Retirement Plan for Employees of Dallas/Fort Worth International Airport Board

Actuarial Valuation Report for the Year Beginning January 1, 2020

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May 8, 2020

Board of Directors
Dallas/Fort Worth International
Airport Board
PO Drawer DFW
DFW Airport, TX 75261-9428

Dear Members of the Board,

Subject: Actuarial Valuation as of January 1, 2020 for the General Employees Plan

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Retirement Plan for Employees of Dallas/Fort Worth International Airport Board (the Plan) for the plan year commencing January 1, 2020.

Results of this report should not be used for any other purpose without consultation with the undersigned. Valuations are prepared annually as of January 1, the first day of the plan year. This report was prepared at the request of the Airport Board (the Board) and is intended for use by the Board and designated Airport staff and those designated or approved by the Board. This report may be provided to parties, other than those described above, only in its entirety and only with the permission of the Board.

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. In our opinion the results presented also comply with the Plan as amended and restated, and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

Actuarial Valuation

The primary purposes of the valuation report are to determine the employer's contribution for the upcoming fiscal year, to describe the current financial condition of the Plan, and to analyze changes in the Plan's financial condition. Valuations are prepared annually, as of January 1 of each year, the first day of the plan year.

Governmental Accounting Standards Board

The Plan began complying with Governmental Accounting Standards Board Statement No. 67 (GASB No. 67) with the plan year ending December 31, 2014. Due to the significant amount of disclosure information requested under this statement, all GASB related material will be provided in a separate report.

Financial Objectives and Actuarially Determined Contribution

The employer contribution is established by the Board. The Board's current intention is to contribute the Plan's normal cost plus the amount necessary to amortize the unfunded actuarial accrued liability (UAAL) over a period of 30 years from January 1, 2005 (determined using a level dollar amortization); this contribution amount is $19,063,547 for the fiscal year beginning October 1, 2020.

Progress Toward Realization of Financial Objectives
The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) increased from the prior year. The funded ratio at January 1, 2020, is 85.8%, while it was 83.7% as of January 1, 2019. The significant portion of this increase is due to the contributions under the Board's Funding Policy. The Airport also contributed an additional contribution in excess of the Board's Funding Policy which further improved the funded status.

Benefit Provisions
The actuarial valuation reflects the benefit and contribution provisions set forth in the Plan as of the valuation date. There are no ancillary benefits funded by a source independent of the Plan. Effective January 1, 2010, the plan was amended to close the plan to new hires. There have been no changes in the benefit provisions since the prior valuation. Please see Table 19 of this report for more details.

Assumptions and Methods
The actuarial assumptions and methods are set by the Board of Directors, based upon the recommendation of the actuary. The Board adopted the current assumptions and methods in conjunction with the 2015 Experience Study effective with 2016 valuation. The actuarial assumptions and methods have not changed since the prior year. We believe that the actuarial assumptions used in the measurements for funding purposes are reasonable and appropriate for that purpose, and that the assumptions are internally consistent, reasonable, and, where appropriate, based on the actual experience of the Plan. For a more detailed description of all of the actuarial assumptions, please see Table 18 of this report.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience frequently deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities and calculated contribution amounts. Due to the limited scope of this assignment, GRS did not perform an analysis of the potential range of such possible future differences. The actuarial calculations are intended to provide information for rational decision making.

Beginning with the prior valuation we began including a section in the report to comply with Actuarial Standards of Practice (ASOP) No. 51 – "Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions". Please see Section I of this report for further information.

This report does not reflect the recent and still developing impact of the COVID-19 pandemic, which may significantly impact the demographic and economic experience occurring after this valuation date.

The undersigned are independent actuaries and consultants. Mr. Siblik is an Enrolled Actuary and a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries. Both Mr. Siblik and Mr. Ward are experienced in performing valuations for large public retirement systems.

Please see the following page for additional disclosures required by Actuarial Standards of Practice. We are available to answer any questions you may have and to provide additional details as may be appropriate.

Sincerely,
Gabriel, Roeder, Smith & Company

Lewis Ward
Consultant

Daniel J. Siblik, ASA, EA, MAAA
Consultant

Actuarial Standards of Practice Disclosure Statements

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; 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 funded status alone is not appropriate for assessing the need for or the amount of future contributions and is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

This report should not be relied on for any purpose other than the purpose described above. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

The valuation was based upon information furnished by the Airport's administrative staff, concerning the Plan's benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not otherwise audit the data. We are not responsible for the accuracy or completeness of the information provided by the Airport's administrative staff.

The developed findings included in this report consider data and other information through January 1, 2020

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Executive Summary

The unfunded actuarial accrued liability (UAAL) for this plan is $89.7 million as of January 1, 2020 compared to $99.8 million last year. The funded ratio -- the actuarial value of assets divided by the actuarial accrued liability -- is 85.8% compared to 83.7% as of the last valuation.

The reasons for the decrease in the UAAL are: the anticipated decrease due to contributions under the Board's Funding Policy, additional contributions in excess of the Board's funding Policy, and an actuarial gain of $4.6 million on the liability experience of the plan.

As you are aware, the plan was closed to new hires effective January 1, 2010. The contribution amount shown as a percentage of the payroll for the covered group is expected to increase over time. The amortization of the UAAL is determined on a level dollar basis (equal dollar payments over the remaining amortization period). Therefore, if there are not actuarial gains or losses, the dollar contribution amount to amortize the UAAL would remain the same each year. However, even if the amortization payments were the same when we convert them to a percentage of pay, they increase because the denominator in the calculation (the covered payroll) is declining. At some point in the future, you may wish to consider eliminating the disclosure of the contribution as a percentage of pay.

Item	2020	2019
Membership		
• Number of		
- Active Members	654	696
- Retirees and Beneficiaries	1,329	1,285
- Inactive, Vested	400	427
- Total	2,383	2,408
• Payroll	$51.7 million	$53.3 million
Assets		
• Market value	$550.0 million	$493.3 million
• Actuarial value	$543.6 million	$511.1 million
• Return on market value	12.4%	0.0%
• Return on actuarial value	7.2%	6.4%
• Employer contributions*	$21.9 million	$22.5 million
• External cash flow %	-0.8%	-0.3%

Executive Summary

Item	2020	2019
Actuarial Information		
• Normal cost	$8.4 million	$8.8 million
• Actuarial Liability	$633.3 million	$610.9 million
• Unfunded actuarial accrued liability (UAAL)	$89.7 million	$99.8 million
• Funded ratio	85.8%	83.7%
Change in UAAL		
• Asset experience gains/(losses)	$ 304,908	$ (3,492,790)
• Liability experience gains/(losses)	4,624,922	1,087,906
• Assumption Changes	-	-
• Method Changes	-	-
• Plan Changes	-	-
• Additional contributions	1,721,797	2,112,932
• Administrative expenses different than assumed	(286,040)	(262,891)
• Expected decrease/(increase)	3,740,490	3,362,783
• Total decrease/(increase)	$ 10,106,077	$ 2,807,940
Contribution Information		
• Actuarially Determined Contribution	$ 19,063,547	$ 20,193,605
• As Percentage of Covered Payroll	36.84%	37.92%
Change in Actuarially Determined Contribution		
• Asset experience gains/(losses)	34,008	(375,886)
• Liability experience gains/(losses)*	673,746	(120,435)
• Assumption Changes	-	-
• Method Changes	-	-
• Plan Changes	-	-
• Additional contributions	194,091	228,481
• Administrative expenses different than assumed	(31,903)	(28,292)
• Expected decrease/(increase)	260,116	481,021
• Total decrease/(increase)	$ 1,130,058	$ 184,889

*Includes unexpected change in Normal Cost

Introduction

The results of the January 1, 2020 actuarial valuation of the Retirement Plan for Employees of Dallas/Fort Worth International Airport Board (the Plan) are presented in this report.

