2018 Annual Report

Comprehensive Annual Financial Report

City of Austin
Employees' Retirement System

For the years ended December 31, 2018 and 2017

Austin, Texas

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Employees' Retirement System
2018 Annual Report

Comprehensive Annual Financial Report
for the years ended December 31, 2018 and 2017

Prepared by: City of Austin Employees' Retirement System, 6836 Austin Center Boulevard, Suite 190, Austin, TX 78731

Our Mission:

The mission of the City of Austin Employees' Retirement System is to provide reliable retirement benefits.

We Value:

Accessibility

Accountability

Cooperation

Ethical Behavior

Fairness

Innovation

Integrity

Open Communication

Respect

Responsiveness

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coaers

City of Austin Employees' Retirement System

May 24, 2019

Board of Trustees
City of Austin Employees' Retirement System
Austin, Texas

Ladies and Gentlemen:

It is our pleasure to submit to you the Comprehensive Annual Financial Report (CAFR) of the City of Austin Employees' Retirement System (COAERS or System) for the year ended December 31, 2018. The management of COAERS assumes full responsibility for the accuracy, completeness, and fair presentation of information as well as all disclosures in this report. As management, we assert that, to the best of our knowledge and belief, this financial report is complete and reliable in all material respects.

Plan Profile and Demographic Highlights

COAERS was established in 1941 and has provided retirement benefits to eligible City of Austin employees since that time. Though originally created by City ordinance, COAERS is now governed by State law and administered by an eleven-member Board of Trustees.

The Plan provides retirement, disability and death benefits to eligible employees of the City of Austin. Both the City of Austin, as the employer, and its employees make contributions to COAERS. Retirement benefits are determined by a formula that considers final average compensation, as defined, multiplied by the number of years of creditable service. Disability retirement is available pursuant to specific criteria established by statute. A death benefit of $10,000 is payable upon the death of a retired member of COAERS. Vesting occurs at five years of creditable service.

Membership in COAERS is comprised of two benefit tiers: Group A and Group B.

- Group A members qualify for normal retirement benefits at age 62, age 55 with 20 years of creditable service, or any age with 23 years of creditable service. Benefits are determined using a multiplier of 3%.

- Group B members qualify for normal retirement benefits at age 65 with five years of creditable service or at age 62 with 30 years of creditable service. Benefits are determined using a multiplier of 2.5%. Reduced early retirement benefits are available for Group B members at age 55 with 10 years of creditable service.

Additional information concerning current COAERS plan provisions is contained in the Summary of Plan Provisions later in this section of the report.

Audited Financial Statements and Summary

The financial statements included in this CAFR have been prepared by the management of COAERS in accordance with Generally Accepted Accounting Principles and presented in accordance with guidelines established by the Governmental Accounting Standards Board (GASB). The governing statute requires an annual audit of COAERS' accounts by a Certified Public Accountant. The Board of Trustees has retained KPMG LLP as independent external auditor since 1997.

KPMG's 2018 financial audit was conducted in accordance with Generally Accepted Auditing Standards (GAAS) and resulted in an unmodified opinion on the financial statements. The Financial Section contains KPMG's audit opinion letter and additional information including Management's Discussion and Analysis (MD&A) that provides a narrative introduction, overview, and analysis of the basic financial statements. The MD&A complements this letter of transmittal and should be read in conjunction with it.

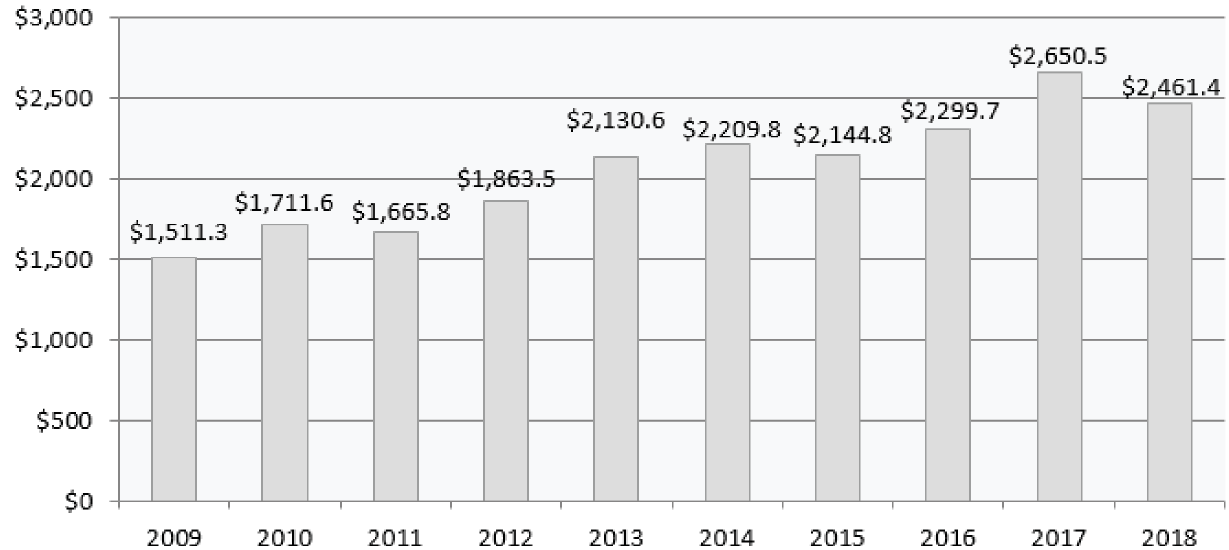
The ***Additions to Fiduciary Net Position*** consist of employer and employee contributions, investment income, and realized and unrealized gain or loss on investments. The ***Deductions from Fiduciary Net Position*** consist of annuity payments, refunds to terminated members, Deferred Retirement Option Program (DROP) disbursements, retiree lump-sum annuity disbursements, death benefits and administrative expenses. There was a net decrease of $189.05 million, resulting in total assets held in trust of $2.46 billion. The table below shows the changes in Fiduciary Net Position.

Changes in Fiduciary Net Position

Additions		Deductions	
Employer contributions	$ 116,671,318	Retiree annuity payments	$ 192,904,504
Employee contributions	58,713,327	Refunds to terminating members	4,140,909
Interest, dividends, net securities lending & other income	41,278,302	DROP disbursements	2,767,441
		Retiree lump-sum annuities	727,000
Depreciation in plan investments (net of investment fees)	(198,520,405)	Death benefits	2,633,000
		General & administrative expenses	4,024,367
Total Additions	**$ 18,142,542**	**Total Deductions**	**$ 207,197,221**

The following chart shows the ***Total Net Position*** at the end of each year since 2009. Net Position decreased by $189.1 million during 2018, resulting in Total Net Position Restricted for Pensions of $2,461,403,437 at December 31, 2018.

Total Net Position Restricted for Pensions



Internal Controls

The concept of reasonable assurance recognizes first, that the cost of a control should not exceed the benefits likely to be derived, and second, that the valuation of costs and benefits requires estimates and judgments by management. A framework of internal controls has been established by the management of COAERS to provide reasonable assurance that assets are properly safeguarded, that financial records are fairly and accurately maintained, and that the governing statute and policies are correctly followed.

Recognizing, however, that even sound internal controls have their inherent limitations, the Board of Trustees has also authorized an "extended audit" since 1997. This annual review of internal controls, and compliance with operating policies and procedures, is currently conducted by RSM US LLP. Audit findings are reported and actions of management to implement recommendations are reviewed with the Board of Trustees.

Investments

Essential to the mission of COAERS is the responsibility to ensure that System assets will be sufficient over the long term to fulfill its liabilities. A key foundation of this duty is the prudent pursuit of investment returns, which over the long term provide for the majority of the retirement and other benefits promised to current and future members.

Investments are made with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims. Funds of COAERS are invested solely in the interest of the membership and their beneficiaries, and for the exclusive purpose of providing benefits to such membership and their beneficiaries while defraying reasonable expenses of administering COAERS.

The Board of Trustees has established an Investment Policy Statement and related guidelines which provide for the delegation of investment authority to Staff and professional investment advisors. During 2018, the Board conducted an Asset Liability Study and reviewed COAERS Strategic Asset Allocation (SAA). As a result, the Board authorized changes to the SAA and revised its Investment Policy Statement.

COAERS employs professional staff to oversee the investment portfolio and assist the Board in devising and implementing strategic investment decisions. The Board also retains RVK, Inc. as its investment consultant to provide independent investment consulting services and long-range asset liability analysis.

COAERS' assets are strategically allocated to maximize returns and reduce risk by using a highly diversified and cost-effective portfolio structure. COAERS has consistently followed a conservative investment philosophy that employs a long-term time horizon, which is consistent with the nature of the System's liabilities.

During 2018, COAERS' investments generated a total return of -5.91% net of fees as compared to 16.59% during 2017. Additional information regarding the investments of the pension trust funds can be found in the Investment Section of this report.

Funding Overview

COAERS is funded by investment income and employer and employee contributions. City employees provide regular contributions equal to 8% of base compensation. The City of Austin contributes 18% of base compensation. Contributions by the City of Austin consist of the statutory base contribution amount of 8% plus an additional 10% pursuant to a supplemental funding plan first established in 2005 and amended in 2010. Using the entry age actuarial cost method (EAN), COAERS' normal cost is determined as a percentage of payroll. The excess of the total contribution rate over the normal cost rate is used to amortize COAERS' unfunded actuarial accrued liability (UAAL), if any, and the number of years needed to amortize COAERS' UAAL is determined using a level percentage of payroll method. In consultation with its actuary, the Board adopted the use of the Individual Normal Cost EAN method for actuarial valuations. Because COAERS is a two-tier system, the use of the Individual Normal Cost EAN method means that the normal cost will decline over time and the percentage of pay contributed toward the unfunded liability will increase over time. To better model how this financing will pay off the unfunded liabilities of COAERS, the Board has also adopted the use of an open group projection in the determination of COAERS' funding period.

In March 2016, the Board initiated an Actuarial Experience Study with its actuary, GRS Retirement Consulting Group (GRS). Based on the findings and recommendations of GRS, the Board adopted new actuarial assumptions used for the December 31, 2015 actuarial valuation. Most notably, the Board reduced its nominal investment return assumption from 7.75% to 7.50% to better forecast possible future investment returns.

For the December 31, 2018 actuarial valuation, although unexpected payroll growth helped reduce the impact of investment losses, poor market returns in 2017 have increased the period of the Plan's amortization period of unfunded actuarial accrued liability from 30 to 32 years. The overall funded position of COAERS is now 67.6%, down from 68.3% in 2017. The actuarial accrued liability and the actuarial value of assets of COAERS, as of December 31, 2018, amounted to $3.989 billion and $2.695 billion, respectively. A detailed discussion of funding is provided in the Actuarial Section of this report.

Major Initiatives

In 2012, COAERS launched a Service Delivery and Technology initiative to pursue updated technology for major operational areas, specifically focused in the short-term on pension administration software. Working with consultant LRWL, Inc., a review of the current business processes and technology was completed in 2013. An RFP for a pension administration system and related technologies was issued in February 2014, and a service provider was approved by the Board in September 2014. Product design, implementation, and testing continued until August 2018, when the project was completed and the organization began using the new system, exclusively. The initiative was completed as scheduled and within budget.

In 2018, COAERS added several new staff positions in the areas of member services, investments, finance, communication, and information technology. The positions will help COAERS better meet the needs of its membership, add value to the Fund, and help mitigate risks such as succession and cybersecurity.

