

Regional Transportation Authority Pension Plan

Actuarial Valuation Report as of January 1, 2020



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August 6, 2020

Board of Trustees
Regional Transportation Authority Pension Plan
Chicago, Illinois

Dear Trustees:

We are pleased to provide our formal annual Actuarial Valuation Report as of January 1, 2020, for the Regional Transportation Authority Pension Plan ("RTA Pension Plan"). The actuarial valuation was performed at the request of the Regional Transportation Authority ("RTA") and is intended for use by the RTA and those designated by the RTA. This report may be provided to parties other than the RTA only in its entirety and only with the permission of the RTA. GRS is not responsible for unauthorized use of this report.

The purposes of the actuarial valuation are to measure the Plan's funding progress as of the actuarial valuation date, to determine the recommended annual contribution of the RTA Pension Plan for the Plan Year commencing January 1, 2020 and ending on December 31, 2020 and to analyze plan experience during the prior year. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results associated with the benefits described in this report, for purposes other than those identified above, may be significantly different.

The contribution amount in this report is determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes risk metrics beginning on page A-6 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

The recommended annual contribution shown on page A-8 is best viewed as the minimum contribution that complies with the Board's funding policy. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Until the plan is fully funded, we encourage the plan sponsor to contribute in excess of the recommended annual contribution to the extent possible.

This actuarial valuation assumes the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our area of expertise and was not performed.

The findings in this report are based on data and other information through January 1, 2020. The actuarial valuation was based upon information furnished by the Regional Transportation Authority agencies and the Plan Administrator, Reed-Ramsey (Reed-Ramsey merged with Alliance Pension Consultants, LLC on July 1, 2020), concerning benefits provided by the Regional Transportation Authority Pension Plan, financial transactions, Plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data.

We are not responsible for the accuracy or completeness of the information provided by the Regional Transportation Authority agencies or Reed-Ramsey. As part of the actuarial valuation process, GRS updated service amounts for active members in accordance with the rules established with Reed-Ramsey.

This report was prepared using actuarial assumptions adopted by the Retirement Committee. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. The actuarial assumptions have changed since from the prior actuarial valuation to reflect changes adopted from the experience study performed for the period January 1, 2013 through January 1, 2018.

Members who meet eligibility conditions may receive a lump sum benefit from the RTA Pension Plan in lieu of an annuity. The assumption basis used by the Plan Administrator to calculate lump sum payments is based on segment interest rates prescribed by the IRS and changes annually. Beginning with the 2013 actuarial valuation, the assumption basis used in the actuarial valuation to project future lump sum payments is updated annually to reflect the actual segment interest rates and mortality table being used. The actuarial cost method used in this actuarial valuation are the same as those used in the prior actuarial valuation and are set forth in Section C: Actuarial Valuation Procedures.

Section B outlines the principal benefit provisions of the Plan. There have been no changes to the Plan provisions since the January 1, 2019 actuarial valuation.

To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Regional Transportation Authority Pension Plan as of the actuarial valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Lance J. Weiss and Amy Williams are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

This report does not reflect the recent and still developing impact of COVID-19, which may influence demographic experience and economic expectations, at least in the short term. We will continue to monitor these developments and their impact on the Plan.

The signing actuaries are independent of the Plan sponsor.

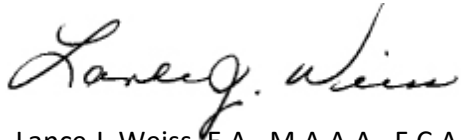
We will be pleased to review this report with you at your convenience.



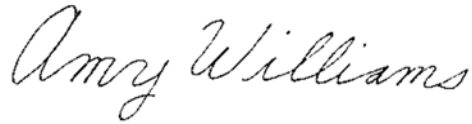
Board of Trustees
Regional Transportation Authority
August 6, 2020
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Respectfully submitted,

Gabriel, Roeder, Smith & Company



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SECTION A

ACTUARIAL VALUATION RESULTS

Comments on the Actuarial Valuation

Purpose and Data

At your request we have performed the actuarial valuation of the Regional Transportation Authority Pension Plan as of January 1, 2020.

The primary purposes of this actuarial valuation are as follows:

- To determine the funding status of the RTA Pension Plan as of the actuarial valuation date; and
- To determine the recommended contribution for the current fiscal year.

Accounting information, as required under GASB Statement Number 67 (pension plan accounting) and GASB Statement Number 68 (employer accounting for pension plans), is shown in a separate report. GASB Statement Numbers 67 and 68 were first effective with the fiscal year ending December 31, 2014, and December 31, 2015, respectively.

We received employee, plan and financial data from the Regional Transportation Authority agencies and Reed-Ramsey. We performed certain checks for reasonableness and found most of the data to be complete and reliable for actuarial valuation purposes. As part of the actuarial valuation process, GRS updated service amounts for active members in accordance with the rules established with Reed-Ramsey.

A total of 1,226 active members were included in the actuarial valuation as of January 1, 2020. Between the 2019 and 2020 actuarial valuations, the number of active employees increased by six members, or 0.5 percent. The average annual actuarial valuation pay increased by 3.5 percent, from \$84,653 to \$87,635 between the 2019 and 2020 actuarial valuations. The number of benefit recipients increased from 833 to 866 (excluding 8 retirees who will receive a lump sum in 2020), or 4.0 percent, since the last actuarial valuation. The average monthly benefit increased by 1.8 percent, from \$1,617 to \$1,646.

Section B outlines the principal benefit provisions of the Plan. There have been no changes to the Plan provisions since the January 1, 2019 actuarial valuation.

Actuarial Assumption and Method Changes

The actuarial assumptions have changed from the prior actuarial valuation as of January 1, 2019, to reflect changes adopted from the experience study performed for the period January 1, 2013 through January 1, 2018, and are first effective with this actuarial valuation as of January 1, 2020, including the conversion factors used to calculate lump sum benefits. Members who meet eligibility conditions may receive a lump sum benefit from the RTA Pension Plan in lieu of an annuity. The assumption basis used by the Plan Administrator to calculate lump sum payments is based on segment interest rates and mortality rates prescribed by the IRS and changes annually. Beginning with the 2013 actuarial valuation, the assumption basis used in the actuarial valuation to project future lump sum payments is updated annually to reflect the mortality rates and actual segment interest rates being used.

Following is a summary of the key changes:

- **Price inflation:** The rate of assumed price inflation was decreased from 2.75 percent to 2.50 percent.
- **Salary increase:** The salary increase assumptions were increased slightly at most ages to reflect age-based rates ranging from 2.85 percent to 8.60 percent.