The purpose of any actuarial valuation report is to describe the financial condition of the Plan, to determine the employer's contribution for the upcoming fiscal year, and to analyze changes in the funding requirements.

Section C discusses the determination of the current funding requirements and funding period. Section D analyzes the changes in (i) the unfunded actuarial accrued liability and (ii) the contribution requirement. This section also discusses the gains and losses resulting from differences between actual experience and the actuarial assumptions.

Sections E through H discuss background information used in the preparation of this report--benefit provisions, actuarial assumptions and methods, financial information, and membership data.

Section I discusses and provides analysis of certain risk measures associated with the measurement of pension plan liabilities and contributions.

All of the tables referenced by the other sections appear in Section J.

Actuarial Calculations and Funding Status

Table 1 shows the development of the Plan's liabilities and costs.

The Entry Age Normal funding method is used to allocate the actuarial present value of future benefits between the portion due for the current year (the normal cost), prior years (the actuarial accrued liability) and future years (present value of future normal cost). Under this cost method, the current and future normal costs are determined as a level percentage of pay. As of this valuation date, the total normal cost (adjusted to the end of the year for payment timing) is $8.4 million and the actuarial accrued liability is $633.3 million.

The difference between the accrued liability and the actuarial value of assets is the Unfunded Actuarial Accrued Liability (UAAL). The UAAL indicates the value of assets in excess of/(below) the actuarial accrued liabilities. The actuarial value of assets on the valuation date is $543.6 million and therefore the UAAL is $89.7 million.

The Plan's funded ratio is the ratio of the actuarial value of assets to the actuarial accrued liabilities. This ratio is 85.8% at January 1, 2020, an increase from the prior year's ratio of 83.7%.

The contribution amount is determined by combining the normal cost with the amortization of the UAAL over the 30-year period ending December 31, 2034 (15 years from this valuation). As noted above, the calculated contribution amount is based on a 15-year amortization of the UAAL. As shown in Table 1, the contribution amount necessary to meet the Board's funding policy is $19.1 million, a decrease from the prior year amount of $20.2 million.

Analysis of Changes

Table 9 shows the detailed calculation of the asset gain/(loss), while Table 10 shows the development of the liability gain/(loss). (The gains and losses are due to differences between actual experience and anticipated experience determined using the actuarial assumptions.) Table 11 provides a breakout of the liability gain/(loss) by source (e.g. salary gain, retiree mortality loss, etc.).

The unfunded actuarial accrued liability (UAAL) for this plan is $89.7 million as of January 1, 2020 compared to $99.8 million last year. The funded ratio -- the actuarial value of assets divided by the actuarial accrued liability -- is 85.8% compared to 83.7% as of the last valuation. The primary changes in the UAAL during the year were due to the following causes:

- The fund's return on the actuarial value of assets was 7.2%, compared to the 7.25% investment return assumption. (This is a smoothed return; the dollar-weighted market return was 12.4%. This may differ from the time-weighted return published by the Board.) The small resulting net actuarial gain on the actuarial value of assets decreased the UAAL by about $0.3 million.
- There was a liability gain of approximately $4.6 million, primarily due to Cost of Living Adjustment increases being less than assumed.
- The UAAL decreased by $3.5 million due to the Board's funding policy and additional $1.7 million due to additional contributions in excess of the Board's funding policy.

The contribution amount needed to meet the Board's stated goal of paying the normal cost and amortizing the UAAL over 30 years (from the period beginning January 1, 2005) is $19.1 million, a $1.1 million decrease from the prior year's amount of $20.2 million.

Benefit Provisions

This valuation reflects benefits promised to members by the Plan. There are no ancillary benefits – retirement-type benefits not required by the Plan but which might be deemed a Plan liability if continued beyond the availability of funding by the current funding source. Please see Table 19 for a summary of the provisions of the Plan used in this valuation.

The Plan was closed to new hires effective January 1, 2010. There have been no changes to the Plan since the prior valuation.

Actuarial Assumptions and Methods

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an investment return assumption. The Board adopts the assumptions to be used, taking into account the actuary's recommendations. This report is based upon the same set of actuarial assumptions and methods used in preparing the prior year's report.

The most significant assumptions are (i) the assumed investment return, set at 7.25%, (ii) the assumption regarding future salary increases, which is a graded rate from 6.25% to 3.75% based on years of service with the Airport and (iii) post-retirement mortality tables which use mortality table RP-2014 with blue collar adjustments and generational mortality improvement using mortality improvement scale BB projected from 2014.

The actuarial assumptions and methods are summarized in Table 18.

In addition to the actuarial assumptions, the actuary also makes use of an actuarial funding method to allocate costs to past, current and future years of service. The Plan continues to use the Entry Age Normal Method. Under this method, the actuarial present value of benefits is allocated between the portion due for the current year (the normal cost), prior years (the actuarial accrued liability) and future years (present value of future normal cost). We believe this method is appropriate for this Plan.

The next comprehensive review (Experience Investigation) of the actuarial assumptions is expected to occur between now and the January 1, 2021 actuarial valuation.

Fund Assets

Plan assets are held in trust. Asset information used in this valuation has been provided by the Airport's administrative staff. Section I contains several tables which summarize, reconcile or analyze this information.

Table 5 presents a summary of the market value of assets held by the fund. Table 6 shows a reconciliation of the assets from the beginning of the prior year to the valuation date.

Table 7 shows the development of the investment gains and losses for the current year and the development of the Actuarial Value of Assets. Both the actual and expected returns are computed gross of administrative expenses. An actuarial value is used in order to dampen some of the year-to-year fluctuations which would occur if the market value were used instead. The method will recognize 100% of any gains or losses from current year against prior years' deferred gains or losses. Any remaining amount is recognized at 20% per year over five years. Any remaining prior year bases are recognized in equal installments over the remaining period from the date the base was established plus 5 years.

Table 8a shows an estimate of the Fund's yield for the year. This is shown on (i) the market value of assets (reflecting all realized and unrealized gains and losses), and (ii) the actuarial value of assets. While the dollar-weighted market yield this year is approximately 12.4%, the yield on the actuarial value is 7.2%. The difference between these is due to the smoothing of actual market return over/(under) the expected market return of 7.25%.

Table 9 determines the asset gain or loss for the year, based on the difference between the actual fund yield and the assumed rate of 7.25%. The impact of this gain has already been discussed in Section D.

Table 12 shows a history of cash flows to the trust. Table 13 shows a projection of the expected benefit payments from the trust over the next twenty plan years, based on the plan's actuarial assumptions.

Membership Data

Membership data was provided on computer files sent by the Airport's administrative staff. Data for active members includes gender, birth date, date of hire, and salary (for the prior year). Data for inactive, non-retired members was similar, but also includes the member's unreduced benefits. For retired members, data includes status (service retiree, disabled retiree or beneficiary), gender, birth date, pension amount, form of payment, beneficiary gender and birth date if applicable, and date of retirement.

While not verifying the correctness of the data at the source, we performed various tests to ensure the internal consistency of the data and its overall reasonableness.

Membership statistics are summarized in Table 3. Table 4 summarizes certain active member data, and the age/service distribution of active members is shown in Table 14.