After many years at its 418 East Highland Mall location, COAERS initiated a search for a new facility to meet the long-term needs of the organization. The Board had reviewed potential renovations to the existing building, but those proved cost-prohibitive and were unable to meet the organization's long-term needs. After reviewing potential options, the Board of Trustees decided to lease space to meet COAERS' needs from the present through the next several years, while continuing to seek a long-term facilities solution.

Awards

For the twentieth consecutive year, COAERS was awarded a Certificate of Achievement for Excellence in Financial Reporting for its Comprehensive Annual Financial Report for the fiscal year ended December 31, 2017, by the Government Finance Officers' Association of the United States and Canada (GFOA). COAERS is pleased to have achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized Comprehensive Annual Financial Report. This report must satisfy both generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for a period of one year only. We believe that our current Comprehensive Annual Financial Report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

For 2018, COAERS also earned the Public Pension Coordinating Council Recognition Award for Administration. This is the eighth consecutive year that COAERS has met the administrative standards. This award is in recognition of meeting professional standards for plan administration as set forth by the Council. The standards reflect minimum expectations for public retirement system administration, serving as a benchmark by which to measure public defined benefit plans.

Acknowledgments

This report reflects the combined efforts of COAERS Staff under the leadership of the Board of Trustees. We express our gratitude to the staff, advisors, and members of the Board who have contributed to the preparation of this report and to the continued successful operation of the City of Austin Employees' Retirement System.

Respectfully Submitted,

Chris Noak 2018 Board Chair	Christopher D. Hanson Executive Director	Donna Durow Boykin CPA, CGMA Chief Financial Officer

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

City of Austin

Employees' Retirement System

Texas

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

December 31, 2017

Christopher P. Morrill

Executive Director/CEO

PPCC

Public Pension Coordinating Council

Recognition Award for Administration
2018

Presented to

City of Austin Employees' Retirement System

In recognition of meeting professional standards for
plan administration as
set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation of

National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

Alan H. Winkle

Alan H. Winkle
Program Administrator

COAERS 2018 BOARD OF TRUSTEES

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2018 Board Chair

Mike Benson
2018 Board Vice Chair

Stephanie Beach
Trustee

Eyna Canales-Zarate
Trustee

Amy Hunter
Trustee

Yuejiao Liu
Trustee

Frank Merriman
Trustee

Leslie Pool
Trustee

Anthony B. Ross, Sr.
Trustee

Randy Spencer
Trustee

Ed Van Eenoo
Trustee

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Executive Director

Russell Nash
Chief Operations Officer

Donna Durow Boykin
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Amy Kelley
Chief Technology Officer

David Veal
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Member Services Specialist

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Communications Specialist

Teresa Cantu
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Sandra Herrera
Member Services Coordinator

Michelle Mahaini
Senior Services Officer

Sarah McCleary
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Catherine Pezulich
Member Services Specialist

Lovie Robinson-Laurant
Member Services Specialist

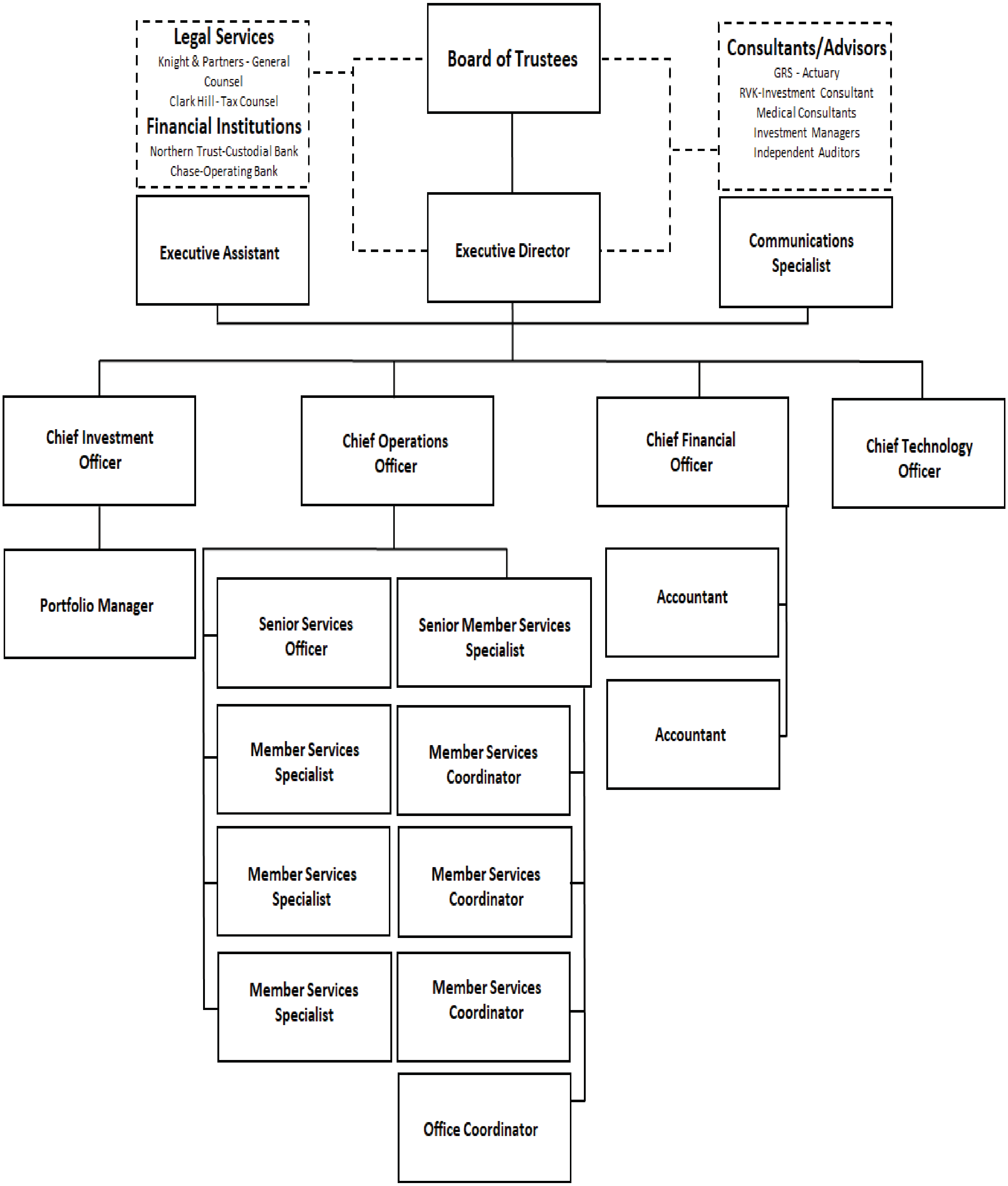
Bobbie Simpson
Office Coordinator

David Stafford
Portfolio Manager

Brooke Van Court
Member Services Coordinator

Lee Wilson
Member Services Coordinator

ORGANIZATIONAL CHART



* For more information on investment professionals who provide services to COAERS, refer to the Investment Expenses table under Other Supplementary Information on page 60, the Asset Allocation on page 72, and the Broker Commissions over $5,000 on page 76.

PROFESSIONAL SERVICE PROVIDERS

Investment Consultant
RVK Inc

Custodial Bank
The Northern Trust Company

Independent Auditors
KPMG LLP
RSM US LLP

Actuary
GRS Retirement Consulting Group

General Counsel
The Knight Law Firm LLP

Tax Counsel
Clark Hill Strasburger LLP

Investment Counsel
Jackson Walker LLP

Operating Bank
JPMorgan Chase Bank

INVESTMENT MANAGERS

US Equity
INTECH Investment Management LLC
Legal & General Investment Mgmt America
Mellon
Northern Trust Investments

International Equity

Developed Markets
1607 Capital Partners LLC
Northern Trust Investments
Walter Scott & Partners Ltd

Emerging Markets
Baillie Gifford Overseas Ltd
Legal & General Investment Mgmt America

Fixed Income
Agincourt Capital Management LLC
Northern Trust Investments

Real Assets
Principal Global Investors LLC

Multi-Asset
AQR GRP EL Fund LP
BlackRock Institutional Trust Company

SUMMARY OF PLAN PROVISIONS

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM (COAERS)

Introduction

This is a general overview of the City of Austin Employees' Retirement System membership and benefits. In the event of any inconsistency between this general overview and state or federal law as modified, interpreted, and applied from time to time, the state or federal law will govern and control.

COAERS is an IRS tax-qualified 401(a) defined benefit plan governed by Texas state law.

Membership Requirements

City of Austin regular employees working 30 or more hours per week become Members of COAERS on the date of employment as mandated by Statute. Members do not include:

- Temporary employees
- Part-time employees working less than 30 hours per week
- Civil service employees of the Fire Department and the Police Department
- The Mayor and members of the City Council

Contributions

Employee: Members of COAERS contribute 8% of their base pay, calculated on a 40-hour work week. Contributions are made through payroll deduction each pay period (every two weeks). Overtime and special pay are not included.

Employer: By State Statute, the employer contributes an amount equal to 8% of the employee's base compensation or a higher rate established by the employer. The current employer contribution, established by a City Council resolution, is 18% of compensation. The employer contribution will remain at this level until the resolution is amended or repealed.

RETIREMENT BENEFITS

Retirement Eligibility

Members are eligible for retirement when they meet one of the following age and service requirements for the membership group to which they belong:

Group A Members (Normal Retirement)
- Age 62,
- Age 55 with 20 years of Creditable Service, or
- Any age with 23 years Creditable Service

Group B Members (Normal Retirement)
- Age 65 with 5 years of Creditable Service (excluding Supplementary Service Credit), or
- Age 62 with 30 years of Creditable Service (excluding Supplementary Service Credit)

Group B Members (Early Retirement – Reduced Benefits)
- Age 55 with at least 10 years of Creditable Service (excluding Supplementary Service Credit)

Vesting

Members become vested with COAERS when they have five years of Creditable Service. Members who leave active membership before attaining retirement eligibility must have five years of Creditable Service to be considered vested. Verified service credit with a participating proportionate retirement system(s) or in the limited proportionate service arrangement between COAERS and the Travis County Healthcare District may also be combined with COAERS service credit in determining vested status and eligibility to receive a future benefit. The Member is not entitled to receive the employer contribution at any time. Instead, vesting means that a Member is entitled to receive a lifetime benefit as long as their contributions are on deposit in the System upon reaching retirement eligibility.

Creditable Service

Creditable Service is a combination of Membership Service and other types of Creditable Service described below.

Current Active-Contributing/Vested Members, as of October 1, 1995, were granted service credit for the period between their date of hire and their date of participation, up to six months. All Members hired after October 1, 1995 become Members on their date of hire or on their date of regular employment at 30 or more hours per calendar week.

Types of Creditable Service

Membership Service – The employment period during which a Member makes payroll contributions to the System is considered the “Membership Service” period.

Reinstated Membership Service (Prior City of Austin Service) – When Members leave City employment, withdraw their deposits, and later return to City employment or employment with a participating proportionate system, they may purchase and reinstate the earlier time with the City. To purchase this service, they must become a Member of COAERS or another proportionate system. The cost to purchase prior service credit is based on the amount previously withdrawn, plus interest, as required by law.

Non-Contributory Service Credit – Members may purchase service credit for the following non-contributory categories:

- Non-contributory service, such as temporary or part-time service (less than 30 hours per week)
- Approved leave of absence
- Workers’ compensation leave because of an injury sustained in the course and scope of employment with the employer

Credit for Federal Active Duty Military Service

Prior Federal Active Duty Military Service – Members may establish up to 48 months Creditable Service for prior military service. Military service eligible for purchase is full-time active duty service in the armed forces of the United States performed before the first day of the most recent period of active membership in COAERS. Military service in the reserves, a service academy, or for less than 90 consecutive days is not eligible for purchase. To purchase prior military service, Members must present an original DD214 showing honorable discharge.

