



October 21, 2019

**CONFIDENTIAL**

Ms. Virginia Keeling  
Director, Human Resources  
Capital Metropolitan Transportation Authority  
2910 East 5<sup>th</sup> Street  
Austin, Texas 78702

Re: January 1, 2019 Actuarial Valuation Report - Revised

Dear Virginia:

Enclosed is the revised January 1, 2019 actuarial valuation report for the Capital Metropolitan Transportation Authority Retirement Plan for Administrative Employees. The revision reflects changes in the deferred (Inflow)/Outflow schedule and related changes to the Pension Expense. The report covers the calculation of the minimum required contribution for the 2019 plan year and the employer's GASB disclosure as of December 31, 2018.

If you have any questions, please call me at (216) 875-1921.

Sincerely,

FINDLEY

Paul J. Gibbons

Enclosures

# Capital Metropolitan Transportation Authority

## Retirement Plan for Administrative Employees

Report for the Plan Year Beginning - Revised  
January 1, 2019

October 21, 2019



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## Summary of Key Results

Plan Years Beginning	1/01/2018	1/01/2019
<b>Cash Contributions</b>		
Annual Funding Contribution (January 1) amount per active valued	\$ 2,523,137 8,524	\$ 2,854,029 9,774
Annual Funding Contribution (December 31) amount per active valued	\$ 2,693,449 9,099	\$ 3,046,676 10,434
<b>Net Pension Liability</b>		
December 31		
Total Pension Liability	\$ 45,157,623	\$ 49,263,627
Fiduciary Positions	(30,010,195)	(29,770,966)
Net Pension Liability	\$ 15,147,428	\$ 19,492,661
<b>Actuarial Accrued Liability</b>	\$ 36,039,326	\$ 41,198,793
<b>Actuarial Value of Assets</b>	\$ 28,526,108	\$ 31,697,978
<b>Normal Cost</b>	\$ 1,723,422	\$ 1,899,580
<b>Effective Interest Rate</b>	6.75%	6.75%
<b>Compensation</b>		
Total Compensation	\$ 22,478,480	\$ 24,354,819
Valuation Compensation	20,966,199	22,758,461
Present Value of Future Compensation	184,100,329	198,099,835

## Plan Year Highlights

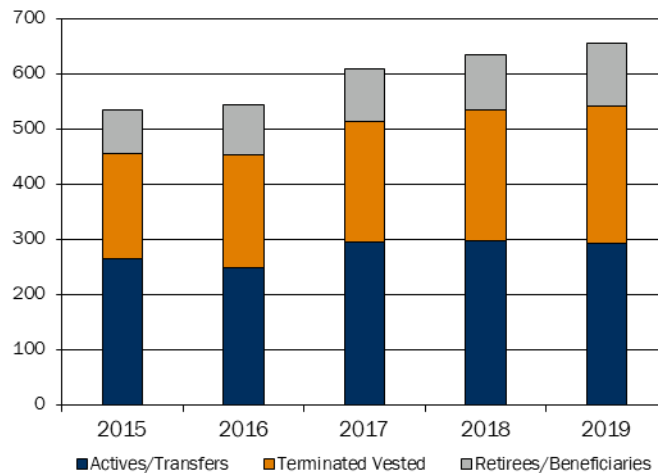
### Plan Provisions

The Plan's liabilities have not changed due to plan amendment since the last valuation. The main provisions of the plan as of the valuation date are summarized in Appendix A.

### Demographics

Data as of January 1, 2019 have been used for this valuation. Details regarding changes since the prior valuation can be found in Exhibit XV.

### Participant Counts



### Plan Liability Gains and Losses

The plan's liability was calculated using the Entry Age Normal method.

There was a loss of \$799,381 on the liability this year due to demographic changes. The actual valuation salary for continuing actives was 5.4% higher than expected, due to larger than expected salary increases. The difference in actual and expected valuation salary accounted for approximately \$479,000 of the demographic loss. The remaining loss was due to differences in actual and expected demographic experience.

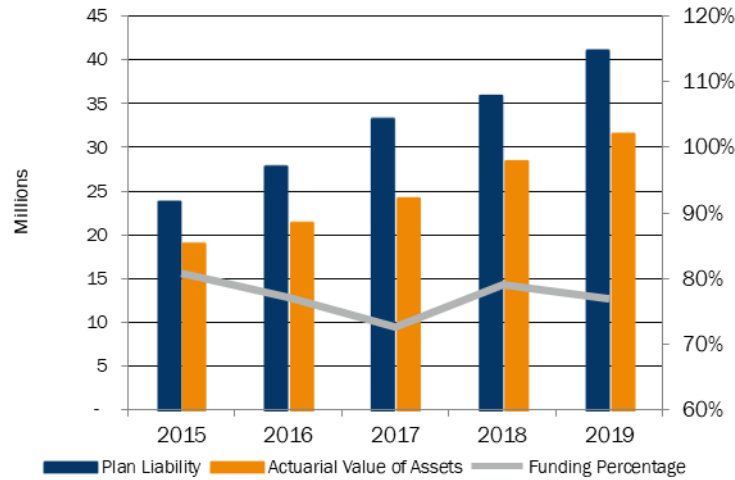
The mortality rates were updated this year to the most recent table. As a result of this change, there was a loss of \$1,050,000 on the liability.

### Asset Performance

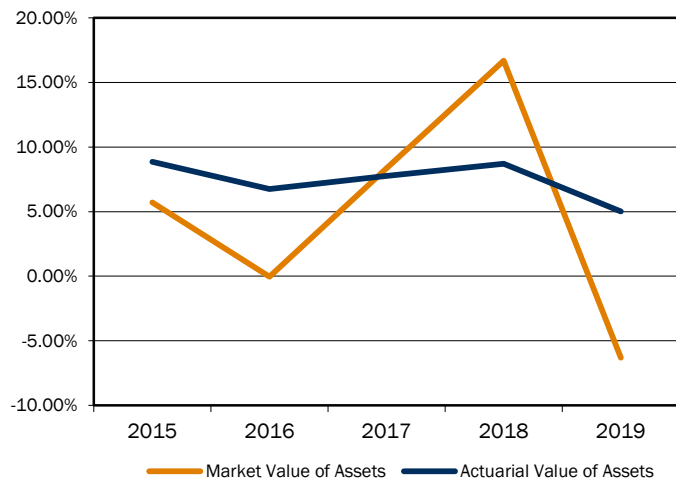
Due to the difference between the 6.75% expected rate of return in the prior year and the actual (6.32)% return on the market value of assets, the assets decreased by \$4,015,081. Since the plan uses a smoothing method, this return was not entirely reflected in the actuarial value of plan assets. The rate of return on the actuarial value of assets was 5.00%.

## Plan Year Highlights (Continued)

### Historical Plan Liability, Assets, and Funding Percentage



### Historical Return on Assets



### Accounting Assumptions and Methodologies

The discount rate was raised to 5.54% in accordance with GASB Statements Nos. 67 and 68. The mortality table was updated to RP-2014 improvement scale MP-2018. As of January 1, 2019 this increase in discount rate and change in mortality decreased the total pension liability by \$920,000.

