Chicago Transit Authority
Retiree Health Care Trust

Actuarial Valuation as of January 1, 2019
Including Accounting Disclosures for
the Year Ended December 31, 2018

This report has been prepared at the request of the Board of Trustees to assist in administering the Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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September 20, 2019

Board of Trustees
Chicago Transit Authority Retiree Health Care Trust
Chicago, Illinois

Dear Trustees:

We are pleased to submit this valuation of the Retiree Health Care Trust as of January 1, 2019.

This report is based on information received from Group Administrators and the Retiree Health Care Trust. Segal Consulting 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. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report and we have no reason to believe there are facts or circumstances that would affect the validity of these results.

The actuarial computations made are for purposes of determining compliance with certain requirements of the Illinois Pension Code, and accounting disclosures under the Governmental Accounting Standards Board Statement No. 74. Determinations for purposes other than meeting these requirements may be significantly different from the results reported here.

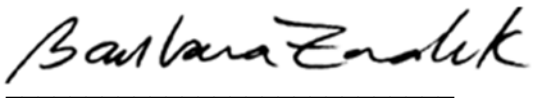
Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience differing from that anticipated by the assumptions; changes in assumptions; increases or decreases expected as 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. The scope of the assignment did not include performing an analysis of the potential range of such future measurements.

To the best of our knowledge, this report is complete and accurate and in our opinion presents the information necessary to comply with Illinois Pension Code Section 22-101B(b)(3)(iii), Illinois Pension Code Section 22-101B(b)(5), and GASB Statement 74 with respect to the benefit obligations addressed. We 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.

We look forward to discussing this material with you at your next meeting.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: 

Barbara Zaveduk, EA MAAA
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Yori Rubinson, FSA MAAA
Vice President and Retiree Health Actuary

cc: Mr. John V. Kallianis
Mr. Daniel A. Levin
Ms. Dorothy Stawiarski

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Section 1: Introduction

Introduction

Prior to Public Act 095-0708, the Retirement Plan for CTA Employees reimbursed the CTA for healthcare benefits provided to retired members and their dependents.

Under Section 22-101B of Public Act 095-0708, the Retiree Health Care Trust was established. Since 2009, the Retiree Health Care Trust has been providing health care benefits to eligible retirees and their dependents and survivors.

Retiree health benefits are funded through a combination of active contributions, retiree self-pay contributions, proceeds from a sale of bonds, and investment return on assets.

This valuation report contains information required by the Trustees of the Retiree Health Care Trust in order to comply with various accounting and funding requirements.

The projected present value of income and payments shown in this report are contingent upon a variety of assumptions about future events. Actual experience is likely to vary from these assumptions.

Important Information About Actuarial Valuations

An actuarial valuation is an estimate of future uncertain obligations of a postretirement health plan. As such, it will never forecast the precise future stream of benefit payments. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare a valuation, Segal Consulting ("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. Even where they appear precise, outside factors may change how they operate. For example, a plan may provide health benefits to post-65 retirees that coordinate with Medicare. If so, changes in the Medicare law or administration may change the plan's costs without any change in the terms of the plan itself. It is important for the Trustees to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our 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 the plan. 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 not necessary to have perfect data for an actuarial valuation; the valuation is an estimated forecast, not a prediction. The uncertainties in other factors are such that even perfect data does not produce a "perfect" result. Notwithstanding the above, it is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Assets	Part of the cost of a plan will be paid from existing assets – the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the auditor. Some plans include assets, such as private equity holdings, real estate, or hedge funds that are not subject to valuation by reference to transactions in the marketplace. A snapshot as of a single date may not be an appropriate value for determining a single year's contribution requirement, especially in volatile markets. Plan sponsors often use an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial Assumptions	In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. To determine the future costs of benefits, Segal collects claims, premiums, and enrollment data in order to establish a baseline cost for the valuation measurement and then develop short- and long-term health care cost trend rates to project increases in costs in future years. This forecast also requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year, as well as forecasts of the plan's benefits for each of those events. The forecasted benefits are then discounted to a present value, based on an estimate of the rate of return that will be achieved on the plan's assets. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions the actuary selects within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model necessarily uses approximations and estimates that may lead to significant changes in our results but will have no impact on the actual cost of the plan. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

Given the above, the user of Segal's actuarial valuation (or other actuarial calculations) needs to keep the following in mind:

- The actuarial valuation is prepared for use by the Trustees. It includes information for compliance with accounting standards. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted.
- Sections of this report include actuarial results that are not rounded, but that does not imply precision.
- 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. The Trustees should look to their other advisors for expertise in these areas.
- While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
- Segal's report shall be deemed to be final and accepted by the Trustees upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

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

Section 2: Illinois Pension Code Requirements

Funding Assessment

Section 22-101B (b)(3)(iii) of the Illinois Pension Code requires the Board of Trustees of the Retiree Health Care Trust to make an annual assessment of the funding levels of the Retiree Health Care Trust and to submit a report to the Auditor General at least 90 days prior to the end of the fiscal year (i.e. by October 2).