Total payroll decreased since last year. For all comparative purposes, payroll is the annual rate of pay as of the valuation date for covered employees, as supplied by the Airport's administrative staff. Pay is assumed to change only at the end of a plan year.

Payroll is expected to decrease in future years as the number of covered active employees continues to decrease due to the closure of the plan to new hires on January 1, 2010.

Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions

The determination of the accrued liability and an 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 an 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. Items presented herein do not reflect the developing impact of the COVID-19 pandemic, which may significantly impact the demographic and economic experience occurring after this valuation date, such as the health of members, decreases in payroll and/or employer revenue, investment losses and mortality experience.

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;
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.

Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions (continued)

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.

The Funding Policy Employer Contribution amount shown on the Executive Summary may be considered as a minimum contribution amount that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

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. Several generally accepted plan maturity measures are described below and are followed by a table showing a 10-year history of these plan maturity measurements for the Plan.

RATIO OF MARKET VALUE OF ASSETS TO PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. However, since this plan is closed to new members, this ratio by itself will provide very little usefulness because the ratio will grow very large as the payroll decreases. Of more use is the comparison of the trend in the ratio of assets to 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 as a percentage of payroll for a fully funded plan. However, since this plan is closed to new members, this ratio by itself will provide very little usefulness because the ratio will grow very large as the payroll decreases. Of more use is the comparison of the trend in the ratio of liability to payroll. A funding policy that targets a funded ratio of 100% is expected to result in these ratios converging over time.

Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions (continued)

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% other than assumed would equal 5% 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. Since this plan is closed to new members, this ratio will decrease over time until it eventually reaches zero.

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.

DURATION OF ACTUARIAL ACCRUED LIABILITY

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

ADDITIONAL RISK ASSESSMENT

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. While a robust measurement of additional risk assessment is outside the scope of the annual actuarial valuation, we have shown a scenario test of the impact of lower future investment returns on the required contributions later in this section.

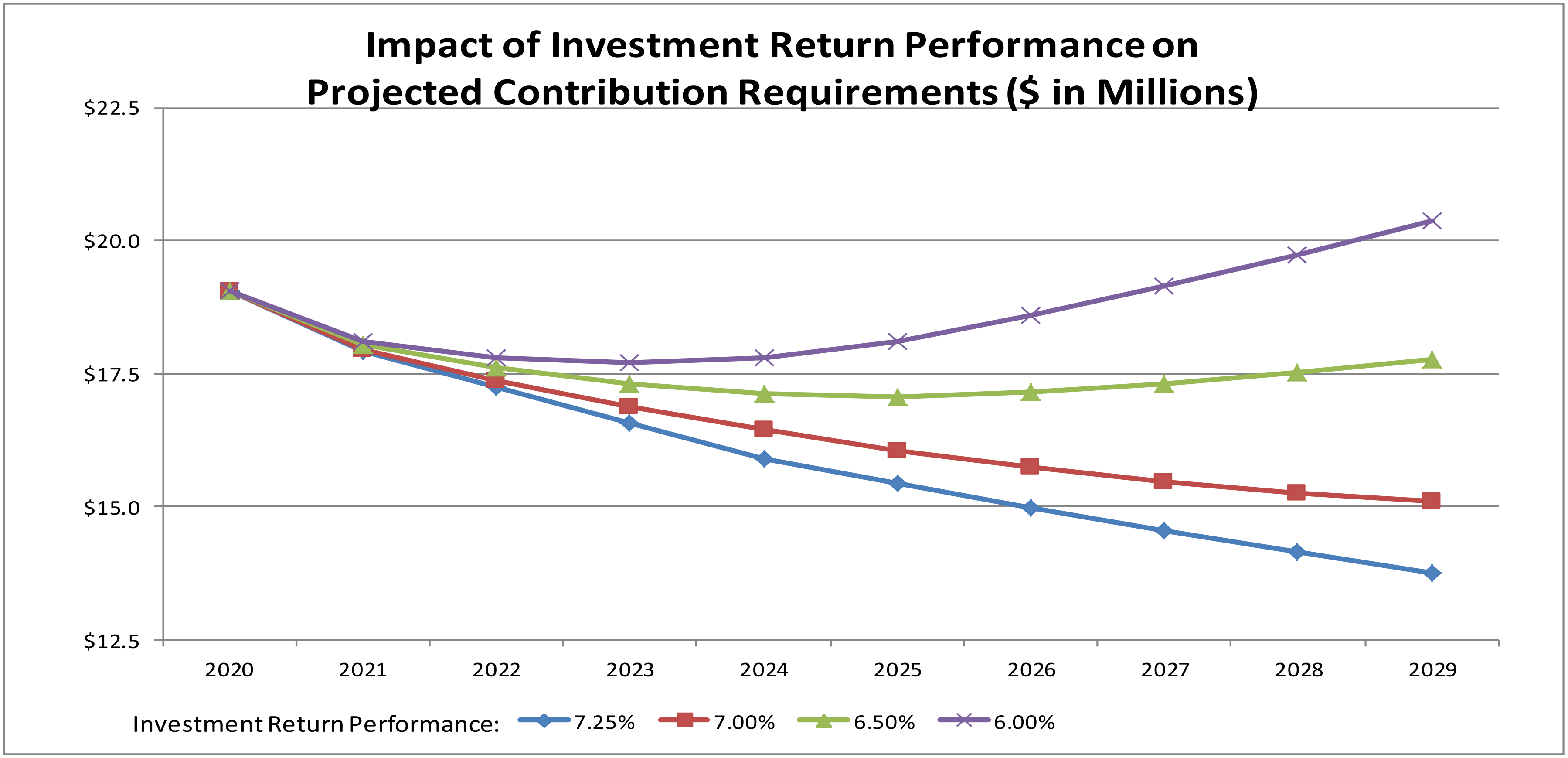
Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions (continued)

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Ratio of the market value of assets to payroll*	10.63	9.26	9.15	7.87	6.84	6.49	6.05	5.04	4.04	3.76
Ratio of actuarial accrued liability to payroll*	12.24	11.47	10.80	10.01	9.08	7.81	7.36	6.87	5.88	5.31
Ratio of actives to retirees and beneficiaries	0.49	0.54	0.60	0.67	0.77	0.88	0.95	1.08	1.44	N/A
Ratio of net cash flow to market value of assets	-0.8%	-0.3%	-0.4%	0.2%	-0.1%	1.2%	1.3%	1.9%	2.8%	5.7%
Duration of the actuarial accrued liability**	13.87	14.09	NA	NA	NA	NA	NA	NA	NA	NA

*Payroll is covered payroll of the plan which is declining due to the plan closure to new hires in 2010.