## Risk Discussion

### Actuarial Standard of Practice No. 51

Effective November 1, 2018, actuarial funding valuation reports are required to include a discussion of the risk associated with measuring pension obligations and determining pension plan contributions. The risks that may reasonably be anticipated to significantly affect the plan's future financial condition are discussed below.

### Investment Risk

Due to the plan's significant equity exposure, there is risk that the funded status of the plan could be volatile. The historical market value of asset returns in the chart on page 4 of report shows this historical volatility. We recommend a more detailed assessment be performed to provide the plan sponsor with a better understanding of this risk.

### Inflation Risk

Inflation-driven pay increases will result in larger benefit increases for longer service participants. The current salary increase assumption is summarized on page 34 of the report. We recommend a more detailed assessment be performed to provide the plan sponsor with a better understanding of this risk.

### Funded Status Risk

Since this plan uses the expected return of assets as the valuation interest rate there is significant risk of increased funding deficit. We recommend a more detailed assessment be performed to provide the plan sponsor with a better understanding of this risk.

## Actuarial Statement

### Primary Purposes of Actuarial Valuation

This report has been prepared for Capital Metropolitan Transportation Authority.

The primary purposes of the valuation are

- to determine the annual contribution calculation for the plan year ending December 31, 2019, and
- to determine the net pension liability as of December 31, 2018 under GASB Statement Nos. 67 and 68.

The report also documents the funded status of the plan, the provisions on which the valuation is based, and the actuarial assumptions and methods used in the calculations. The results of this report may not be applicable for other purposes.

### Sources of Data

A census of eligible employees was supplied by the Findley, Inc. Defined Benefit Administrative Practice. We did not audit the census.

### Assumptions

Each significant assumption used in this report represents a combination of a best estimate of future expectations and observed past experience as well as estimates inherent in related market data. Information regarding the basis for, and any changes to, the assumptions is in Appendix B.

### Sources of Financial Information

Benefit Trust Company provided asset information. We did not audit the asset information, but all data were checked for internal consistency and for consistency with last year's information.

### Future Measurements

Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic trends and 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 or additional cost/contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.



## Actuarial Statement (Continued)

### Certification of Compliance and Independence

The Funding Requirements and Financial Accounting Information set forth in this Report have been made in accordance with the interpretation of Plan provisions and the actuarial assumptions and funding method summarized, respectively, in Appendices A and B.

In our opinion, all calculations and procedures used in this report conform with generally accepted actuarial principles and practices and have been determined on the basis of actuarial assumptions and methods that are reasonable and that offer our best estimate of anticipated experience under the Plan. Therefore, we hereby certify that this valuation fairly represents the actuarial position of the Plan with respect to the primary purposes of this valuation.

There is no relationship between Capital Metropolitan Transportation Authority and Findley that impacts our objectivity.

### Prescribed Statement of Actuarial Opinion

I, Paul J. Gibbons, am a member of the American Academy of Actuaries and meet the Qualifications Standards of the American Academy of Actuaries to render actuarial opinions in connection with this plan. I am also an enrolled actuary under ERISA.

We will be pleased to review this report with you at your convenience.

Respectfully,

Findley



Paul J. Gibbons, F.C.A., E.A., M.A.A.A.  
Consulting Actuary



Adam N. Russo, A.S.A., E.A., M.A.A.A.  
Consulting Actuary

October 21, 2019

## Exhibit I

### Market Value of Assets

#### Change in Market Value of Assets on an Accrual Basis

Market Value of Assets January 1, 2018 including accrued contributions	\$	30,010,195
Contributions during the plan year		2,692,422
Contributions after year end adjusted for interest		0
Benefit payments		(932,072)
Administrative Expenses		(58,478)
Investment return		(1,941,101)
Market Value of Assets on December 31, 2018 including accrued contributions	\$	<u>29,770,966</u>

#### Distribution of Market Value of Assets by Investment Class

Cash and Equivalents	\$	26,951
Debt Securities and Related Instruments		9,630,135
Equity Securities		19,054,929
Real Estate		1,030,732
Other		54,829
Accrued Income		0
Payables		(26,610)
Receivable Contributions discounted to year end		0
Market Value of Assets on December 31, 2018 including accrued contributions	\$	<u>29,770,966</u>

Rate of Return on Market Value of Assets (6.32)%

## Exhibit II

### Development of Actuarial Value of Assets

#### Expected Value of Assets

Market Value of Assets January 1, 2018 including accrued contributions	\$	30,010,195
Interest on Market Value of Assets		2,025,688
Contributions during and for the plan year		2,692,422
Interest on contributions		80,347
Contributions made after year end, discounted to year end		0
Benefit payments		(932,072)
Interest on benefit payments		(30,954)
Administrative Expenses		(58,478)
Interest on Administrative Expenses		(1,101)
Expected Value of Assets at December 31, 2018	\$	<u>33,786,047</u>

#### Development of Unrecognized Gain/(Loss)

Gain/(Loss) for Plan Year ending December 31, 2018	\$	(4,015,081)
Unrecognized Gain/(Loss) as of January 1, 2019		

Plan Year Ending	Gain/ (Loss)	Unrecognized Portion	Unrecognized Amount
2018	\$ (4,015,081)	80%	\$ (3,212,065)
2017	2,429,723	60%	1,457,834
2016	291,371	40%	116,548
2015	(1,446,647)	20%	(289,329)

#### Determination of Actuarial Value of Assets

Market Value of Assets including accrued contributions	\$	29,770,966
Unrecognized (Gain)/Loss		<u>1,927,012</u>
Actuarial Value of Assets before limits	\$	31,697,978
Limits on Actuarial Value of Assets		
a. 80% of Market Value including accruals	\$	23,816,773
b. 120% of Market Value including accruals		35,725,159
Actuarial Value of Assets after limits	\$	31,697,978

#### Change in Actuarial Value of Assets

Actuarial Value of Assets at January 1, 2018	\$	28,526,108
Contributions		2,692,422
Benefit payments		(932,072)
Administrative Expenses		(58,478)
Investment return		1,469,998
Actuarial Value of Assets at January 1, 2019	\$	<u>31,697,978</u>

#### Rate of Return on Actuarial Value of Assets

5.00%

## Exhibit III

### Reconciliation of Funded Status

Plan Year Beginning

1/01/2019

#### Reconciliation of Funded Status

Actuarial Accrued Liability as of January 1, 2018	\$ 36,039,326
Actuarial Value of Assets as of January 1, 2018	28,526,108
Unfunded Actuarial Liability as of January 1, 2018	\$ 7,513,218
Interest at 6.75%	507,142
Normal Cost With Interest	1,839,753
Contributions With Interest	(2,772,769)
Plan Amendment Change	0
Assumption Change	1,050,704
Expected Unfunded Actuarial Liability as of January 1, 2019	\$ 8,138,048
Actuarial Accrued Liability as of January 1, 2019	\$ 41,198,793
Actuarial Value of Assets as of January 1, 2019	31,697,978
Unfunded Actuarial Liability as of January 1, 2019	\$ 9,500,815
Total Gain/(Loss)	\$ (1,362,767)

