City of Los Angeles Department of Water and Power

Actuarial Valuation and Review of Other Postemployment Benefits (OPEB)

As of June 30, 2022

Segal

Segal

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November 16, 2022

Ms. Ann Santilli
Chief Financial Officer
City of Los Angeles Department of Water and Power
111 N. Hope Street, Room 450
Los Angeles, CA 90011

Dear Ann:

We are pleased to submit this Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2022. The report summarizes the actuarial data used in the valuation, establishes the Actuarially Determined Contribution (ADC) for the coming year, and analyzes the preceding year's experience. This report was based on the census and financial data provided by the Department of Water and Power (DWP), with exceptions noted for the membership data adjustments in Exhibit II, and the terms of the Plan as communicated to us by DWP. The actuarial calculations were completed under the supervision of Mary Kirby, FSA, MAAA, FCA and Andy Yeung, ASA, MAAA, FCA, EA. The health care trend and other related medical assumptions have been reviewed by Mary Kirby, FSA, MAAA, FCA.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of DWP to assist in administering the OPEB Plan. The census information and financial information on which our calculations were based was prepared by DWP. That assistance is gratefully acknowledged

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions used in this valuation and described in Exhibit II are reasonably related to the experience of and the expectations for the Plan. The actuarial projections are based on these assumptions and the plan of benefits as summarized in Exhibit III.

Sincerely,

Segal

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary

Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

PP/jl

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Section 1: Executive Summary

Purpose

This report presents the results of our actuarial valuation of the City of Los Angeles Water and Power (DWP) postretirement medical and dental benefits plan as of June 30, 2022 for funding purposes. The results of the valuation for financial reporting purposes consistent with Governmental Accounting Standards Board (GASB) Statement No. 74 are provided in a separate report.

Highlights of the Valuation

1. The employer has not adopted a formal funding policy. For paying off the unfunded actuarial accrued liability (UAAL), the employer has chosen a single closed (decreasing) amortization period of 30 years beginning June 30, 2005. As of the June 30, 2021 valuation, 14 years remained in the amortization period. However, as of the June 30, 2022 valuation the OPEB Plan is fully funded, i.e., the OPEB Plan has a surplus rather than a UAAL. Absent any statutory requirements to the contrary, we believe this surplus condition calls for a single open (non-decreasing) surplus amortization period of 30 years.[1] We will be strongly recommending the 30-year open surplus amortization period as part of our formal funding policy review and so have prepared this valuation report assuming it will be adopted by the employer. Note this is the same surplus amortization as was used in the June 30, 2021 valuation of the OPEB Plan.
2. The June 30, 2022 measurement date results reflect changes in the economic and demographic assumptions as recommended by Segal and adopted by the Board of Administration at the Water and Power Employees' Retirement Plan for the July 1, 2022 valuation. These changes were documented in our *Analysis of Actuarial Experience During the Period July 1, 2018 through June 30, 2021* for The Water and Power Employees' Retirement Plan of the City of Los Angeles dated May 20, 2022. It should be noted however that the Society of Actuaries has published two sets of mortality tables for use in public plan valuations. The amount-weighted mortality tables that weight the mortality experience using salary for actives and benefit amount for retirees/beneficiaries are used in the Retirement Plan valuation. The headcount-weighted mortality tables that weight the mortality experience using the number of actives and retirees/beneficiaries who died are used in this valuation.

[1] A 30-year amortization period will only provide a small amount of surplus to reduce the Department's contribution to a level below the ongoing Normal Cost contributions. This will provide some safeguard to the Department's budgeting process if a new UAAL were to reemerge in the future due to unfavorable actuarial experience. For instance, this could happen if future market returns were to come in less than anticipated by the investment return assumption.

Section 1: Executive Summary

3. The Actuarially Determined Contribution (ADC) rate has increased from 4.03% of payroll to 4.24% of payroll for the 2022/2023 fiscal year. The increase in ADC was primarily due to (i) the adoption of new assumptions recommended in the Retirement Plan's recent experience study dated May 20, 2022, and (ii) updated trend assumptions for projecting medical premiums after 2022/2023, offset to some degree by (iii) actual investment return on actuarial value (i.e., after asset smoothing) of 8% which is higher than 7% expected in the June 30, 2021 valuation and (iv) a lower than expected increase in 2022/2023 premium and subsidy levels. Contribution rates are shown separately for Tier 1 and Tier 2 in Section 2D.
4. The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability increased from 101.15% to 106.84%. On a market value of assets basis, the funded ratio decreased from 113.58% to 104.95%. The unfunded actuarial accrued liability measured using AVA decreased from $(29.6) million to $(180.0) million (a surplus of assets over liability). A complete reconciliation of the Plan's unfunded actuarial accrued liability is provided in Section 2B.
5. As noted above, the Governmental Accounting Standards (GAS) 74 report with a measurement date of June 30, 2022 for financial reporting purposes for the Plan was provided as a separate report.
6. The GAS 75 report with a measurement date of June 30, 2022 for financial reporting purposes for the employer (with a reporting date of June 30, 2023) will be provided in the next few months.
7. The actuarial valuation report as of June 30, 2022 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the actuarial cost of the Plan, while increases will decrease the actuarial cost of the Plan.