**Duration measure not available prior to 2019

Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions (continued)



Tables

Table 1

Development of Employer Cost

			January 1, 2020 (1)	January 1, 2019 (2)
1.	Payroll		$ 51,748,062	$ 53,256,153
2.	Present value of future benefits			
	a.	Active members	$ 326,644,966	$ 326,280,763
	b.	Retirees and beneficiaries	318,313,476	297,850,259
	c.	Deferred vested	42,776,331	45,142,638
	d.	Total	$ 687,734,773	$ 669,273,660
3.	Total actuarial accrued liability for:			
	a.	Active members	$ 272,233,716	$ 267,925,070
	b.	Retirees and beneficiaries	318,313,476	297,850,259
	c.	Deferred vested members	42,776,331	45,142,638
	d.	Total	$ 633,323,523	$ 610,917,967
4.	Actuarial value of assets		$ 543,581,900	$ 511,070,267
5.	Unfunded actuarial accrued liability (UAAL) (Item 3d - Item 4)		$ 89,741,623	$ 99,847,700
6.	Board Normal Cost (middle of year)		$ 8,148,862	$ 8,544,282
7.	Administrative Expense (middle of year)		$ 594,000	$ 579,000
8.	Actuarially Determined Contribution			
	a.	Board Normal Cost (end of year)	$ 8,439,090	$ 8,848,593
	b.	Administrative Expense (end of year)	615,156	$ 599,622
	c.	Amortization Payment (end of year)	10,009,301	10,745,390
	d.	Total	$ 19,063,547	$ 20,193,605
9.	Contribution as percent of covered payroll		36.84%	37.92%

Table 2

Schedule of Funding Progress

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Covered Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
January 1, 2000 [1]	$ 101,526,768	$ 97,822,968	$ (3,703,800)	103.8%	$ 44,988,754	-8.2%
January 1, 2001	117,027,640	110,188,698	(6,838,942)	106.2%	50,784,574	-13.5%
January 1, 2002	129,828,555	120,722,063	(9,106,492)	107.5%	57,795,013	-15.8%
January 1, 2003	141,319,206	139,068,624	(2,250,582)	101.6%	61,139,050	-3.7%
January 1, 2004	150,814,078	150,156,305	(657,773)	100.4%	55,696,728	-1.2%
January 1, 2005	162,078,497	193,888,122	31,809,625	83.6%	61,490,865	51.7%
January 1, 2006 [2]	181,323,722	252,817,171	71,493,449	71.7%	67,968,131	105.2%
January 1, 2007	201,631,642	277,147,213	75,515,571	72.8%	70,832,949	106.6%
January 1, 2008	232,884,039	300,825,446	67,941,407	77.4%	73,475,400	92.5%
January 1, 2009	245,813,264	329,225,331	83,412,067	74.7%	77,665,545	107.4%
January 1, 2010	261,083,743	348,719,375	87,635,632	74.9%	77,625,129	112.9%
January 1, 2011 [2]	288,351,109	397,573,335	109,222,226	72.5%	74,811,546	146.0%
January 1, 2012	305,799,228	426,122,045	120,322,817	71.8%	72,477,332	166.0%
January 1, 2013	323,793,717	450,881,870	127,088,153	71.8%	65,637,501	193.6%
January 1, 2014	364,042,882	472,189,314	108,146,432	77.1%	64,184,429	168.5%
January 1, 2015	401,624,341	494,172,311	92,547,970	81.3%	63,293,842	146.2%
January 1, 2016 [2]	422,736,569	540,170,323	117,433,754	78.3%	59,466,874	197.5%
January 1, 2017	449,005,876	559,298,765	110,292,889	80.3%	55,849,605	197.5%
January 1, 2018	481,740,742	584,396,382	102,655,640	82.4%	54,094,868	189.8%
January 1, 2019	511,070,267	610,917,967	99,847,700	83.7%	53,256,153	187.5%
January 1, 2020	543,581,900	633,323,523	89,741,623	85.8%	51,748,062	173.4%

[1] *Post Public Safety Plan Split*

[2] *Change in actuarial assumptions*

Membership Data

		January 1, 2020 (1)	January 1, 2019 (2)
1.	Active members		
	a. Number	654	696
	b. Total payroll	$ 51,748,062	$ 53,256,153
	c. Average salary	$ 79,125	$ 76,517
	d. Average age	54.8	54.2
	e. Average service	19.5	18.6
2.	Service retirees		
	a. Number	1,028	995
	b. Total annual benefits	$ 22,471,437	$ 20,777,785
	c. Average annual benefit	$ 21,859	$ 20,882
3.	Disabled participants		
	a. Number	24	24
	b. Total annual benefits	$ 416,901	$ 388,507
	c. Average annual benefit	$ 17,371	$ 16,188
4.	Beneficiaries		
	a. Number	277	266
	b. Total annual benefits	$ 3,100,305	$ 2,943,090
	c. Average annual benefit	$ 11,192	$ 11,064
5.	Vested deferred members[1]		
	a. Number	400	427
	b. Total annual deferred benefits	$ 4,714,984	$ 5,023,571
	c. Average annual deferred benefit	$ 11,787	$ 11,765

[1] *Includes vested terminated and disabled participants on long-term disability and excludes alternate payees of active and vested deferred members who are currently not in payment status.*

Table 4

Historical Summary of Active Member Data

Year Beginning January 1,	Active Members: Number	Active Members: Percent Increase	Covered Payroll: Amount in $ Millions	Covered Payroll: Percent Increase	Average Salary: $ Amount	Average Salary: Percent Increase	Average Age	Average Service
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1997	1,407	-	46.7	-	33,158	-	43.4	9.2
1998	1,459	3.7%	50.5	8.1%	34,581	4.3%	43.8	9.3
1999	1,494	2.4%	53.7	6.3%	35,954	4.0%	44.2	9.5
2000[1]	1,312	(12.2%)	47.0	(12.5%)	35,812	(0.4%)	45.1	8.0
2001	1,350	2.9%	51.1	8.7%	37,830	5.6%	45.7	8.0
2002	1,454	7.7%	57.8	13.2%	39,749	5.1%	45.5	7.9
2003	1,469	1.0%	61.1	5.8%	41,620	4.7%	46.1	8.3
2004	1,300	(11.5%)	55.7	(8.9%)	42,844	2.9%	46.3	8.8
2005	1,336	2.8%	61.5	10.4%	46,026	7.4%	46.6	8.9
2006	1,410	5.5%	68.0	10.5%	48,204	4.7%	46.9	8.9
2007	1,411	0.1%	70.8	4.2%	50,201	4.1%	47.1	9.3
2008	1,418	0.5%	73.5	3.7%	51,816	3.2%	47.6	9.6
2009	1,440	1.6%	77.7	5.7%	53,934	4.1%	47.7	9.7
2010	1,442	0.1%	77.6	(0.1%)	53,832	(0.2%)	48.1	10.1
2011	1,333	(7.6%)	74.8	(3.6%)	56,123	4.3%	48.8	11.1
2012	1,237	(7.2%)	72.5	(3.1%)	58,591	4.4%	49.7	12.1
2013	1,056	(14.6%)	65.6	(9.4%)	62,157	6.1%	49.7	12.7
2014	987	(6.5%)	64.2	(2.2%)	65,030	4.6%	50.7	13.8
2015	945	(4.3%)	63.3	(1.4%)	66,978	3.0%	51.6	14.9
2016	866	(8.4%)	59.5	(6.0%)	68,668	2.5%	52.3	15.8
2017	793	(8.4%)	55.8	(6.1%)	70,428	2.6%	52.8	16.7
2018	742	(6.4%)	54.1	(3.1%)	72,904	3.5%	53.7	17.7
2019	696	(6.2%)	53.3	(1.6%)	76,517	5.0%	54.2	18.6
2020	654	(6.0%)	51.7	(2.8%)	79,125	3.4%	54.8	19.5

[1] *Post Public Safety Plan split*

Plan Net Assets
(Assets at Market or Fair Value)