#### Reconciliation of Gain/(Loss)

Actuarial Value of Assets January 1, 2018	\$ 28,526,108
Interest	1,925,512
Contributions during the Plan Year with interest	2,772,769
Benefits paid during the Plan Year with interest	(963,026)
Expenses paid during the Plan Year with interest	(59,579)
Expected Actuarial Value of Assets as of December 31, 2018	\$ 32,201,784
Gain/(Loss) for Plan Year ending December 31, 2018	\$ (503,806)
Actuarial Accrued Liability as of January 1, 2018	\$ 36,039,326
Interest	2,432,655
Normal Cost with Interest	1,839,753
Benefits paid during the Plan Year with interest	(963,026)
Plan Amendment Change	0
Assumption Change	1,050,704
Expected Accrued Liability as of January 1, 2019	\$ 40,399,412
Gain/(Loss) for Plan Year ending December 31, 2018	\$ (799,381)
Administrative Expenses with Interest	\$ (59,579)

## Exhibit IV Schedule of Amortization Bases

### Schedule Amortization

<u>Base</u>	<u>Date Established</u>	<u>Unfunded Balance</u>	<u>Years Remaining</u>	<u>Annual Payment</u>
Plan Amendment	1/01/2017	\$ 1,168,952	3	\$ 401,758
Assumption Change	1/01/2017	895,326	18	63,866
Assumption Change	1/01/2018	(838,370)	19	(57,454)
Assumption Change	1/01/2019	1,050,704	20	69,364
Total		\$ 2,276,612		\$ 477,534

### New Shortfall Amortization

Actuarial Accrued Liability	\$ 41,198,793
Actuarial Value of Assets	31,697,978
Unfunded Amortization Balances	2,276,612
Scheduled Funded Percentage	82.47%
New Shortfall Base	0
Amortization Period	10
Interest Rate	6.75%
Salary Scale	3.50%
Amortization Factor	8.735489
Shortfall Amortization	0
100% Unfunded Actuarial Liability	\$ 9,500,815
Outstanding Amortization Balance	2,276,612
Remaining Unfunded Balance	7,224,203
Amortization Period	20
Amortization Factor	15.147760
Amortization Amount	\$ 476,915
Total Amortization	\$ 954,449

## Exhibit V

### Determination of Annual Contribution Requirement

#### Normal Cost

Present Value of Future Benefits	\$ 57,733,589
Actuarial Accrued Liability	41,198,793
Actuarial Value of Assets	31,697,978
Present Value of Future Normal Costs	16,534,796
Unfunded Actuarial Liability as of January 1, 2019	9,500,815
Present Value of Future Compensation	198,099,835
Normal Cost Accrual Rate	8.35%
Valuation Compensation	22,758,461
Normal Cost	\$ 1,899,580

#### Annual Contribution Requirement

Normal Cost	\$ 1,899,580
Amortization	954,449
Annual Contribution Requirement as of January 1	<u>2,854,029</u>
Interest	<u>192,647</u>
Annual Contribution Requirement as of December 31	\$ 3,046,676

## Exhibit VI

### Statement of Fiduciary Net Pension

#### Change in Market Value on an Accrual Basis

Market Value of Assets January 1, 2018 excluding accrued contributions	\$ 30,010,195
Contributions during the plan year	2,692,422
Benefit payments	(932,072)
Expenses	(58,478)
Investment return	(1,941,101)
Market Value of Assets December 31, 2018 including accrued contributions	\$ 29,770,966

#### Distribution of Assets by Investment Class

Cash and Equivalents	\$ 26,951
Debt Securities and Related Instruments	9,630,135
Equity Securities	19,054,929
Real Estate	1,030,732
Other	54,829
Accrued Income	0
Payables	(26,610)
Receivable contributions	0
Total Market Value of Assets December 31, 2018 including discounted accrued contributions	\$ 29,770,966

## Exhibit VII

### Discount Rate – Projection of Contributions

Contributions based on Entry Age Normal (level % currently 8.35%) method plus 5-year amortization of the plan amendment, plus 20-year amortizations of the Unfunded Accrued Liability and Assumption Changes.

Year	Payroll for Current Employees	Total Employee Payroll	Employer		Total Contributions
			Contributions for Current Employees	Amortization Amount	
2019	\$ 24,354,819	\$ 24,354,819	\$ 2,033,627	\$ 954,449	\$ 2,988,076
2020	22,955,610	22,955,610	1,916,793	954,449	2,871,242
2021	22,082,105	22,082,105	1,843,856	954,449	2,798,305
2022	21,136,692	21,136,692	1,764,914	552,691	2,317,605
2023	20,359,141	20,359,141	1,699,988	552,691	2,252,679
2024	19,355,406	19,355,406	1,616,176	552,691	2,168,867
2025	18,621,382	18,621,382	1,554,885	552,691	2,107,576
2026	17,608,350	17,608,350	1,470,297	552,691	2,022,988
2027	16,713,063	16,713,063	1,395,541	552,691	1,948,232
2028	15,952,231	15,952,231	1,332,011	552,691	1,884,702
2029	14,941,317	14,941,317	1,247,600	552,691	1,800,291
2030	14,125,226	14,125,226	1,179,456	552,691	1,732,147
2031	13,213,731	13,213,731	1,103,347	552,691	1,656,038
2032	12,306,738	12,306,738	1,027,613	552,691	1,580,304
2033	11,627,453	11,627,453	970,892	552,691	1,523,583
2034	10,655,414	10,655,414	889,727	552,691	1,442,418
2035	9,948,245	9,948,245	830,678	552,691	1,383,369
2036	9,211,240	9,211,240	769,139	552,691	1,321,830
2037	8,457,495	8,457,495	706,201	488,825	1,195,026
2038	7,822,563	7,822,563	653,184	546,279	1,199,463
2039	7,159,082	7,159,082	597,783	0	597,783
2040	6,435,094	6,435,094	537,330	0	537,330
2041	5,821,738	5,821,738	486,115	0	486,115
2042	5,339,220	5,339,220	445,825	0	445,825
2043	4,719,808	4,719,808	394,104	0	394,104
2044	4,183,018	4,183,018	349,282	0	349,282
2045	3,557,664	3,557,664	297,065	0	297,065
2046	2,998,859	2,998,859	250,405	0	250,405
2047	2,609,028	2,609,028	217,854	0	217,854
2048	2,207,920	2,207,920	184,361	0	184,361
2049	1,820,002	1,820,002	151,970	0	151,970