The report must demonstrate that the present value of projected benefits is exceeded by the present value of projected contributions and income plus assets in excess of the statutory reserve. If there is a shortfall, the report must describe a plan to eliminate the shortfall. As of January 1, 2019, projected income and assets exceed projected benefits, and no changes are necessary.

TABLE A: JANUARY 1, 2019 FUNDING ASSESSMENT

Actuarial Present Value of Projected Benefits			Actuarial Present Value of Projected Income and Assets	
Current Retirees				
Present Value of Benefits	$472,145,383		Present Value of Active Contributions	$165,517,253
Less: Retiree Self-Payments	(175,231,559)		Assets	806,785,470
Net Present Value		$296,913,824	Less: Statutory Reserve	(31,277,044)
Future Retirees			Total Income and Assets	$941,025,679
Present Value of Benefits	$541,600,981			
Less: Retiree Self-Payments	(184,672,610)			
Net Present Value		$356,928,371		
Present Value of HRA Benefits		76,496,810	Income and Assets in Excess of Projected Benefits	$210,686,674
Total Present Value of Projected Benefits		$ 730,339,005	Income and Assets as a Percentage of Projected Benefits	128.8%

This year's valuation includes a number of changes since last year's valuation:

- Assets less than expected.
- Changes in the covered population.
- Changes to per capita claims, based on updated claim experience, along with changes to retiree contribution rates.
- Updated assumed trend rates on future per capita health costs.
- Based on an experience study completed to determine assumptions for the January 1, 2019 through January 1, 2023 valuation, changes to salary scale, mortality, withdrawal, disability and retirement rates, assumed rates of participation, plan election, percent of disableds eligible for Medicare, and discount rate.

No plan changes were made since the prior valuation.

TABLE B: EFFECT OF CHANGES ON FUNDING LEVELS

	Actuarial Present Value of Projected Benefits	Actuarial Present Value of Projected Income and Assets	Income and Assets as a % of Projected Benefits
January 1, 2018 valuation	$841.4 million	$999.6 million	118.8%
Effect of expected changes	+24.8 million	+58.0 million	+3.3%
Effect of assets more or less than expected	--	-93.8 million	-10.7%
Effect of other gains/losses (changes in census data)	+7.9 million	-16.0 million	-2.9%
Effect of changes in per capita claims and retiree contribution rates	-46.7 million	+4.4 million	+6.7%
Effect of changes in other assumptions	-97.1 million	-11.2 million	+13.6%
Effect of plan changes	--	--	--
January 1, 2019 valuation	$730.3 million	$941.0 million	128.8%

Measuring the funded status of the Trust requires the use of assumptions regarding future economic and demographic experience. Since future events are uncertain and unknowable, there is a range of reasonable assumptions, and the results may vary materially based on which assumptions the actuary selects within that range.

In order to illustrate the sensitivity to changes in one such assumption – the assumed rate of return on plan investments – the funding assessment is shown below if the assumed rate of return were 6.50% rather than 6.85%.

TABLE C: SENSITIVITY: FUNDING ASSESSMENT AT 6.5% INVESTMENT RETURN

Actuarial Present Value of Projected Benefits			Actuarial Present Value of Projected Income and Assets	
Current Retirees				
Present Value of Benefits	$486,449,226		Present Value of Active Contributions	$174,360,479
Less: Retiree Self-Payments	(180,748,528)		Assets	806,785,470
Net Present Value		$305,700,698	Less: Statutory Reserve	(31,277,044)
Future Retirees			Total Income and Assets	$949,868,905
Present Value of Benefits	$577,431,120			
Less: Retiree Self-Payments	(196,614,245)			
Net Present Value		$380,816,875		
Present Value of HRA Benefits		79,543,954	Income and Assets in Excess of Projected Benefits	$183,807,378
Total Present Value of Projected Benefits		$766,061,527	Income and Assets as a Percentage of Projected Benefits	124.0%

Statutory Reserve

Section 22-101B (b)(3)(ii) of the Illinois Pension Code requires the Board of Trustees of the Retiree Health Care Trust to maintain an appropriate funding reserve level which shall not be less than the amount of incurred and unreported claims plus 12 months of expected claims and administrative expenses.