Summary of Valuation Results

	June 30, 2022	June 30, 2021
Actuarial Accrued Liability (AAL)	$2,630,841,629	$2,569,281,814
Actuarial Value of Assets (AVA)	2,810,870,137	2,598,916,515
Unfunded Actuarial Accrued Liability (Surplus) on AVA Basis	(180,028,508)	(29,634,701)
Funded Ratio on AVA Basis	106.84%	101.15%
Market Value of Assets (MVA)	$2,761,093,255	$2,918,117,246
Unfunded Actuarial Accrued Liability (Surplus) on MVA Basis	(130,251,626)	(348,835,432)
Funded Ratio on MVA Basis	104.95%	113.58%
Total Participants	19,356	19,037
Actuarially Determined Contribution (ADC) for Fiscal Year Ending:	**June 30, 2023**	**June 30, 2022**
Normal cost (beginning of year)	$63,208,119	$49,615,449
Amortization of the unfunded actuarial accrued liability	(9,346,182)	(1,580,620)
Adjustment for timing	1,722,956	1,652,784
Total Actuarially Determined Contribution (payable throughout the year)	$55,584,893	$49,687,613
Projected total compensation	1,309,850,320	1,233,265,179
ADC as a percentage of pay	4.24%	4.03%

The key valuation results for the current and prior years are shown.

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of an OPEB plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Plan of benefits	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report to confirm that Segal has correctly interpreted the plan of benefits.
Participant data	An actuarial valuation for a plan is based on data provided to the actuary by DWP. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Assets	This valuation is based on the market value of assets as of the valuation date, as provided by DWP.
Actuarial assumptions	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to health care plan trend and enrollment. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results that does not mean that the previous assumptions were unreasonable.
Models	Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

Section 1: Executive Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of DWP. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If DWP is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Critical events for a plan include, but are not limited to, decisions about changes in benefits and contributions. The basis for such decisions needs to consider many factors such as the risk of changes in plan enrollment, emerging claims experience and health care trend, not just the current valuation results.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. DWP should look to their other advisors for expertise in these areas.

As Segal has no discretionary authority with respect to the management or assets of DWP, it is not a fiduciary in its capacity as actuaries and consultants with respect to DWP.

Actuarial Certification

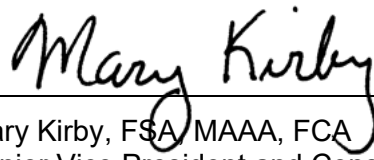
November 16, 2022

This is to certify that Segal, a Member of The Segal Group, Inc. has conducted an actuarial valuation of certain benefit obligations of City of Los Angeles Department of Water and Power's other postemployment benefits program as of June 30, 2022, in accordance with generally accepted actuarial principles and practices.

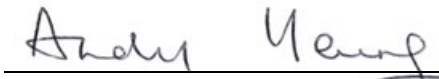
The actuarial valuation is based on the plan of benefits verified by the Employer and reliance on participant, premium, claims and expense data provided by the Employer or from vendors employed by the Employer with exceptions noted for membership data adjustments in Exhibit II. Segal does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. Segal, however, does review the data for reasonableness and consistency.

The actuarial computations made are for purposes of funding the plan. Determinations for purposes other than funding may be significantly different from the results reported here. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination of the plan, or determining short-term cash flow requirements.

To the best of our knowledge, this report is complete and accurate and in our opinion presents the information necessary to fund the Plan with respect to the benefit obligations addressed. The signing actuaries are members of the Society of Actuaries, the American Academy of Actuaries, and other professional actuarial organizations and collectively meet their "General Qualification Standards for Statements of Actuarial Opinions" to render the actuarial opinion contained herein.



Mary Kirby, FSA, MAAA, FCA
Senior Vice President and Consulting Actuary



Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

Section 2: Valuation Results

A. Actuarial Present Value of Total Projected Benefits and Actuarial Balance Sheet

The actuarial present value of total projected benefits uses the actuarial assumptions disclosed in Section 4 to calculate the value today of all benefits expected to be paid to current actives and retired plan members. The actuarial balance sheet shows the expected breakdown of how these benefits will be financed.