Comments on the Actuarial Valuation (Continued)

- **Retirement rates:** Retirement rates for members eligible for unreduced retirement benefits were decreased and retirement rates for members eligible for reduced retirement benefits were slightly increased.
- **Lump sum elections:** The assumption for eligible members who elect their retirement benefit as a lump sum was decreased from 50 percent to 45 percent based on historical experience.
- **Turnover rates:** The rates were updated based on observed experience.
- **Mortality rates:** The mortality assumption was updated to the newly issued Pub-2010 Public Retirement Plans Mortality Tables with rates projected from 2010 using projection scale MP-2018 (generational mortality).
- **Disability rates:** The disability rates were decreased to reflect observed experience.
- **Dependent assumptions:** Dependent assumptions are used in the actuarial valuation for current active members for purposes of valuing liabilities for pre-retirement death benefits. The marriage assumption for male employees was decreased from 75 percent to 65 percent and for female employees from 50 percent to 45 percent based on the demographics of the most current actuarial valuation census data.

The Retirement Committee did not adopt a change to the investment return assumption of 7.50 percent. The investment return assumption will need to be reviewed annually for continued reasonableness. If investment return expectations decrease in the future or there is a change in the asset allocation, the investment return assumption may need to decrease before the next experience study.

Gain/Loss Analysis

During the plan year ending December 31, 2019, the unfunded actuarial accrued liability (“UAAL”) increased from \$38,603,060 as of January 1, 2019, to \$70,303,016 as of January 1, 2020, which is an increase of \$31,699,956. The key factors contributing to the change in UAAL are summarized in the following table:

Source	Change in UAAL
UAAL at January 1, 2019	\$ 38,603,060
Normal Cost plus Interest on UAAL and Normal Cost	12,063,479
Recommended Contribution for 2019	(12,584,605)
Change Due to Additional Contribution in 2019	(1,300,000)
Change Due to Updated Assumptions and Methods ¹	20,926,521
Change Due to Changes in Benefit Provisions	0
(Gain) Loss on Assets ²	3,541,249
Salary and Demographic (Gain) Loss	9,053,312
UAAL at January 1, 2020	\$ 70,303,016

¹ Includes the impact of updating assumptions from the experience study and updating lump sum conversion factors.

² Includes gains and losses on an actuarial value of assets basis.



Comments on the Actuarial Valuation (Continued)

Plan Asset Return

On a market value basis, the RTA Pension Plan assets earned an investment return of approximately 18.6 percent during the plan year ending December 31, 2019. Partial recognition of the fiscal year end 2015 and 2018 investment losses, which was partially offset by partial recognition of the investment gains during fiscal years ending 2016, 2017 and 2019, resulted in an estimated net asset rate of return of 6.3 percent on an actuarial basis, which compares to the assumed rate of return of 7.50 percent for fiscal year 2019.

Statutory and Recommended Employer Contributions

The minimum employer contribution is defined in Chapter 40, Section 5/22-103 of the Illinois Compiled statutes. This section states:

1. An “under-funded pension Plan” is defined as a pension Plan which has a funded ratio of less than 90 percent at the last actuarial valuation.
2. An “under-funded pension Plan” shall contribute, in addition to amounts otherwise required, amounts sufficient to bring the funded ratio up to 90 percent over a maximum period of 50 years from January 1, 2009. (i.e., 90 percent funded by the end of fiscal year 2059).
3. The additional contributions shall be in substantially equal annual amounts over the funding period.

The pension Plan document defines the employers’ funding policy as contributions at least equal to an amount determined advisable by the Plan’s actuary to maintain the Plan on a sound actuarial basis.

The Plan was considered an “under-funded pension Plan” at the last actuarial valuation because the funded ratio was less than 90 percent. The funded ratio remains lower than 90 percent based on the current actuarial valuation. Beginning with the actuarial valuation as of January 1, 2015, the Board adopted a 30-year level-dollar closed-period amortization policy, meaning the amortization period began at 30 years at the actuarial valuation as of January 1, 2015, and decreases by one year each year thereafter. This contribution policy targets a funded ratio of 100 percent at the end of 30 years (i.e., 100 percent funded by the end of fiscal year 2045) and therefore exceeds the minimum employer contribution as defined in the statutes.

The recommended contribution for fiscal year 2020 of \$17,120,873, based on a 30-year closed-period, level-dollar amortization policy effective January 1, 2015, increased by \$4,536,268, or 36.04 percent, from the recommended contribution of \$12,584,605 for fiscal year 2019. The increase is due to the increase in the normal cost contribution (including the expected increase of 3.25 percent and the increase due to assumption changes) and the increase in the unfunded liability amortization payment attributable to 1) the assumption changes adopted first effective with the actuarial valuation as of January 1, 2020, 2) unfavorable salary and demographic plan experience during the year, and 3) the asset loss on an actuarial value of assets basis during 2019. The recommended contribution for fiscal year 2020 of \$17,120,873 is expected to be contributed at the end of fiscal year 2020.

The actuarial value of assets is currently 97 percent of the market value of assets. There is \$8,629,892 in net asset gains currently being deferred that will be phased into the actuarial value of assets over the next four



Comments on the Actuarial Valuation (Continued)

years. This will reduce the future recommended employer unfunded liability contribution, absent any future offsetting actuarial losses.

Funded Ratio

The funded ratio measures the portion of the actuarial accrued liability (calculated based on the actuarial assumptions disclosed in this report) that is currently funded. The funded ratio is 81.2 percent based on actuarial value of assets and 83.5 percent based on market value of assets. The funded ratio is not appropriate for assessing the sufficiency of plan assets for any other purpose.

GASB 67/68

A separate actuarial valuation report with calculations completed in accordance with the provisions of GASB Statement Nos. 67 and 68 has been issued.

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the Plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the Plan earning 7.50 percent on the actuarial value of assets), it is expected that:

1. The normal cost is projected to increase by 2.85 percent each year and the amortization payment is projected to remain level until the end of the amortization period. Gains and losses, including recognition of deferred gains and losses in the actuarial value of assets, will decrease or increase the contribution requirement;
2. The unfunded actuarial accrued liabilities will be fully amortized after 30 years from the fiscal year ending December 31, 2015 (December 31, 2045), which corresponds to the beginning of the closed amortization period established in the actuarial valuation as of January 1, 2015; and
3. The funded status of the plan will increase gradually towards a 100 percent funded ratio.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1. The measurement is inappropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations; for example, transferring the liability to an unrelated third party in a free market type transaction.
2. The measurement is dependent upon the actuarial cost method which, in combination with the Plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100 percent is not synonymous with no required



Comments on the Actuarial Valuation (Concluded)

future contributions. If the funded status were 100 percent, the Plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).

3. The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets.

Risk Measures

RISKS ASSOCIATED WITH THE MEASURING THE ACCRUED LIABILITY AND ACTUARIALLY DETERMINED CONTRIBUTION

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; 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 or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns;
2. Asset/Liability mismatch – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll or other relevant contribution base;
4. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.



