduciary Net Position	5,128									
Fiduciary Net Position - Beginning of Year	37,398	Information for FYE 2016 and earlier is not available								
Fiduciary Net Position - End of Year	42,526									
Net OPEB Liability	14,890									
Fiduciary Net Position as a % of Total OPEB Liability	74.07%									
Covered-Employee Payroll[1]										
Net OPEB Liability as a % of Payroll[1]										
Expected Average Remaining Service Years of All Participants	8									

Notes to Schedule:

Benefit changes: None.

Changes of assumptions: None.

Discount rate:

6/30/2016	6.00%
6/30/2017	6.00%

1/ Because this OPEB plan does not depend on salary, we do not have salary information.

5. Required GASB74 Disclosures (cont.)

Schedule of Changes in the Actuarially Determined Contribution and Related Ratios

Last 10 Fiscal Years
(Dollar amounts in thousands)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actuarially determined contribution	$ 2,558									
Contributions in relation to the actuarially determined contribution	2,558		Information for FY2016 and earlier is not available							
Contribution deficiency (excess)	$ -									
Covered-employee payroll[1]										
Contributions as a percentage of covered employee payroll[1]										

1/ Because this OPEB plan does not depend on salary, we do not have salary information.

6. Valuation Data

Counts – Employees and Retirees

The following table summarizes the participant counts and ages, as of 7/1/2017 and 7/1/2016, for the population with medical coverage:

Data as of			***7/1/2017***	***7/1/2016***
(1)	Number of Participants			
	(a)	Employees	782	694
	(b)	Healthy Retirees*	140	119
	(c)	Disabled Retirees*	12	12
(2)	VRS Plan 1 Participants			
	(a)	Number of Employees	442	424
	(b)	Average Age	50.34	49.52
	(c)	Average VRS Service	21.37	20.81
(3)	VRS Plan 2 Participants			
	(a)	Number of Employees	179	162
	(b)	Average Age	38.17	36.47
	(c)	Average VRS Service	6.29	5.24
(4)	Hybrid Plan Participants			
	(a)	Number of Employees	161	108
	(b)	Average Age	35.14	34.28
	(c)	Average VRS Service	1.91	1.28
(5)	Retiree Statistics – Average Age			
	(a)	Healthy	65.75	65.24
	(b)	Disabled	58.65	59.85
	(c)	Total	65.19	64.75

* *Retirees with retiree and spouse or family coverage are counted as one (1) for this purpose.*

6. Valuation Data (cont.)

Active Age - Service Distribution

Shown below is a distribution based on age and VRS service of all HRSD active employees with medical coverage as of July 1, 2017.

	Years of VRS Service as of 7/1/2017								
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**
Under 25	5	19	2	0	0	0	0	0	26
25 - 29	10	42	15	2	0	0	0	0	69
30 - 34	6	43	39	17	0	0	0	0	105
35 - 39	3	34	20	28	8	1	0	0	94
40 - 44	2	23	17	16	19	10	1	0	88
45 - 49	2	10	18	24	16	17	15	1	103
50 - 54	3	11	9	15	11	18	32	31	130
55 - 59	0	4	16	10	15	13	27	36	121
60 - 64	0	2	2	6	6	5	11	10	42
65 & Up	0	0	0	0	0	1	0	3	4
Total	31	188	138	118	75	65	86	81	782

6. Valuation Data (cont.)

Retiree Age – Medical Coverage Distribution

Shown below is a distribution based on age of retiree participants who are currently receiving medical and drug benefits from the HRSD.

Age	*Individual*	*Husband/Wife*	*Total*
Less Than 45	0	0	0
45 – 50	1	1	2
50 – 55	3	1	4
55 – 60	24	4	28
60 – 65	36	10	46
65 – 70	29	6	35
70 – 75	22	4	26
75 – 80	10	1	11
80 or more	0	0	0
Total	**125**	**27**	**152**

7. Summary of Principal Plan Provisions

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

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.