Item	Valuation as of January 1, 2020	January 1, 2019
(1)	(2)	(3)
1. Cash and Cash Equivalents	$ 19,141,419	$ 18,602,225
2. Receivables:		
a. Contributions	$ 2,014	$ 0
b. Interest, dividends, due from broker, etc.	787,291	537,692
c. Total receivables	$ 789,305	$ 537,692
3. Investments		
a. Bonds and Notes	$ 66,813,921	$ 62,081,565
b. Equities	128,258,612	105,809,611
c. Commingled Funds	123,768,198	$ 106,664,698
d. Mutual Funds	0	$ -
e. Limited partnership	212,387,207	201,405,159
f. Total investments	$ 531,227,938	$ 475,961,033
4. Total assets	$ 551,158,662	$ 495,100,950
5. Liabilities		
a. Administrative fees payable	$ 267,963	$ 189,832
b. Non-current administrative fees payable	-	$ -
c. Securities purchased, etc.	936,188	1,609,749
d. Other payables	0	0
e. Total liabilities	$ 1,204,151	$ 1,799,581
6. Adjusted cash	$ 0	$ 0
7. Total market value of assets available for benefits (Item 4 - Item 5 + Item 6)	$ 549,954,511	$ 493,301,369
8. Asset allocation (investments)*		
a. Bonds and Notes	12.6%	13.0%
b. Equities	24.1%	22.2%
c. Commingled Funds	23.3%	22.4%
d. Mutual Funds	0.0%	0.0%
e. Limited partnership	40.0%	42.4%
f. Total investments	100.0%	100.0%

**Reflects allocation of assets in Item 3. Plan also held cash and cash equivalents equal to 3.5% of PY 2019 end of year assets and 3.8% of PY 2018 end of year assets.*

Reconciliation of Plan Net Assets

		Year Ending	
		December 31, 2019	December 31, 2018
		(1)	(2)
1.	Market value of assets at beginning of year		
	a. Net assets at beginning of year	$ 493,301,369	$ 494,836,396
	b. Adjustment	0	0
	c. Adjustment for contribution receivable	0	0
	d. Trust value of assets at beginning of year	$ 493,301,369	$ 494,836,396
2.	Additions for the year		
	a. Employer contributions paid into trust	$ 21,915,402	$ 22,491,426
	b. Income		
	i. Interest, dividends, and other income	$ 6,710,716	$ 7,397,119
	ii. Net realized and unrealized gains (losses)	55,974,519	(6,187,955)
	iii. Investment expenses	(1,880,560)	(1,381,857)
	iv. Net income	$ 60,804,675	$ (172,693)
	c. Total additions	$ 82,720,077	$ 22,318,733
3.	Deductions for the year		
	a. Benefit payments and refunds	$ 25,211,732	$ 23,035,910
	b. Administrative and miscellaneous expenses	855,203	817,850
	c. Total deductions	$ 26,066,935	$ 23,853,760
4.	Increase in net assets (Item 2c - Item 3c)	$ 56,653,142	$ (1,535,027)
5.	Trust value of assets at end of year (Item 1d + Item 4)	$ 549,954,511	$ 493,301,369
6.	Contributions receivable at end of year	$ 0	$ 0
7.	Market value of assets at end of year (Item 5 + Item 6)	$ 549,954,511	$ 493,301,369

Table 7

Development of Actuarial Value of Assets

		January 1, 2020
1.	Market value of assets at beginning of year	$ 493,301,369
2.	External cashflow	
	a. Contributions	$ 21,915,402
	b. Benefits and refunds paid	(25,211,732)
	c. Administrative and miscellaneous expenses	(855,203)
	d. Subtotal	(4,151,533)
3.	Assumed investment return rate for fiscal year	7.25%
4.	Assumed investment income for fiscal year (reflects timing of contributions)	$ 35,070,013
5.	Expected Market Value at end of year (1+ 2 + 4)	$ 524,219,849
6.	Market value of assets at end of year	$ 549,954,511
7.	Difference (6 - 5)	$ 25,734,662

8. Development of amounts to be recognized as of December 31, 2019:

Fiscal Year End	Remaining Deferrals of Excess (Shortfall) of Investment Income	Offsetting of Gains/(Losses)	Net Deferrals Remaining	Years Remaining	Recognized for this valuation	Remaining after this valuation
	(1)	(2)	(3) = (1) + (2)	(4)	(5) = (3) / (4)	(6) = (3) - (5)
2015	$ 0	$ 0	$ 0	1	$ 0	$ 0
2016	0	0	0	2	0	0
2017	0	0	0	3	0	0
2018	(17,768,898)	17,768,898	0	4	0	0
2019	25,734,662	(17,768,898)	7,965,764	5	1,593,153	6,372,611
Total	$ 7,965,764	$ 0	$ 7,965,764		$ 1,593,153	$ 6,372,611

9.	Final actuarial value of plan net assets, end of year (Item 6 - Item 8, Column 6)	$ 543,581,900
10.	Ratio of actuarial value to market value	98.8%

Notes: Remaining deferrals in Column (1) for prior years are from last year's report Table 7. The number in the current year is Item 7, above. Column 2 is a direct offset of the current year's excess/(shortfall) return against prior years' excess/(shortfall) of the opposite type.

Estimation of Yields

		Year Ending December 31, 2019
A.	Market value yield	
	1. Beginning of year market assets	$ 493,301,369
	2. Investment income (including realized and unrealized gains and losses)	
	a. Interest and dividends net of investment expenses	$ 4,830,156
	b. Realized and unrealized gains/(losses)	55,974,519
	c. Total investment income based on market value	$ 60,804,675
	3. End of year market assets	$ 549,954,511
	4. Estimated dollar weighted market value yield	12.4%
B.	Actuarial value yield	
	1. Beginning of year actuarial assets	$ 511,070,267
	2. Actuarial return	$ 36,663,166
	3. End of year actuarial assets	$ 543,581,900
	4. Estimated actuarial value yield	7.2%

Table 8b

History of Investment Return Rates

Plan Year Ending December 31,	Market	Actuarial
(1)	(2)	(3)
1998	12.7%	-
1999	7.8%	14.1%
2000	14.7%	12.7%
2001	5.0%	11.0%
2002	-9.4%	5.4%
2003	18.9%	5.6%
2004	8.4%	7.0%
2005	3.5%	5.1%
2006	7.9%	5.7%
2007	8.5%	8.2%
2008	-23.4%	1.0%
2009	19.2%	1.3%
2010	12.1%	4.0%
2011	1.2%	3.1%
2012	10.4%	3.7%
2013	15.7%	10.6%
2014	4.4%	8.8%
2015	-1.0%	5.3%
2016	7.9%	6.0%
2017	13.0%	7.7%
2018	0.0%	6.4%
2019	12.4%	7.2%
Five-year Average Return	6.3%	6.5%
Ten-year Average Return	7.5%	6.3%

Investment Experience Gain or Loss

Item (1)		Valuation as of January 1, 2020 (2)
1. Actuarial assets, beginning of year	$	511,070,267
2. Contributions	$	21,915,402
3. Benefits and refunds paid with administrative expenses	$	(26,066,935)
4. Assumed net investment income at 7.25% on		
a. Beginning of year assets	$	37,052,594
b. Contributions*		234,058
c. Benefits and refunds paid with administrative expenses		(928,394)
d. Total	$	36,358,258
5. Expected actuarial assets, end of year (Sum of Items 1 through 4)	$	543,276,992
6. Actual actuarial assets, end of year	$	543,581,900
7. Asset experience gain (loss) for year	$	304,908