	Actuarial Present Value of Total Projected Benefits	
	June 30, 2022	**June 30, 2021**
Participant Category		
Current retirees, beneficiaries, and dependents	$1,400,022,914	$1,530,703,039
Current active members	1,980,988,886	1,600,259,615
Total	**$3,381,011,800**	**$3,130,962,654**

	Actuarial Balance Sheet	
	June 30, 2022	**June 30, 2021**
Assets		
1. Actuarial value of assets	$2,810,870,137	$2,598,916,515
2. Present value of future normal costs	750,170,171	561,680,840
3. Unfunded actuarial accrued liability	(180,028,508)	(29,634,701)
4. Present value of current and future assets	**$3,381,011,800**	**$3,130,962,654**
Liabilities		
5. Actuarial present value of total projected benefits	$3,381,011,800	$3,130,962,654

B. Actuarial Accrued Liability (AAL) and Unfunded AAL (UAAL)

The actuarial accrued liability shows that portion of the actuarial present value of total projected benefits allocated to periods prior to the valuation date by the actuarial cost method. The chart below shows the portion of the liability for active and inactive members, and reconciles the unfunded actuarial accrued liability from last year to this year.

	June 30, 2022	June 30, 2021
Participant Category		
Current retirees, beneficiaries, and dependents	$1,400,022,914	$1,530,703,039
Current active members	1,230,818,715	1,038,578,775
Total actuarial accrued liability	**$2,630,841,629**	**$2,569,281,814**
Actuarial value of assets	2,810,870,137	2,598,916,515
Unfunded actuarial accrued liability	**$(180,028,508)**	**$(29,634,701)**
Development of Unfunded Actuarial Accrued Liability for the Year Ended June 30, 2022		
1. Unfunded actuarial accrued liability as of June 30, 2021		**$(29,634,701)**
2. Employer normal cost at beginning of year		49,615,449
3. Total employer contributions		(113,094,077)
4. Interest on 1, 2 and 3		(2,559,641)
5. Expected unfunded actuarial accrued liability (sum of 1 – 4)		$(95,672,970)
6. Change due to investment experience gains (after asset smoothing)		(29,826,809)
7. Change due to non-investment and non-health-related experience gains		(61,461,663)
8. Change due to premiums on average, increasing less than expected		(70,667,549)
9. Change due to updating health trend assumptions		7,929,818
10. Change due to other health-related assumption and method changes		(79,848,902)
11. Change due to adoption of new assumptions recommended in the Retirement Plan's recent experience study dated May 20, 2022, including the reduction of the discount rate		149,519,567
12. Subtotal of 6 – 11		$(84,355,538)
13. Unfunded actuarial accrued liability as of June 30, 2022		**$(180,028,508)**

C. Table of Amortization Bases

DWP is currently working with Segal to develop a formal written funding policy. To date, the employer has chosen a single closed (decreasing) UAAL amortization period of 30 years from June 30, 2005, with 13 years remaining as of June 30, 2022. However, when the Plan has a surplus (UAAL is negative or assets are in excess of the actuarial accrued liability), model practice is to amortize the surplus over a single open (non-decreasing) period of 30 years. Accordingly, as part of the June 30, 2022 valuation we are recommending surplus amortization using a single open 30-year period. Note the same recommendation was made for the June 30, 2021 valuation.

Normal cost less amortization of the negative UAAL (Surplus) using the following basis:

1. 30-year amortization beginning June 30, 2022 and
2. UAAL (Surplus) amortized as a level percent of payroll.

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Amortization Amount*
Total UAAL (Surplus)	06/30/2022	$(180,028,508)	30	$(180,028,508)	30	$(9,346,182)

*Level percent of payroll

D. Determination of Actuarially Determined Contribution (ADC)

As described on the previous page, the calculation of the ADC consists of adding the Normal Cost of the plan to an amortization payment. The resulting sum is then adjusted with interest assuming that the annual cost will be contributed throughout the fiscal year.

The primary reasons behind the increase in the ADC from the prior valuation were the adoption of new assumptions recommended in the Retirement Plan's recent experience study and updating trend assumptions for projecting medical premiums after 2022/2023.

Total Plan

		ADC Determined as of			
		June 30, 2022		June 30, 2021	
		Amount	Percentage of Compensation	Amount	Percentage of Compensation
1.	Normal cost	$63,208,119	4.83%	$49,615,449	4.02%
2.	Amortization of the UAAL (Surplus)	(9,346,182)	(0.71%)	(1,580,620)	(0.13%)
3.	Adjustment for timing	1,722,956	0.12%	1,652,784	0.14%
4.	**Total Actuarially Determined Contribution (payable throughout the year)**	**$55,584,893**	**4.24%**	**$49,687,613**	**4.03%**
5.	Total Projected Compensation	$1,309,850,320		$1,233,265,179	

Section 2: Valuation Results

Tier 1

		ADC Determined as of			
		June 30, 2022		June 30, 2021	
		Amount	Percentage of Compensation	Amount	Percentage of Compensation
1.	Normal cost	$36,375,889	4.97%	$31,182,620	4.17%
2.	Amortization of the UAAL (Surplus)	(5,240,117)	(0.71%)	(949,102)	(0.13%)
3.	Adjustment for timing	995,983	0.13%	1,040,276	0.14%
4.	**Total Actuarially Determined Contribution (payable throughout the year)**	**$32,131,755**	**4.39%**	**$31,273,794**	**4.18%**
5.	Total Projected Compensation	$731,531,274		$747,482,480	