TABLE D: CALCULATION OF JANUARY 1, 2019 STATUTORY RESERVE

1. 12 months of expected claims and administrative expenses	$46,226,686
2. Less: 12 months of expected retiree and dependent contributions	(15,852,642)
3. 12 months of net expected claims and administrative expenses	30,374,044
4. Incurred and unreported claims*	903,000
5. Total statutory reserve: (3) + (4)	$31,277,044

* *Incurred but not reported claims represents the amount of claims that were incurred during a certain time period but have not yet been paid due to the timing difference between when the services were rendered and the day the claim was actually paid.*

45% Test

Section 22-101B (b)(5) of the Illinois Pension Code states that the Board of Trustees shall have the discretion to provide different contribution levels for retirees, dependents and survivors based on their years of service, level of coverage or Medicare eligibility, provided that the total contribution from all retirees, dependents and survivors shall not be more than 45% of the total cost of such benefits. The term "total cost of such benefits" is the total amount expended by the retiree health benefit program in the prior plan year.

According to the preliminary December 31, 2018 balance sheet of the Chicago Transit Authority Retiree Health Care Trust, the aggregate amount of retiree, dependent, and survivor contributions for 2018 was $16.5 million. The total cost of retiree health benefits paid from the Health Care Trust in 2017 was $46.2 million. Dental benefits and contributions are excluded from these totals, since the Fund does not provide dental benefits, but only serves as a "pass-through" for dental premiums.

Aggregate retiree, dependent, and survivor contributions in 2018 were less than 45% of the total cost of benefits in 2017.

TABLE E: 45% TEST (RETIREE CONTRIBUTIONS VERSUS COST OF BENEFITS)

1. Aggregate retiree, dependent, and survivor contributions in 2018	$16,479,353
2. Total cost of benefits in 2017	$46,244,025
3. Retiree self-pay as a percentage of total cost of benefits: (1) / (2)	**35.64%**

Section 3: GASB 74 Disclosures

Accounting Requirements

The Governmental Accounting Standards Board (GASB) issued a new accounting standard, Statement Number 74 – *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans,* which applies for fiscal years beginning after June 15, 2016. Under this statement, all state and local government entities that provide other post-employment benefits (OPEB) are required to report the cost of these benefits on their financial statements. The accounting standard supplements cash accounting, under which the expense for postemployment benefits is equal to benefit and administrative costs paid on behalf of retirees and their dependents (*i.e.*, a pay-as-you-go basis).

The statements cover postemployment benefits of health, prescription drug, dental, vision and life insurance coverage for retirees; long-term care coverage, life insurance and death benefits that are not offered as part of a pension plan; and long-term disability insurance for employees. The benefits valued in this report are limited to those described in Section 4, which are based on those provided under the terms of the substantive plan in effect at the time of the valuation and on the pattern of sharing costs between the plan and plan members. The projection of benefits is not limited to legal or contractual limits on funding unless those limits clearly translate into benefit limits on the substantive plan being valued.

The total cost of providing postemployment benefits is projected, taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions. These assumptions are summarized in Section 4. This amount is then discounted to determine the Total OPEB Liability. The Net OPEB Liability (NOL) is the difference between the Total OPEB Liability and market value of assets in the Plan, called the Plan Fiduciary Net Position.

The calculation of an accounting obligation does not, in and of itself, imply that there is any legal liability to provide the benefits valued, nor is there any implication that the Plan Sponsor is required to implement a funding policy to satisfy the projected expense.

Actuarial calculations reflect a long-term perspective, and the methods and assumptions use techniques designed to reduce short term volatility in accrued liabilities and the actuarial value of assets, if any.

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and the actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

Net OPEB Liablity

CHART 1: NET OPEB LIABILITY

	December 31, 2018
Total OPEB Liability	$ 617,379,894
Plan Fiduciary Net Position	806,785,470
Net OPEB Liability	($189,405,576)
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	130.68%

The Net OPEB Liability was measured as of December 31, 2018. Plan Fiduciary Net Position (plan assets) was valued as of the measurement date and the Total OPEB Liability was determined from the actuarial valuation as of December 31, 2018.

Actuarial assumptions. The total OPEB liability was measured by an actuarial valuation as December 31, 2018 used the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Inflation	3.10%
Salary increases	11% for 1 year of service, 12% for 2 years of service, 16% for 3 years of service, 8% for 4 years of service, and 3.5% thereafter
Discount Rate	6.85%
Healthcare costs trend rates	7.50% graded down to 4.50% over 12 years
Mortality Rates	
Healthy	SOA Public 2010 General Healthy Retiree Headcount-Weighted Below Median Mortality Tables, multiplied by 113% for females, with generational projection using Scale MP-2018
Disabled	SOA Public 2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Tables, with generational projection using Scale MP-2018

The actuarial assumptions used in the December 31, 2018 valuation were based on the results of actuarial experience studies completed in 2019.

Detailed information regarding all actuarial assumptions can be found in Section 4.