## Exhibit VII (Continued)

<u>Year</u>	<u>Payroll for Current Employees</u>	<u>Total Employee Payroll</u>	<u>Employer Contributions for Current Employees</u>	<u>Amortization Amount</u>	<u>Total Contributions</u>
2050	\$ 1,500,965	\$ 1,500,965	\$ 125,331	\$ 0	\$ 125,331
2051	1,139,100	1,139,100	95,115	0	95,115
2052	868,930	868,930	72,556	0	72,556
2053	682,559	682,559	56,994	0	56,994
2054	531,895	531,895	44,413	0	44,413
2055	426,383	426,383	35,603	0	35,603
2056	303,191	303,191	25,316	0	25,316
2057	185,414	185,414	15,482	0	15,482
2058	131,688	131,688	10,996	0	10,996
2059	100,827	100,827	8,419	0	8,419
2060	79,912	79,912	6,673	0	6,673
2061	44,027	44,027	3,676	0	3,676
2062	22,821	22,821	1,906	0	1,906
2063	16,643	16,643	1,390	0	1,390
2064	11,189	11,189	934	0	934
2065	6,205	6,205	518	0	518

## Exhibit VIII

### Discount Rate – Projection Fiduciary Net Position

Year	Projected Beginning Fiduciary Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2019	\$ 29,770,966	\$ 2,988,076	\$ 1,258,573	\$ 58,478	\$ 2,065,016	\$ 33,507,007
2020	33,507,007	2,871,242	1,357,191	59,648	2,310,008	37,271,418
2021	37,271,418	2,798,305	1,553,320	60,841	2,555,133	41,010,695
2022	41,010,695	2,317,605	1,741,147	62,058	2,785,299	44,310,394
2023	44,310,394	2,252,679	2,008,115	63,299	2,996,969	47,488,628
2024	47,488,628	2,168,867	2,243,424	64,565	3,200,864	50,550,370
2025	50,550,370	2,107,576	2,506,580	65,856	3,396,717	53,482,227
2026	53,482,227	2,022,988	2,863,421	67,173	3,579,919	56,154,540
2027	56,154,540	1,948,232	3,152,592	68,516	3,748,173	58,629,837
2028	58,629,837	1,884,702	3,437,160	69,886	3,903,654	60,911,147
2029	60,911,147	1,800,291	3,702,688	71,284	4,045,978	62,983,444
2030	62,983,444	1,732,147	4,054,359	72,710	4,171,874	64,760,396
2031	64,760,396	1,656,038	4,327,954	74,164	4,280,160	66,294,476
2032	66,294,476	1,580,304	4,606,730	75,647	4,371,892	67,564,295
2033	67,564,295	1,523,583	4,945,865	77,160	4,444,412	68,509,265
2034	68,509,265	1,442,418	5,219,957	78,703	4,496,352	69,149,375
2035	69,149,375	1,383,369	5,490,902	80,277	4,528,552	69,490,117
2036	69,490,117	1,321,830	5,806,078	81,883	4,538,992	69,462,978
2037	69,462,978	1,195,026	6,037,969	83,521	4,525,198	69,061,712
2038	69,061,712	1,199,463	6,264,240	85,191	4,490,692	68,402,436
2039	68,402,436	597,783	6,507,233	86,895	4,418,092	66,824,183
2040	66,824,183	537,330	6,769,086	88,633	4,300,802	64,804,596
2041	64,804,596	486,115	6,898,149	90,406	4,158,436	62,460,592
2042	62,460,592	445,825	7,048,222	92,214	3,993,836	59,759,817
2043	59,759,817	394,104	7,186,466	94,058	3,805,166	56,678,563
2044	56,678,563	349,282	7,398,431	95,939	3,588,594	53,122,069
2045	53,122,069	297,065	7,540,332	97,858	3,342,022	49,122,966
2046	49,122,966	250,405	7,635,943	99,815	3,067,295	44,704,908
2047	44,704,908	217,854	7,669,496	101,811	2,766,815	39,918,270
2048	39,918,270	184,361	7,687,245	103,847	2,441,948	34,753,487
2049	34,753,487	151,970	7,657,248	105,924	2,093,177	29,235,462

## Exhibit VIII (Continued)

Year	Projected Beginning Fiduciary Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2050	\$ 29,235,462	\$ 125,331	\$7,624,897	\$ 108,042	\$ 1,720,829	\$ 23,348,683
2051	23,348,683	95,115	7,553,966	110,203	1,324,752	17,104,381
2052	17,104,381	72,556	7,416,608	112,407	906,999	10,554,921
2053	10,554,921	56,994	7,229,777	114,655	470,522	3,738,005
2054	3,738,005	44,413	6,990,477	116,948	17,831	0
2055	0	35,603	6,773,232	119,287	0	0
2056	0	25,316	6,553,629	121,673	0	0
2057	0	15,482	6,274,880	124,106	0	0
2058	0	10,996	5,976,623	126,588	0	0
2059	0	8,419	5,675,592	129,120	0	0
2060	0	6,673	5,386,705	131,702	0	0
2061	0	3,676	5,088,507	134,336	0	0
2062	0	1,906	4,787,104	137,023	0	0
2063	0	1,390	4,488,177	139,763	0	0
2064	0	934	4,193,694	142,558	0	0
2065	0	518	3,904,484	145,409	0	0
2066	0	0	3,620,753	148,317	0	0

## Exhibit IX

### Discount Rate – Actuarial Present Values of Benefit Payments

<u>Year</u>	<u>Projected Beginning Fiduciary Net Position</u>	<u>Projected Net Benefit Payments</u>	<u>"Funded" Portion of Benefit Payments</u>	<u>"Unfunded" Portion of Benefit Payments</u>	<u>Present Value of "Funded" Benefit Payments</u>	<u>Present Value of "Unfunded" Benefit Payments</u>	<u>Present Value of Benefit Payments Using the Single Discount Rate</u>
2019	\$ 29,770,966	\$ 1,258,573	\$ 1,258,573	\$ 0	\$ 1,218,133	\$ 0	\$1,225,105
2020	33,507,007	1,357,191	1,357,191	0	1,230,522	0	1,251,773
2021	37,271,418	1,553,320	1,553,320	0	1,319,293	0	1,357,486
2022	41,010,695	1,741,147	1,741,147	0	1,385,313	0	1,441,782
2023	44,310,394	2,008,115	2,008,115	0	1,496,694	0	1,575,587
2024	47,488,628	2,243,424	2,243,424	0	1,566,347	0	1,667,842
2025	50,550,370	2,506,580	2,506,580	0	1,639,420	0	1,765,692
2026	53,482,227	2,863,421	2,863,421	0	1,754,390	0	1,911,210
2027	56,154,540	3,152,592	3,152,592	0	1,809,426	0	1,993,796
2028	58,629,837	3,437,160	3,437,160	0	1,848,013	0	2,059,693
2029	60,911,147	3,702,688	3,702,688	0	1,864,895	0	2,102,372
2030	62,983,444	4,054,359	4,054,359	0	1,912,897	0	2,181,245
2031	64,760,396	4,327,954	4,327,954	0	1,912,864	0	2,206,250
2032	66,294,476	4,606,730	4,606,730	0	1,907,332	0	2,225,125
2033	67,564,295	4,945,865	4,945,865	0	1,918,262	0	2,263,569
2034	68,509,265	5,219,957	5,219,957	0	1,896,552	0	2,263,644
2035	69,149,375	5,490,902	5,490,902	0	1,868,847	0	2,256,185
2036	69,490,117	5,806,078	5,806,078	0	1,851,164	0	2,260,495
2037	69,462,978	6,037,969	6,037,969	0	1,803,371	0	2,227,416
2038	69,061,712	6,264,240	6,264,240	0	1,752,648	0	2,189,620
2039	68,402,436	6,507,233	6,507,233	0	1,705,512	0	2,155,194
2040	66,824,183	6,769,086	6,769,086	0	1,661,960	0	2,124,271
2041	64,804,596	6,898,149	6,898,149	0	1,586,555	0	2,051,172
2042	62,460,592	7,048,222	7,048,222	0	1,518,568	0	1,985,815
2043	59,759,817	7,186,466	7,186,466	0	1,450,448	0	1,918,512
2044	56,678,563	7,398,431	7,398,431	0	1,398,810	0	1,871,451
2045	53,122,069	7,540,332	7,540,332	0	1,335,493	0	1,807,253
2046	49,122,966	7,635,943	7,635,943	0	1,266,910	0	1,734,127
2047	44,704,908	7,669,496	7,669,496	0	1,192,016	0	1,650,346
2048	39,918,270	7,687,245	7,687,245	0	1,119,227	0	1,567,359
2049	34,753,487	7,657,248	7,657,248	0	1,044,365	0	1,479,314