** Based on actual timing of contributions*

Total Experience Gain or Loss

Item	January 1, 2020
(1)	(2)
A. Calculation of total actuarial gain or loss	
1. Unfunded actuarial accrued liability (UAAL), previous year	$ 99,847,700
2. Amortization Payment on UAAL	(10,745,390)
3. Additional Contributions for the year	(1,721,797)
4. Expected UAAL (reflecting additional contributions)*	94,385,413
5. Actual UAAL	89,741,623
6. Total experience gain/(loss) for the year (Item 4 - Item 5)	$ 4,643,790
B. Source of gains and losses	
7. Asset gain/(loss) for the year	$ 304,908
8. Assumption gain/(loss) for the year	0
9. Method Change	0
10. Gain/(loss) due to plan amendment	0
11. Administrative expenses different than assumed	(286,040)
12. Liability gain/(loss) for the year	4,624,922
13. Total	$ 4,643,790

**Sum of Items 1 through 3 plus interest adjustments, based on actual timing of contributions*

Table 11

Source of Liability Gains and (Losses)

Item	January 1, 2020
(1)	(2)
1. Salary Increases	$ 1,386,488
2. Service Retirement	52,567
3. Withdrawal	(150,346)
4. Disability Retirement	91,258
5. Active Mortality	3,014
6. Retiree Mortality	498,502
7. New Entrants	0
8. Retiree cost-of-living-adjustment	3,602,958
9. Other (Data)	(859,519)
10. Total Liability Experience Gain/(Loss)	$ 4,624,922

Table 12

History of Cash Flow

Year Ending December 31, (1)	Contributions Received (2)	Benefit Payments (3)	Refunds (4)	Administrative Expenses[1] (5)	Total outflow (6)	External Cash Flow for the Year[2] (7)	Market Value of Assets (8)	External Cash Flow as Percent of Market Value (9)
2000	$ 5,113,127	$ (3,467,721)	0	$ (832,033)	$ (4,299,754)	$ 813,373	$ 123,706,488	0.7%
2001	1,471,817	(3,811,480)	0	(71,716)	(3,883,196)	(2,411,379)	129,835,171	-1.9%
2002	8,301,029	(4,197,277)	0	(159,960)	(4,357,237)	3,943,792	121,677,612	3.2%
2003	11,723,412	(5,746,585)	0	(82,167)	(5,828,752)	5,894,660	146,190,972	4.0%
2004	4,128,788	(5,897,004)	0	(126,269)	(6,023,273)	(1,894,485)	159,171,383	-1.2%
2005	13,132,898	(6,546,101)	0	(117,159)	(6,663,260)	6,469,638	175,585,092	3.7%
2006	15,821,061	(7,700,753)	0	(152,691)	(7,853,444)	7,967,618	199,346,735	4.0%
2007	18,443,224	(8,387,206)	0	(159,024)	(8,546,230)	9,896,994	231,105,321	4.3%
2008	29,567,408	(9,416,262)	0	(161,356)	(9,577,619)	19,989,789	186,386,558	10.7%
2009	27,488,060	(10,371,548)	0	(184,744)	(10,556,292)	16,931,768	235,347,231	7.2%
2010	27,512,442	(11,131,411)	0	(240,634)	(11,372,045)	16,140,397	281,306,190	5.7%
2011	20,839,689	(12,442,481)	0	(292,748)	(12,735,229)	8,104,460	292,998,175	2.8%
2012	23,533,839	(16,921,192)	0	(454,115)	(17,375,307)	6,158,532	330,508,213	1.9%
2013	22,589,187	(17,037,047)	0	(579,598)	(17,616,645)	4,972,542	388,348,004	1.3%
2014	23,509,633	(18,224,872)	0	(543,025)	(18,767,897)	4,741,736	410,842,701	1.2%
2015	19,294,013	(19,367,351)	0	(509,308)	(19,876,659)	(582,646)	406,504,303	-0.1%
2016	22,292,431	(20,625,181)	0	(779,248)	(21,404,429)	888,002	439,738,246	0.2%
2017	21,153,304	(22,352,737)	0	(752,816)	(23,105,553)	(1,952,249)	494,836,396	-0.4%
2018	22,491,426	(23,035,910)	0	(817,850)	(23,853,760)	(1,362,334)	493,301,369	-0.3%
2019	21,915,402	(25,211,732)	0	(855,203)	(26,066,935)	(4,151,533)	549,954,511	-0.8%

[1] *Includes investment expenses for years pre-2001*

[2] *Column (7) = Column (2) + Column (6).*

Table 13

Projection of Estimated Benefit Payments

Calendar Year	Total Estimated Annual Benefit Payments
2020	$ 27,722,892
2021	30,251,948
2022	32,794,174
2023	35,382,439
2024	38,014,560
2025	40,820,670
2026	43,671,601
2027	46,366,341
2028	49,060,311
2029	51,667,115
2030	54,167,337
2031	56,620,212
2032	59,043,612
2033	61,222,303
2034	63,285,548
2035	65,169,519
2036	66,863,491
2037	68,233,224
2038	69,491,467
2039	70,601,924

Distributution of Active Members by Age and Service

	Years of Credited Service												
Attained Age	0 Count & Avg. Comp.	1 Count & Avg. Comp.	2 Count & Avg. Comp.	3 Count & Avg. Comp.	4 Count & Avg. Comp.	5-9 Count & Avg. Comp.	10-14 Count & Avg. Comp.	15-19 Count & Avg. Comp.	20-24 Count & Avg. Comp.	25-29 Count & Avg. Comp.	30-34 Count & Avg. Comp.	35 & Up Count & Avg. Comp.	Total Count & Avg. Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
30-34	-	-	-	-	-	-	2	-	-	-	-	-	2
	$ -	$ -	$ -	$ -	$ -	$ -	$ 45,454	$ -	$ -	$ -	$ -	$ -	$ 45,454
35-39	-	-	-	-	-	-	29	7	-	-	-	-	36
	$ -	$ -	$ -	$ -	$ -	$ -	$ 58,593	$ 57,951	$ -	$ -	$ -	$ -	$ 58,468
40-44	-	-	-	-	-	-	28	21	3	-	-	-	52
	$ -	$ -	$ -	$ -	$ -	$ -	$ 72,668	$ 75,580	$ 94,945	$ -	$ -	$ -	$ 75,129
45-49	-	-	-	-	-	-	28	29	13	-	-	-	70
	$ -	$ -	$ -	$ -	$ -	$ -	$ 77,545	$ 88,789	$ 83,398	$ -	$ -	$ -	$ 83,290
50-54	-	-	-	-	-	-	44	30	22	10	5	-	111
	$ -	$ -	$ -	$ -	$ -	$ -	$ 79,783	$ 87,686	$ 67,475	$ 73,820	$ 86,865	$ -	$ 79,261
55-59	-	-	-	-	-	-	47	50	35	17	13	10	172
	$ -	$ -	$ -	$ -	$ -	$ -	$ 84,316	$ 90,861	$ 66,931	$ 63,162	$ 71,847	$ 72,268	$ 78,947
60-64	-	-	-	-	-	-	36	33	32	16	22	18	157
	$ -	$ -	$ -	$ -	$ -	$ -	$ 87,116	$ 92,704	$ 77,706	$ 83,215	$ 95,520	$ 81,124	$ 86,466
65 & Over	-	-	-	-	-	-	15	11	13	6	3	6	54
	$ -	$ -	$ -	$ -	$ -	$ -	$ 72,565	$ 70,889	$ 56,871	$ 90,542	$ 74,190	$ 81,636	$ 71,541
Total	-	-	-	-	-	-	229	181	118	49	43	34	654
	$ -	$ -	$ -	$ -	$ -	$ -	$ 77,267	$ 86,079	$ 71,372	$ 75,238	$ 85,868	$ 78,610	$ 79,125