Development of Long-Term Rate

The long-term expected rate of return on OPEB plan investments was determined using a building block method in which best estimate ranges of expected future rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and projected arithmetic real rates of return for each major asset class are summarized below:

CHART 2: DEVELOPMENT OF LONG-TERM RATE

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
U.S Fixed Income	30%	1.96%
Non-U.S fixed income	10%	4.16%
U.S. Equity	35%	6.41%
Non-U.S. Equity	10%	6.96%
Emerging Markets Equity	5%	9.86%
Real Estate	10%	4.76%
Inflation		2.00%

Discount Rate

The discount rate used to measure the Total OPEB Liability was 6.85%. The projection of cash flows used to determine the discount rate assumed that active members will continue to contribute 3% of payroll. Based on those assumptions the Plan's fiduciary net position was projected to be available to make all projected future net benefit payments for current plan members. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the Total OPEB Liability.

The following presents the Net OPEB Liability, as well as what the Net OPEB Liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.85%) or 1-percentage-point higher (7.85%) than the current rate. Also shown is the Net OPEB Liability as if it were calculated using healthcare cost trend rates that were 1 percentage point lower or 1 percentage point higher than the current healthcare trend rates.

CHART 3: SENSITIVITY

	1% Decrease in Discount Rate (5.85%)	**Current Discount Rate** (6.85%)	**1% Increase in Discount Rate** (7.85%)
Net OPEB Liability (Asset)	($118,885,809)	($189,405,576)	($248,670,466)
	1% Decrease in Trend Rates (6.50% decreasing to 3.50%)	**Current Trend Rates** (7.50%, decreasing to 4.50%)	**1% Increase in Trend Rates** (8.50%, decreasing to 5.50%)
Net OPEB Liability (Asset)	($247,961,128)	($189,405,576)	($119,109,066)

CHART 4: SCHEDULE OF CHANGE IN NET OPEB LIABILITY

	January 1, 2018	January 1, 2019
Total OPEB Liability		
Service cost	$7,348,611	$6,956,979
Interest	50,748,662	47,693,601
Change of benefit terms	(231,265)	0
Differences between expected and actual experience	(7,235,941)	5,503,572
Changes of assumptions	(35,532,918)	(101,361,429)
Benefit payments net of retiree contributions	(28,370,831)	(31,586,009)
Net change in Total OPEB Liability	**($13,273,682)**	**($72,793,286)**
Total OPEB Liability – beginning	**703,446,862**	**690,173,180**
(a) Total OPEB Liability – ending	**$690,173,180**	**$617,379,894**
Plan Fiduciary Net Position		
Contributions – employer	$0	$0
Contributions – employee	21,205,666	23,300,031
Net investment income	111,133,146	(35,292,431)
Benefit payments net of retiree contributions	(28,370,831)	(31,586,009)
Administrative expense	(1,718,881)	(2,458,360)
Net change in Plan Fiduciary Net Position	**$102,249,100**	**($46,036,769)**
Plan Fiduciary Net Position – beginning	**750,573,139**	**852,822,239**
(b) Plan Fiduciary Net Position – ending	**$852,822,239**	**$806,785,470**
(c) Net OPEB Liability – ending (a) – (b)	**($162,649,059)**	**($189,405,576)**
Plan Fiduciary Net Position as a percentage of Total OPEB Liability: (b)/(a)	123.57%	130.68%
Covered employee payroll	$684,200,773	$671,698,469
Plan Net OPEB Liability as percentage of covered employee payroll	(23.77%)	(28.20%)

Notes to Schedule:

The above information is required beginning in 2017. A full 10-year trend will be compiled in future years.

Benefit changes:	January 1, 2018: On April 27, 2017, the Trustees changed eligibility requirements for retirements on or after January 1, 2018 to be (1) separate from service at or after age 55 with at least 20 years of eligibility service, or (2) separate with at least 10 years of service and are at least age 65 at the time they enroll. Effective January 1, 2018, the HRA program was established. January 1, 2019: None.
Changes of assumptions:	January 1, 2018: Valuation-year per capita health costs, retiree contribution rates, and future assumed trend rates on such costs and rates were updated. January 1, 2019: Valuation-year per capita health costs, retiree contribution rates, and future assumed trend rates on such costs and rates were updated. Assumed retirement, turnover, disability, and mortality rates and salary scale were modified. The percent of future retirees assumed to enroll in health care was decreased. The percent of future retirees assumed to enroll in the PPO versus HMO plans was changed to 85% PPO and 15% HMO for non-Medicare retirees and 95% PPO and 5% HMO for Medicare retirees. The percentage of future disabled retirees assumed to be on Medicare was decreased to 40% in the first two years of disability and 70% thereafter. The discount rate was lowered from 7.00% to 6.85%.