## Exhibit IX (Continued)

<u>Year</u>	<u>Projected Beginning Fiduciary Net Position</u>	<u>Projected Net Benefit Payments</u>	<u>"Funded" Portion of Benefit Payments</u>	<u>"Unfunded" Portion of Benefit Payments</u>	<u>Present Value of "Funded" Benefit Payments</u>	<u>Present Value of "Unfunded" Benefit Payments</u>	<u>Present Value of Benefit Payments Using the Single Discount Rate</u>
2050	\$ 29,235,462	\$7,624,897	\$ 7,624,897	\$ 0	\$ 974,194	\$ 0	\$ 1,395,762
2051	23,348,683	7,553,966	7,553,966	0	904,105	0	1,310,214
2052	17,104,381	7,416,608	7,416,608	0	831,536	0	1,218,884
2053	10,554,921	7,229,777	7,229,777	0	759,334	0	1,125,827
2054	3,738,005	6,990,477	3,738,005	3,252,472	367,773	939,499	1,031,438
2055	0	6,773,232	0	6,773,232	0	1,889,237	946,939
2056	0	6,553,629	0	6,553,629	0	1,765,145	868,156
2057	0	6,274,880	0	6,274,880	0	1,631,969	787,610
2058	0	5,976,623	0	5,976,623	0	1,500,964	710,806
2059	0	5,675,592	0	5,675,592	0	1,376,365	639,582
2060	0	5,386,705	0	5,386,705	0	1,261,402	575,172
2061	0	5,088,507	0	5,088,507	0	1,150,611	514,820
2062	0	4,787,104	0	4,787,104	0	1,045,247	458,910
2063	0	4,488,177	0	4,488,177	0	946,290	407,675
2064	0	4,193,694	0	4,193,694	0	853,805	360,936
2065	0	3,904,484	0	3,904,484	0	767,598	318,411
2066	0	3,620,753	0	3,620,753	0	687,348	279,777
2067	0	3,346,528	0	3,346,528	0	613,452	245,018
2068	0	3,078,757	0	3,078,757	0	544,966	213,584
2069	0	2,820,136	0	2,820,136	0	482,028	185,376
2070	0	2,571,243	0	2,571,243	0	424,378	160,146
2071	0	2,332,687	0	2,332,687	0	371,770	137,663
2072	0	2,105,199	0	2,105,199	0	323,981	117,719
2073	0	1,889,434	0	1,889,434	0	280,780	100,109
2074	0	1,685,989	0	1,685,989	0	241,934	84,642
2075	0	1,495,325	0	1,495,325	0	207,198	71,131
2076	0	1,317,683	0	1,317,683	0	176,307	59,391
2077	0	1,153,203	0	1,153,203	0	148,995	49,250
2078	0	1,002,058	0	1,002,058	0	125,016	40,549
2079	0	857,860	0	857,860	0	103,347	32,892
2080	0	725,754	0	725,754	0	84,427	26,367
2081	0	614,246	0	614,246	0	68,999	21,145

Exhibit IX (Continued)

Year	Projected Beginning Fiduciary Net Position	Projected Net Benefit Payments	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments	Present Value of "Unfunded" Benefit Payments	Present Value of Benefit Payments Using the Single Discount Rate
2082	\$ 0	\$ 515,278	\$ 0	\$ 515,278	\$ 0	\$ 55,892	\$ 16,807
2083	0	428,251	0	428,251	0	44,855	13,235
2084	0	352,519	0	352,519	0	35,654	10,323
2085	0	287,360	0	287,360	0	28,064	7,973
2086	0	231,932	0	231,932	0	21,872	6,098
2087	0	185,291	0	185,291	0	16,873	4,616
2088	0	146,494	0	146,494	0	12,882	3,458
2089	0	114,608	0	114,608	0	9,731	2,563
2090	0	88,727	0	88,727	0	7,275	1,880
2091	0	67,979	0	67,979	0	5,382	1,365
2092	0	51,537	0	51,537	0	3,940	981
2093	0	38,651	0	38,651	0	2,853	697
2094	0	28,676	0	28,676	0	2,044	490
2095	0	21,047	0	21,047	0	1,449	341
2096	0	15,272	0	15,272	0	1,015	234
2097	0	10,946	0	10,946	0	703	159
2098	0	7,748	0	7,748	0	480	107
2099	0	5,411	0	5,411	0	324	71
2100	0	3,721	0	3,721	0	215	46
2101	0	2,515	0	2,515	0	140	29
2102	0	1,670	0	1,670	0	90	19
2103	0	1,088	0	1,088	0	57	11
2104	0	692	0	692	0	35	7
2105	0	429	0	429	0	21	4
2106	0	259	0	259	0	12	2
2107	0	152	0	152	0	7	1
2108	0	86	0	86	0	4	1
2109	0	47	0	47	0	2	0
2110	0	25	0	25	0	1	0
2111	0	13	0	13	0	1	0
2112	0	6	0	6	0	0	0
2113	0	3	0	3	0	0	0
2114	0	1	0	1	0	0	0