An eligible participant may cover himself and his 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 is for employees hired prior to July 1, 2010 and vested by January 1, 2013, or previous VRS members who did not take a refund of employee contributions.
- VRS Plan 2 is for employees hired on or after July 1, 2010 plus employees not vested by January 1, 2013.
- Hybrid Retirement Plan is for any employee hired for the first time in a covered position, with no prior VRS creditable service, on or after January 1, 2014.

The Hybrid Retirement Plan includes judges appointed or elected to an original term on or after January 1, 2014. Members of SPORS and VaLORS, and 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 current earliest retirement eligibility conditions from VRS.

VRS Plan 1 (Employees hired before July 1, 2010 and vested by January 1, 2013) – earlier of

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

* VRS requires age *50* with 10 years of service for retirement benefits. But to receive HRSD OPEB benefits, a participant must be at least age *55*.

7. Summary of Principal Plan Provisions (cont.)

Virginia Retirement System (VRS) Retirement Eligibility (cont.)

VRS Plan 2 and Hybrid Retirement Plan – earlier of

- Attain Social Security Normal Retirement Age with 5 years of VRS creditable service,
- Age plus years of VRS creditable service equal 90, or
- Attain age 60 with 5 years of VRS creditable service.

The earliest unreduced pension retirement eligibility is:

VRS Plan 1 (Employees hired before July 1, 2010 and vested by January 1, 2013) – earlier of

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

VRS Plan 2 and Hybrid Retirement Plan – 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.

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

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.

7. Summary of Principal Plan Provisions (cont.)

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.

7. Summary of Principal Plan Provisions (cont.)

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 participating dependents.

A retiree's contribution towards the cost of retiree only coverage, post Medicare, corresponds to the typical retiree's VRS HIC. The table below summarizes the monthly retiree health insurance premiums covered retirees must pay for fiscal year ending June 30, 2016.

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

7. Summary of Principal Plan Provisions (cont.)

Medical Plan Description

HRSD expressly reserves the right to add, modify or eliminate the benefits provided under the Plan. Employees participate in a wellness program. Employees who satisfy the wellness program requirements are placed in Plan A which has lower deductibles than Plan B. All pre-Medicare retirees are placed in Plan A, which is a Cigna High Deductible Health Plan (HDHP). Current plan provisions for Plan A include:

- Coinsurance: There is no coinsurance for in network charges. For out-of-network charges the coinsurance is 20% after the deductible is met.
- Deductible:
  - In network providers - for employee only, $1,500 per year; for family coverage, $3,000 per year.
  - Out of network providers – for employee only, $3,000 per year; for family coverage $6,000 per year.
- Contract year out of pocket maximum:
  - In network providers - for employee only, $3,000; for family coverage, $6,000
  - Out of network providers - for employee only, $6,000; for family coverage, $12,000
- For prescription drugs, out of network providers are not covered. For non preventative drugs, the plan deductible must be met first before the co-pays apply. Prescription drug copayments for in-network providers vary from $0 to $50 depending on three factors:
  - Whether the drug is (1) generic, (2) preferred, (3) non-preferred;
  - Whether the drug is preventative versus non-preventative; and
  - Retail versus home delivery.

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.

Dental and Vision Benefit

Retirees may elect dental and/or vision coverage. This benefit is entirely paid for by retirees (there is no employer subsidy for dental or vision coverage). Hence there is no liability to HRSD for this benefit.

Changes in Plan Provisions Since Prior Valuation

None.

8. Valuation Methods and Assumptions

Measurement Date

July 1, 2017

Valuation Date

July 1, 2017

Adjustments for Events After the Measurement date

None

Rollforward Method

For the FYE 2018 expense calculation, liability was not rolled forward. Market value of assets was not rolled forward.

Cost Method

This valuation uses the Projected Unit Credit method, with linear pro-ration to assumed benefit commencement to determine the ADC. GASB 74 required disclosures use the Entry Age Normal method for the valuation.

Who is Ultimately Responsible for Assumptions

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

8. Valuation Methods and Assumptions (cont.)

Asset Valuation Method (cont.)

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 years 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.