Risk Measures (Concluded)

PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2019	2020
Ratio of the Market Value of Assets to Total Payroll	2.62	2.91
Ratio of Actuarial Accrued Liability to Payroll	3.20	3.49
Ratio of Actives to Retirees and Beneficiaries	1.46	1.40
Ratio of Net Cash Flow to Market Value of Assets	-3.28%	-1.80%

RATIO OF MARKET VALUE OF ASSETS TO PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5 percent different than assumed would equal 10 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100 percent is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2 percent other than assumed would equal 5 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

ADDITIONAL RISK ASSESSMENT

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.



Summary of Actuarial Valuation Results

		January 1, 2019 Results	January 1, 2020 Results
Membership Data			
	Active Members	1,220	1,226
	Vested Terminated	406	414
	Deferred Beneficiaries	4	4
	Transfers	78	78
	Retirees ¹	715	752
	Beneficiaries	86	90
	QDRO (Alternate Payee)	32	32
	TOTAL	2,541	2,596
Plan Liabilities			
	Actuarial Accrued Liability:		
	Active Members	\$ 153,802,772	\$ 174,405,546
	Retirees and Beneficiaries ¹	158,907,441	179,173,259
	Deferred Vested	18,071,603	20,927,067
	TOTAL	\$ 330,781,816	\$ 374,505,872
	Actuarial Value of Assets at Valuation Date	\$ 292,178,756	\$ 304,202,856
	Unfunded (Overfunded) Actuarial Accrued Liability	\$ 38,603,060	\$ 70,303,016
	Funded Position of Plan's Actuarial Accrued Liability ²	88.3 %	81.2 %
Recommended Annual Contribution Requirements			
		Fiscal Year 2019	Fiscal Year 2020
	Annual Normal Cost as of Valuation Date	\$ 7,897,855	\$ 9,434,358
	Normal Cost Expense Load	630,749	625,123
	Interest on Normal Cost to End of Year ³	639,645	754,461
	30-Year Level Dollar Amortization of Unfunded Actuarial Accrued Liability at End of Year ⁴	3,416,356	6,306,931
	Total Recommended Annual Contribution for the Current Plan Year	\$ 12,584,605	\$ 17,120,873
	Total Covered Payroll	\$ 103,276,538	\$ 107,441,009
	Recommended Annual Contribution (As a percentage of pay)	12.185%	15.935%

¹As of January 1, 2020, includes eight members who elected to receive a lump sum payment that is paid after the valuation date. The total lump sum payments of \$7,503,839 is included in the retiree liabilities.

²Equals the ratio of the actuarial value of assets to the total actuarial accrued liability.

³Assumes the contribution will be made at the end of the current fiscal year.

⁴26-year period as of January 1, 2019, and 25-year period as of January 1, 2020.



Summary of Actuarial Valuation Results (Concluded)

**Allocation of
Recommended FY2020
Annual Contribution
Requirements**

	2019 Pensionable Payroll¹	Allocation Percent	Allocated Recommended Annual Contribution Requirements for FY2020
Metra	\$ 52,714,227	55.7%	\$ 9,536,326
Pace	33,666,792	35.6%	6,095,031
RTA	8,232,110	8.7%	1,489,516
Total	\$ 94,613,129	100.0%	\$ 17,120,873

**Allocation of
Recommended FY2019
Annual Contribution
Requirements**

	2018 Pensionable Payroll²	Allocation Percent	Allocated Recommended Annual Contribution Requirements for FY2019
Metra	\$ 49,467,801	54.7%	\$ 6,883,779
Pace	32,513,288	36.0%	4,530,458
RTA	8,405,315	9.3%	1,170,368
Total	\$ 90,386,404	100.0%	\$ 12,584,605

¹2019 pensionable payroll for members active during both 2019 and 2020.

²2018 pensionable payroll for members active during both 2018 and 2019.

Derivation of Experience (Gain)/Loss Year Ended January 1, 2020

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is expected that gains and losses will cancel each other over a period of years, but year-to-year fluctuations are not uncommon. Detail on the derivation of the experience (gain) loss, along with a year-by-year comparative schedule, is shown below and on the next page.

1.	Unfunded Actuarial Accrued Liability at 01/01/2019	\$ 38,603,060
2.	Normal Cost at 01/01/2019	8,528,604
3.	Interest on (1) and (2) to 01/01/2020 (at 7.50% per annum)	3,534,875
4.	Recommended Contribution for 2019 Plan Year	<u>12,584,605</u>
5.	Expected Unfunded Actuarial Accrued Liability at 01/01/2020 [(1) + (2) + (3) - (4)]	\$ 38,081,934
6.	Effect of Additional Contributions Made in FY 2019	\$ (1,300,000)
7.	Effect of Assumption Changes	\$ 20,926,521
8.	Effect of Plan Provision Changes	\$ -
9.	Expected Unfunded Actuarial Accrued Liability at 01/01/2020 After Additional Contributions and Assumption and Plan Provision Changes [(5) + (6) + (7) + (8)]	\$ 57,708,455
10.	Actual Unfunded Actuarial Accrued Liability at 01/01/2020	\$ 70,303,016
11.	(Gain)/Loss at 01/01/2020 [(10) - (9)]	\$ 12,594,561



Derivation of Experience (Gain) Loss Year Ended January 1, 2020 (Concluded)

Year Ending December 31	Experience (Gain) Loss as % of Beginning of Year Accrued Liability	Estimated Rate of Return on Market Value of Assets	Estimated Rate of Return on Actuarial Value of Assets
2010 ¹	N/A	11.14 %	5.06 %
2011 ²	1.67 %	(0.31)%	3.01 %
2012 ³	3.53 %	12.26 %	4.16 %
2013 ³	(1.38)%	15.05 %	11.15 %
2014 ³	0.93 %	1.92 %	8.08 %
2015 ³	3.91 %	(4.84)%	4.58 %
2016 ³	2.25 %	8.44 %	5.81 %
2017 ³	1.36 %	16.17 %	7.22 %
2018 ³	3.45 %	(6.27)%	4.19 %
2019 ³	3.81 %	18.57 %	6.25 %
5-Year Average	2.95 %	5.91 %	5.60 %
10-Year Average	N/A	6.87 %	5.93 %

¹Amounts prior to 2011 from prior actuary's valuation report as of January 1, 2011.

²2011 experience loss of 1.67% is net of change due to accrual accounting of market value of assets.

³Experience gains and losses are net of changes due to additional contributions and changes in assumptions and plan provisions.