Military Leave of Absence – Members may establish Creditable Service for an authorized leave of absence from employment for military service. The Member may establish such Creditable Service during the authorized leave of absence by continuing to make retirement contributions during the period of service. Alternatively, if the Member returns to employment within the applicable period (that varies from 14 to 90 days, depending on the length of service) after the completion of the military service, the Member and the employer may secure such Creditable Service by making a lump-sum payment within five years of the date the Member returns to employment and Active-Contributing Member status.

Supplementary Service Credit (Previously known as Permissive Time) – Group A members may purchase up to five years of Creditable Service to advance their retirement eligibility date and/or increase the amount of their monthly annuity upon retirement. Group B members may purchase up to five years of Creditable Service only to increase the amount of their annuity but not to advance their retirement eligibility. Only Vested Active-Contributing or inactive Members are eligible to purchase Supplementary Service Credit, provided they have five years of membership service. Age, salary, earliest retirement date, and a combination of actuarial data determine the cost. There may be federal limitations on certain purchases.

Sick Leave Conversion – Retiring Members may convert sick leave hours to increase Creditable Service time. Employees eligible to be paid by the City of Austin for up to 720 hours of sick leave upon retirement cannot convert the eligible hours to Creditable Service. Converted sick leave hours cannot be used to reach retirement eligibility. Sick leave must be converted in pay period (80-hour) increments. Both the Member and the employer must pay the current contribution rate at the time of retirement to convert hours.

Service prior to 1941 – Additional service credit is allowed for Members with service performed before 1941, when the System came into existence. Two percent is applied for the number of years (prior to 1941) times the average salary for the years 1946 through 1950.

Proportionate Service

In 1991 the Texas Legislature established a Proportionate Retirement Program for the benefit of members of participating public retirement systems. A member of two or more of the following participating retirement systems may be eligible for proportionate benefits:

- City of Austin Employees' Retirement System
- City of Austin Police Retirement System
- El Paso City Employees' Pension Fund
- El Paso Firemen and Policemen's Pension Fund
- Employees Retirement System of Texas
- Judicial Retirement System of Texas I & II
- Texas Municipal Retirement System
- Texas County and District Retirement System
- Teacher Retirement System of Texas
- Other Texas retirement systems covering municipal employees who have qualified plans and have elected to participate in the Proportionate Retirement Program

Participating systems recognize service from other participating systems upon proper notice. A member with service credit in more than one participating retirement system may be eligible to retire in another system based on the combined service of two or more systems in order to satisfy the length of service requirements used to determine eligibility for service retirement. Members must qualify for retirement eligibility independently in each system. Retirement benefits will be paid separately from each system and will be determined based on the actual amount of Creditable Service earned in and the benefit structure of each plan. Military service may only be used once in determining the amount of the member's combined service credit. Proportionate participation is generally based on funded service.

A limited proportionate service arrangement was also established in 2007 for those individuals who have membership in COAERS and a retirement system within the Travis County Healthcare District (District) organization. This arrangement, effective with employees transitioning into the District effective March 1, 2009, is similar to the general proportionate program except that it applies only between these two retirement systems. Participation in the District retirement system can be used to establish retirement eligibility with COAERS.

Calculation of Retirement Benefits

Factors used to calculate COAERS retirement benefits:

Total Creditable Service – Total years and months of Creditable Service, including:

- Regular membership service
- Reinstated membership service
- Military service purchased
- Non-contributory service purchased

- Supplementary service purchased
- Converted sick leave
- Up to one six-month probationary period granted at retirement to Active-Contributing/Vested Members hired on or before October 1, 1995
- Note: Proportionate service is only used to reach eligibility; it is not used to calculate retirement benefits.

Multiplier for Group A Members – 3.0%

Multiplier for Group B Members – 2.5%

Average Final Compensation – The average base salary for the highest 36 months of contributory service during the last 10 years of salary prior to retirement.

Retirement Date

The effective date of retirement is always the last day of the month.

Retirement Options

COAERS provides several options for payment of monthly benefits. All payment options are actuarially equivalent to the basic Member Only Life Annuity benefit.

The options that include benefits to a survivor are calculated according to the ages of both the Member and the surviving beneficiary included in the plan. The Member's benefits are reduced if an option is chosen that provides survivor benefits. This reduction is applied to the Member's basic Life Annuity benefit according to the option the Member chooses. Some restrictions may apply to non-spouse survivor benefits.

If the Member is married, spousal consent is required. A Member cannot change options or the survivor beneficiary after retirement. Even if a Retiree and the beneficiary spouse later divorce, the survivor beneficiary cannot be changed. Only the survivor beneficiary named at retirement will receive survivor benefits.

Life Annuity – A basic monthly benefit payable for the life of the Retiree.

Option I: 100% Joint and Survivor – A reduced monthly benefit payable throughout the Retiree's life. At the Retiree's death, the survivor beneficiary will continue to receive the Retiree's benefit for the remainder of his/her life.

Option II: 50% Joint and Survivor – A reduced monthly benefit payable throughout the Retiree's life. At the Retiree's death, the survivor beneficiary will continue to receive 50% of the Retiree's benefit for the remainder of his/her life.

Option III: 66⅔% Joint and Survivor – A reduced monthly benefit payable throughout the Retiree's life. At the Retiree's death, the survivor beneficiary will continue to receive 66⅔% of the Retiree's benefit for the remainder of his/her life.

Option IV: Joint and 66⅔% Last Survivor – A reduced monthly benefit payable until the death of either the Retiree or the survivor beneficiary. After death of the Retiree or the survivor beneficiary, the last survivor of the two will receive 66⅔% of the Retiree's benefit for the remainder of his/her life.

Option V: Fifteen Year Certain and Life Annuity (180 payments) – A monthly benefit payable to the Retiree. If the Retiree's death occurs before 180 payments are made, the Retiree's beneficiary, spouse (if applicable), or estate will receive remaining monthly payments until all 180 payments have been made. If the Retiree is still living after receiving 180 payments, payments to the retiree will continue until the Retiree's death.

Option VI: Actuarial Equivalent of Life Annuity – This option allows Members to develop their own benefit payment plan with the assistance and approval of the System's actuary. Members have flexibility to design a retirement benefit that is most appropriate for the needs of both the Member and the Member's beneficiary, subject to limitations established in Board policy. All options are subject to approval by the Board of Trustees.

A "Pop-up" benefit is provided for Retirees choosing Options I, II, or III as well as Retirees who selected any Joint and Survivor option other than Joint and Last Survivor option. The "Pop-up" increases the Retiree's benefits to the Member Only Life Annuity level if the survivor beneficiary predeceases the Retiree on or after October 1, 1999.

Lump-Sum Payments

Backward DROP Program – The Backward Deferred Retirement Option Program (Back DROP) allows a Member to receive a lump-sum payment in addition to receiving a monthly annuity.

Members who have already reached retirement eligibility, excluding proportionate service, and who continue to work and contribute to COAERS beyond retirement eligibility, may elect to receive a lump-sum amount and have their retirement calculated as though they had retired at an earlier date. The Back DROP period can be no earlier than:

- The day of first retirement eligibility,
- The date of the last purchase of Creditable Service of any type other than Sick Leave Conversion, or
- 60 months (in one-month increments) prior to the retirement date.

The lump-sum amount is 90% of the sum of the monthly annuity payments, based on the Member Only Life Annuity benefit the participant would have received if the Member had retired at the earlier date. The lump-sum amount may be rolled over to other qualified plans, paid in one lump-sum to the Member, or a combination of both.

Cost-of-living adjustments, interest, and Member or employer contributions do not increase the monthly amount credited to the Back DROP.

Partial Lump-Sum Payment – As an alternative to the Back DROP, a retiree may select a retirement option and request a one-time lump-sum payment to be paid at the same time as the Member's first annuity payment. The Member's annuity amount will be actuarially reduced for the lump-sum payment. Under a basic Member-Only Life Annuity benefit, members may select a partial lump-sum distribution, or both a partial lump-sum distribution and a Back DROP, not to exceed 60 months of annuity payments.

IRS Section 415 Restoration of Retirement Income Plan

Certain highly compensated Members may have their retirement annuity limited because of Section 415(b)(1) of the Internal Revenue Code. A plan amendment, effective January 1, 2000, provides for COAERS to pay a benefit that exceeds the limitation imposed by the Internal Revenue Code from a separate, non-qualified, and unfunded "Restoration of Retirement Income Plan." Additional details are made available to affected Members during the retirement process.

Retirees Returning to Work

The retirement allowance of a retired member who resumes employment with an employer within 90 days after retirement and has not attained age 55, or who resumes employment after retirement as a regular full-time employee of an employer, is subject to suspension. Suspension also occurs if a retired member resumes employment with an employer in a position that is not required to participate in another retirement system maintained by an employer, and works for, or is compensated by, an employer for more than 1,508 hours in any rolling 12-month period after the member resumes employment with the employer.

DISABILITY RETIREMENT BENEFITS

Disability Retirement Requirements

Members may apply for disability retirement benefits if:

- They are mentally or physically incapacitated for the performance of all employment duties, AND
- The incapacity is likely to be permanent.

Disability Retirement Eligibility

Active-Contributing Members with less than five years Creditable Service may only apply for disability retirement if the disability is a result of an on-the-job accident or injury. Active-Contributing Members with five or more years of Creditable Service may apply for disability retirement even if the disability is not job related. Members who are already eligible to retire may not apply for disability retirement.

Members are considered to remain in the same membership category in effect on the date of termination for 90 days following termination. Members are allowed to apply for disability retirement for up to 90 days following termination for inability to perform all employment duties.

Disability Retirees are periodically required to provide proof of continued disability and are annually required to provide employment and income documentation to the COAERS Board of Trustees.

Disability Retirement Options

A Member approved for disability retirement may choose a Member Only Life Annuity benefit or a benefit described in Options I, II, III, or IV. Disability Retirees are not eligible for any type of lump-sum payment.

DEATH AND SURVIVOR BENEFITS

Retired Members

Upon the death of a Retiree, a death benefit of $10,000 is paid by COAERS to the designated beneficiary(ies) of the deceased. This $10,000 death benefit is paid to the beneficiary(ies) in addition to any of the following benefits that are applicable:

- If the Retired Member chose the Member Only Life Annuity option, the monthly benefit stops the month following the death of the Retiree. However, if death occurs before the Retiree's accumulated deposits have been paid out, the Retiree's remaining deposits will be paid in a lump-sum to the Retiree's designated beneficiary(ies), spouse (if applicable), or estate.
- If the Retired Member chose an option providing benefits to a survivor beneficiary, upon the Retiree's death, such benefits will be paid to the designated survivor. If the survivor beneficiary does not survive the Retiree, monthly benefits cease. However, if the survivor beneficiary does not survive the Retiree, and the Retiree's deposits have not been paid out, the Retiree's remaining deposits will be paid in a lump-sum to the Retiree's designated beneficiary(ies), spouse (if applicable), or estate.

Active Members

Not Eligible to Retire

Upon the death of an Active Member who was not yet eligible for retirement, the designated beneficiary(ies) is entitled to a lump-sum payment of the Member's accumulated deposits (contributions and interest) plus a death benefit from COAERS equal to the Member's deposits (excluding any purchases for non-contributory time, prior military service purchases, or Supplementary Service Credit).