Tier 2

		ADC Determined as of			
		June 30, 2022		June 30, 2021	
		Amount	Percentage of Compensation	Amount	Percentage of Compensation
1.	Normal cost	$26,832,230	4.64%	$18,432,829	3.79%
2.	Amortization of the UAAL (Surplus)	(4,106,065)	(0.71%)	(631,518)	(0.13%)
3.	Adjustment for timing	726,973	0.13%	612,508	0.13%
4.	**Total Actuarially Determined Contribution (payable throughout the year)**	**$23,453,138**	**4.06%**	**$18,413,819**	**3.79%**
5.	Total Projected Compensation	$578,319,046		$485,782,699	

E. Schedule of Employer Contributions

Fiscal Year Ended June 30	Actuarially Determined Contributions[1]	Actual Contributions[1, 2]	Percentage Contributed
2018	$85,339,091	$95,918,712	112.40%
2019	80,850,687	102,631,460	126.94%
2020	95,375,489	110,444,724	115.80%
2021	63,164,899	110,261,019	174.56%
2022	49,687,613	113,094,077	227.61%
2023	55,584,893	Not Made Yet	N/A

[1] Payable throughout the year.

[2] Contributions were:

Fiscal Year	Contribution towards insurance premiums (A)	Contributions towards administrative expenses (might be different from actual expense paid by Plan) (B)	Total Department contributions (A) + (B)
2017-2018	$95,233,622	$685,090	$95,918,712
2018-2019	101,594,970	1,036,490	102,631,460
2019-2020	109,401,181	1,043,543	110,444,724
2020-2021	109,282,435	978,584	110,261,019
2021-2022	112,081,130	1,012,947	113,094,077

F. Schedule of Funding Progress

This schedule of funding progress presents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a) / (c)]
06/30/2017	$1,898,136,791	$2,347,483,631	$449,346,840	80.86%	$991,814,994	45.31%
06/30/2018	2,055,373,577	2,469,304,377	413,930,800	83.24%	1,073,554,608	38.56%
06/30/2019	2,196,487,396	2,683,446,018	486,958,622	81.85%	1,141,875,615	42.65%
06/30/2020	2,338,427,041	2,490,223,378	151,796,337	93.90%	1,211,798,340	12.53%
06/30/2021	2,598,916,515	2,569,281,814	(29,634,701)	101.15%	1,233,265,179	(2.40%)
06/30/2022	2,810,870,137	2,630,841,629	(180,028,508)	106.84%	1,309,850,320	(13.74%)

Section 3: Supplemental Information

Exhibit A: Summary of Participant Data

Total Plan

	June 30, 2022	June 30, 2021
Retired Members		
Number[1]	7,223	7,105
Average age of retirees	72.6	72.6
Number of spouses	3,892	3,797
Average age of spouses[2]	63.8	71.1
Surviving Spouses		
Number[1]	1,334	1,327
Average age	80.7	81.0
Active Participants		
Number	10,799	10,605
Average age	46.5	46.7
Average years of qualifying service[3]	14.6	15.0
Average expected retirement age	63.4	63.3

[1] A retiree or surviving spouse is only counted if receiving a medical and/or dental benefit.
[2] The average spouse ages shown are based on records provided with actual spouse date of birth.
[3] Differs from the service type shown (Service Credit) in the Retirement Plan valuation.

Section 3: Supplemental Information

Tier 1

	June 30, 2022	June 30, 2021
Retired Members		
Number[1]	7,215	7,100
Average age of retirees	72.6	72.6
Number of spouses	3,891	3,797
Average age of spouses[2]	63.8	71.1
Surviving Spouses		
Number[1]	1,334	1,327
Average age	80.7	81.0
Active Participants		
Number	5,510	5,926
Average age	52.9	52.5
Average years of qualifying service[3]	22.6	22.2
Average expected retirement age	62.9	62.9

[1] A retiree or surviving spouse is only counted if receiving a medical and/or dental benefit.
[2] The average spouse ages shown are based on records provided with actual spouse date of birth.
[3] Differs from the service type shown (Service Credit) in the Retirement Plan valuation.

Section 3: Supplemental Information

Tier 2

	June 30, 2022	June 30, 2021
Retired Members		
Number[1]	8	5
Average age of retirees	63.7	62.2
Number of spouses	1	0
Average age of spouses	67.0	N/A
Surviving Spouses		
Number[1]	0	0
Average age	N/A	N/A
Active Participants		
Number	5,289	4,679
Average age	39.9	39.4
Average years of qualifying service[2]	6.2	5.9
Average expected retirement age	64.0	63.9

[1] A retiree or surviving spouse is only counted if receiving a medical and/or dental benefit.
[2] Differs from the service type shown (Service Credit) in the Retirement Plan valuation.