Analysis of Actuarial Gains and Losses

Attributable to:	(Gains) Losses during the Year				
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Assets ¹	\$ 5,511,049	\$ 4,371,403	\$ 757,840	\$ 9,224,488	\$ 3,541,249
New Actives	552,800	909,383	765,861	598,278	1,381,375
Salary Changes	2,506,255	428,349	617,076	232,997	1,127,340
Active Member Data Changes ²	Not Available	1,200,566	585,850	(32,277)	3,599,560
New Retirees from Deferred Vested	Not Available	212,766	295,000	(96,795)	(11,286)
Termination Experience	Not Available	Not Available	656,625	89,961	374,503
Benefit Recipient Mortality Experience	Not Available	Not Available	Not Available	Not Available	1,077,431
Other Demographic Experience ³	<u>1,994,506</u>	<u>(676,293)</u>	<u>430,524</u>	<u>1,020,472</u>	<u>1,504,389</u>
Composite Actuarial (Gain) Loss	\$ 10,564,610	\$ 6,446,174	\$ 4,108,776	\$ 11,037,124	\$ 12,594,561
	Additional (Decreases) Increases in Unfunded Liability				
Expected Change in Unfunded Liability	\$ (717,428)	\$ (217,998)	\$ (299,752)	\$ (382,327)	\$ (521,126)
Additional Contributions	(63,496,198)	(1,300,000)	(1,300,000)	(1,300,000)	(1,300,000)
Changes in Actuarial Assumptions ⁴	(355,162)	588,429	2,036,615	(1,579,446)	20,926,521
Changes in Plan Provisions	<u>588,069</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Additional Changes	\$ (63,980,719)	\$ (929,569)	\$ 436,863	\$ (3,261,773)	\$ 19,105,395
Total Change in Unfunded Liability	\$ (53,416,109)	\$ 5,516,605	\$ 4,545,639	\$ 7,775,351	\$ 31,699,956

¹ Includes gains and losses on an actuarial value of assets basis.

² Includes gains and losses based on service changes other than one year for continuing actives.

³ Includes net impact of deviations from assumptions due to death, termination (through FY2016), transfer, retirement, disability, lump sum conversions and miscellaneous data changes.

⁴ Includes annual impact of updating lump sum conversion factors.



Statement of Plan Net Position as of December 31, 2018 and December 31, 2019

	<u>December 31, 2018</u>	<u>December 31, 2019</u>
Net Plan Position Available for Benefits - Beginning of Year	\$ 296,896,397	\$ 270,111,022
Additions		
Investment Gain		
Net (depreciation) appreciation in fair value of investments	(22,217,713)	43,989,260
Interest and dividends	4,828,282	5,024,277
Total investment (loss) return	(17,389,431)	49,013,537
Less investment expenses		
Investment managers	524,936	657,353
Trust fees	4,950	4,950
Investment advisor	95,000	95,000
Total investment expenses	624,886	757,303
Net investment loss (gain)	(18,014,317)	48,256,234
Contributions		
METRA pension contributions	\$ 6,352,468	\$ 6,883,779
PACE pension contributions	4,173,155	4,530,458
RTA pension contributions	2,366,473	2,470,368
Total contributions	12,892,096	13,884,605
Total Additions	\$ (5,122,221)	\$ 62,140,839
Deductions		
Benefit Payments	\$ 21,190,479	\$ 18,886,167
Administrative Expenses	472,675	532,946
Total Deductions	\$ 21,663,154	\$ 19,419,113
Net Increase in Net Assets Available for Benefits	\$ (26,785,375)	\$ 42,721,726
Net Plan Position for Benefits - End of Year	\$ 270,111,022	\$ 312,832,748



Statement of Changes in Net Plan Position as of December 31, 2018 and December 31, 2019

	Fiscal Year Ending	
	December 31, 2018	December 31, 2019
Assets:		
Cash and Cash Equivalents	\$ 5,793,656	\$ 6,403,006
Investments, at Fair Value		
Corporate Fixed Income Mutual Fund	63,133,674	53,750,585
Collective Equity Funds	94,385,005	32,715,983
Common Stocks	31,037,557	22,734,832
Alternatives	13,574,259	29,802,285
Commingled funds	62,467,671	167,585,489
Total Investments	264,598,166	306,589,174
Receivables:		
Accrued Interest	\$ 4,920	\$ 6,864
Accrued Dividends	39,646	17,584
Pending Investment Sales/Other	86,966	9,268
Total Receivables	131,532	33,716
Total Assets	\$ 270,523,354	\$ 313,025,896
Liabilities:		
Accrued Expense	\$ 214,933	\$ 193,148
Pending Investment Purchases	197,399	-
Total Liabilities	\$ 412,332	\$ 193,148
Plan Net Position - Available for Benefits	\$ 270,111,022	\$ 312,832,748



Development of Actuarial Value of Assets

	2018	2019	2020	2021	2022	2023
Beginning of Year:						
(1) Market Value of Assets	\$296,896,397	\$270,111,022				
(2) Actuarial Value of Assets	289,367,890	292,178,756				
End of Year:						
(3) Market Value of Assets	270,111,022	312,832,748				
(4a) Contributions	12,892,096	13,884,605				
(4b) Net Disbursements	21,758,154	19,514,113				
(5) Total Investment Income						
=(3)-(1)-(4a)+(4b)	(17,919,317)	48,351,234				
(6) Projected Rate of Return	7.50%	7.50%				
(7) Projected Investment Income						
=(1)x(6)-([1+(6)]^5-1)x(4b)	21,466,050	19,539,777				
(8) Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(39,385,367)	28,811,457				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(7,877,073)	5,762,291				
(10b) From One Year Ago	4,381,645	(7,877,073)	\$ 5,762,291			
(10c) From Two Years Ago	448,655	4,381,645	(7,877,073)	\$ 5,762,291		
(10d) From Three Years Ago	(4,601,687)	448,655	4,381,645	(7,877,073)	\$ 5,762,291	
(10e) From Four Years Ago	(2,140,666)	(4,601,687)	448,656	4,381,646	(7,877,075)	\$ 5,762,293
(10f) Total Recognized Investment Gain/(Loss)	(9,789,126)	(1,886,169)	2,715,519	2,266,864	(2,114,784)	5,762,293
(11) Change in Actuarial Value of Assets						
=(4a)-(4b)+(7)+(8)+(10f)	2,810,866	12,024,100				
End of Year:						
(3) Market Value of Assets	270,111,022	312,832,748				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	292,178,756	304,202,856				
(12a) Upper Corridor Limit 120% x (3)	324,133,226	375,399,298				
(12b) Lower Corridor Limit 80% x (3)	216,088,818	250,266,198				
(13) Adjustment to Remain within 20% Corridor	0	0				
(14) Final Actuarial Value of Assets as of 12/31	292,178,756	304,202,856				
(15) Difference Between Market & Actuarial Values	(22,067,734)	8,629,892				
(16) Market Value Rate of Return	(6.27)%	18.57%				
(17) Actuarial Value Rate of Return	4.19%	6.25%				
(18) Ratio of Actuarial Value to Market Value	108%	97%				

Disbursements include investment advisor fees.