Eligible to Retire

If the Active Member was eligible for retirement prior to death and had not yet retired:

- A surviving spouse may choose any retirement option that would have been available to the Member, except for Member Only Life Annuity, and receive the $10,000 death benefit. Alternatively, a surviving spouse may choose to receive a one-time lump-sum payment of the Member's accumulated deposits and a death benefit from COAERS equal to the Member's deposits (excluding any purchases for Non-contributory time, prior military service purchases, or Supplementary Service Credit).
- If there is no spouse, the deceased Member's designated beneficiary may elect to receive payments under Option V, Fifteen Year Certain and Life Annuity, and receive the $10,000 death benefit. The non-spouse beneficiary may otherwise choose to receive a one-time lump-sum payment as described above.

The $10,000 death benefit is not paid to beneficiaries electing a one-time lump-sum payment.

Inactive Vested Members

Beneficiaries of Inactive Vested Members receive the same death benefits as beneficiaries of Active Members as described above.

OTHER INFORMATION

Compliance with Applicable Law

Article 6243n of Vernon's Texas Civil Statutes, the Internal Revenue Code, and other state and federal laws are applicable to the operation and management of, and the benefits provided by, the System. Such laws place restrictions and limitations on retirement systems, including COAERS, and directly or indirectly affect Member benefits and options. Deposits or retirement benefits may not be transferred or assigned except pursuant to a Qualified Domestic Relations Order (QDRO). All QDROs are subject to approval and must meet all statutory requirements. In addition, funds actually due and payable to a Member, beneficiary, or alternate payee may be subject to IRS levy. The Internal Revenue Code also sets limits which affect purchases of service credit, final average salary, and monthly benefits for certain individuals.

Determining Interest on Members' Contributions

The Board of Trustees annually determines the amount of interest paid on Members' accumulated deposits, taking into consideration the average yield of the 10-year U.S. Treasury note during the 12-month period ending on October 31st and recommendations of the System's actuary. Retirement interest is accrued on the last day of the calendar year based on the amount that each Member had in the System on the first day of the calendar year. The money must remain on deposit for the entire calendar year in order to accrue interest.

Prohibition on COAERS Loans and Withdrawals

Plan provisions do not allow Active Members to make a partial withdrawal of deposits or to receive loans from their retirement funds.

Request for Hearing

A Member or Beneficiary directly affected by a decision of the Executive Director of the City of Austin Employees' Retirement System may appeal to the Board of Trustees. The Member or Beneficiary must appeal the decision within 30 days of notification of denial by the Executive Director or his/her designee.

HISTORY OF BENEFIT CHANGES

January 1, 1941

City Council established the City of Austin Employees' Retirement System.

Original City Ordinance provided a maximum annuity of $100 per month at age 65.

Contributions to retirement system set at 4.0%.

No survivor options, no early retirement eligibility, no vesting, no disability benefits, and no death benefits.

1951

Established two options for survivor benefits:

Option I – 100% Joint and Survivor

Option II – 66 2/3% Joint and Survivor

Established eligibility for early retirement.

Established a provision for vested benefits after 15 years of Creditable Service.

Established disability retirement benefits.

Increased contribution rate to 5.0%.

1962

System changed from a money-purchase plan to a formula-based plan with a multiplier of 1.125%.

Established additional options for survivor benefits:

Option III – 50% Joint and Survivor

Option IV – 66 2/3% Joint and Last Survivor

1967

Multiplier increased from 1.125% to 1.25%.

Set Active Member death benefits at $2,000.

1969

Established provisions for cost-of-living adjustment (COLA).

Set Retired Member death benefits at $2,000.

1971

Increased multiplier from 1.25% to 1.5%.

Established a provision for unreduced retirement benefits at age 62 (lowered from age 65) with any number of years of service.

Provided free health insurance benefits, ages 62 - 65.

Increased contribution rate to 6.0%.

1972

Established a provision for vested eligibility after 10 years of Creditable Service.

Established a provision for regular employees working 30 or more hours per week to make retirement contributions.

Established a provision for Members eligible for early retirement benefits to choose Option I to provide survivor benefits.

1973

Increased multiplier from 1.5% to 1.75%.

Established a provision for Final Average Earnings based on highest 60 months of contributing service.

Allowed Members eligible for retirement to select option to provide survivor benefit before actually retiring.

Established disability retirement for line-of-duty disabilities regardless of Creditable Service. Disability retirement available for any disability after 10 years of service. Disability retirement benefits based on age and years of service at time of disability retirement; no penalty based on age.

December 1977

Elimination of $2,000 death benefit for Active Members; continued for Retirees.

Established a provision for Active Members' designated beneficiaries to receive contributions and interest plus an equal amount from the System if Member dies prior to retirement eligibility.

September 1978

Established additional retirement options.

December 1979

Discontinued medical insurance payment for Retirees who were ages 62 - 65.

July 1981

Established a provision for contributions to be required after age 62 until retirement. Members older than age 62 have option to make up missed contributions to benefit from higher salary averaging for retirement benefits.

Reduced Final Average Earnings period from 60 to 36 months.

October 1982

Increased contribution rate to 6.6%, matched by City.

November 1982

Established retirement benefits for Members age 55 or older with 20 years service.

March 1984

Adopted unisex option factors. The sex of the Member and the beneficiary no longer considered in the determination of any System benefits.

December 1984

Increased Member contribution rate from 6.6% to 7.0%, matched by the City.

Increased multiplier from 1.75% to 1.85%.

Established a provision for a surviving spouse to select an optional benefit if Active Member dies who was already eligible to retire and had not yet selected a benefit option.

Implemented employer "pick up" of member contributions pursuant to 414(h)(2) of the Internal Revenue Code. Member contributions after January 1, 1985 not taxed until time when benefits are paid to the Member.

Limited "Prior Service" Purchase – Former Members who forfeited membership service by taking a refund when they left City employment may purchase their prior Creditable Service. Current Members allowed six months to reinstate former credit by repaying withdrawn deposits plus interest. Only former Members who had been reemployed by the City before December 20, 1984 are eligible.

Established that the 36 months of salary used to calculate monthly benefits need not be consecutive. Highest 36 months of salary during last 10 years of Creditable Service would be averaged to determine Final Average Earnings.

March 1985

Granted a special one-time benefit increase based on year of retirement.

October 1985

Increased multiplier from 1.85% to 2.0%.

February 1986

Change in composition of Board of Trustees; replaced Council Member position with Retired Member Trustee to be appointed by the City Council.

May 1987

Established that Members laid off during the period from September 30, 1986 through October 1, 1989, and who were eligible for retirement would receive an unreduced current service annuity.

October 1987

Reduced Member and City contribution rates to the System temporarily from 7.0% to 6.2% of basic compensation for the period from October 1, 1987 to September 30, 1988.

March 1988

Established survivor benefit options for Disability Retirees effective March 13, 1988.

August 1988

Established vesting eligibility at five years of Creditable Service.

Extension of "Prior Service Purchases" – Former Members who forfeited membership service by taking a refund of their retirement contributions when they left City employment, who have returned to City employment, may purchase and reinstate their prior Creditable Service.

For purposes of calculating benefits and determining eligibility, three years were added to both age and service for all Members retiring between September 1, 1988 and December 31, 1988.

September 1988

Restored Member and employer contribution rates to 7.0% from 6.2% of basic earnings effective September 30, 1988.

December 1989

Amended ordinance for Retiree Member Trustee position of the Board to be elected by Retired Members to a four-year term, instead of appointment by the City Council.

January 1990

Granted a special one-time benefit increase ranging from 0.5% to 15% based on date benefit commenced.

February 1990

Established unreduced retirement benefits for Members at any age with 30 years Creditable Service.

Increased multiplier from 2.0% to 2.1%.

October 1990

Adopted limits on income of Social Security disability benefits for System Disability Retirees.

August 1991

Established System governance by Article 6243n of Texas State Law effective August 26, 1991. All changes to the System made by the Texas State Legislature.

Became a member of Proportionate Retirement Program with five other statewide retirement systems. Membership service may be combined with other participating systems for meeting service requirements for retirement eligibility.

July 1993

Increased multiplier from 2.1% to 2.2%, with commensurate increase for members retired before December 1, 1989.

Established a provision for unreduced retirement benefits for Members at any age with 25 years of service.

Allowed purchases for up to 24 months of former active duty U.S. military service.

October 1995

Increased multiplier from 2.2% to 2.3%, with commensurate increase for previous Retirees.

Established that new City of Austin employees hired after October 1, 1995 become Members of COAERS at date of employment. Current employees as of October 1, 1995 are given retirement service credit for up to one six-month probationary period at time of retirement.

Change in composition of Board of Trustees; Director of Finance Designee replaced with additional Retired Member Trustee to be elected by Retired Members.

Increased death benefit for Retirees from $2,000 to $10,000.

October 1997

Increased multiplier from 2.3% to 2.6%, with commensurate increase for previous Retirees.

Established a provision for unreduced retirement benefits for Members at age 55 with 20 years service.

Increased purchases of former active duty U.S. military service from 24 to 48 months.

Allowed new purchase option of Creditable Service for non-contributory time including time while on workers' compensation, leaves of absence, part-time and temporary service.

Allowed for the City of Austin to purchase service credit for Members in order to qualify an employee for unreduced retirement benefit at age 55.

October 1999

Increased multiplier from 2.6% to 2.7%, with commensurate increase for previous Retirees.

Increased Member contribution rate from 7.0% to 8.0% following vote by Active Members.

Established a provision for unreduced retirement benefits for Members at any age with 23 years of service.

Set new limits on Retirees returning to work for the City.

Added "Pop-up" benefit for Retirees choosing Options I, II, or III (Joint and Survivor Annuities) to increase Retiree benefits if the survivor beneficiary predeceased the Retiree on, or after, October 1, 1999.

Granted Board authority to authorize certain benefit improvements subject to statutory guidelines.

Gave Board the ability to grant an additional payment to Members receiving monthly annuity payments in the form of an additional lump-sum benefit payment. The additional payment would be a percentage of the current monthly payment with a maximum percentage of 100%.

Established a provision for disability retirement benefits for off-the-job injury/illness after five years Creditable Service (previously 10 years).

Removed limitations on employer purchases of Creditable Service for a Member.

January 2000

Established Restoration of Retirement Income Plan to restore retirement income otherwise limited by Section 415 of the Internal Revenue Code.

April 2000

Increased multiplier from 2.7% to 2.98%, with commensurate increase for previous Retirees.

Increased employer contribution rate from 7.0% to 8.0%, matching Member contribution rate.

July 2000

Extended "pop-up" benefit to Retirees who selected the actuarial equivalent of Life Annuity option with underlying options of I, II, or III.

January 2002

Increased multiplier from 2.98% to 3.0%, with commensurate increase for previous Retirees.

Established a provision for purchases of Permissive Time to Active/Inactive Vested Members, based on EGTRRA federal law with a minimum purchase of one month and a maximum of 60 months (five years) or the number of months needed to reach first eligibility for retirement, whichever is less.

Amended Proportionate Retirement Program provided by Texas Government Code 803 to allow former members of participating proportionate systems to re-establish Creditable Service previously forfeited in that system without returning to membership in that system.

April 2002

Established Sick Leave Conversion benefit. Allows Members to convert sick leave balances to Creditable Service at time of retirement with purchase paid by Member and City of Austin.

Established Backward DROP (Deferred Retirement Option Program) benefit up to five years for Members working beyond retirement eligibility.

January 2003

Extended "Pop-up" benefit to any Joint and Survivor option other than Joint and Last Survivor.

Amended Permissive Time resolution removing provision which restricted Members from purchasing Permissive Time in excess of the amount needed to reach first eligibility for retirement.