Table 15

Retiree Benefits by Form of Payment

Form of Payment	Count	Total Annual Benefit	Average Annual Benefit
	January 1, 2020		
Joint and 50% Survivor	272	$ 6,548,109	$ 24,074
Joint and 75% Survivor	64	1,768,331	27,630
Joint and 100% Survivor	266	5,563,024	20,914
Single Life Annuity	183	4,007,091	21,897
Life with 5 Years Guaranteed	53	814,313	15,364
Life with 10 Years Guaranteed	20	476,997	23,850
Life with 15 Years Guaranteed	56	884,667	15,798
Level Income Option	114	2,408,905	21,131
Disabled Retirees	24	416,901	17,371
Beneficiaries and Others	277	3,100,305	11,193
All forms	1,329	$ 25,988,643	$ 19,555

Retiree Benefits by Benefit Start Year

Benefit Start Year	January 1, 2020 Count	Total Annual Benefit	Average Annual Benefit
1980-1990	17	$ 134,481	$ 7,911
1991	6	78,078	13,013
1992	8	48,215	6,027
1993	8	92,992	11,624
1994	18	107,518	5,973
1995	13	207,293	15,946
1996	13	228,114	17,547
1997	8	144,920	18,115
1998	12	243,175	20,265
1999	14	301,090	21,506
2000	27	458,230	16,971
2001	21	396,268	18,870
2002	31	341,527	11,017
2003	79	1,063,776	13,466
2004	25	260,866	10,435
2005	46	834,477	18,142
2006	44	735,845	16,724
2007	44	726,929	16,521
2008	55	1,154,653	20,994
2009	38	776,933	20,446
2010	62	1,110,406	17,910
2011	81	1,636,359	20,202
2012	129	3,099,608	24,028
2013	66	932,351	14,127
2014	63	954,511	15,151
2015	72	1,759,104	24,432
2016	77	1,910,391	24,810
2017	70	1,982,243	28,318
2018	92	1,939,339	21,080
2019	75	1,790,643	23,875
2020	15	538,308	35,887
All years	1,329	25,988,643	19,555

Table 17

Summary of Changes in Membership Status

	Active members	Vested deferred members	Service retirees	Disabled retirees	Beneficiaries	Total
Members as of 1/1/2019	696	427	995	24	266	2,408
Retirements	(33)	(35)	65	3		
Deaths		(1)	(32)	(3)	9	(27)
Disabilities	(1)	1				
Non-vested terminations						
Vested terminations	(8)	8				
Lump sums paid						
Benefits stopped					(1)	(1)
New hires						
Rehired employees						
New alternate payees					3	3
Adjustments						
Members as of 1/1/2020	654	400	1,028	24	277	2,383

Table 18

Summary of Actuarial Assumptions and Methods (Revised or Reaffirmed Effective January 1, 2016)

The current actuarial assumptions and methods were adopted effective January 1, 2016 by the Airport Board based on recommendations from the actuary following an actuarial experience study. Please see our experience study report dated April 26, 2016 for analysis and our rationale for each assumption.

I. *Valuation Date*

The valuation date is January 1st of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. *Actuarial Cost Method*

The Entry Age Normal actuarial cost method determines actuarial accrued liabilities to years prior to the valuation. The difference between the accrued liability and assets is the Unfunded Actuarial Accrued Liability (UAAL). The UAAL indicates the value of assets in excess of (below) actuarial accrued liabilities. The calculated contribution amount is determined by combining the amortization payment on the UAAL over the remainder of the 30-year funding period (as established at January 1, 2005) with the normal cost.

The plan-wide normal cost and actuarial accrued liability are the sum of the calculations for each individual member based on their specific assumptions and benefit provisions.

The Normal Cost and Accrued Actuarial Liability are derived by making certain assumptions as to the rates of interest, mortality, turnover, etc., which are assumed to reflect experience for many years into the future. Since actual experience will differ from the assumptions, the costs determined must be regarded as estimates of the true costs of the Plan. The effects of any actuarial gains or losses are immediately reflected in the UAAL.

III. *Actuarial Value of Assets*

The actuarial value of assets is equal to the market value of assets less a five-year phase in of the Excess (Shortfall) between expected investment return and actual income. The expected investment return each year is calculated based on the market value of assets with the difference from actual income smoothed in over five years in 20% increments. If the current year's difference is opposite sign of the prior years' deferred Excesses/(Shortfalls), then the prior years' bases (starting with the oldest) are reduced dollar for dollar along with the current year's base. Any remaining bases are then recognized over five years (20% per year) from their initial creation.

In no event is the actuarial value of assets less than 67% nor more than 133% of the market value of assets.

Summary of Actuarial Assumptions and Methods (Continued)
(Revised or Reaffirmed Effective January 1, 2016)

IV. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 7.25% per annum, compounded annually, composed of an assumed inflation rate of 2.75% and a real rate of return of 4.50%, net of investment expenses.

2. Administrative expenses: $535,000 for the January 1, 2016 actuarial valuation. This amount will be assumed to increase by 2.75% for subsequent actuarial valuations. For purposes of the actuarial valuation, certain expenses (e.g., custodial fees) have been classified as administrative expenses that may have been classified differently in plan financial statements.

3. Salary increase rate: A 3.75% wage inflation component, including 2.75% price inflation, plus a service-related component as shown below:

Service	Step-Rate /Promotional	Total Salary Scale
1	2.50%	6.25%
2	2.00%	5.75%
3-5	1.50%	5.25%
6	1.25%	5.00%
7-8	1.00%	4.75%
9-12	0.75%	4.50%
13-16	0.50%	4.25%
17 or more	0.00%	3.75%

4. Payroll growth rate: Not applicable (level dollar amortization of UAAL).

B. Demographic Assumptions

1. Mortality rates - after retirement or termination.

   a. Healthy Annuitants – RP-2014 Combined Healthy Mortality Tables with Blue Collar Adjustments. Generational mortality improvements in accordance with Scale BB from the table’s base year of 2014.

   b. Disabled Annuitants – RP-2014 Combined Healthy Mortality Tables with Blue Collar Adjustments, set forward three years. Generational mortality improvements in accordance with Scale BB from the table’s base year of 2014; minimum 3% rate of mortality at all ages.

Summary of Actuarial Assumptions and Methods (Continued)
(Revised or Reaffirmed Effective January 1, 2016)

2. Mortality rates for active members – RP-2014 Employee Mortality tables. Generational mortality improvements in accordance with Scale BB from the table's base year of 2014.

3. Disability rates – Based on 2015 Experience Study of the Texas Municipal Retirement System, sample rates are shown below:

Age	Expected Disabilities Occurring per 1000 Lives
(1)	(2)
25	0.025
30	0.099
35	0.259
40	0.494
45	0.804
50	1.188
55	1.647
60	2.180
65	2.787

Summary of Actuarial Assumptions and Methods (Continued)
(Revised or Reaffirmed Effective January 1, 2016)

4. Termination Rates – Rates based on the member's service, developed from the 2015 Experience Study. Rates reflect terminations for causes other than death, disability or retirement. Sample rates are shown below:

Sample Ages	Years of Service	% of Active Members Separating Within Next Year	
		Male	Female
ALL	1	20.00%	20.00%
	2	16.00	16.00
	3	12.00	12.00
	4	9.00	9.00
	5	8.00	8.00
	6	7.00	7.00
	7	6.00	6.00
	8	5.00	5.00
	9	5.00	5.00
	10	5.00	5.00
25	& Over	6.10	6.10
30		5.90	5.90
35		4.90	4.90
40		3.90	3.90
45		2.90	2.90
50		1.74	1.74
55		1.68	1.68
60		1.38	1.38

Termination rates are not applied to a member who is eligible for a retirement benefit (reduced or unreduced).