SECTION B

BENEFIT PROVISIONS AND ACTUARIAL VALUATION DATA

Brief Summary of Plan Provisions as of January 1, 2020

Following is a summary of the major Plan provisions used in the actuarial valuation. The Regional Transportation Authority is solely responsible for the validity, accuracy and comprehensiveness of this information. If any of the Plan provisions shown below are not accurate and complete, the actuarial valuation results may differ significantly from those shown in this report and may require a revision of this report. Moreover, these Plan provisions may be susceptible to different interpretations, each of which could be reasonable, and the different interpretations could lead to different actuarial valuation results.

Effective Date and Plan Year

The RTA Pension Plan became effective July 1, 1976, and was amended and restated effective June 1, 1984, January 1, 1987, and January 1, 1996. The Plan year is the calendar year.

Most Recent Amendment

The RTA Pension Plan was most recently amended and restated effective July 1, 2016.

Plan Year

The Plan year prior to July 1, 1984, was the twelve-month period commencing each July 1. There was a Short Plan Year from July 1, 1984, to December 31, 1984. Thereafter, the Plan year is the calendar year.

Employees Eligible to Participate

Each employee on and after July 1, 1976, who commences employment with the Authority or an Affiliate Employer becomes a participant as of the later of July 1, 1976, and the first day of the month coincident with or next following the date of his commencement of employment with the Authority. Effective January 1, 1987, directors may participate if an irrevocable election is filed with the Committee. Special provisions apply to certain PACE employees who entered the Plan in 1985 and certain METRA employees who entered the Plan in 1987.

Employee Contributions

Employee contributions are neither required nor allowed by the RTA Pension Plan.

Normal Retirement Date

First day of the calendar month coincident with or next following a participant's 65th birthday.

Early Retirement Date

An employee may retire early if he has attained age 55 and has completed 10 years of Vesting Service.

Disability Retirement Date

A participant who becomes disabled may commence receiving a disability income on the later of (1) his Normal Retirement date and (2) the cessation of long-term disability benefits under the RTA Pension Plan.



Brief Summary of Plan Provisions as of January 1, 2020 (Continued)

Compensation

The amounts actually paid as base salary to salaried employees and the amounts actually paid as regular, hourly wages (excluding overtime or shift differential pay) to non-salaried employees, including, at the time of deferral, amount deferred at the election of a Participant while an Employee under a cafeteria Plan, 401(k) qualified cash or deferred arrangement or eligible deferred compensation Plan maintained by an Employer which are excludable from such Participant's taxable income under Section 125, 132(f), 402 or 457 of the Code.

Average Annual Compensation

The average of the annual compensation received by a Participant in the three completed Plan years, whether consecutive or not, of his Continuous Service in which he receives his highest rates of compensation.

Service Considered

"Continuous Service," with respect to the period prior to July 1, 1976, is the total number of months of his uninterrupted service with the Authority. If an employee is not employed by the Authority during all months in a plan year after July 1, 1976, and does not complete 1,000 hours of service, he is credited with one month of Continuous Service for each 83 hours of service completed during that Plan Year. If he completes 1,000 hours of service during any Plan year after July 1, 1976, he will be credited with 12 months of service for that year, with the exception of the Short Plan Year. During the Short Plan Year commencing July 1, 1984, and ending December 31, 1984, an employee is credited with one month of Continuous Service for each month in which he has 83 hours of service.

For purposes of determining Continuous Service for vesting and eligibility for early retirement, service credited for the Short Plan Year is 12 months.

"Credited Service" is the sum of a participant's "Continuous Service" and any "Prior Service Credit" to which he is entitled. This latter term applies to employees who commenced employment prior to June 2, 1984, and also were employed on a full time basis prior to their current employment with the Authority by either 1. or 2. as follows:

1. The United States, any state, or any political subdivision of any State, or any agency created under an interstate contract approved by the Congress of the United States.



Brief Summary of Plan Provisions as of January 1, 2020 (Continued)

2. Any entity which, at any time during such Employee's employment with such entity, provided public transportation or freight services by bus or rail in the United States.

The Prior Service Credit is then equal to 4% of the service under the prior Plan for each month of continuous service with the Authority which is in excess of 23 months, subject to a maximum credit of 100% of such prior service. Thus, the full credit is granted after 48 months (four years) of employment with the Authority.

All Prior Service Credits were fully accrued at the actuarial valuation date.

Rule of 85

Unreduced early retirement is available to participants between ages 55 and 65 if the Rule of 85 is satisfied. The Rule of 85 is satisfied if a participant's vesting service plus age at retirement is greater than or equal to 85 years.

Normal Retirement Benefit

A participant who retires at or after his Normal Retirement Date will receive an annual retirement income equal to the product of 1. And 2. below:

1. Final Average Annual Compensation
2. 1.75% times Credited Service (max 70%)

Thus, the maximum Credited Service is 40 years.

Early Retirement Benefit

A participant who retires at an Early Retirement Date will receive at his Normal Retirement Date an annual retirement income equal to the benefit described in the immediately preceding section. In lieu of the above benefit, a Participant may elect to receive a reduced amount of retirement income commencing on the first day of any month between his Early and Normal Retirement Dates. The reduction will be 2.0% per year for each year that his payment commencement date precedes his Normal Retirement Date. Unreduced early retirement is available to participants between age 55 and 65 if the Rule of 85 is satisfied.



Brief Summary of Plan Provisions as of January 1, 2020 (Continued)

Deferred Vested Benefit

A participant who terminates his employment after completion of five years of Credited Service will be entitled to his accrued benefit commencing at his Normal Retirement Date. A participant who terminates his employment after completion of 10 years of Credited Service can elect reduced early retirement at age 55.

Disability Benefit

A disabled participant who is eligible to commence normal retirement benefits is entitled to an amount determined as if Continuous Service continued until the Normal Retirement Date. Compensation is assumed to continue unchanged from the last calendar year worked.

Death Benefit (with Surviving Spouse)

If an active or inactive participant dies prior to his Retirement Date after completion of at least five years of service and is not eligible for the Rule of 85 and is survived by a spouse to whom he has been married for at least one year, the surviving spouse will receive a monthly benefit equal to 50% of the amount of pension which would have been payable to the participant if his Retirement Date had occurred on his date of death and he had elected a Joint and Survivor Pension.

1. If the participant died after completion of 10 years of service
 - a) If the employee was age 55 or older at death, the benefit will commence to the spouse immediately.
 - b) If the employee was less than age 55 at death, the benefit will commence on the date that employee would have attained age 55.
2. If the participant died after completion of 5 years of service but less than 10 years
 - a) The benefit will commence on the date the employee would have been eligible for Normal Retirement.