Amortization of the Unfunded Liability

An initial unfunded liability base was established on 7/1/2014. 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 experience losses and gains. Each base will be amortized over a 15 year period as a level percentage of total payroll. Assumption changes will also be amortized over 15 years as a level percentage of total payroll. This change was made to reduce expense volatility.

Coverage Status and Age of Spouse

For participants who are inactive on the valuation date, the actual medical coverage (e.g. individual, husband/wife) found in the data is used.

For participants who are active employees on the valuation date, 95% of active employees are assumed to have employee health insurance at retirement. Of the employees that have employee health insurance at retirement, 100% of eligible employees are assumed to elect OPEB coverage. 35% of participating retirees are assumed to select employee plus spouse coverage. The remainder (65%) are assumed to elect individual coverage.

For both actives and inactives, females are assumed three (3) years younger than male spouse.

Interest Assumptions

	As of June 30, 2016	As of June 30, 2017
Expected Rate of Return on Assets	6.00%	6.00%
Payroll Growth	2.50%	2.50%

8. Valuation Methods and Assumptions (cont.)

Trend Assumptions

The trend is based on the SOA Long Run Medical Cost Trend Model v. 2014_b, with 0.9% GDP assumption. The pre-65 medical trend was increased to reflect the impact of the Cadillac Tax. For this purpose, general inflation was assumed to be 2.2 percent per annum. The tables below illustrate the trend.

Pre Medicare Medical and Drug	Base	Sensitivity
2017	5.3%	6.3%
2018	5.4%	6.4%
2019	5.5%	6.5%
2020	5.3%	6.3%
2030	5.3%	6.3%
2040	4.9%	5.9%
2050	4.4%	5.4%
2060	4.1%	5.1%
2070	3.6%	4.6%
Ultimate	**3.2%**	**4.2%**

Post Medicare Medical and Drug	Base	Sensitivity
2017	5.3%	6.3%
2018	5.4%	6.4%
2019	5.5%	6.5%
2020	5.3%	6.3%
2030	4.6%	5.6%
2040	4.4%	5.4%
2050	4.0%	5.0%
2060	3.9%	4.9%
2070	3.4%	4.4%
Ultimate	**3.1%**	**4.1%**

Total premiums, total medical costs and assumed costs are assumed to increase with medical trend shown above.

8. Valuation Methods and Assumptions (cont.)

Salary Scale

The following salary scale was used for the calculation of the required disclosures under GASB 74:

Service	Rate
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%

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 with the exception of mortality are based on the decrements used for the Virginia Retirement System (VRS) State Employees.

Mortality Decrements		Description
(1)	Healthy	RP-2014 Mortality Table, Fully Generational, Projected with Scale MP-2014
(2)	Disabled	RP-2014 Mortality Table, Fully Generational, Projected with Scale MP-2014

8. Valuation Methods and Assumptions (cont.)

Decrement Assumptions (cont.)

Retirement – VRS Plan 1				
	Male		***Female***	
	Years of Service		*Years of Service*	
Age	*0-29*	*>=30*	*0-29*	*>=30*
<= *49*	0.0000	0.0000	0.0000	0.0000
50	0.0200	0.1000	0.0213	0.1000
51	0.0200	0.1000	0.0207	0.1000
52	0.0200	0.1000	0.0200	0.1000
53	0.0200	0.1000	0.0200	0.1000
54	0.0200	0.1000	0.0233	0.1000
55	0.0333	0.1000	0.0333	0.1000
56	0.0333	0.1000	0.0333	0.1000
57	0.0300	0.1000	0.0300	0.1000
58	0.0267	0.1000	0.0367	0.1000
59	0.0333	0.1000	0.0367	0.1000
60	0.0333	0.1000	0.0367	0.1500
61	0.0667	0.1500	0.0667	0.2000
62	0.1000	0.2500	0.1000	0.3000
63	0.1000	0.2000	0.1000	0.2000
64	0.1000	0.2000	0.1000	0.2000
65	0.3000	0.3000	0.3000	0.4000
66	0.3000	0.2500	0.3000	0.3000
67	0.3000	0.2500	0.3000	0.2500
68	0.3000	0.2000	0.3000	0.2500
69	0.3000	0.2000	0.3000	0.2000
>= *70*	1.0000	1.0000	1.0000	1.0000

* *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.*

8. Valuation Methods and Assumptions (cont.)

Decrement Assumptions (cont.)