May 2005

City Council adopted a Supplemental Funding Plan providing additional City contributions in Resolution No. 20050512-045. The Plan is structured to increase City contributions to achieve a 30-year amortization period as follows: 1% in fiscal year 2007, 2% in fiscal year 2008, 3% in fiscal year 2009, and 4% in fiscal year 2010 and thereafter, if necessary. If, during any calendar year, COAERS earns greater than a 12% time weighted rate of return net of fees, the increase is delayed one budget cycle. Any future benefit enhancements or cost of living adjustments require a recommendation from the City Manager and approval by the City Council. In addition, if the CPI index exceeds 3.0% in any calendar year, an actuarial study is to be performed to determine the additional subsidy needed if a cost of living adjustment were to be provided.

October 2006

City Council adopted a budget including a Supplement Funding Plan contribution subsidy of 1% for fiscal year 2007.

September 2007

Established a limited proportionate service arrangement exclusively for those individuals who have membership in COAERS and a retirement system within the Travis County Healthcare District (District) organization. This arrangement, effective with employees transitioning into the District effective March 1, 2009, is similar to the general proportionate program except that it applies only between these two retirement systems.

October 2007

Scheduled increase in City Supplemental Funding Plan contribution subsidy postponed because of time-weighted rates of investment returns (net of fees) exceeding 12%.

October 2008

City Council adopted a budget including a Supplement Funding Plan contribution subsidy of 2% for fiscal year 2009.

March 2009

City of Austin Police Retirement System joins the Proportional Retirement Program.

October 2009

City Council adopts a budget increasing Supplemental Funding Plan City contributions from 2% to 4% for fiscal year 2010.

September 2010

City Council approves an Amended Supplemental Funding Plan establishing the City's total employer contribution to the System as follows:

- 14% of compensation effective October 1, 2010 for fiscal year 2010-11;
- 16% of compensation effective October 1, 2011 for fiscal year 2011-12; and
- 18% of compensation effective October 1, 2012 for fiscal year 2012-13, and each fiscal year thereafter.

The City's total employer contribution levels remain in effect until the Amended Supplemental Funding Plan is amended or repealed.

The Amended Supplemental Funding Plan also requires any future benefit enhancements or cost of living adjustments otherwise permitted under the System's governing documents to be recommended by the City Manager and approved by the City Council. Finally, the Amended Supplemental Funding Plan stated that it was the City and the System's intention to seek legislative amendments to state law to improve the overall financial condition of the System by establishing reasonable but different benefit levels for employees of the City who became members of the System on or after January 1, 2012.

March 2011

The Board, through policy, increased the waiting period for certain retirees returning to work from 60 to 90 days.

June 2011

Article 6243n was amended establishing a new benefit tier for employees hired on and after January 1, 2012. The following provisions apply to those employees:

- Normal retirement eligibility at age 65 with 5 years of service credit; or at age 62 with 30 years of service credit;

- Early reduced retirement eligibility at age 55 with 10 years of service credit;
- An annuity formula multiplier of 2.5%; and
- The purchase of nonqualified permissive service (supplementary service credit) for annuity calculations only and not for eligibility purposes;

Unrelated to the new benefit tier, Article 6243n was amended to revise the rules for retirees returning to work. The revised rules require the Board to suspend the retirement allowance of a retired member who resumes employment with an employer in a position that is not required to participate in another retirement system maintained by an employer, and who is not a regular full-time employee of an employer, if the member works for, or is compensated by, an employer for more than 1,508 hours in any rolling 12-month period after the member resumes employment with the employer.

November 2014

The Board implemented a Funding Policy which established certain actuarial methods for funding and created long-term funding goals to ensure that COAERS is well funded into the future and to specify under what conditions future benefit enhancements would be considered.

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Financial Section

KPMG LLP
Suite 1900
111 Congress Avenue
Austin, TX 78701-4091

Independent Auditors' Report

Audit & Risk Committee of the Board of Trustees
The City of Austin Employees' Retirement System:

We have audited the accompanying financial statements of the City of Austin Employees' Retirement Syste (COAERS), which comprise the statements of fiduciary net position as of December 31, 2018 and 2017, an the related statements of changes in fiduciary net position for the years then ended, and the related notes to the financial statements, which collectively comprise COAERS' basic financial statements as listed in the tal of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, ar maintenance of internal control relevant to the preparation and fair presentation of financial statements that free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presenta of the financial statements in order to design audit procedures that are appropriate in the circumstances, bu not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used the reasonableness of significant accounting estimates made by management, as well as evaluating the ove presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary position of the City of Austin Employees' Retirement System as of December 31, 2018 and 2017, and the changes in fiduciary net position for the years then ended in accordance with U.S. generally accepted accounting principles.

KPMG

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the Management's Discussion and Analysis, the Schedule of Changes in Net Pension Liability and Related Ratios, the Schedule of Contributions, and the Schedule of Investment Returns on pages 29-32 and 58-59 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary and Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The Introductory Section on pages 1-26, Other Supplementary Information - Investment, General & Administrative, and Consultant Expenses on page 60, the Investment Section on pages 61-78, the Actuarial Section on pages 79-130, and the Statistical Section on pages 131-142 are presented for purposes of additional analysis and are not a required part of the financial statements.

The Other Supplementary Information - Investment, General & Administrative, and Consultant Expenses on is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Other Supplementary Information - Investment, General & Administrative, and Consultant Expenses is fairly stated in all material respects in relation to the financial statements as a whole.

The Introductory Section, the Investment Section, the Actuarial Section, and the Statistical Section have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

KPMG LLP

Austin, Texas
May 24, 2019

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Management's Discussion and Analysis (unaudited)

December 31, 2018 and 2017

This section of the City of Austin Employees' Retirement System's (COAERS, or, the System) financial report presents our discussion and analysis of the System's financial performance during calendar years 2018 and 2017. We encourage readers to consider the information presented here in conjunction with our financial statements that follow.

Financial Highlights

- Net position held in trust by the System decreased by $189.1 million, or 7.1%, in 2018, and increased by $350.7 million, or 15.3%, in 2017. All changes primarily correlate with investment returns.
- Contributions increased by $8.1 million, or 4.9%, in 2018, and by $2.0 million, or 1.2%, in 2017. The 2018 increase was due to a $3.1 million increase in the City's supplemental funding, an increase of $5.0 million in employee and City contributions based on payroll, and a small increase in employee creditable service purchases. The 2017 increase was due to a $3.7 million increase in the City's supplemental funding, an increase of $5.8 million in employee and City contributions based on payroll, and a decrease of $7.5 million in employee creditable service purchases.
- The amount of benefits paid to retired members and beneficiaries, and refunded to terminating employees, increased approximately $12.6 million, or 6.6% during 2018, and by approximately $11.2 million, or 6.2%, during 2017. This is the result of increases in the number of System retirees and the average annuity payment. Benefit payments exceeded employee and City contributions by $27.8 million in 2018, and by $23.3 million in 2017.
- The System's time-weighted rate of return on investments for the year ended December 31, 2018, was -5.62% gross of fees, and -5.91% net of fees, on a market value basis, which was a decrease from the return of 16.97% gross of fees, and 16.59% net of fees, for the year ended December 31, 2017. The actuarial assumed rate of return is 7.50%.

Overview of the Financial Statements

This discussion and analysis is intended to assist the reader in a better understanding of the purpose and meaning of each of the key components of COAERS' financial statements, which are comprised of the following:

- Statement of Fiduciary Net Position
- Statement of Changes in Fiduciary Net Position
- Notes to the Financial Statements

Collectively, this information presents the net position held in trust for pension benefits as of the end of each year, and summarizes the changes in net position held in trust for pension benefits for the year. The information available in each of these components is briefly summarized below:

- **Financial Statements**

  The *Statement of Fiduciary Net Position* presents the System's assets and liabilities and the resulting net position, which is held in trust for pension benefits. This statement reflects a year-end comparison of the Plan's investments, at fair value, along with cash and short-term investments, receivables and other assets and liabilities, to the previous year.

  The *Statement of Changes in Fiduciary Net Position* provides a view of current year additions to and deductions from the plan.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Management's Discussion and Analysis (unaudited)

December 31, 2018 and 2017

These two statements report the System's net fiduciary position held in trust for pension benefits (net position restricted for pensions), the difference between assets and liabilities, as one way to measure COAERS' financial position. Over time, increases and decreases in net position are one indicator of whether its financial health is improving or deteriorating.

- **Notes to the Financial Statements** provide important background and detailed information about COAERS, the plan, and the financial statements.

Financial Analysis

Summary of Fiduciary Net Position
December 31, 2018, 2017, 2016

Assets		2018	2017	2016
Cash and receivables	$	37,896,037	21,968,064	87,126,461
Investments		2,442,224,464	2,629,928,427	2,274,600,237
Invested securities lending collateral		112,048,978	148,922,849	102,574,024
Capital assets, net		6,798,711	4,347,529	3,370,047
Total assets		2,598,968,190	2,805,166,869	2,467,670,769
Liabilities				
Total liabilities		137,564,753	154,708,753	167,962,383
Net position restricted for pensions	$	2,461,403,437	2,650,458,116	2,299,708,386

Assets. As shown in the table above, assets decreased $206.2 million in 2018, and increased $337.5 million in 2017, due to the changes in the value of investments.

- During 2018, there was a $15.9 million increase in the net amount of cash and receivables; this was attributable to a decrease of $3.2 million in cash held by the System, and a $19.2 million increase in receivables which included a $1.4 million decrease in interest and dividends receivable and a $19.9 million increase in trades pending settlement. In 2017, there was a $65.2 million decrease in the net amount of cash and receivables at year end; this resulted from a $7.0 million decrease in the amount of cash, and a $58.2 million decrease in receivables which included a $61.2 million decrease in trades pending settlement.
- In 2018, investments decreased by $187.7 million, and in 2017, investments increased by $355.3 million, reflective of the changes in the financial markets.
- The 2018 decrease in invested securities lending collateral of $36.9 million reflected the net change in the number of securities on loan at year end; in 2017, the increase was $46.3 million.
- In both 2018 and 2017, the increase in capital assets reflects the continued development of the new pension administration system.

Liabilities. Liabilities decreased $17.1 million in 2018, and in 2017, decreased $13.3 million. These fluctuations were primarily due to changes in trades pending settlement and in securities lending collateral. See further discussion in footnote 3.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Management's Discussion and Analysis (unaudited)

December 31, 2018 and 2017

Summary of Changes in Fiduciary Net Position

Years Ended December 31, 2018, 2017, and 2016

		2018	2017	2016
Additions:				
Contributions	$	175,384,645	167,251,257	165,289,544
Investment income		(151,570,946)	382,719,865	176,689,033
Investment expenses		5,671,206	5,899,840	5,050,013
Net investment income (depreciation)		(157,242,152)	376,820,025	171,639,020
Other income		49	-	995
Total additions		18,142,542	544,071,282	336,929,559
Deductions:				
Benefit payments and contribution refunds		203,172,854	190,543,262	179,344,379
General and administrative expenses		4,024,367	2,778,290	2,700,916
Total deductions		207,197,221	193,321,552	182,045,295
Net increase (decrease) in net position		(189,054,679)	350,749,730	154,884,264
Net position restricted for pensions:				
Beginning of year		2,650,458,116	2,299,708,386	2,144,824,122
End of year	$	2,461,403,437	2,650,458,116	2,299,708,386

Additions. Additions needed to fund benefits are accumulated through contributions and returns on invested funds. Contributions from COAERS members and the City of Austin for 2018 and 2017 totaled $175.4 million and $167.3 million, respectively. The 2018 contributions represent an increase of $8.1 million, or approximately 4.9% above 2017; 2017 contributions represent an increase of $2.0 million, or approximately 1.2% above 2016. The increase in 2018 was due to both an increase in base salaries on which employee and employer contributions are made and the increased percentage of payroll being contributed under the Supplemental Funding Plan. The increase in 2017 was due to both an increase in base salaries on which employee and employer contributions are made and the increased percentage of payroll being contributed under the Supplemental Funding Plan.