CHART 5: SCHEDULE OF INVESTMENT RETURNS

Year	Annual Money Weighted Rate of Return, Net of Investment Expense
2018	-4.2%
2017	14.9%
2016	6.2%
2015	-0.6%
2014	3.4%
2013	14.7%
2012	12.8%
2011	1.1%
2010	13.3%
2009	3.3%

Section 4: Supporting Information

EXHIBIT 1 - SUMMARY OF PARTICIPANT DATA

	January 1, 2018	January 1, 2019
Retirees and Disableds[1]		
• Number of retirees and disableds	6,086	5,991
• Average age of retirees and disableds	71.1	71.6
• Number of spouses (not including dependent children)	1,911	1,895
• Average age of spouses	68.2	68.6
Surviving Spouses		
• Number	666	661
• Average age	79.6	79.7
Active Employees (including those not yet accruing service under the Retirement Plan)		
• Number	10,556	10,135
• Average age	45.8	45.9
• Average years of service for contribution schedule	10.5	11.1
• Average salary	$71,034	$71,849
Inactive Vested Participants		
• Number	56	109
• Average age	55.3	57.8
Separated Participants Only Eligible for HRA at Age 65		
• Number	6,359	7,798
• Average age	48.4	48.3

[1]Excludes retirees receiving only dental benefits

EXHIBIT 2 – SUMMARY OF INCOME AND EXPENSES

	Year Ended December 31, 2017	Year Ended December 31, 2018
Additions		
Employee contributions	$21,205,666	$23,300,031
Retiree contributions	18,389,983	18,638,908
Investment income (net of investment expenses)	111,133,146	35,292,431
Total Additions	$150,728,795	$77,231,370
Deductions		
Benefit payments (net of rebates)	$46,760,814	$50,224,917
Administrative expenses	1,718,881	2,458,360
Total Deductions	$48,479,695	$52,683,277
Net increase (decrease)	$102,249,100	($46,036,769)
Net assets available for benefits		
Beginning of year	$750,573,139	$852,822,239
End of year	$852,822,239	$806,785,470

EXHIBIT 3 – STATEMENT OF ACTUARIAL ASSUMPTIONS/METHODS

Valuation Date	January 1, 2019
Data	Claims experience and premiums were provided by the Retiree Health Care Trust and by vendors hired by the Trust. Detailed census data was provided by Group Administrators and the Trust.
Net Investment Return	6.85%

Salary Scale

Years of Service	Salary Increase
1	11.0%
2	12.0%
3	16.0%
4	8.0%
5+	3.5%

Decrements Prior to Retirement

	Rates (%)			
	Mortality[1]			
Age	Male	Female	Withdrawal[2]	Disability
20	0.04	0.01	9.50	0.10
25	0.05	0.02	8.50	0.10
30	0.06	0.02	7.00	0.10
35	0.08	0.03	4.90	0.25
40	0.10	0.05	3.80	0.50
45	0.15	0.08	3.20	0.73
50	0.23	0.11	2.70	0.85
55	0.34	0.17	0.00	1.15

[1] Tables used are SOA Public 2010 General Employee Headcount-weighted Below Median Mortality Tables, with generational projection using MP-2018. Rates are shown before any generational projection.

[2] 15% assumed in first year for non-full-time permanent employees.

Post-Retirement Mortality Rates

Healthy: SOA Public 2010 General Healthy Retiree Headcount-Weighted Below Median Mortality Tables, multiplied by 113% for females, with generational projection using Scale MP-2018

Disabled: SOA Public 2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Tables, with generational projection using Scale MP-2018

Active Retirement Rates

After meeting Pension eligibility, the following rates apply:

Age	Rates (%)	
	25+years of service and hired <1/18/08 OR Age 64+ with 25+ years of service and hired 1/18/08+	<25 years of service OR Age <64 and hired 1/18/08+
45-49	20.0	N/A
50-54	20.0	N/A
55-56	20.0	2.0
57	20.0	2.5
58	20.0	3.0
59	25.0	3.5
60	25.0	4.0
61	35.0	5.0
62-63	35.0	15.0
64	35.0	20.0
65	40.0	30.0
66-69	30.0	30.0
70-74	30.0	30.0
75+	100.0	100.0

Pension eligibility
Normal Retirement: Age 65
Early Retirement if hired before 1/18/08: Age 55 with 3 years of service or any age with 25 years of service
Early Retirement if hired on or after 1/18/08: Age 55 with 10 years of service or age 64 with 25 years of service

Retirement Age for Eligible Inactives

Age 65.