If an active participant dies after his Normal Retirement Date or is Eligible for the Rule of 85 at the time of death, the Eligible Spouse will receive a monthly benefit payable immediately based on a 100% Joint and Survivor Pension. In lieu of this survivor benefit, the surviving spouse may elect instead to receive a lump sum distribution equal to the lump sum amount the participant would have been entitled to upon the date of his death.



Brief Summary of Plan Provisions as of January 1, 2020 (Continued)

Death Benefit

(without Surviving Spouse)

If an active or inactive participant dies prior to his Retirement Date and is not survived by a spouse, dependent children under age 26 will receive monthly benefits payable until age 26 that are actuarially equivalent to the Single Life Annuity to which the participant would otherwise be entitled.

Normal Form and Optional Forms of Retirement Benefits

The normal annuity form for single participant is a single life annuity. The normal annuity form for married participants is a reduced 50% Joint and Survivor annuity. Other available options are a 10-year certain annuity, a joint and survivor annuity with or without a pop-up or any other option offered by the Committee. The lump-sum option is available to participants who retire on or after their Normal Retirement Date and who have earned service credit prior to January 1, 2011.

Actuarial Equivalence

Optional payments forms are converted from a single life annuity according to actuarial factors based on the following:

Mortality

1. Participants – the 94 GAR Blended mortality table (no rating of ages)
2. Beneficiaries – the 94 GAR Blended mortality table (age rated down two years)
3. Lump-sum payment – applicable mortality table under the Pension Protection Act

Interest

1. Optional annuity forms – 6.0%
2. Lump-sum payments – applicable November segmented interest rates under the Pension Protection Act with five-year phase-in.

In no event will the lump sum paid be less than the lump sum amount determined using the interest rate and mortality assumptions for optional annuity forms.

Prior Benefit Offset

Amounts payable from the RTA Pension Plan are offset by the percent of the Prior Service Credit attributed to the benefit payable under the current Plan multiplied by the sum of all prior benefits.



Brief Summary of Plan Provisions as of January 1, 2020 (Concluded)

***Changes Since Prior Actuarial
Valuation***

There have been no changes in Plan provisions since the prior actuarial valuation.

Summary of Changes in Participant Status January 1, 2020

	Actives ¹	Deferred Vested ²	Deferred Beneficiaries ²	Transfers ²	Retirees ³	Beneficiaries	QDRO (Alternate Payees)	Total
METRA Participants at 01/01/2019	606	151	1	69	383	46	23	1,279
PACE Participants at 01/01/2019	503	177	2	7	225	24	7	945
RTA Participants at 01/01/2019	<u>111</u>	<u>78</u>	<u>1</u>	<u>2</u>	<u>107</u>	<u>16</u>	<u>2</u>	<u>317</u>
Total Participants at 01/01/2019	1,220	406	4	78	715	86	32	2,541
New Entrants and Rehires	107	(2)						105
Non-Vested Terminations	(33)							(33)
Vested Terminations	(22)	22						
Transfers	(3)			3				
Retirement	(28)	(9)		(4)	41			
Lump Sum Retirement	(15)				8			(7)
Death with Beneficiary		(2)			(7)	9		
Death without Beneficiary		(1)			(5)	(4)		(10)
Benefit Terminations						(1)		(1)
Adjustments				1				1
METRA Participants at 01/01/2020	627	155	1	70	402	48	23	1,326
PACE Participants at 01/01/2020	497	180	2	6	239	26	7	957
RTA Participants at 01/01/2020	<u>102</u>	<u>79</u>	<u>1</u>	<u>2</u>	<u>111</u>	<u>16</u>	<u>2</u>	<u>313</u>
Participants at 01/01/2020	1,226	414	4	78	752	90	32	2,596

¹ Includes 7 disabled members as of January 1, 2019, and includes 7 disabled members as of January 1, 2020.

² Valued as deferred vested members.

³ Includes 0 participants as of January 1, 2019 and 8 participants as of January 1, 2020 receiving lump sum payments in the upcoming year.



Active Members as of January 1, 2020 By Attained Age and Years of Benefit Service

Attained Age	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35 and Over	Totals	Valuation	
										Payroll	
Under 25	10	-	-	-	-	-	-	-	10	\$	486,807
25-29	58	13	-	-	-	-	-	-	71		4,414,987
30-34	65	33	9	-	-	-	-	-	107		8,102,154
35-39	68	46	24	3	-	-	-	-	141		11,823,864
40-44	56	37	22	13	3	-	-	-	131		11,294,927
45-49	54	37	27	14	8	3	-	-	143		12,925,832
50-54	60	47	33	31	16	10	4	-	201		19,273,016
55-59	48	28	29	19	26	15	12	3	180		17,413,642
60-64	36	41	24	22	14	12	12	6	167		15,596,683
65-69	13	9	9	10	7	4	5	2	59		5,389,249
70-74	-	-	4	2	1	2	-	-	9		478,528
75 and Over	-	1	1	1	2	1	1	-	7		241,321
Total	468	292	182	115	77	47	34	11	1,226		\$ 107,441,009

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	<u>Current Valuation</u>	<u>Previous Valuation</u>
Average Age:	48.9 years	48.8 years
Average Benefit Service:	11.8 years	10.6 years
Average Annual Pay:	\$87,635	\$84,653
Metra:	\$97,774	\$95,004
Pace:	\$74,660	\$72,513
RTA:	\$88,538	\$83,156
Vested Participants:	852	732
Nonvested Participants:	374	488

504 active members will be eligible for a lump sum benefit at their Normal Retirement Date.



Deferred Vested Members as of January 1, 2020

Deferred Vested Members ¹		
<u>Age Group</u>	<u>Number</u>	<u>Total Monthly Pension²</u>
Under 25	0	\$ -
25-29	3	791
30-34	23	10,946
35-39	44	27,132
40-44	41	24,773
45-49	64	52,956
50-54	85	53,289
55-59	110	65,828
60-64	116	62,974
65+	10	4,792
Total	496	\$ 303,480

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	<u>Current Valuation</u>	<u>Previous Valuation</u>
Total Count:	496	488
Average Age:	52.5	52.1
Average Monthly Benefit:	\$612	\$582

¹Includes 414 deferred vested members, 4 deferred beneficiaries and 78 transfers.

²If at least 10 years of service, calculated based on a commencement age of the later of age 60 and the current age and an actuarial reduction applied to the benefit. If less than 10 years of service, calculated based on a commencement age of the later of age 65 and the current age.