## Exhibit X

### Changes in Net Pension Liability

	<u>Plan Year Ending</u>	
	12/31/2017	12/31/2018
<b>Total Pension Liability</b>		
Service Cost	\$ 2,964,773	\$ 2,793,032
Interest	2,235,084	2,445,407
Changes of Benefit Terms	0	0
Differences Expected and Actual Experience	(288,769)	720,052
Changes of Assumptions	3,035,050	(920,415)
Benefit Payments	<u>(916,317)</u>	<u>(932,072)</u>
Net Change in Pension Liability	\$ 7,029,821	\$ 4,106,004
Total Pension Liability - Beginning	<u>38,127,802</u>	<u>45,157,623</u>
Total Pension Liability - Ending	\$ 45,157,623	\$ 49,263,627
<b>Plan Net Fiduciary Position</b>		
Employer Contributions	\$ 3,106,829	\$ 2,692,422
Employee Contributions	0	0
Net Investment Income	4,081,936	(1,941,101)
Benefit Payments	(916,317)	(932,072)
Administrative Expense	(74,118)	(58,478)
Other	<u>0</u>	<u>0</u>
Net Change in Net Fiduciary Position	\$ 6,198,330	\$ (239,229)
Plan Fiduciary Net Position - Beginning	<u>23,811,865</u>	<u>30,010,195</u>
Plan Fiduciary Net Position - Ending	\$ 30,010,195	\$ 29,770,966
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	66.46%	60.43%
Net Pension Liability	\$ 15,147,428	\$ 19,492,661
Covered Employee Payroll	\$ 20,966,199	\$ 22,758,461
Net Pension Liability as a Percentage of Covered Employee Payroll	72.25%	85.65%
<b>Net Pension Liability</b>		
Net Pension Liability at 4.48%/4.54%	\$ 22,379,800	\$ 27,175,973
Net Pension Liability at 6.48%/6.54%	9,227,770	13,176,540

Exhibit X (Continued)  
 Changes in Net Pension Liability

	<b>Total Pension Liability</b>	<b>Plan Net Position</b>	<b>Net Pension Liability</b>
December 31, 2017	\$45,157,623	\$ 30,010,195	\$ 15,147,428
Service Cost	2,793,032		2,793,032
Interest	2,445,407		2,445,407
Changes of Benefit Terms	0		0
Differences Expected and Actual Experience	720,052		720,052
Changes of Assumptions	(920,415)		(920,415)
Benefit Payments	(932,072)		(932,072)
Employer Contributions		2,692,422	(2,692,422)
Employee Contributions		0	0
Net Investment Income		(1,941,101)	1,941,101
Benefit Payments		(932,072)	932,072
Administrative Expenses		(58,478)	58,478
Other		0	0
December 31, 2018	<u>\$49,263,627</u>	<u>\$ 29,770,966</u>	<u>\$ 19,492,661</u>



## Exhibit XI

### Schedule of Employer's Net Pension Liability

<u>Year Ending December 31</u>	<u>Total Pension Liability</u>	<u>Plan Net Position</u>	<u>Net Pension Liability</u>	<u>Plan Net Position as a % of Total Pension Liability</u>	<u>Covered Payroll</u>	<u>Net Pension Liability as a % of Covered Payroll</u>	<u>Money Weighted Rate of Return</u>
2014	\$ 29,357,324	\$ 20,019,209	\$ 9,338,025	68.2%	\$ 16,183,596	57.7%	5.49%
2015	32,891,828	20,993,038	11,898,790	63.8%	18,663,437	63.8%	(0.05%)
2016	38,127,802	23,811,865	14,315,937	62.5%	23,116,717	61.9%	8.36%
2017	45,157,623	30,010,195	15,147,428	66.5%	20,966,199	72.2%	16.7%
2018	49,263,627	29,770,966	19,492,661	60.4%	22,758,461	85.7%	(6.3%)

## Exhibit XII Contribution History

<u>Plan Year Ending December 31</u>	<u>Actuarially Determined Contribution</u>	<u>Actual Contribution</u>	<u>Contribution Deficiency (Excess)</u>	<u>Covered Payroll</u>	<u>Actual Contribution as a % Covered Payroll</u>
2008	\$ 1,616,637	\$ 2,161,177	\$ (544,540)	\$ 17,437,027	12.39%
2009	1,836,212	1,380,002	456,210	18,995,763	7.26%
2010	2,029,276	2,545,542	(516,266)	17,330,101	14.69%
2011	1,453,308	1,448,542	4,766	16,565,032	8.74%
2012	1,659,488	1,704,070	(44,582)	18,347,486	9.29%
2013	1,393,056	1,393,490	(434)	15,021,918	9.28%
2014	1,588,278	1,600,159	(11,881)	16,183,596	9.89%
2015	1,894,044	1,882,377	11,667	18,663,437	10.09%
2016	1,974,970	1,974,973	(3)	23,116,717	8.54%
2017	3,106,831	3,106,829	2	20,966,199	14.82%
2018	2,692,422	2,692,422	0	22,758,461	11.83%

## Exhibit XIII

### Pension Expense

1/1/2018-12/31/2018

Service Cost	\$ 2,793,032
Interest	2,445,407
Changes of Benefit Terms	0
Administrative Expenses	(58,478)
Employee Contributions	0
Expected Investment Return	(2,075,195)
Recognition of Deferred (Inflows)/Outflows	
Experience	490,291
Changes of Assumptions	951,715
Investment (Gains)/Losses	609,076
Other	<u>0</u>
Pension Expense	\$ 5,155,848

## Exhibit XIV Deferred (Inflow)/Outflow Schedule

Year Established	Initial Amount	Remaining Amount	Remaining Period	Amortization Amount
<b>Experience</b>				
2018	\$ 720,052	\$ 570,664	3.82	\$ 149,388
2017	(288,769)	(192,191)	3.98	(48,289)
2016	(86,781)	(46,038)	3.39	(13,581)
2015	1,984,816	138,476	0.30	461,585
2014	(319,936)	(25,876)	0.44	<u>(58,812)</u>
Total				\$ 490,291
<b>Assumption</b>				
2018	\$ (920,415)	\$ (729,458)	3.82	\$ (190,957)
2017	3,035,050	2,019,984	3.98	507,533
2016	209,630	111,212	3.39	32,806
2015	(1,415,858)	(98,782)	0.30	(329,269)
2014	5,067,915	409,905	0.44	<u>931,602</u>
Total				\$ 951,715
<b>Investment Experience</b>				
2018	\$ 4,016,296	\$ 3,213,037	4.00	\$ 803,259
2017	(2,407,449)	(1,444,469)	3.00	(481,490)
2016	(293,442)	(117,378)	2.00	(58,688)
2015	1,447,526	289,505	1.00	289,505
2014	282,442	0	0.00	<u>56,490</u>
Total				\$ 609,076
<b>Future Amortization</b>				
			2019	\$ 1,413,209
			2020	699,981
			2021	758,669
			2022	1,226,728
			2023	0
			2024	0
			2025+	0

## Exhibit XV Census Reconciliation and Statistics

	Active Plan Members	Inactive Plan Members Entitled to But Not Yet Receiving Benefits	Inactive Plan Members Currently Receiving Benefits		Total
			Retired	Beneficiary	
Census Count January 1, 2018	296	238	93	6	633
Changes by category:					
a. Terminated Non-Vested	(1)	0	0	0	(1)
b. Death without Beneficiary	0	0	0	0	0
c. Death with Beneficiary	0	0	(1)	1	0
d. Terminated Vested	(24)	24	0	0	0
e. Paid Lump Sum	0	0	0	0	0
f. Suspended	0	0	0	0	0
g. Expired	0	0	0	0	0
h. Retired	(6)	(8)	14	0	0
i. New Entrants	32	0	0	0	32
j. Corrections <sup>1</sup>	(10)	0	0	0	(10)
k. Returned to Work	<u>5</u>	<u>(5)</u>	<u>0</u>	<u>0</u>	<u>0</u>
Census Count January 1, 2019	292	249	106	7	654
Average age	49	52	68	67	
Average service	8				
Percent Male	52%	54%	59%	43%	

<sup>1</sup> These 10 were determined to be part-time employees and are not eligible to participate in the plan.