Exhibit B: Cash Flow Projections

Initially, the ADC generally exceeds the current pay-as-you-go ("paygo") cost of an OPEB plan. Over time the paygo cost will tend to grow and becomes close to and may exceed the ADC, which is expected in a well-funded and more mature plan such as this one. The following table projects the paygo cost over the next ten years.

Year Ending June 30	Projected Number of Retirees[1]			Projected Benefit Payments		
	Current	Future	Total	Current	Future	Total
2023	12,449	664	13,113	$99,950,070	$6,794,142	$106,744,212
2024	12,054	1,262	13,316	101,834,193	13,693,172	115,527,365
2025	11,661	1,819	13,480	103,317,497	20,679,502	123,996,999
2026	11,269	2,347	13,616	104,154,576	27,796,350	131,950,926
2027	10,874	2,845	13,719	104,965,943	34,855,469	139,821,412
2028	10,482	3,316	13,798	105,143,769	41,831,909	146,975,678
2029	10,090	3,768	13,858	105,350,464	48,709,973	154,060,437
2030	9,697	4,231	13,928	105,310,154	56,238,872	161,549,026
2031	9,305	4,703	14,008	104,840,770	64,150,551	168,991,321
2032	8,909	5,172	14,081	105,194,221	72,401,903	177,596,124

[1] Includes spouses of retirees.

Exhibit C: Determination of Actuarial Value of Assets

To minimize volatility in the calculation of the Actuarially Determined Contribution, the Employer may choose to smooth out short-term changes in the market value of plan assets by use of an actuarial value of assets method. City of Los Angeles Department of Water and Power adopted the following method that smooths such changes over a five-year period.

1.	Market value of assets (for Retirement and Health Subsidy Benefits)				$2,761,093,255
2.	Calculation of unrecognized return[1]	**Original Amount**	**Percent Deferred**	**Unrecognized Amount**	
	a. Year ended June 30, 2022	$(361,499,108)	80%	(289,199,287)	
	b. Year ended June 30, 2021	452,940,969	60%	271,764,581	
	c. Year ended June 30, 2020	(72,596,502)	40%	(29,038,601)	
	d. Year ended June 30, 2019	(16,517,875)	20%	(3,303,575)	
	e. Year ended June 30, 2018	35,065,044	0%	0	
3.	Total unrecognized return[2]				$(49,776,882)
4.	Actuarial value: (1) - (3)				$2,810,870,137
5.	Actuarial value as a percentage of market value: (4) ÷ (1)				101.80%

[1] Total return minus expected return on a market value basis.

[2] Deferred return as of June 30, 2022 recognized in each of the next 4 years:

(a) Amount recognized during 2022-2023	$465,497
(b) Amount recognized during 2023-2024	3,769,070
(c) Amount recognized during 2024-2025	18,288,371
(d) Amount recognized during 2025-2026	(72,299,820)
(e) Total	$(49,776,882)

Section 4: Actuarial Valuation Basis

Exhibit I: Summary of Supplementary Information

Valuation date	June 30, 2022
Actuarial cost method	Entry age, level percent of pay
Amortization method	When the Plan has a UAAL Single, closed amortization period; level percent of pay; 13 years remaining as of June 30,2022. When the Plan has a Surplus Single, open amortization period; level percent of pay; 30 years remaining as of June 30, 2022.
Remaining amortization period	Market Value of Assets (MVA) less unrecognized returns. Unrecognized returns are equal to the difference between the actual market return and the expected return on the market value, and are recognized over a five-year period..
Actuarial assumptions:	
Investment rate of return	6.50%
Inflation rate	2.50%
Real across-the-board salary increase	0.50%
Projected salary increases	4.25% to 10.00%, varying by service, including inflation and real across-the-board salary increase
Non-Medicare cost trend rate	7.25%, graded down to an ultimate rate of 4.50% over 11 years
Medicare cost trend rate[1]	6.50%, graded down to an ultimate rate of 4.50% over 8 years
Dental trend rate	3.00%
Medicare Part B subsidy costs trend rate	4.50%

Plan membership — Excluding retirees and beneficiaries not receiving subsidy:	**June 30, 2022**	**June 30, 2021**
Current retirees[1] and beneficiaries receiving dental and/or medical subsidy	8,557	8,432
Current active participants	10,799	10,605
Total	**19,356**	**19,037**

[1] Excludes 3,892 and 3,797 spouses from the June 30, 2022 and 2021 valuations, respectively.