Members in Pay Status as of January 1, 2020

Members Currently in Pay Status¹

<u>Age Group</u>	<u>Number</u>	<u>Total Monthly Pension</u>
Under 55	2	\$ 536
55-59	29	58,466
60-64	126	263,735
65-69	275	514,307
70-74	210	340,549
75-79	118	142,716
80-84	64	67,432
85-89	30	27,355
90+	9	5,596
Unknown	3	4,324
Total	866	\$ 1,425,015

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	<u>Current Valuation</u>	<u>Previous Valuation</u>
Total Count:	866	833
Average Age:	71.0	70.6
Average Monthly Benefit:	\$1,646	\$1,617

¹Includes 744 retirees, 90 beneficiaries and 32 alternate payees (from QDRO). Excludes 8 members receiving a lump sum payment in the upcoming year.



SECTION C

ACTUARIAL VALUATION PROCEDURES

Actuarial Cost Method

Normal cost and the allocation of benefit values between service rendered before and after the actuarial valuation date was determined using the **Entry Age Normal actuarial cost method** having the following characteristics:

- The normal cost for each individual active member equals a level percentage of an individual's covered payroll (sometimes level dollar). If this rate is contributed from the date of hire (entry age) to the date of retirement, the amount would accumulate to the present value of projected benefits at retirement; and
- The actuarial accrued liability for each individual active member equals the accrual of normal costs that are expected to have been paid in the past. The actuarial accrued liability for retired and inactive members equals the present value of benefits.

Financing of Unfunded Actuarial Accrued Liabilities. The unfunded actuarial accrued liability is amortized using a level-dollar 30-year amortization over a closed period beginning January 1, 2015. 25 years remain as of January 1, 2020.

Actuarial Value of Pension Plan Assets. The asset value is the actuarial value of assets which is calculated by recognizing 20 percent of the investment gain or loss (the difference between the actual investment return and the expected investment return, which is 7.75 percent beginning January 1, 2012 and 7.50 percent beginning January 1, 2015) on the market value of assets for each of the five following fiscal years. The actuarial value of assets is subject to a 20% corridor around market value of assets.

Actuarial Assumptions in the Actuarial Valuation Process

The contribution and benefit values of the Plan are calculated by applying actuarial assumptions to the benefit provisions and census information furnished, using the actuarial cost method described on the previous page.

The principal areas of financial risk which require assumptions about future experiences are:

- Long-term rates of investment return to be generated by the assets of the RTA Pension Plan;
- Patterns of pay increases to members;
- Rates of mortality among members, retirees and beneficiaries;
- Rates of withdrawal of active members;
- Rates of disability among members; and
- The age patterns of actual retirement.

In an actuarial valuation, the monetary effect of each actuarial assumption is calculated for as long as a present covered person survives; a period of time which can be as long as a century.

Actual experience of the Plan will not coincide exactly with assumed experience. Each actuarial valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

Actuarial Valuation Assumptions (Continued)

The actuarial assumptions were first adopted by the Retirement Committee for use with the actuarial valuation as of January 1, 2020, and were based on the experience study covering the period January 1, 2013, through January 1, 2018.

The assumed rate of price inflation was 2.50 percent. This assumption is not used directly in the actuarial valuation. However, the price inflation assumption underlies all of the other economic assumptions (investment return, salary increase and payroll growth assumption).

The assumed rate of investment return used was 7.50 percent, net of investment expenses, annually.

The rates of annual salary increase used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefit amounts will be based.

Salary Increases	
Age	Rate
Under 25	8.60%
25-29	7.85%
30-34	6.10%
35-39	5.35%
40-44	4.85%
45-49	4.60%
50-54	4.35%
55-59	4.10%
60-64	3.85%
65-69	3.60%
70+	2.85%

The mortality tables used to measure retirement mortality were the Pub-2010 (General Employees) Employee Mortality table for pre-retirement mortality and the Pub-2010 (General Employees) Healthy Retiree Mortality table for post-retirement mortality, sex-distinct, with mortality improvement projected from 2010 using projection scale MP-2018. These mortality assumptions are used to measure (1) the probabilities of members dying before retirement and (2) the probabilities of each benefit payment being made after retirement. The illustrative future life expectancies are based on post-retirement mortality rates.

Age	Future Life Expectancy in 2020		Future Life Expectancy in 2030	
	Male	Female	Male	Female
55	30.77	33.65	31.68	34.50
60	26.04	28.78	26.91	29.59
65	21.54	24.03	22.33	24.78
70	17.27	19.47	17.97	20.17
75	13.32	15.19	13.95	15.84
80	9.84	11.36	10.38	11.93
85	6.98	8.12	7.42	8.57
90	4.87	5.64	5.19	5.97



Actuarial Valuation Assumptions (Continued)

Rates of separation from active membership are represented by the following table (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members terminating employment.

Employee Withdrawal Rate (5 or more years of service)			
Male		Female	
Age	Rate	Age	Rate
Under 30	8.00%	Under 30	8.00%
31	7.50%	31	8.00%
32	7.00%	32	8.00%
33	6.50%	33	8.00%
34	6.00%	34	8.00%
35	5.50%	35	7.50%
36	5.25%	36	7.25%
37	5.00%	37	7.00%
38	4.75%	38	6.75%
39	4.50%	39	6.50%
40	4.00%	40	6.00%
41	3.75%	41	5.75%
42	3.50%	42	5.50%
43	3.25%	43	5.25%
44	3.00%	44	5.00%
45	2.75%	45	4.75%
46	2.50%	46	4.50%
47	2.25%	47	4.25%
48	2.00%	48	4.00%
49	2.00%	49	4.00%
50+	2.00%	50+	3.00%

The following service-based rates are used instead of the age-based withdrawal rates shown above for the first four years of service:

Years of Service	Male	Female
1	14.0%	12.0%
2	10.0%	10.0%
3	10.0%	10.0%
4	8.0%	8.0%

Members who terminate service with at least 10 years of service are assumed to commence benefits at age 60. Vested terminated members with less than 10 years of service are assumed to commence benefits at age 65.



Actuarial Valuation Assumptions (Continued)

Rates of disability were as follows:

Employee Disablement Rate		
Age	Males	Females
20	0.007%	0.008%
25	0.010%	0.012%
30	0.012%	0.020%
35	0.017%	0.034%
40	0.029%	0.053%
45	0.051%	0.081%
50	0.090%	0.133%
55	0.181%	0.238%
60	0.314%	0.290%

Rates of retirement for members eligible to retire during the next year were as follows:

Age	Reduced Benefit Rates	Unreduced Benefit Rates	Age	Unreduced Benefit Rates
55	2.0 %	5.0 %	65	30.0 %
56	2.0	5.0	66	30.0
57	2.0	5.0	67	30.0
58	2.0	5.0	68	30.0
59	5.0	5.0	69	30.0
60	10.0	20.0	70	30.0
61	10.0	18.0	71	35.0
62	10.0	18.0	72	35.0
63	5.0	18.0	73	35.0
64	5.0	18.0	74	35.0
			75+	100.0

Marital Status: It is assumed that 65% of males and 45% of females have an eligible spouse. The male spouse is assumed to be three years older than the female spouse.