Summary of Actuarial Assumptions and Methods (Continued)
(Revised or Reaffirmed Effective January 1, 2016)

5. Retirement rates - Rate based on age, developed from the 2015 Experience Study. Rates are shown below:

Retirement Ages	**Rates of Retirement**	
	Male	**Female**
55	4%	5%
56	4	5
57	4	5
58	5	5
59	5	5
60	6	10
61	7	10
62	20	25
63-64	15	25
65-66	15	30
67-69	15	25
70-74	25	25
75	100	100

C. <u>Other Assumptions</u>

1. Percent married: For valuation purposes 85% of members are assumed to be married. Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.

2. Age difference: Males are assumed to be three years older than females.

3. Post Retirement Cost of Living: 2.75% Per annum on a compound basis.

4. Decrement timing: Decrements of all types are assumed to occur mid-year.

D. <u>Changes in Assumptions since Prior Valuation</u>

None.

Summary of Benefit Provisions

1. Effective Date: March 7, 1978. Amended and restated effective January 1, 2008.

2. Plan Year: Twelve-month period ending December 31st.

3. Type of Plan: A qualified governmental defined benefit retirement plan.

4. Eligibility: All employees become eligible upon the later of:

   a. Their latest day of employment prior to January 1, 2010;
   b. August 5, 1986; or
   c. Employees hired on or after January 1, 2010 are not eligible.

5. Employee Contributions: None.

6. Earnings: Base salary payable to the employee with respect to services rendered, exclusive of overtime pay, bonuses, commissions, expense allowances, longevity pay and all other extraordinary compensation.

7. Employer Contributions: The Board makes contributions which are actuarially determined to meet the remaining cost of the plan.

8. Service: Employees receive credit for service while a member.

9. Final Average Monthly Compensation: The participant's average monthly rate of compensation for the last 36 calendar months of employment.

10. Normal Retirement

    a. Eligibility: A member may retire upon Normal Retirement on or after the first day of the month coincident with or next following the date on which the participant attains age 62.

       If the date of hire is on or after January 1, 2003, five years of service is also required.

    b. Monthly Benefit: If hired on or before December 31, 2002, the greater of (i) of (ii):

       (i) 2-1/4% of Final Average Monthly Compensation times Credited Service
       (ii) 3-1/3% of Final Average Monthly Compensation times Credited Service after age 45

       If hired on or after January 1, 2003, the formula at b (ii) above does not apply.

Summary of Benefit Provisions (Continued)

11. Early Retirement

    a. Eligibility: A member may retire early after reaching age 55 with credit for five years of service.

    b. Benefit: The Normal Retirement Benefit described above calculated as of the Early Retirement Date multiplied by a reduction factor equal to 100% less 5/12% times the number of full months by which his Early Retirement Date precedes his Normal Retirement Date.

12. Disability Retirement

    a. Eligibility: All members are eligible and they become fully vested once disabled.

    b. Monthly Benefit: The disability benefit is determined using the normal retirement formula with additional service and (last) compensation credited during the period of disability. Benefit payments begin at age 65.

13. Deferred Termination Benefit

    a. All participants who terminate after completing five or more years of Vesting Service or becoming eligible for Normal Retirement are 100% vested.

    b. Monthly Benefit: The amount described in 11(b).

    c. Death Benefit: A member who dies after leaving active service but before retiring is entitled to receive a benefit. The amount is calculated assuming the inactive survived to age 55, elected the 50% joint and survivor annuity and died the next day.

14. Death Benefit

    a. Beneficiary Eligibility: Beneficiaries of participants who die while eligible for Deferred Termination or Early Retirement Benefits.

Summary of Benefit Provisions (Continued)

b. Beneficiary's Benefit: The greater of (i) or (ii):

(i) Actuarial equivalent of the benefit described in part 13(b) above taking into account the value of the spouse's benefit under the Normal Form of payment.

(ii) The smaller of:

A. If the participant has attained age 45 or attained age 35 and completed five years of Vesting Service, the benefit payable is equal to 30 times the participant's rate of Final Average Monthly Compensation; otherwise, 12 times the participant's rate of Final Average Monthly Compensation

B. If the participant dies prior to Normal Retirement Date, 100 times the monthly retirement income to which the participant would have been entitled on his Normal Retirement Date if he had remained in service with the employer, with no change in his last regular rate of Compensation, until his Normal Retirement Date. If the participant dies after his Normal Retirement Date, 100 times the monthly retirement income to which the participant would have been entitled is he had retired on the date of death.

c. Method of Payment: Payment will begin immediately and be paid for the life of the beneficiary. If the beneficiary dies prior to receiving 120 payments, payments will continue to a designated beneficiary until a total of 120 payments have been made.

15. Normal Forms of Payment: A married participant is entitled to a 50% Joint and Survivor annuity as the normal form of payment (no actuarial reduction). In the event the participant has a surviving spouse on the date of his death to whom he had been married throughout the one-year period immediately preceding the date of his death, such spouse shall receive 50% of the monthly amount that the participant was receiving prior to his death. An unmarried participant is entitled to a benefit payable for life.

Actuarial equivalence is based on an 8% interest assumption and the "1994 GAR" Mortality Table.

16. Cost-of-living Increase: Retired members and beneficiaries receiving benefits (except for beneficiaries receiving payments under 13.c. above) receive an automatic adjustment in their benefit each January. Effective January 1, 2004, this adjustment will be made in the same time and manner as it is done for Social Security Benefits. The maximum increase granted in any year is 3.0%.

Summary of Benefit Provisions (Continued)

17. Major Changes in Plan Provisions since October 1, 1999

a. October 1, 1999 – Public Safety Officers are spun-off into their own separate plan.

b. December 31, 2002 – Final Average Monthly Compensation changed from high 60 consecutive months out of the last 120 months to the final 36 months.

c. December 31, 2002 – Addition of Level Income optional form of payment.

d. December 31, 2002 – For anyone hired after December 31, 2002, 100% vesting at age 62 is eliminated. Initial vesting date occurs after completion of five years of service.

e. December 31, 2002 – Normal Retirement Age changed to later of age 62 or the completion of 5 years of service, for anyone hired after December 31, 2002.

f. January 1, 2003 – Elimination of 3-1/3% formula for anyone hired on or after January 1, 2003.

g. January 1, 2003 – Provision of an Enhanced Retirement Benefit for an eligible employee who elects to separate from service between February 28, 2003 and June 30, 2003. The Enhanced Retirement Benefit is elected by the member and is equal to either (i) 3 months of salary or (ii) the member's pension calculate using the member's total compensation in their final average compensation calculation instead of the member's base compensation.

h. December 31, 2003 – provide for Cost of Living Adjustments (COLA) for beneficiaries of members who died while in active service for the Airport.

i. January 1, 2004 – Changed determination of COLA percentage increase to coincide with the determination of the COLA paid to Social Security beneficiaries, except that the annual COLA increase is limited to a maximum of 3%.

j. October 1, 2004 – For employees terminating on or after October 1, 2004 the portion of the benefit formula which reflected a partial offset of the Anticipated Primary Insurance Amount (Social Security Offset) was eliminated.

k. January 1, 2010 – Employees hired on or after January 1, 2010 are not eligible to participate in the Plan.

l. May 1, 2012 – Provision of an Enhanced Retirement Benefit for eligible employees who elect to separate from service between May 1, 2012 and June 29, 2012. The Enhanced Retirement Benefit is equal to 3 months of salary (base pay).