Exhibit II: Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2018 through June 30, 2021 Actuarial Experience Study dated May 20, 2022. Following the most recent experience study, the Retirement Board adopted amount-weighted tables for the Retirement Plan. For the OPEB Plan, we will continue to use headcount-weighted mortality tables, as benefits do not vary by salary as in the Retirement Plan. The information and analysis used in selecting health-related assumptions is shown in our assumptions letter dated September 16, 2022. Unless otherwise noted, all actuarial assumptions and methods shown below apply to both Tier 1 and Tier 2 employees.
Economic Assumptions	
Net Investment Return	6.50%, net of investment expenses.
Administration Expenses	No administrative expenses were valued separately from the claim costs.
Salary Increases:	The annual rate of compensation Increase includes inflation at 2.50%, plus "across the board" salary increases of 0.50% per year, plus the following merit and promotional increases:

Years of Service	Rate (%)
Less than 1	7.00
1 – 2	7.00
2 – 3	6.50
3 – 4	5.00
4 – 5	3.75
5 – 6	2.75
6 – 7	2.25
7 – 8	2.00
8 – 9	1.90
9 – 10	1.80
10 – 11	1.70
11 – 12	1.45
12 – 13	1.40
13 – 14	1.35
14 – 17	1.30
17 & over	1.25

Section 4: Actuarial Valuation Basis

Demographic Assumptions

Post-Retirement Mortality Rates

Service Retirement, Disability Retirement, and Beneficiaries not Currently in Pay Status

- Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table (separate tables for males and females) increased by 5% for males, projected generationally with the two-dimensional mortality improvement scale MP-2021.

Beneficiaries in Pay Status

- Pub-2010 Contingent Survivor Headcount-Weighted Above-Median Mortality Table (separate tables for males and females) increased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

The Pub-2010 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Pre-Retirement Mortality

Pub-2010 General Employee Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021.

	Rate (%)	
Age	**Male**	**Female**
25	0.032	0.014
30	0.049	0.022
35	0.069	0.033
40	0.084	0.043
45	0.098	0.052
50	0.129	0.075
55	0.195	0.119
60	0.301	0.184
65	0.425	0.263

Note that generational projections beyond the base year (2010) are not reflected in the above mortality rates.

Section 4: Actuarial Valuation Basis

Disability Incidence Rate

Disability Incidence		
	Rate (%)	
Age	Male	Female
25	0.006	0.000
30	0.012	0.006
35	0.012	0.036
40	0.018	0.072
45	0.030	0.102
50	0.054	0.138
55	0.126	0.168

Termination Rates

Total Termination	
Years of Service	Rate (%)
Less than 1	9.25
1 – 2	4.25
2 – 3	3.25
3 – 4	3.25
4 – 5	2.25
5 – 6	1.75
6 – 7	1.50
7 – 8	1.50
8 – 9	1.50
9 – 10	1.25
10 – 15	0.75
15 – 20	0.70
20 & over	0.50

Section 4: Actuarial Valuation Basis

Retirement Rates

Age	Rate (%)			
	Tier 1		Tier 2	
	Under 30 Years of Service	30 or More Years of Service	Under 30 Years of Service	30 or More Years of Service
50	0.00	1.50	0.00	0.00
51	0.00	1.00	0.00	0.00
52	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00
55	4.50	30.00	0.00	26.00
56	2.50	20.00	0.00	14.00
57	3.00	18.00	0.00	13.50
58	3.50	18.00	0.00	13.50
59	3.50	18.00	0.00	13.50
60	5.25	22.00	5.25	17.50
61	6.75	22.00	3.75	12.00
62	7.00	24.00	2.75	12.00
63	8.50	25.00	20.00	25.00
64	9.50	27.00	11.00	25.00
65	11.50	28.00	11.00	27.00
66	13.50	28.00	12.00	27.00
67	13.50	28.00	12.50	27.00
68	13.50	28.00	12.50	27.00
69	19.00	30.00	16.50	28.00
70	22.00	30.00	40.00	40.00
71	22.00	30.00	40.00	40.00
72	22.00	30.00	40.00	40.00
73	22.00	30.00	40.00	40.00
74	22.00	30.00	40.00	40.00
75 & Over	100.00	100.00	100.00	100.00

Section 4: Actuarial Valuation Basis

Unknown Data for Members	Same as those exhibited by members are similar known characteristics. If not specified, members are assumed to be male.
Membership Data Adjustments	Membership data as of March 31 provided by the Department for use in this valuation has been adjusted to June 30 by adding three months of age and, for active employees, three months of service.
Percent Married/Domestic Partner	Actives at the time of retirement: 75% of male employees and 50% of female employees assumed to be married with coverage for spouse. Retirees at the time of retirement: Actual data included in census.
Age of Spouse	Husbands are assumed to be 2 years older than female members. Wives are assumed to be 2 years younger than male members.
Future Benefit Accruals	1.0 year of service per year.
Additional Service Accrual	Tier 1 members are assumed to purchase an additional 0.04 years of service per year. Tier 2 members are assumed to purchase an additional 0.02 years of service per year. These service purchases exclude those priced at full actuarial cost.
Participation	100% of the current actives are assumed to enroll in medical coverage at retirement. 100% of the current actives are assumed to enroll in dental coverage at retirement.
Asset Valuation Method:	Any actual investment returns that are above or below the annual return assumed in the valuation are recognized over 5-year periods.
Plan Design:	Development of plan liabilities was based on the substantive plan of benefits in effect as described in Exhibit III.
Implicit Subsidy	None. Premiums paid by the retirees reflect rates underwritten for retirees only.