Dependent Assumptions: The following assumptions are made for the dependent preretirement death benefit:

- 5% of males and 10% of females will have dependent children eligible;
- The youngest child of an eligible employee is 35 years younger than the employee; and
- Members younger than age 25 do not have children.



Actuarial Valuation Assumptions (Continued)

- Form of Payment:** 45% of lump sum eligible retirees were assumed to elect the lump sum form of payment. A load of -2.0% is applied to active member liabilities to account for the difference in assumptions used to calculate optional forms of payment and the assumptions used in the actuarial valuation to calculate liabilities.
- 70% of male and 35% of female future retirees are assumed to elect a joint and survivor benefit.
- Benefit Service:** Exact fractional years of service are used to determine the amount of benefit payable.
- Decrement Timing:** All decrements are assumed to occur mid-year.
- Decrement Operation:** Turnover decrements do not operate after the member reaches retirement eligibility.
- Eligibility Testing:** Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.
- Pay Increase Timing:** End of (fiscal) year.
- Expenses:** Expenses added to the Normal Cost were assumed to be 105 percent of the average actual administrative expenses over the past three years.

Fiscal Year End	Administrative Expense	Investment Advisor Expenses	Total Actual Expenses	Assumed Expenses in Following Fiscal Year
2019	\$ 532,946	\$ 95,000	\$ 627,946	\$ 625,123
2018	472,675	95,000	567,675	
2017	470,446	120,000	590,446	

Service for Continuing

Actives:

All members active last year and this year who worked more than 1,000 hours earned a full year of service.

For members hired during 2019, service was credited as follows:

- Hired before 8/14/2019 – 12 months
- Hired on or after 8/14/2019 and before 9/18/2019 – 4 months
- Hired on or after 9/18/2019 and before 10/18/2019 – 3 months
- Hired on or after 10/18/2019 and before 11/18/2019 – 2 months
- Hired on or after 11/18/2019 and before 12/18/2019 – 1 month
- Hired on or after 12/18/2019 – 0 months



Actuarial Valuation Assumptions (Concluded)

Data Adjustments:

Pay Adjustments

For disabled members whose pay rate as of January 1, 2020, was zero or was not provided, we used the most recent pay rate available in the pension administration data.

Benefit Adjustments

Based on information from the administrator, the monthly benefit provided in the census data is the amount payable to the member at actual benefit commencement (for members receiving benefits) and normal retirement age for deferred vested members and transfers.

Beneficiary benefits are calculated by multiplying the monthly benefit in the data by the joint and survivor benefit percentage (if applicable).

Deferred vested member benefits are calculated by multiplying the monthly benefit in the data by the applicable early retirement reduction factor if the benefit is assumed to commence prior to the normal retirement age of 65.

Lump Sum Conversion

Factors:

The annual lump sum conversion factors are based on the November segment rates and the applicable mortality table under the Pension Protection Act.

For actuarial valuation purposes only, the lump sum conversion factors used are based on:

1. The segment rates from the November preceding the actuarial valuation for projected lump sum retirements within five years of the actuarial valuation date (and are updated annually in the actuarial valuation)
2. Assumed segment rates for projected lump sum retirements more than five years after the actuarial valuation date (rates are only updated periodically after experience studies)
3. The current applicable mortality assumption under the Pension Protection Act is used.

<u>Assumed Rates</u>	<u>Assumed Retirements within 5 Years</u>	<u>Assumed Retirements after 5 Years</u>
First Segment	2.04%	3.00%
Second Segment	3.09%	4.90%
Third Segment	3.68%	5.70%



SECTION D

HISTORICAL PLAN TRENDS

Funded Ratio History

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b – a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Payroll [(b – a)/c]
1/1/2015	\$ 196,142,829	\$ 270,324,403	\$ 74,181,574	72.6 %	\$ 83,485,618	88.9 %
1/1/2016	265,692,481	286,457,946	20,765,465	92.8	88,663,051	23.4
1/1/2017	275,792,027	302,074,097	26,282,070	91.3	93,950,500	28.0
1/1/2018	289,367,890	320,195,599	30,827,709	90.4	100,053,769	30.8
1/1/2019	292,178,756	330,781,816	38,603,060	88.3	103,276,538	37.4
1/1/2020	304,202,856	374,505,872	70,303,016	81.2	107,441,009	65.4

The market value of assets used to develop the actuarial value of assets is based on accrual accounting and consistent with the asset value shown in the Plan's financial statement.



Employer Contribution History

Fiscal Year Ended	Recommended Annual Contribution (a)	Total Employer Contribution (b)	Excess/ (Deficit) (c)	Percentage Contributed (b / a)
12/31/2015	\$ 13,598,896	\$ 77,095,000	\$ 63,496,104	566.9 %
12/31/2016	9,534,166	10,834,166	1,300,000	113.6
12/31/2017	10,581,706	11,881,706	1,300,000	112.3
12/31/2018	11,592,096	12,892,096	1,300,000	111.2
12/31/2019	12,584,605	13,884,605	1,300,000	110.3
12/31/2020	17,120,873	TBD	TBD	TBD



SECTION E

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL). The difference between (i) the actuarial present value of future Plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as “accrued liability” or “past service liability.”

Actuarial Assumptions. Estimates of future Plan experience such as investment return, expected lifetimes and the likelihood of receiving a pension from the Pension Plan. Demographic, or “people” assumptions, include rates of mortality, retirement and separation. Economic, or “money” assumptions, include expected investment return, inflation and salary increases.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future Plan benefits” between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

Actuarial Present Value of Future Plan Benefits. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Value of Assets (AVA). Smoothed value of assets that recognizes the difference between the expected investment return using the actuarial valuation assumption of 7.50 percent and the actual investment return over a five-year period. Dampens volatility of asset value over time.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Annual Required Contribution. The sum of the normal cost and amortization of the unfunded actuarial accrued liability.

Asset Return. The net investment return for the asset divided by the mean asset value. Example: if \$1.00 is invested and yields \$1.075 after a year, the asset return is 7.50 percent.

Funded Ratio. The actuarial value of assets divided by the actuarial accrued liability. Measures the portion of the actuarial accrued liability that is currently funded.

Market Value of Assets (MVA). The value of assets currently held in the trust available to pay for benefits of the Pension Plan. Each of the investments in the trust is valued at market price which is the price at which buyers and sellers trade similar items in the open market.

Normal Cost (NC). The annual cost assigned, under the actuarial funding method, to current and subsequent Plan years. Sometimes referred to as “current service cost.” Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Unfunded Actuarial Accrued Liability (UAAL). The difference between the actuarial accrued liability and actuarial valuation assets. Sometimes referred to as “unfunded accrued liability.”