Retirement – VRS Plan 2, Male						
	Years of Service					
Age	*0-4*	*5-26**	*27-28**	*29-30**	*31-39***	*>=40*
<= *49*	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.350
51	0.000	0.000	0.000	0.000	0.000	0.100
52	0.000	0.000	0.000	0.000	0.000	0.100
53	0.000	0.000	0.000	0.000	0.000	0.100
54	0.000	0.000	0.000	0.000	0.000	0.100
55	0.000	0.000	0.000	0.000	0.000	0.100
56	0.000	0.000	0.000	0.000	0.000	0.100
57	0.000	0.000	0.000	0.000	0.000	0.100
58	0.000	0.000	0.000	0.000	0.000	0.100
59	0.000	0.000	0.000	0.000	0.350	0.100
60	0.000	0.050	0.050	0.050	0.100	0.100
61	0.000	0.100	0.100	0.150	0.150	0.150
62	0.000	0.150	0.150	0.250	0.250	0.250
63	0.000	0.150	0.200	0.200	0.200	0.200
64	0.000	0.150	0.200	0.200	0.200	0.200
65	0.000	0.300	0.300	0.300	0.300	0.300
66	0.000	0.300	0.300	0.300	0.300	0.250
67	0.000	0.300	0.300	0.300	0.300	0.250
68	0.000	0.300	0.300	0.300	0.300	0.200
69	0.000	0.300	0.300	0.300	0.300	0.200
>= *70*	1.000	1.000	1.000	1.000	1.000	1.000

* *Rate is 35% when age plus service equals 90.*

** *Rate is 35% when employee's age plus service first equals 90; otherwise the rate is the same as for 40+ years of service; rate is 0 before employee is retirement eligible. Rate shown is for 31 years of service.*

8. Valuation Methods and Assumptions (cont.)

Decrement Assumptions (cont.)

Retirement – VRS Plan 2, Female

	Years of Service					
Age	*0-4*	*5-25**	*26-27**	*28-29**	*30-39***	*>=40*
<= 49	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.350
51	0.000	0.000	0.000	0.000	0.000	0.100
52	0.000	0.000	0.000	0.000	0.000	0.100
53	0.000	0.000	0.000	0.000	0.000	0.100
54	0.000	0.000	0.000	0.000	0.000	0.100
55	0.000	0.000	0.000	0.000	0.000	0.100
56	0.000	0.000	0.000	0.000	0.000	0.100
57	0.000	0.000	0.000	0.000	0.000	0.100
58	0.000	0.000	0.000	0.000	0.000	0.100
59	0.000	0.000	0.000	0.000	0.350	0.100
60	0.000	0.055	0.055	0.055	0.150	0.150
61	0.000	0.100	0.100	0.100	0.200	0.200
62	0.000	0.150	0.150	0.300	0.300	0.300
63	0.000	0.150	0.150	0.200	0.200	0.200
64	0.000	0.150	0.200	0.200	0.200	0.200
65	0.000	0.300	0.400	0.400	0.400	0.400
66	0.000	0.300	0.300	0.300	0.300	0.300
67	0.000	0.300	0.300	0.300	0.300	0.250
68	0.000	0.300	0.300	0.300	0.300	0.250
69	0.000	0.300	0.300	0.300	0.300	0.200
>= 70	1.000	1.000	1.000	1.000	1.000	1.000

* *Rate is 35% when age plus service equals 90.*

** *Rate is 35% when employee's age plus service first equals 90; otherwise the rate is the same as for 40+ years of service; rate is 0 before employee is retirement eligible. Rate shown is for 31 years of service.*

8. Valuation Methods and Assumptions (cont.)

Decrement Assumptions (cont.)