In 2018, COAERS had a net investment loss on the market value of its securities of $157.2 million, a decrease of $534.0 million from 2017. In 2017, the net investment gain on the market value of securities was $376.8 million, an increase of $205.2 million from 2016. Interest, dividends and net securities lending income generated 2018 income of $41.3 million, a decrease from the 2017 income of $46.0 million. Investment managers' fees are based on their cumulative performance; in 2018, fees decreased by $0.4 million; in 2017, fees increased by $0.6 million compared to 2016. The total rate of return (net of fees) for the System's investment portfolio in 2018 was -5.91%; in 2017 it was 16.59%.

Deductions. The expenses paid by COAERS include benefit payments, refunds of member contributions, and administrative expenses.

Benefits paid in 2018 were $199.0 million, an increase of $12.5 million from payments made in 2017, which is consistent with an increase in the number of retirees to 6,414 in 2018. Refunds to terminating employees increased by $0.1 million. Administrative expenses in 2018 were $4.0 million, an increase of $1.2 million, or 44.9% over 2017.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Management's Discussion and Analysis (unaudited)

December 31, 2018 and 2017

Benefits paid in 2017 were $186.5 million, an increase of $11.1 million from payments made in 2016, which is consistent with the 2017 increase in the number of retirees to 6,225, from 5,934 in 2016. Refunds to terminating employees increased by $0.1 million. Administrative expenses in 2017 were $2.8 million, an increase of 2.9% from those of 2016.

Overall Analysis. Overall, as of December 31, 2018, net position decreased by $189.1 million, or -7.1%, from the prior year; over the five-year period ending December 31, 2018, net position increased by 15.52%.

Request for Information

This financial report is designed to provide a general overview of the finances of the City of Austin Employees' Retirement System for all parties with an interest. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to Chief Financial Officer, City of Austin Employees' Retirement System, 6836 Austin Center Boulevard, Suite 190, Austin, Texas 78731.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Statement of Fiduciary Net Position

December 31, 2018

	Retirement Plan	Restoration Plan	Total
Assets			
Cash and cash equivalents (note 3)	$ 6,652,734	20,000	6,672,734
Receivables			
Interest and dividends receivable	6,545,436	-	6,545,436
Trades pending settlement	20,376,995	-	20,376,995
Employer contributions receivable	2,944,533	-	2,944,533
Employee contributions receivable	1,308,682	-	1,308,682
Other	47,657	-	47,657
Total receivables	31,223,303	-	31,223,303
Investments, at fair value (note 3):			
Global equities	1,406,229,027	-	1,406,229,027
Fixed income	539,699,840	-	539,699,840
Real assets	243,188,632	-	243,188,632
Multi-asset	233,584,945	-	233,584,945
Short-term investment funds	19,522,020	-	19,522,020
Total investments	2,442,224,464	-	2,442,224,464
Invested securities lending collateral (note 3)	112,048,978	-	112,048,978
Capital assets, net (note 7)	6,798,711	-	6,798,711
Total assets	2,598,948,190	20,000	2,598,968,190
Liabilities			
Payables			
Accrued expenses	1,649,710	-	1,649,710
Trades pending settlement	21,498,778	-	21,498,778
Securities lending transactions (note 3)	112,048,978	-	112,048,978
Refunds and death benefits payable	2,367,287	-	2,367,287
Total liabilities	137,564,753	-	137,564,753
Net position restricted for pensions	$ 2,461,383,437	20,000	2,461,403,437

See accompanying notes to financial statements.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Statement of Fiduciary Net Position

December 31, 2017

		Retirement Plan	Restoration Plan	Total
Assets				
Cash and cash equivalents (note 3)	$	9,911,695	20,000	9,931,695
Receivables				
Interest and dividends receivable		7,980,400	-	7,980,400
Trades pending settlement		450,922	-	450,922
Employer contributions receivable		2,495,609	-	2,495,609
Employee contributions receivable		1,109,438	-	1,109,438
Total receivables		12,036,369	-	12,036,369
Investments, at fair value (note 3):				
Global equities		1,597,106,888	-	1,597,106,888
Fixed income		570,982,997	-	570,982,997
Real assets		315,181,945	-	315,181,945
Multi-asset		119,317,379	-	119,317,379
Short-term investment funds		27,339,218	-	27,339,218
Total investments		2,629,928,427	-	2,629,928,427
Invested securities lending collateral (note 3)		148,922,849	-	148,922,849
Capital assets, net (note 7)		4,347,529	-	4,347,529
Total assets		2,805,146,869	20,000	2,805,166,869
Liabilities				
Payables				
Accrued expenses		1,269,105	-	1,269,105
Trades pending settlement		2,649,149	-	2,649,149
Securities lending transactions (note 3)		148,922,849	-	148,922,849
Refunds and death benefits payable		1,867,650	-	1,867,650
Total liabilities		154,708,753	-	154,708,753
Net position restricted for pensions	$	2,650,438,116	20,000	2,650,458,116

See accompanying notes to financial statements.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Statement of Changes in Fiduciary Net Position

Year ended December 31, 2018

	Retirement Plan	Restoration Plan	Total
Additions:			
Contributions:			
Employer contributions (note 6)	$ 116,485,749	185,569	116,671,318
Employee contributions (note 6)	58,713,327	-	58,713,327
	175,199,076	185,569	175,384,645
Investment income:			
Net decrease in fair value of investments	(193,028,247)	-	(193,028,247)
Interest	14,143,935	-	14,143,935
Dividends	26,656,166	-	26,656,166
Less investment expense other than from securities lending	(5,492,158)	-	(5,492,158)
Net loss from investing, other than from securities lending	(157,720,304)	-	(157,720,304)
Securities lending activity:			
Securities lending income	657,200	-	657,200
Less: Securities lending expense	(179,048)	-	(179,048)
Net income from securities lending	478,152	-	478,152
Net investment depreciation	(157,242,152)	-	(157,242,152)
Other income	49	-	49
Total additions	17,956,973	185,569	18,142,542
Deductions:			
Retirement annuities	192,718,935	185,569	192,904,504
Contributions refunded to terminating employees	4,140,909	-	4,140,909
DROP disbursements	2,767,441	-	2,767,441
Retiree lump-sum annuity	727,000	-	727,000
Death benefits	2,633,000	-	2,633,000
Total benefit payments, including refunds of member contributions	202,987,285	185,569	203,172,854
General and administrative expenses	4,024,367	-	4,024,367
Total deductions	207,011,652	185,569	207,197,221
Net decrease in net position	(189,054,679)	-	(189,054,679)
Net position restricted for pensions:			
Beginning of year	2,650,438,116	20,000	2,650,458,116
End of year	$ 2,461,383,437	20,000	2,461,403,437

See accompanying notes to financial statements.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Statement of Changes in Fiduciary Net Position

Year ended December 31, 2017

		Retirement Plan	Restoration Plan	Total
Additions:				
Contributions:				
Employer contributions (note 6)	$	110,846,582	211,083	111,057,665
Employee contributions (note 6)		56,193,592	-	56,193,592
		167,040,174	211,083	167,251,257
Investment income:				
Net increase in fair value of investments		336,523,564	-	336,523,564
Interest		13,112,594	-	13,112,594
Dividends		32,375,282	-	32,375,282
Less investment expense other than from securities lending		(5,687,391)	-	(5,687,391)
Net gain from investing, other than from securities lending		376,324,049	-	376,324,049
Securities lending activity:				
Securities lending income		708,425	-	708,425
Less: Securities lending expense		(212,449)	-	(212,449)
Net income from securities lending		495,976	-	495,976
Net investment appreciation		376,820,025	-	376,820,025
Other income		-	-	-
Total additions		543,860,199	211,083	544,071,282
Deductions:				
Retirement annuities		181,058,754	211,083	181,269,837
Contributions refunded to terminating employees		4,045,324	-	4,045,324
DROP disbursements		2,462,116	-	2,462,116
Retiree lump-sum annuity		692,294	-	692,294
Death benefits		2,073,691	-	2,073,691
Total benefit payments, including refunds of member contributions		190,332,179	211,083	190,543,262
General and administrative expenses		2,778,290	-	2,778,290
Total deductions		193,110,469	211,083	193,321,552
Net increase in net position		350,749,730	-	350,749,730
Net position restricted for pensions:				
Beginning of year		2,299,688,386	20,000	2,299,708,386
End of year	$	2,650,438,116	20,000	2,650,458,116

See accompanying notes to financial statements.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(1) Plan Description

Plan administration. The City of Austin Employees' Retirement System (COAERS, or, the System) administers the City of Austin Employees' Retirement (the Plan), a single-employer defined benefit pension plan that provides pensions for eligible employees of the City of Austin.

The System was created under Article 6243n, Vernon's Texas Civil Statutes (the Pension Statute), as amended.

The Pension Statute grants the authority to establish and amend the benefit terms to the Texas State Legislature.

Management of the Plan is vested in the eleven-member COAERS Board of Trustees, which is composed of:

- 4 active members elected by the active membership
- 2 retired members elected by the retired membership
- 2 City Council Appointed Citizen Members
- 1 Board Appointed Citizen Member
- 1 City Manager of the City of Austin or Designee
- 1 City Council Member

Plan membership. Participating employees include all regular, full-time employees who work at least 30 hours per week, except for civil service firefighters and civil service police officers. At December 31, 2018, 2017, and 2016, membership consisted of the following:

	2018	2017	2016
Inactive plan members or beneficiaries currently receiving benefits	6,414	6,225	5,934
Inactive plan members entitled to but not yet receiving benefits	2,851	2,657	2,507
Active plan members	9,838	9,612	9,364
Total plan members	19,103	18,494	17,805

Benefits provided. The System provides service retirement, death, disability, and withdrawal benefits. Benefits vest with five years of creditable service.

Membership in the System is comprised of two benefit tiers: Group A and Group B.

Group A members continue under the plan originated in 1941. Participants may retire at age 62, at age 55 with 20 years of service, or at any age with 23 years of service. Prior to October 1, 1999, the monthly benefit was equal to 2.6% of the highest 36-month average annual salary of the last ten years multiplied by years and months of service. Effective October 1, 1999, the monthly benefit multiplier was increased to 2.7%. Effective April 1, 2000, the monthly benefit multiplier was increased to 2.98%. Effective January 1, 2002, the monthly benefit multiplier was increased to 3.0%. Effective January 1, 2001, the System approved a 3.5% ad hoc retiree increase and a 2.5% increase effective January 1, 2002.

Group B members are employees who were hired on and after January 1, 2012, with the following provisions:

- Normal retirement eligibility at age 65 with 5 years of service credit; or at age 62 with 30 years of service credit;
- Early reduced retirement eligibility at age 55 with 10 years of service credit;
- An annuity formula multiplier of 2.5%;
- The purchase of nonqualified permissive service (supplementary service credit) for annuity calculations only, not for eligibility purposes.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

The following apply to both Group A and Group B:

- Effective in 2002, a Member may elect to retroactively participate in the System's Backward DROP (Deferred Retirement Option Program). This program benefits retiring employees by allowing a lump-sum payment in lieu of additional creditable service time after reaching retirement eligibility. The Member would receive a lump-sum payment equal to 90% of the sum of the monthly annuities the participant would have received if the member had retired at the DROP entry date. While the nomenclature used in the Pension Statute resembles that of an arrangement requiring additional disclosures under GASB 67, the COAERS Backward Drop benefit is technically different.
- The lump-sum death benefit payable upon the death of a retiree is $10,000.
- There is no guaranteed cost of living increase.