Participation

The percent of those eligible for coverage who are assumed to decline is equal to 100% of the percent of full cost paid by the retiree (based on contribution service at retirement). An illustration of the resulting rates of retiree PPO enrollment for January 1, 2019 are:

	Rate (%)	
Service	Pre-Medicare	Medicare
35+	95.6	94.8
30-34	93.0	89.7
25-29	75.5	69.2
20-24	57.5	51.5
15-19	29.0	19.1
10-14	19.5	11.0
<10	5.3	0.0

Dependents

75% of future retirees are assumed to be married, with husbands assumed to be three years older than their wives. The percent of spouses assumed to decline coverage is equal to 100% of the percent of full cost paid by the spouse (based on retiree's contribution service at retirement). An illustration of the resulting rates of spouse PPO enrollment for January 1, 2019 are:

	Rate (%)	
Service	Pre-Medicare	Medicare
45+	95.6	94.8
40-44	84.9	81.8
35-39	68.8	61.9
30-34	57.2	47.4
25-29	42.0	31.2
20-24	33.7	25.2
15-19	29.0	19.1
10-14	19.5	11.0
<10	5.3	0.0

Plan Election	85% of future pre-Medicare retirees are assumed to elect PPO coverage, and the remaining 15% elect HMO coverage. Once eligible for Medicare, 95% of future retirees are assumed to elect PPO coverage, and the remaining 5% elect HMO coverage. Upon retirement, 40% of pre-65 disabled retirees are assumed to be eligible for Medicare, increasing to 70% eligible for Medicare two years after retirement. All pre-Medicare disabled retirees are assumed to elect BCBS PPO coverage.
Missing Participant Data	A missing census item for a given participant was assumed to equal the average value of that item over all other participants of the same status for whom the item is known. For those hired in 2018, salaries were annualized. For employees whose 2018 earnings were less than $20,000, an annual rate of $25,000 was assumed. Those currently in part-time status are assumed to attain full time permanent status at a salary of $43,000.
Service for Eligibility	Future accruals assumed to equal one credit per year.
Service for Contribution Schedule	Future accruals assumed to be equal to an average of 2017 and 2018 hours divided by 2,080 for non-salaried actives. If hired in 2017, only 2018 hours are used. If hired in 2018 or currently part-time, participants earn one credit in each future year. Salaried actives earn one year of service each year.

Per Capita Cost Development: ***HMO Illinois***	Based on January 1, 2019 premium rates. Actuarial factors were then applied to estimate individual retiree and spouse costs by age and by gender.
Per Capita Cost Development: ***PPO Medical***	Per capita claims costs were based on actual retiree paid claim experience for the period July 1, 2016 through June 30, 2018, including PPO fees. Claims were adjusted as follows: • total adjusted claims were divided by the number of adult members to yield a per capita claim; and • the per capita claim was trended to the midpoint of the valuation year at assumed trend rates. Per capita claims for each plan year were then combined by taking a weighted average. The weights used in this average account for a number of factors including each plan year's volatility of claims experience and distance to the valuation year. Actuarial factors were then applied to the weighted average cost to estimate individual retiree and spouse costs by age and by gender.
Per Capita Cost Development: ***PPO Prescription Drugs***	Per capita claims costs were based on actual retiree paid claim experience for the period June 1, 2016 through May 31, 2018. Claims were then adjusted as follows: • total adjusted claims were divided by the number of adult members to yield a per capita claim; • the per capita claim was trended to the midpoint of the valuation year at assumed trend rates; and • the per-capita prescription drug claims were decreased for estimated prescription drug rebates. Per capita claims for each plan year were then combined by taking a weighted average. The weights used in this average account for a number of factors including each plan year's volatility of claims experience and distance to the valuation year. Actuarial factors were then applied to the weighted average cost to estimate individual retiree and spouse costs by age and by gender.
Per Capita Cost Development: ***MAPD PPO***	Based on January 1, 2019 premium rates for Humana Medicare Advantage Prescription Drug (MAPD) PPO plan. Actuarial factors were then applied to estimate individual retiree and spouse costs by age and by gender.
Per Capita Cost Development: ***MAPD HMO***	Based on January 1, 2019 premium rates for Humana Medicare Advantage Prescription Drug (MAPD) HMO plan. Actuarial factors were then applied to estimate individual retiree and spouse costs by age and by gender.
Per Capita Cost Development: ***Administrative Expenses***	Administrative expenses were based on experience furnished by the Plan Administrator for the period January 1, 2015 through December 31, 2017. Expenses were separated by plan year and trended to the valuation date. Expenses were divided by the number of adult members to yield a per participant cost.

Per Capita Health Costs

Medical and prescription drug claims costs for the plan year beginning January 1, 2019 are shown in the table below for retirees at selected ages. These costs are net of deductibles and other benefit plan cost sharing provisions.