Disability Rates		
Age	***Male***	***Female***
20	0.002250	0.000250
25	0.002250	0.002500
30	0.004500	0.003750
35	0.004500	0.006250
40	0.004500	0.007250
45	0.009000	0.008500
50	0.011250	0.013750
55	0.013500	0.020250
60	0.018000	0.025000
65	0.015750	0.022500
70	0.015750	0.000000

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.

Termination –VRS Plan 1								
	Male				***Female***			
	Years of Service				*Years of Service*			
Age	*0-2*	*3-4*	*5-9*	*>=10*	*0-2*	*3-4*	*5-9*	*>=10*
20	0.245	0.175	0.175	0.000	0.283	0.198	0.198	0.000
25	0.221	0.130	0.130	0.000	0.256	0.157	0.157	0.000
30	0.199	0.110	0.110	0.050	0.212	0.130	0.130	0.060
35	0.167	0.093	0.093	0.045	0.178	0.110	0.110	0.050
40	0.145	0.075	0.075	0.034	0.155	0.090	0.090	0.036
45	0.129	0.070	0.070	0.023	0.139	0.074	0.074	0.025
50	0.115	0.061	0.061	0.000	0.130	0.063	0.063	0.000
55	0.102	0.060	0.060	0.000	0.125	0.060	0.000	0.000
60	0.106	0.070	0.000	0.000	0.123	0.070	0.000	0.000
65	0.113	0.110	0.000	0.000	0.140	0.120	0.000	0.000
70	0.131	0.140	0.000	0.000	0.249	0.140	0.000	0.000

8. Valuation Methods and Assumptions (cont.)

Decrement Assumptions (cont.)

Termination – VRS Plan 2 and Hybrid								
	Male				***Female***			
	Years of Service				*Years of Service*			
Age	*0-2*	*3-4*	*5-9*	*>=10*	*0-2*	*3-4*	*5-9*	*>=10*
20	0.245	0.175	0.175	0.000	0.283	0.198	0.198	0.000
25	0.221	0.130	0.130	0.000	0.256	0.157	0.157	0.000
30	0.199	0.110	0.110	0.050	0.212	0.130	0.130	0.060
35	0.167	0.093	0.093	0.045	0.178	0.110	0.110	0.050
40	0.145	0.075	0.075	0.034	0.155	0.090	0.090	0.036
45	0.129	0.070	0.070	0.023	0.139	0.074	0.074	0.025
50	0.115	0.061	0.061	0.020	0.130	0.063	0.063	0.020
55	0.102	0.060	0.060	0.004	0.125	0.060	0.060	0.004
60	0.106	0.070	0.000	0.000	0.123	0.070	0.000	0.000
65	0.113	0.110	0.000	0.000	0.140	0.120	0.000	0.000
70	0.131	0.140	0.000	0.000	0.249	0.140	0.000	0.000

Claims Assumption

To determine the pre Medicare assumed cost, we weighted the FYE 2018 pre Medicare premium rates by the current enrollment. The post Medicare assumed cost was set equal to the per member per month premium for the Cigna Medicare Supplemental Plan (with Medicare Part D).

Gross claims for retirees are based on enrollment and paid medical claims and prescription for employees and retirees paid from July 1, 2016 to June 30, 2017. Claims were projected assuming annual increases of 8% for medical claims and 8% for prescription drug claims. The average weighted claims were age adjusted using aging factors developed using CMS data. The over age 65 costs are based on the premiums for the Medicare plan.

Administrative costs of $561 per annum were assumed. Pre Medicare family coverage is assumed to be 2.80 times the cost of individual coverage for the same age band. Post Medicare family coverage is assumed to be 2.00 times the cost of individual coverage for the same age band.

The following chart shows explicit costs (based on published rates), and total medical and drug cost. The explicit and total cost is split by pre vs. post-Medicare, single vs. family coverage.

8. Valuation Methods and Assumptions (cont.)

Claims Assumption (cont.)