Contributions. Prior to October 1, 1999, active member contributions to the Plan were 7%. Effective October 1, 1999, active member contributions increased to 8%. Currently, all Participants are required to contribute 8% of their base compensation to the Plan. The City of Austin (the City) also contributes 8% of base compensation. The benefit and contribution provisions of this plan are governed by state law. Amendments may be made by the Legislature of the State of Texas. Should the Plan fully terminate at some future time, the retirement allowance of a member would be determined by reference to the member's average final compensation as if the member had attained normal retirement age on that date.

Pursuant to the 2005 COAERS Supplemental Funding Plan and beginning in October 2006, the City contributed an additional 4% subsidy for their 2010 fiscal year ended September 30, 2010. An Amended Supplemental Funding Plan (ASFP), adopted by the City Council in October 2010, incrementally increased the supplemental contribution to the Plan from 6% of base compensation to 10% of base compensation effective October 1, 2012 for fiscal year 2012-13, and each fiscal year thereafter.

Under the terms of the Plan, the System's employees obtain membership in the Plan on the same basis as City employees. Accordingly, the System contributes 8% of base employee compensation to the Plan, plus a 10% subsidy, as described above, for its nineteen current employees; System employees also contribute 8% of their base compensation to the Plan. Since there is only one Plan, all actuarial calculations are provided on an aggregate basis. The System's annual pension cost for its employees and related contributions made for the past three years are:

	Annual pension cost	Contributions made
2018	$ 283,937	283,937
2017	232,567	232,567
2016	209,433	209,433

The System participates in the Proportionate Retirement Program through which a member of the System may meet requirements for service retirement eligibility by combining COAERS membership service with service credit from the following participating entities: City of Austin Police Retirement System, The El Paso City Employees' Pension Fund and Firemen and Policemen's Pension Fund, Employees' Retirement System of Texas, Judicial Retirement System of Texas I & II, Texas Municipal Retirement System, Texas County and District Retirement System, Teacher Retirement System of Texas, or any other Texas retirement systems covering municipal employees who have qualified plans and have elected to participate in the Proportionate Retirement Program. A limited proportionate service arrangement was established in 2007 between COAERS and individuals who have membership in a retirement system within the Travis County Healthcare District.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

Restoration Plan

On November 23, 1999, the Board adopted a resolution to establish a "Restoration of Retirement Income Plan for Certain Participants in the City of Austin Employees' Retirement System" (Restoration Plan).

This Restoration Plan is effective as of January 1, 2000, and is intended to be a "qualified governmental excess benefit arrangement" within the meaning of Section 415(m) of the Internal Revenue Code, and shall be construed, interpreted and administered in accordance with such provision. The Restoration Plan shall be administered as an unfunded plan which is not intended to meet the qualification requirements of Section 401 of the Internal Revenue Code. Eligible members are those who are members in the Plan whose pension or pension-related benefits under the Plan are limited due to the provision of Section 415 of the Internal Revenue Code.

All benefits payable under this Restoration Plan shall be paid by the City of Austin Employees' Retirement System from contributions provided by the employer and not from the Fund or any other trust unless such trust is maintained solely for the purpose of providing benefits from this Restoration Plan. No contribution receivable is due for the years ended December 31, 2018 and 2017, for this Restoration Plan. Assets remaining in this plan as of December 31, 2018 and 2017, were $20,000.

The Restoration Plan's annual pension cost and related contributions for the past three years are:

		2018	2017	2016
Annual pension cost	$	185,569	211,083	215,497
Contributions made		185,569	211,083	215,497

At December 31, 2018, 2017, and 2016, membership in the Restoration Plan included the following:

	2018	2017	2016
Retirees and beneficiaries currently receiving benefits	16	18	16

Other Information

The System is required by the Pension Statute to maintain two separate funds in its internal accounting records. The first fund, defined in the statute as "Fund 1", shall be maintained to account for all accumulated deposits (contributions and interest) of Members who have not withdrawn from the System. The second fund, defined as "Fund 2", shall be maintained to account for all other net assets of the System less the amount held in "Fund 3"; this third fund is maintained to account for accumulated contributions by the employer for the Internal Revenue Code Section 415 Restoration Plan as adopted by Board Resolution on November 23, 1999. At December 31, 2018, the balances of Fund 1, Fund 2, and Fund 3 were $550,236,700, $1,911,146,737, and $20,000, respectively. At December 31, 2017, the balances of Fund 1, Fund 2, and Fund 3 were $517,782,235, $2,132,655,881, and $20,000, respectively.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(2) Summary of Significant Accounting Policies and System Asset Matters

The System is not included in any other governmental "reporting entity" as defined by the Governmental Accounting Standards Board (GASB). The System has no component units and is not a component unit of any other entity.

(a) Basis of Accounting

The System's financial statements are prepared using the economic resources measurement focus and the accrual basis of accounting. Contributions are recognized when due pursuant to formal commitments, as well as statutory or contractual requirements; accordingly, contributions are recognized as revenues in the period in which the employer reports compensation for their employees. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan.

(b) Cash and Cash Equivalents

Cash and cash equivalents include demand deposit accounts and money market checking accounts. As of December 31, 2018 and 2017, the book balances of the demand deposit accounts totaled $6,672,434 and $9,931,395, respectively.

(c) Method Used to Value Investments

Plan investments are reported at fair value. Fair value is the amount at which an investment could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale. Refer to Note 5(c) for more detail regarding the System's policy on accounting for investments.

(d) Contributions Receivable

The employee and City contributions for the years ended December 31, 2018 and 2017 that were not deposited with the System by year-end and are shown as contributions receivable.

(e) Capital Assets

Capital assets are recorded at cost. The System capitalizes all computers and electronic equipment purchased as well as any other assets greater than $1,000. Depreciation is computed using the straight-line method over the assets' estimated useful lives of:

Furniture and equipment	3-12 years
Building	40 years

(f) System Expenses

Substantially, all System administrative costs are the responsibility of the System. The administrative costs are funded through the investment income.

(g) Use of Estimates

The preparation of financial statements in conformity with United States Generally Accepted Accounting Principles (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

(h) Reclassification

Reclassification of certain prior year investment amounts has been made to conform with current-year presentation.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(3) Deposit and Investment Risk Disclosure

Deposit and investment resources are exposed to risks that have the potential to result in losses that could impact delivery of System services. The Board has adopted an Investment Policy Statement and Investment Implementation Policy to set forth the factors involved in the management of investment assets for the System. This policy is included in every investment management agreement. The document is designed to mitigate risk by requiring that investing be done in compliance with policy guidelines by qualifying the broker and financial institution with whom the System will transact, and by establishing sufficient collateralization, portfolio diversification, and limiting maturity. The System's Board, in accordance with the power and authority conferred under the Texas Statutes, has employed The Northern Trust Company as custodian of the assets of the System. The following summary of total investments by type as of December 31, 2018 and 2017, presents the System's investment mixes.

		2018	2017
Summary of investments by type:			
Global equities:			
US equities	$	1,148,033,726	899,856,281
Developed markets equities		258,195,301	430,890,368
Emerging markets equities		—	266,360,239
		1,406,229,027	1,597,106,888
Fixed income:			
Commercial mortgage-backed securities		10,409,964	8,652,901
Corporate bonds		209,431,437	218,198,146
Government agencies		1,393,027	949,162
Government bonds		63,818,127	73,302,314
Government mortgage-backed securities		93,795,192	77,595,905
Other fixed income:			
NT Collective Aggregate Bond Index Fund - Non-Lending		160,852,093	192,284,569
		539,699,840	570,982,997
Real assets:			
Real estate		243,188,632	224,622,762
Infrastructure		—	74,751,043
Commodities		—	15,808,140
Multi-asset:			
Strategic partnership		121,525,284	—
Risk parity		112,059,661	119,317,379
Short-term investment funds		19,522,020	27,339,218
Investments at fair value on balance sheet		2,442,224,464	2,629,928,427
Receivables and pending trades, net		5,423,653	5,782,173
Total investments (per investment consultant)	$	2,447,648,117	2,635,710,600

Custodial Credit Risk

Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the System will not be able to recover its deposits or will not be able to recover collateral securities that are in the possession of an outside party. While the Board has no formal policy specific to custodial credit risk, operating bank account deposits in excess of Federal Deposit Insurance Corporation (FDIC) insured amounts are backed by US government, treasury and agency securities, repurchase agreements, and pledged securities held as collateral.

As of December 31, 2018 and 2017, the System's operating bank balances of $6,672,434, and $9,931,395, respectively, were not exposed to custodial credit risk.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, the System will not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial risk if the securities are uninsured, are not registered in the name of the System, and are held by the counterparty, its trust or agent, but not in the System's name. The System's investment securities are not exposed to custodial credit risk because all securities are held by the System's custodial bank in the System's name. At December 31, 2018 and 2017, the System was not exposed to credit risk through security lending.

Borrowers of System securities through the Northern Trust Securities Lending Program are required to fully collateralize their obligation to return such securities when the loans are called. Proceeds from loaned securities are invested in a short-term fixed income portfolio, Northern Trust Collective SL Core STIF Fund.

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. The System is authorized to invest in the following as of December 31, 2018:

(a) Global Equity Investments

The aggregate exposure to the global equity asset class should be no less than 50% and may not exceed 60% of the fund:

- Domestic equity investments should total no less than 27%, and no more than 37%, of the total fund measured at fair value.
- Developed market investments should total no less than 10%, and no more than 20% of total value of the System's investments at fair value.
- Emerging market equity investments should total no less than 3%, and no more than 13% of the total fund measured at fair value.

No single company's securities shall represent more than 6% of the market value of any manager's portfolio.

(b) Fixed Income Investments

Fixed income investment should be no less than 15.5% and no more than 25.5% of the fund measured at fair value. No single issuer's securities shall represent more than 6% of the Portfolio at market. This restriction also applies to asset-backed securities, non-agency mortgage-backed securities (including commercial mortgage-backed securities) and taxable municipal securities. The total holdings of a federal agency-issued mortgage-backed security of the same coupon and maturity series of the same agency shall not exceed 20% of the Portfolio at market (such securities include, but are not limited to, Government National Mortgage Association (GNMA) securities). The direct debt of the U.S. government (Treasury bonds, TIPS, bills and notes) shall not be restricted as a percentage of the Portfolio.

Fixed income portfolios will be invested in publicly traded fixed income securities unless otherwise authorized by the Board. Fixed income Managers may be exempted from the requirement to not have cash exceed 5% of the Portfolio value to allow the use of "barbell" strategies in constructing a fixed income Portfolio.

SEC Rule 144(a) fixed income securities are allowable but private placement bonds are not.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(c) Real Assets Investments

The aggregate exposure to Real Assets classes should total no less than 9.5%, and no more than 19.5% of the portfolio:

- Total investments in Real Estate funds, while not exposed to concentration of credit risk, should be no less than 7% and no more than 14% of the investment portfolio measured at fair value.
- Infrastructure investments should total no less than 1% and no more than 7% of the total fund measured at fair value.

(d) Multi-Asset Investments

The aggregate exposure to Multi-Asset classes should total no less than 7.5%, and no more than 12.5% of the portfolio:

- Strategic Partnership investments should total no less than 2.5%, and no more than 7.5% of the total fund.
- Risk parity investments should total no less than 2.5%, and no more than 7.5% of the total fund measured at fair value.

(e) Cash

Cash investments should total no more than 10.0% of the total fund measured at fair value.