Age	PPO Medical				PPO Prescription Drug				HMO Illinois			
	Retiree		Spouse		Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
55	$10,341	$10,676	$8,138	$9,218	$2,180	$2,251	$1,716	$1,943	$9,962	$10,285	$15,240	$17,261
60	12,281	11,508	10,894	10,691	2,589	2,426	2,297	2,254	11,831	11,086	20,402	20,020
64	14,089	12,208	13,754	12,033	2,970	2,574	2,900	2,537	13,573	11,761	25,755	22,532

Age	MAPD PPO				MAPD HMO			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
55	$2,286	$2,286	$2,286	$2,286	$1,103	$1,103	$1,103	$1,103
60	2,286	2,286	2,286	2,286	1,103	1,103	1,103	1,103
64	2,286	2,286	2,286	2,286	1,103	1,103	1,103	1,103
65	2,406	2,045	2,406	2,045	1,161	987	1,161	987
70	2,789	2,204	2,789	2,204	1,346	1,063	1,346	1,063
75	3,005	2,372	3,005	2,372	1,450	1,145	1,450	1,145

Administrative Expenses

Administrative expenses of $240 per participant were added to projected incurred claims costs.

Medicare Part D Subsidy

Medicare benefits are provided through a fully insured MAPD plan, therefore, the Trust does not receive Medicare Part D subsidies.

Health Care Cost Trend Rates

Health care trend measures the anticipated overall rate at which health plan costs are expected to increase in future years. The rates shown below are "net" and are applied to the net per capita costs shown above.

Year Ending December 31	HMO & PPO	MAPD	Fees and Administrative Expenses
2019	7.50%	20.00%*	5.00%
2020	7.25%	7.25%	5.00%
2021	7.00%	7.00%	5.00%
2022	6.75%	6.75%	5.00%
2023	6.50%	6.50%	5.00%
2024	6.25%	6.25%	5.00%
2025	6.00%	6.00%	5.00%
2026	5.75%	5.75%	5.00%
2027	5.50%	5.50%	5.00%
2028	5.25%	5.25%	5.00%
2029	5.00%	5.00%	5.00%
2030	4.75%	4.75%	5.00%
2031 & later	4.50%	4.50%	5.00%

* Accounts for the reintroduction of the Health Insurers Fee in 2020.

All medical and prescription drug trend rates except for HMO Illinois trend were reduced by 0.3% to reflect the annual CPI adjustment of prescription drug copays, annual deductibles, and annual out-of-pocket maximums.

Retiree Contribution Increase Rate

Retiree and dependent contribution rates were assumed to increase at medical and prescription drug trend with adjustments.

Active Contributions

3.00% of pay in all future years.

Plan Design

Development of plan liabilities was based on the plan of benefits in effect as described in a subsequent appendix. Cost of dental coverage was not included in this valuation since retirees and dependents pay the full cost for this coverage.

Lifetime Maximum Benefits

No information was available regarding accumulations toward lifetime maximum benefits and no such accumulations were assumed.

Health Care Reform	This is a retiree-only plan, and most aspects of the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 do not apply. Any future aspects that do apply are assumed to have a *de minimis* effect. Beginning in 2022, the PPACA imposes a 40% excise tax on health plans if the cost of coverage exceeds certain thresholds. When estimating the potential effect of this excise tax, we assumed that the plan would elect to treat retirees who have not attained age 65 and retirees who have attained age 65 as similarly situated beneficiaries, which produces a cost of coverage that is below the threshold for the tax. Treating pre-65 and post-65 retirees as similarly situated beneficiaries, and assuming the excise tax threshold will increase at 2.5% per year after 2019, results in the average cost exceeding the single age 65+ threshold in 2047, and the average cost exceeding the single age 55-64 threshold in 2056. No federal regulations or guidance on the determination of the excise tax have been issued. Therefore, the actual tax applied to the benefits provided by this Trust may vary from those projected in this valuation. These projections do not take into account the potential adjustment for differences between the age and gender characteristics of this group compared to the age and gender characteristics of the national workforce, which may further increase this plan's threshold.
Rational for Actuarial Assumptions	Rates of mortality, turnover, disability, and retirement, salary increases, and the rate of inflation were based on an experience study completed to determine assumptions for the January 1, 2019 through January 1, 2023 valuations of the Retirement Plan for CTA Employees. The analysis was based on historical data and projections for the five-year period ending December 31, 2017. The mortality tables were determined to reasonably provide for future mortality improvement. Rates of retiree and spouse participation, plan election assumptions, the percent of disabled participants eligible for Medicare, and rates of turnover for participants who are not full time permanent employees were based on an experience study completed to determine assumptions for the January 1, 2019 through January 1, 2023 valuations of the CTA RHCT. The analysis was based on historical data and projections for various periods ending December 31, 2018. The net investment return assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. The analysis was based on an experience study completed to determine assumptions for the January 1, 2019 through January 1, 2023 valuations of the CTA RHCT. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes, as well as the Plan's target asset allocation. The trend rate assumptions were developed using data sources such as the Segal Health Trend Survey, internal client results, trends from other published surveys prepared by the S&P Dow Jones Indices, consulting firms and brokers, and CPI statistics published by the Bureau of Labor Statistics.