## Exhibit XVI Age and Service Distribution

Age Near Year	Years of Service										Total	
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
<25	2											2
25-29	7	3										10
30-34	1	13	4									18
35-39	2	21	5	7								35
40-44	3	16	8	9	2							38
45-49	3	15	17	3	7	2						47
50-54	2	14	7	10	6		1	2				42
55-59	2	10	15	13	5	4	2	1				52
60-64	2	6	14	5	5	2	2	2				38
65-69	1	2		3			1					7
70+		1	1	1								3
<b>Total</b>	25	101	71	51	25	8	6	5	0	0		292

## Exhibit XVII

### Distribution of Inactive Participants with Total Monthly Benefits

Age	Terminated Vested	Retired	Disabled	Beneficiary
<35	16 \$977			
35-39	28 \$6,604			
40-44	25 \$5,496			
45-49	31 \$12,190			1 \$301
50-54	39 \$13,357	1 \$277		
55-59	52 \$21,625	5 \$4,099		
60-64	42 \$17,291	21 \$12,808	1 \$1,168	2 \$1,067
65-69	14 \$11,636	37 \$27,849		1 \$437
70-74	1 \$31	30 \$18,626		2 \$1,841
75-79	1 \$874	9 \$13,511		1 \$80
80+		2 \$1,681		
<b>Total</b>	249 \$90,081	105 \$78,851	1 \$1,168	7 \$3,726

## Appendix A

### Summary of Principal Plan Provisions

<b>Plan Sponsor</b>	Capital Metropolitan Transportation Authority
<b>Effective Date</b>	January 1, 2005 as amended and restated effective January 1, 2010, last amended effective January 1, 2017.
<b>Plan Year</b>	The 12-month period beginning each January 1.
<b>Participation</b>	Full-time administrative employees of Capital Metropolitan Transportation Authority are eligible to become a participant on the first day of the month coincident with or next following their date of hire.
<b>Earnings</b>	The total amount of compensation paid to a Participant for services as a Covered Employee that is reported to the Internal Revenue Service for purposes of Federal income taxation, plus (1) any other compensation specified as being included under the Plan in an employment agreement with an Employer and (2) any discretionary employer contribution, as defined in the Capital Metropolitan Transportation Authority 401(k) Plan, made after January 1, 2007.
<b>Average Annual Earnings</b>	The highest average annual Earnings received for any 5 consecutive full Earnings Computation Periods during the 10 consecutive Earnings Computation Periods immediately preceding the date the Participant's employment terminates.
<b>Covered Compensation</b>	The average, without indexing, of the taxable wage bases under Section 230 of the Social Security Act in effect for each calendar year during the 35-year period ending on the last day of the calendar year in which the Employee attains (or will attain) Social Security Retirement Age.
<b>Vesting Service</b>	Vesting Service is the continuous service during which a participant is an employee of the employer.
<b>Credited Service</b>	Each person who is a Covered Employee on or after January 1, 2010, shall be credited with Service and Credited Service with respect to periods of employment on or after such date, for purposes of the Plan as follows. Covered Employees are also credited with credited service earned from January 1, 2005 through January 1, 2010. Certain eligible employees receive credit for service prior to January 1, 2005.



## Appendix A (Continued)

### Accrued Benefit

An eligible Participant's monthly normal retirement benefit shall be equal to 1/12th of the sum of the following:

- (a) 1.5 percent of the Participant's Average Annual Earnings multiplied by his number of years of Credited Service completed at retirement; plus
- (b) .5 percent of the Participant's Average Annual Earnings in excess of Covered Compensation multiplied by his number of years of Credited Service completed at retirement.

Employees credited with service prior to January 1, 2005 have a benefit offset as stated in the plan document.

In no event will the normal retirement benefit payable to a Participant be less than the amount that would have been payable to him under the same form of payment had he retired prior to his Normal Retirement Date when eligible for an early retirement benefit.

### Normal Retirement Benefit

Eligibility:

The later of (i) the date on which he attains age 65 or (ii) the earlier of (A) the date he completes 5 year of Service or (B) the fifth anniversary of the date he commenced participation in the Plan. For all other purposes, Normal Retirement Date means the first day of the month coinciding with or immediately following the date determined above.

Monthly Benefit:

The Accrued Benefit.

### Termination Benefit

Eligibility:

Each Participant who terminates employment with his Employer and all Affiliated Entities, who has a vested interest in his Accrued Benefit, and who is not eligible for a normal, early, or disability retirement benefit under the Plan shall be eligible for a deferred vested retirement benefit.

Monthly Benefit:

An eligible Participant's monthly deferred vested retirement benefit shall be equal to his vested Accrued Benefit on the date of his termination of employment; provided, however, that if the Participant is eligible to elect to begin benefit payments before his Normal Retirement Date as provided in Section 7.4 the amount of such benefit shall be reduced for early commencement in the same way as provided in Section 6.2 with respect to an early retirement benefit.

## Appendix A (Continued)

### Early Retirement Benefit

Eligibility:

Age 55 with 5 years of service.

Monthly Benefit:

An eligible Participant's monthly early retirement benefit shall be equal to his vested Accrued Benefit on the date of his early retirement; provided, however, that the amount of such benefit shall be adjusted for early commencement as follows:

- (a) If on the Participant's Annuity Starting Date his age plus his years of Service total at least 80, the amount of such benefit shall be reduced by 3 percent for each full year and 1/12<sup>th</sup> of that amount for each full month by which his Annuity Starting Date precedes the first day of the month coinciding with or immediately following his attainment of age 62.
- (b) If the Participant does not satisfy the requirements in paragraph (a) above, the amount of such benefit shall be reduced by 1/15 for each of the first 5 full years by which his Annuity Starting Date precedes his Normal Retirement Date and by 1/30 for each additional full year by which his Annuity Starting Date precedes his Normal Retirement Date.

### Disability Retirement Benefit

Eligibility:

Each Participant who terminates active employment with his Employer prior to his Normal Retirement Date due to permanent and total disability shall be eligible for a disability retirement benefit if all of the following requirements are met:

- (a) Such permanent and total disability arises after the Participant satisfied the requirements of Article IV to participate in the Plan;
- (b) The Participant is credited with at least 10 years of Service on the date his active employment terminates;
- (c) The Participant does not elect to receive an early retirement or a deferred vested retirement benefit prior to his Normal Retirement Date; and
- (d) The Participant's permanent and total disability continues to his Normal Retirement Date.