Section 4: Actuarial Valuation Basis

Per Capita Cost Development

Per capita costs were based on the premiums for the valuation year. Actuarial factors were applied to the premiums to estimate individual retiree and spouse costs by age and by agender in accordance with ASOP 6.

Dental Annual Subsidy

Where known, actual subsidies provided in the data were used. For periods where subsidy is unknown, the average monthly retiree subsidies effective July 1, 2022 were assumed as shown below:

Dental Premium Subsidy (For Single and Multi-Party, Tiers 1 and 2)

Carrier	Election Percent (%)	Single Party Premium
United Concordia DHMO	15.0	$16.99
United Concordia PPO	60.0	33.82
IBEW Local 18	25.0	112.97

The maximum monthly dental subsidy is $33.82, except for Local 18 with a maximum of $112.97.

Eligible spouses and survivors are not eligible for DWP dental subsidy.

Medical Annual Subsidy

For retirees in pay status, we use the relevant premiums provided on participant records. In cases where the carrier elections are unknown, we will assume the participant elects a carrier in the same proportion as current retirees in that group. The table below shows the assumed distribution of medical insurance carriers for retirees and the monthly premiums as of July 1, 2022.

	Under Age 65		
Carrier	Assumed Election Percent	Single Party Premium	Participant +1 Both Under 65
Kaiser	45.0	$998.29	$1,996.58
United Health Care Option A	5.0	1,513.88	3,027.85
Blue Cross HMO	30.0	1,626.20	1,909.35
United Health Care HMO	5.0	1,830.96	3,778.47
United Health Care Option B	2.5	1,313.89	2,627.84
Blue Cross PPO	7.5	1,826.25	2,131.96
United Health Care Option C	5.0	1,022.62	2,045.26

Section 4: Actuarial Valuation Basis

Per Capita Cost Development (continued)

Carrier	Age 65 and Older Assumed Election Percent	Single Party Premium	Participant +1 Both Under 65
Kaiser Senior Advantage	55.0	$295.45	$590.90
United Health Care Option A	25.0	432.13	864.26
United Health Care Medicare Advantage	5.0	398.22	796.44
United Health Care Option B	2.5	361.30	722.60
Blue Cross HMO	10.0	1,061.03	1,665.11
Blue Cross PPO	2.5	1,653.35	1,948.83
Medicare Part B	100.0	170.10	340.20

Section 4: Actuarial Valuation Basis

Health Care Cost Subsidy Trend Rates:

Health care trend measures the anticipated overall rate at which health plan costs are expected to increase in future years. Trend rates are used to increase the premiums and the stated subsidies into the future. For example, the expected maximum monthly medical subsidy for a Tier 1 retiree with 30 years of service in the year July 1, 2023 through June 30, 2024 (set equal to the two-party, under-65 Kaiser premium) would be determined with the following formula:

[$1,996.58 x (1 + 7.25%)] = $2,141.33

	Rates (%)			
Year Ending June 30	**Non-Medicare**	**Medicare**	**Dental**	**Medicare Part B**
2023	7.25	6.50	3.00	4.50
2024	7.00	6.25	3.00	4.50
2025	6.75	6.00	3.00	4.50
2026	6.50	5.75	3.00	4.50
2027	6.25	5.50	3.00	4.50
2028	6.00	5.25	3.00	4.50
2029	5.75	5.00	3.00	4.50
2030	5.50	4.75	3.00	4.50
2031	5.25	4.50	3.00	4.50
2032	5.00	4.50	3.00	4.50
2033	4.75	4.50	3.00	4.50
2034 & Later	4.50	4.50	3.00	4.50

Section 4: Actuarial Valuation Basis

Impact of Affordable Care Act:	The valuation does not reflect the potential impact of any future changes due to prior or pending legislations.
Assumption Changes Since Prior Valuation:	The following assumptions were changed since the prior valuation: • Updated per capita costs. • Updated medical premium, subsidy, and dental trend. • Updated non-Medicare and Medicare medical election. • Increased coverage election percentages from 95% to 100%. • Increased female spouse coverage percentages from 40% to 50%. • Updated mortality. • Updated salary scale rates. • Updated termination rates. • Updated disability rates. • Updated retirement rates. • Decreased Tier 1 future service accrual amounts from 0.07 to 0.04. • Decreased discount rate from 7.00% to 6.50%.