EXHIBIT 4 – 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 valuation date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Active Contributions	3% of pay as of January 1, 2019.
HRA	The Trustees established a health reimbursement account (HRA) for retirees and former employees, and their survivors, who have contributed to the Retiree Health Care Trust but either (1) do not satisfy the eligibility requirements for retiree health coverage, or (2) satisfy the eligibility requirements but decline coverage prior to retirement. Upon reaching age 65, the HRA provides reimbursement for allowable expenses, not to exceed the retiree's total active contributions. To begin using the HRA balance, participants must enroll for a debit card. Once enrolled, an annual fee is deducted from the HRA balance. The annual fee is currently $25 per year. If a participant enrolls in the HRA, they can never enroll in the RHCT health care benefits and vice versa.
Health Benefit Eligibility	Retirement: ➢ Age 55 with 20 years of service, or ➢ Separate with at least 10 years of service and at least age 65 at time of enrollment. Disability: ➢ 5 years of service if covered under Workmen's Compensation; or ➢ 10 years of service. Participants are not eligible for retiree health benefits if they cash-out their pension benefits.
Service for Eligibility Purposes	Pension service to January 18, 2008 plus RHCT service after January 17, 2008. After January 17, 2008, employees accrue one year of service for every plan year worked.
Service for Contribution Schedule	Pension service to January 18, 2008 plus RHCT service after January 17, 2008. After January 17, 2008, salaried employees accrue one year of service for every plan year worked, and non-salaried employees earn service based on the actual hours worked in the plan year divided by 2,080 hours.
Benefit Types	Medical and prescription drug. Dental is available at full cost.
Duration of Coverage	Lifetime.
Dependent Benefits	Medical and prescription drug. Dental is available at full cost.
Dependent Coverage	Eligible dependents covered during retirement may continue coverage after the death of the retiree.

Retiree Contributions

Self-pay rates depend on service at retirement and Medicare status. Self-pay rates for disabled retirees depend on Medicare status and service at time of disability. The monthly rates effective January 1, 2019 are shown below.

	Non-Medicare				Medicare			
	Retiree		Dependent(s) or Surviving Spouse		Retiree		Dependent(s) or Surviving Spouse	
Service	PPO	HMO	PPO	HMO	PPO	HMO	PPO	HMO
45+	$51	$43	$51	$43	$13	$7	$13	$7
40-44	51	43	172	146	13	7	44	23
35-39	51	43	355	300	13	7	93	49
30-34	80	70	488	412	25	14	128	67
25-29	279	245	661	557	75	40	167	88
20-24	485	457	756	711	118	62	182	95
15-19	810	761	810	761	196	103	196	103
10-14	918	862	918	862	216	114	216	114
Less than 10	1,080	1,015	1,080	1015	243	124	243	124

Benefit Descriptions

Pre-Medicare				
	BCBS PPO		HMO Illinois	
Medical				
	In-Network	Out-of-Network		
Annual Deductible (indexed*)	$390 individual/$780 family		Not applicable	
Annual Out-of-Pocket Maximum (after deductible) (indexed*)	$3,901 individual/ $7,802 family	$5,202 individual/ $10,404 family	$1,500 individual/ $3,000 family	
Lifetime Maximum	$2,000,000 per person		Unlimited	
Coinsurance (after deductible)	90%	60%	100% after co-pays	
Prescription Drugs				
Copay** (indexed)	Retail* (30 day)	Mail* (90 day)	Retail	Mail
Generic	$13	$26	$5	$10
Brand Formulary if no Generic	$26	$52	$10	$20
Brand Non-Formulary or Brand with Generic	$65	$130	$25	$50

* Indexed each year to the CPI, Chicago-Gary Kenosha, IL-IN-WI CMSA

** Mandatory mail-order for 2nd refill

Medicare: Humana MAPD PPO**		
Medical		
Annual Deductible (indexed*)	$390 individual/$780 family	
Annual Out-of-Pocket Maximum (after deductible) (indexed*)	$3,901 individual/$7,802 family	
Lifetime Maximum	Unlimited	
Prescription Drugs		
Copay (indexed*)	Retail	Mail
Generic	$5	$10
Brand Formulary if no Generic	$15	$31
Brand Non-Formulary or Brand with Generic	$41	$82

* Indexed each year to the CPI, Chicago-Gary Kenosha, IL-IN-WI CMSA

** **Humana MAPD HMO** plan has the same provisions with a smaller network of providers.