FYE 2018		
Total Costs (per annum)	***Single***	***Family***
1. Assumed Costs (Explicit Costs)		
a. Pre-Medicare	7,779	21,781
b. Medicare Age	5,279	10,558
2. Total Medical Costs (includes prescription drugs)		
a. Under 50	6,489	18,169
b. Age 50-54	7,784	21,795
c. Age 55-59	9,029	25,281
d. Age 60-64	10,773	30,164
e. Age 65-69	4,808	9,616
f. Age 70-74	5,673	11,346
g. Age 75-80	5,847	11,694
h. Age 80-84	6,180	12,360
i. Over Age 85	6,068	12,136

Other Assumptions

- For active participants who's VRS plan was not provided in the data, their date of hire was used to assigned them to VRS Plan 1 or VRS Plan 2.
- Active participants for which we did not receive VRS service were valued assuming 0 years of service as of valuation date.

Changes in methods and assumptions since prior valuation

The claims assumption was updated to include the most recent plan experience.

9. 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 local government 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.

9. Glossary (cont.)

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.

9. Glossary (cont.)

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.

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 GASB75, the valuation date must be within 30 months of the last day of the fiscal year.

Appendix 1
Projections Based on 2017 Valuation

	7/01/2017 - 6/30/2018	7/01/2018 - 6/30/2019	7/01/2019 - 6/30/2020	7/01/2020 - 6/30/2021	7/01/2021 - 6/30/2022	7/01/2022 - 6/30/2023	7/01/2023 - 6/30/2024	7/01/2024 - 6/30/2025	7/01/2025 - 6/30/2026	7/01/2026 - 6/30/2027	7/01/2027 - 6/30/2028
Assumptions:											
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	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%
Unfunded Accrued Liability:											
APBO BOY	49,303,000	52,596,370	55,962,002	59,368,122	62,804,739	66,248,903	69,742,207	73,267,969	76,816,717	80,381,530	83,985,942
Assets (AVA) BOY	42,468,376	46,206,052	50,040,098	54,347,491	58,984,622	63,324,555	67,795,499	72,386,387	75,975,192	79,584,790	83,239,054
Unfunded APBO (UAL)	6,834,624	6,390,318	5,921,904	5,020,631	3,820,117	2,924,348	1,946,708	881,582	841,525	796,740	746,888
Percent Funded	86%	88%	89%	92%	94%	96%	97%	99%	99%	99%	99%
End of Year Annual Expense:											
Normal Cost (EOY)	1,702,000	1,760,000	1,820,000	1,882,000	1,946,000	2,012,000	2,080,000	2,151,000	2,224,000	2,300,000	2,378,000
Amortization of unfunded liability	1,027,493	1,068,493	1,114,370	1,129,649	1,124,976	1,153,101	1,181,928	92,952	95,276	97,657	100,099
ARC	**2,729,493**	**2,828,493**	**2,934,370**	**3,011,649**	**3,070,976**	**3,165,101**	**3,261,928**	**2,243,952**	**2,319,276**	**2,397,657**	**2,478,099**
Trust Assets:											
Beginning of Year MVA	42,526,387	46,440,653	50,505,435	54,698,531	58,984,622	63,324,555	67,795,499	72,386,387	75,975,192	79,584,790	83,239,054
Return on Investments	2,551,583	2,786,439	3,030,326	3,281,912	3,539,077	3,799,473	4,067,730	4,343,183	4,558,512	4,775,087	4,994,343
Employer Contributions	2,729,493	2,828,493	2,934,370	3,011,649	3,070,976	3,165,101	3,261,928	2,243,952	2,319,276	2,397,657	2,478,099
Benefit Payments with Interest	(1,366,810)	(1,550,150)	(1,771,600)	(2,007,470)	(2,270,120)	(2,493,630)	(2,738,770)	(2,998,330)	(3,268,190)	(3,518,480)	(3,736,840)
End of Year MVA	46,440,653	50,505,435	54,698,531	58,984,622	63,324,555	67,795,499	72,386,387	75,975,192	79,584,790	83,239,054	86,974,656
Net OPEB Obligation *(BOY)*	0	0	0	0	0	0	0	0	0	0	0
Benefit Payments *(no interest)*	1,327,000	1,505,000	1,720,000	1,949,000	2,204,000	2,421,000	2,659,000	2,911,000	3,173,000	3,416,000	3,628,000

* *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 ARC 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.*