Exhibit III: Summary of Plan

This exhibit summarizes the major benefit provisions as included in the valuation. To the best of our knowledge, the summary represents the substantive plans as of the measurement date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Eligibility	A retiree who was an employee of DWP immediately prior to retirement and is receiving a monthly allowance under DWP's retirement plan is eligible for the subsidy.
Tier 1	All members hired before January 1, 2014.
Tier 2	All members hired on or after January 1, 2014.
Age & Service Requirement:	Eligible for minimum pension from the Retirement Plan as follows:
Tier 1	Age 60 with 5 years of Department service; or Age 55 with 10 years of Department service in the last 12 years; or Any age with 30 years of Department service; or Receiving permanent total disability benefits from the Plan. Note: To be eligible, the employee must have worked or been paid disability four of the last five years immediately preceding eligibility to retire, or while eligible to retire.
Tier 2	Age 60 with 5 years of continuous Department Service with the Plan immediately prior to reaching eligibility; or Age 60 with 10 years of Qualifying service; or Any age with 30 years of Qualifying service; or Receiving permanent total disability benefits from the Plan.

Section 4: Actuarial Valuation Basis

Benefit Types:

The maximum monthly dental subsidy (for Tiers 1 and 2) is $33.82, except for Local 18 with a maximum of $112.97.

The DWP medical premium subsidy is computed by a formula related to years of qualifying service and attained age at retirement. The actual years of qualifying service are rounded either up or down to the nearest integer value.

The subsidy limit is applied to the combined medical carrier and Medicare Part B premium, but not the dental premium.

Tier 1

	Years of Service				
Age at Retirement	**10**	**15**	**20**	**25**	**30**
55	$399	$799	$1,198	$1,597	$1,997
56	407	813	1,220	1,626	1,997
57	414	828	1,241	1,655	1,997
58	421	842	1,263	1,684	1,997
59	428	857	1,285	1,713	1,997
60	436	871	1,307	1,742	1,997
61	443	886	1,329	1,772	1,997
62	450	900	1,350	1,801	1,997
63	457	915	1,372	1,830	1,997
64	465	929	1,394	1,859	1,997
65	472	944	1,416	1,888	1,997

Tier 2

	Years of Service				
Age at Retirement	**10**	**15**	**20**	**25**	**30**
55	$200	$399	$599	$799	$998
56	203	407	610	813	998
57	207	414	621	828	998
58	211	421	632	842	998
59	214	428	643	857	998
60	218	436	653	871	998
61	221	443	664	886	998
62	225	450	675	900	998
63	229	457	686	915	998
64	232	465	697	929	998
65	236	472	708	944	998

As shown, the maximum possible subsidy is $1,997 and $998 for Tier 1 and 2, respectively. Subsidies may increase until age at retirement reaches 80

Section 4: Actuarial Valuation Basis

Dependent Coverage:	Dependent spouses are eligible for the DWP medical subsidy coverage. Surviving spouses are eligible to receive the DWP medical subsidy that would have been given to the deceased employee or retiree if still living, and only if the surviving spouse was enrolled in the deceased members' plan at the time of the members' death. Surviving spouses and dependent spouses are not eligible for the dental subsidy.
Retiree Contributions:	To the extent the DWP subsidies are less than the medical or dental premiums, the retiree contributes the cost difference.
Changes in Plan Provisions:	None.

Exhibit IV: Definitions of Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions	The estimates on which the cost of the Plan is calculated including: **Investment return** — the rate of investment yield that the Plan will earn over the long-term future; **Mortality rates** — the death rates of employees and pensioners; life expectancy is based on these rates; **Retirement rates** — the rate or probability of retirement at a given age; **Turnover rates** — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.
Actuarial Present Value of Total Projected Benefits	Present value of all future benefit payments for current retirees and active employees taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions.
Normal Cost	The amount of contributions required to fund the benefit allocated to the current year of service.
Actuarial Accrued Liability for Actives	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Retirees	The single sum value of lifetime benefits to existing retirees. This sum takes account of life expectancies appropriate to the ages of the retirees and of the interest which the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Value of Assets (AVA)	The value of assets used by the actuary in the valution. These may be at market value or some other method used to smooth variations in market value from one valuation to the next.
Funded Ratio	The ratio AVA/AAL.
Unfunded Actuarial Accrued Liability (UAAL):	The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.
Amortization of the Unfunded Actuarial Accrued Liability	Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.
Investment Return (discount rate)	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next. If the plan is funded on a pay-as-you-go basis, the discount rate is tied to the expected rate of return on day-to-day employer funds.
Covered Payroll	Annual reported salaries for all active participants on the valuation date.

Section 4: Actuarial Valuation Basis

ADC as a Percentage of Covered Payroll	The ratio of the actuarially determined contribution to covered payroll.
Health Care Cost Trend Rates	The annual rate of increase in net claims costs per individual benefiting from the Plan.
Actuarially Determined Contribution (ADC)	The ADC is equal to the sum of the normal cost and the amortization of the unfunded actuarial accrued liability.
Employer Contributions	An employer has contributed to an OPEB plan if the employer has (a) provided benefits directly to retired plan members or their beneficiaries, (b) paid insurance premiums to insure the payment of benefits, or (c) irrevocably transferred assets to a qualifying trust, or 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

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