Monthly Benefit:

An eligible Participant's monthly disability retirement benefit shall be equal to his vested Accrued Benefit as of his Normal Retirement Date, determined

based on his Average Annual Earnings on the date his active employment terminated and his Credited Service as of his Normal Retirement Date.

## Appendix A (Continued)

### Death Benefit

#### Eligibility:

If a Participant dies before his Annuity Starting Date, his surviving Spouse shall be eligible for a Qualified Preretirement Survivor Annuity if all of the following requirements are met on the Participant's date of death:

- (a) The Participant has a Spouse as defined in Section 1.1.
- (b) The Participant has not waived the Qualified Preretirement Survivor Annuity and elected an optional form of payment that is given effect as provided in Section 9.8.
- (c) The Participant has a vested Accrued Benefit.

#### Monthly Benefit:

The monthly amount of the Qualified Preretirement Survivor Annuity payable to a surviving Spouse shall be equal to the survivor benefit that would have been payable to the Spouse if the Participant had:

- (a) separated from service on the earlier of his actual separation from service date or his date of death;
- (b) survived to the date as of which payment of the Qualified Preretirement Survivor Annuity to his surviving Spouse commences;
- (c) elected to commence retirement benefits as of the date described in paragraph (b) above in the form of a 50 percent Qualified Joint and Survivor Annuity; and
- (d) died on his Annuity Starting Date.

### Optional Forms of Payments

Life Annuity  
Joint & Survivor with 50%, 66 2/3%, 75% or 100% continuation  
5 or 10 Year Certain and Continuous

The Actuarial Equivalent of a value means its equivalent value determined using the actuarial factors specified in the Plan. For purposes other than converting to a single sum payment, Actuarial Equivalence is determined using the 1983 Group Annuity Mortality Table blended 50 percent male and 50 percent female and an interest rate of 7 percent.

### Benefits Available as Lump Sums

The conversion factors are based on the Applicable Mortality Table and Applicable Interest Rate as required under IRC Section 417(e)(3) for each November preceding the plan year of distribution.

### Maximum Benefit Limit

The Internal Revenue Code Section 415 Maximum Benefit payable as a life annuity at Social Security Normal Retirement Age.

### Plan Compensation Limit

The Section 401(a)(17) Maximum Compensation that can be recognized for benefit calculation purposes.

### Changes in Plan Provisions

None.

## Appendix B Statement of Actuarial Assumptions and Methods

### Interest Rates

Funding: 6.75%

GASB Statement No's 67 and 68:

a.	Discount Rate (liabilities)	5.54%
b.	20-year municipal bond rate	3.56%
b.	Long-Term Rate (trust income)	6.75%

Rationale: Discount rate is developed using plan's expected benefit payments, expenses, contributions, investment return and 20-year annualized bond rate to determine the present value of the one rate that equals the sum of funded and unfunded benefit payments to equal the present value of expected benefit payments.

### Annual Expected Return on Assets

Interest Rate for developing Actuarial Value of Assets: 6.75%

Rationale: As prescribed by the Plan Sponsor.

### Salary Scale

3.50%

Rationale: As prescribed by the Plan Sponsor based on anticipated salary increases.

### Mortality

Funding: RP-2006 static, non-generational Mortality Table as described in Regulation 1.430(h)(3) and Notice 2017-60, projected by Scale MP-2017, male and female, with combined rates for annuitants and nonannuitants.

Rationale: Selected by Plan Sponsor to match the updated IRS 430 mortality.

Accounting: SOA RP-2014 Total Dataset Mortality adjusted backward to 2006 using MP-2014 and projected with Scale MP-2018.

Rationale: Selected by the Plan Sponsor on the most current base mortality table published by the Society of Actuaries and the most recent projection scale.

### Rates of Retirement

<u>Age</u>	<u>Rate</u>
60-61	5%
62-64	10%
65	50%
66-69	15%
70	100%

Rationale: As selected by the Plan Sponsor based on advice from plan actuary as a result of an experience study conducted in 2017.

## Appendix B (Continued)

**Rates of Disability** None assumed.

**Rates of Turnover** Based on age and service, sample rates follow:

Age	Service					
	<1	1	2	3	4	5+
25	17%	14%	12%	9%	6%	6%
30	17%	14%	12%	9%	6%	6%
35	17%	14%	12%	9%	6%	6%
40	17%	14%	12%	9%	6%	5%
45	17%	14%	12%	9%	6%	5%
50+	17%	14%	12%	9%	6%	4%

Rationale: As selected by the Plan Sponsor based on advice from plan actuary as a result of an experience study conducted in 2018.

**Assumptions Made In Valuing Spouse's Benefit** 60% of male participants and 40% of female participants to be married. The wife is assumed to be three years younger than the husband.

**Annual Increases to Maximum Benefits and Plan Compensation Limits** 1.00%

**Annual Increases to Social Security** 1.00%

**Provision for Expenses** The expected administrative (i.e. non-investment) expenses that will be paid from plan assets. For discount rate determination, expenses are assumed to increase by 2% per annum.

**GASB Measurement Date** December 31

**Fiscal Year** The 12-month period ending each December 31.

**Selection of Assumptions** Information used in the analysis of selecting assumptions include: discount rate – as prescribed by GASB 67 and 68; expected return on assets – review of historical and expected returns on various asset categories held by the plan as well as information provided by the plan's investment advisor.

## Appendix B (Continued)

<b>Asset Method</b>	<p>Funding: Market Value of Assets plus an adjustment to defer full recognition of investment losses and gains over a five-year period. The investment (gain)/loss for every year equals the market value at the beginning of the year projected to the end of the year using the interest rate above, minus the end of the year actual market value. The actuarial value of assets will be no less than 80% and no more than 120% of the market value.</p> <p>GASB: Market Value of Assets as Supplied by Trustee.</p>
<b>Employees Valued</b>	<p>Only participants as of the valuation date were valued.</p>
<b>Actuarial Method</b>	<p>Entry Age Normal Cost (Level Percent of Pay)</p>
<b>Changes in Assumptions and Methods since the Last Actuarial Valuation</b>	<p>The discount rate for year-end disclosure was 5.48%.</p> <p>The assumed 20-year municipal bond rate was 3.04%.</p> <p>The mortality in the previous valuation was:</p> <p>Funding: RP-2000 static, non-generational Mortality Table as described in Regulation 1.430(h)(3) projected by Scale AA, to between 7 and 15 years beyond the year of the obligation, male and female, with combined rates for annuitants and nonannuitants.</p> <p>Accounting: SOA RP-2014 Total Dataset Mortality adjusted backward to 2006 using MP-2014 and projected with Scale MP-2017.</p>
<b>Justification for Changes in Actuarial Assumptions</b>	<p>The year-end disclosure discount rate was determined consistent with the provisions of GASB nos. 67 and 68. The mortality tables were revised to more current tables.</p>