(f) Other Investment Information

As of December 31, 2018 and 2017, the following was the composition of the System's portfolio:

	2018	2017
US equities	47.01%	34.21%
Developed markets equities	10.57%	16.38%
Emerging markets equities	-	10.13%
Domestic fixed income:		
Commercial mortgage-backed securities	0.42%	0.33%
Corporate bonds	8.58%	8.30%
Government agencies	0.06%	0.04%
Government bonds	2.61%	2.79%
Government mortgage-backed securities	3.84%	2.95%
Other fixed income:		
NT Collective Aggregate Bond Index Fund - Non-Lending	6.59%	7.31%
Real assets	9.96%	11.98%
Multi-asset	9.56%	4.54%
Short-term investment funds	0.80%	1.04%
	100.00%	100.00%

The asset allocation policy noted in footnote 3 (a to d) is based on the type of portfolio managers. The composition percentages in this table reflect the classification of investments for GASB 40 presentation purposes. Certain amounts have been reclassified from international to U.S. equities as they are denominated in U.S. dollars.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The System does not have a formal policy regarding interest rate risk, i.e., maturities of investments by type, but its Investment Policy requires fixed income managers to disclose their credit exposure and portfolio duration in their quarterly reports. The System monitors credit exposure using segmented time distribution. Mortgage obligations are sensitive to changes in prepayments, which may arise from a change in interest rates.

As of December 31, 2018, the System had the following investments and maturities:

Investment type	Fair value	Less than 1 year	1 to 6 years	6 to 10 years	10+ years
Commercial mortgage-backed securities	$ 10,409,964	-	-	-	10,409,964
Corporate bonds	209,431,437	1,870,773	147,113,746	35,884,630	24,562,288
Government agencies	1,393,027		928,098	464,929	
Government bonds	63,818,127	-	39,569,284	1,325,208	22,923,635
Government mortgage-backed securities	93,795,192	19,067	99,510	4,098,736	89,577,879
Other fixed income:					
NT Collective Aggr Bond Index Fund	160,852,093	2,107,162	64,019,133	69,488,105	25,237,693
	$ 539,699,840	3,997,002	251,729,771	111,261,608	172,711,459

As of December 31, 2017 the System had the following investments and maturities:

Investment type	Fair value	Less than 1 year	1 to 6 years	6 to 10 years	10+ years
Commercial mortgage-backed securities	$ 8,652,901	-	-	-	8,652,901
Corporate bonds	218,198,146	36,107,558	113,312,888	40,933,377	27,844,323
Government agencies	949,162	-	481,541	467,621	-
Government bonds	73,302,314	-	38,990,504	7,245,502	27,066,308
Government mortgage-backed securities	77,595,905	34,060	145,301	4,865,535	72,551,009
Other fixed income:					
NT Collective Aggr Bond Index Fund	192,284,569	672,996	75,337,094	85,239,750	31,034,729
	$ 570,982,997	36,814,614	228,267,328	138,751,785	167,149,270

Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to the System. To control credit risk, credit quality guidelines are incorporated into the Investment Policy, as follows:

- Fixed income securities shall not be rated lower than investment grade (Baa3 by Moody's or BBB- by Standard & Poor's or Fitch) by any of the three designated rating agencies unless authorization is granted to a Manager by the Board or the mandate provided to a Manager specifies otherwise.
- Split-rated securities in which the middle rating is below investment grade shall not comprise more than five percent (5%) of the market value of any manager's portfolio unless specific authority has been granted.
- The issues of individual entities rated AAA to Aa3 (Moody's) or AA- (Standard & Poor's, and Fitch) may have a seven percent (7%) position at market value.
- Issues of individual entities rated below Aa3 (Moody's) or AA- (Standard & Poor's and Fitch) may have a three percent (3%) position at market value.

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

- The ratings criteria do not apply to direct obligations of the US government and its agencies as defined in the Permissible Investments section of Investment Implementation Policy, but the securities issued by any one issuer shall not otherwise, in the aggregate, exceed the foregoing limitations.
- If specific managers are given latitude to invest in securities issued by non-US entities, the same quality restrictions apply.
- Money market instruments shall have a minimum quality rating comparable to an A3 (Moody's) or A- (Standard & Poor's and Fitch) bond rating and commercial paper shall be rated A1/P1 unless held in a diversified short-term commingled fund.

The quality ratings of investments in fixed income securities as described by nationally recognized statistical rating organizations at December 31, 2018, are as follows:

Standard & Poor's Quality Rating	Total fair value	Commercial mortgage-backed	Corporate bonds	US govt & agencies	Municipal Bonds	NT Collective Aggregate Bond Index Fund
AAA	$ 223,669,139	10,409,964	1,628,565	93,795,192	-	117,835,418
AA	14,020,683	-	6,569,337	464,929	2,355,485	4,630,932
A	90,297,718	-	71,735,218	-	1,700,375	16,862,125
BBB	151,950,033	-	129,498,317	928,098	-	21,523,618
Total credit risk of debt securities	$ 479,937,573	10,409,964	209,431,437	95,188,219	4,055,860	160,852,093
US govt & agencies*	59,762,267					
	$ 539,699,840					

The quality ratings of investments in fixed income securities as described by nationally recognized statistical rating organizations at December 31, 2017, are as follows:

Standard & Poor's Quality Rating	Total fair value	Commercial mortgage-backed	Corporate bonds	US govt & agencies	Municipal Bonds	NT Collective Aggregate Bond Index Fund
AAA	$ 226,126,411	8,652,901	1,721,142	77,595,905	-	138,156,463
AA	16,912,826	-	8,058,654	467,621	2,444,958	5,941,593
A	105,947,055	-	81,417,463	-	1,743,871	22,785,721
BBB	152,883,220	-	127,000,887	481,541	-	25,400,792
Total credit risk of debt securities	$ 501,869,512	8,652,901	218,198,146	78,545,067	4,188,829	192,284,569
US govt & agencies*	69,113,485					
	$ 570,982,997					

* Obligations of the US government or obligations explicitly guaranteed by the US government are not considered to have credit risk and do not have purchase limitations.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

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Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit.

The System's currency risk exposure, or exchange rate risk, primarily resides within the System's international equity investment holdings. The System's Investment Policy is to allow its external managers to decide what action to take regarding their respective portfolio.

The System's exposure to foreign currency risk includes the following international securities (all equity) as of December 31, 2018 and December 31, 2017:

Currency		2018 Fair value	2017 Fair value
British Pound Sterling	$	82,171,014	116,391,366
EURO Currency		50,374,907	86,082,473
Japanese Yen		48,326,006	73,554,136
Swiss Franc		29,336,097	40,268,882
Hong Kong Dollar		17,479,777	29,727,121
Danish Krone		10,923,407	11,115,226
Canadian Dollar		7,879,825	22,295,523
Australian Dollar		7,155,936	18,567,769
Swedish Krona		1,839,134	7,784,134
Singapore Dollar		1,184,630	13,807,136
Norwegian Krone		637,626	2,518,194
Israeli Shekel		525,820	-
New Zealand Dollar		361,122	6,591,720
South African Rand		-	2,186,688
Total securities subject to foreign currency risk	$	258,195,301	430,890,368

Foreign Currency Options

The System periodically invests in foreign currency options in order to hedge the value of a portion of its investments denominated in foreign currencies. Financial options are an agreement giving one party the right, but not the obligation, to buy or sell a specific amount of an asset for a specified price on or before a specified expiration date. The foreign currency options held by the System entitle the System to convert the value of certain foreign equities into US dollars at an agreed rate. At December 31, 2018 and 2017, the System held no foreign currency options.

Securities Lending

The System is authorized under its Investment Policy to participate in securities lending programs through Northern Trust Investments Inc. under which, for an agreed-upon fee, System-owned investments are loaned to a borrowing financial institution. Under this agreement, when the loan closes, the borrowed securities are returned to the System and the collateral is returned to the borrower. The lending agreement requires securities on loan to be collateralized by cash, US government securities, or irrevocable letters of credit with a total market value of at least 102% of the loaned System securities. For global securities pledged as collateral, total market value shall not be less than 105%. The System cannot sell or pledge the non-cash collateral of $10,020,211 unless a default of the securities lending agreement has occurred.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

Cash collateral can be invested in a short-term investment pool or in term loans. The term loans can be terminated on demand by either lender or borrower. At December 31, 2018 and 2017, System investments in possession of a borrowing financial institution were collateralized by cash and irrevocable letters of credit. The cash collateral was invested in a short-term investment pool with an average weighted maturity approximating the maturity of the security loans. There were no significant violations of legal or contractual provisions, and no borrower or lending agent default for fiscal years 2018 and 2017.

As of December 31, 2018 and 2017, the System owned the following securities that were in possession of a borrowing financial institution:

		2018		2017	
		Fair value of loaned securities	Cash collateral received	Fair value of loaned securities	Cash collateral received
US equities	$	67,884,525	69,250,921	66,196,117	67,942,215
International equities		2,018,066	2,126,002	17,658,202	18,524,897
US corporate fixed		8,591,351	8,771,436	4,406,423	4,523,760
US government fixed		31,321,864	31,900,619	56,635,884	57,931,977
Total	$	109,815,806	112,048,978	144,896,626	148,922,849

Cash collateral received from borrowers of securities is invested in accordance with COAERS' securities lending agreement. As of December 31, 2018 and 2017, cash collateral was invested in the following categories:

Investment Category		2018	2017
Cash and other liquid assets	$	16,235,897	12,375,489
Asset-backed securities		16,213,487	34,550,101
Commercial paper		11,294,537	21,906,551
Repurchase agreements		12,123,699	14,549,762
Certificates of deposit		8,403,673	21,355,537
US govt & agencies		717,114	1,370,090
Domestic corporate fixed-income securities		47,060,571	42,815,319
Total cash collateral received	$	112,048,978	148,922,849

(4) Fair Value Measurement

In accordance with GASB 72, COAERS categorizes the fair value measurements of its investments within a fair value hierarchy as established by generally accepted accounting principles. Fair value measurements are classified as Level 1, Level 2 or Level 3, based on the inputs utilized to establish fair value:

Level 1 inputs are based on quoted prices (unadjusted) in active markets for identical assets or liabilities in active markets that an entity can access at the measurement date.

Level 2 inputs (other than quoted prices included within Level 1) are observable for similar assets or liabilities.

Level 3 inputs are developed by the reporting entity based on unobservable inputs for an asset or liability.

For investments in certain entities that calculate net asset value and do not have a readily determinable fair value, fair value reporting is permitted based on the NAV per share (or its equivalent) as a practical expedient, where certain conditions are met. These investments are not included in the leveling hierarchy.

The categorization of investments described above is based solely upon the objectivity of the inputs used, to reflect their relative reliability in the measurement of an investment's fair value, and does not reflect the level of risk associated with the investment.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

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All equities securities, which include Domestic Fixed Income Collective Trusts, U.S. Denominated, International, Emerging Markets, Real Estate, and Infrastructure, are classified in Level 1 of the fair value hierarchy as these are valued using quoted prices in active markets for those investments.

The investments classified in level 2 of the fair value hierarchy have available prices but are not traded in an active market. Short-term investment funds, domestic fixed income, and securities lending collateral, all fall into this category based on this criteria. Additionally, the short-term investment fund is a highly liquid instrument that is priced based on the fair values of its underlying investments which are less liquid than equities such as bonds or real estate.

COAERS' investments and securities lending collateral reinvested have the following fair value measurements as of December 31, 2018 and 2017, respectively.

		2018			
		Fair value measurements using			
Investments at fair value:	Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Net asset value (NAV)
Short-term investment funds	**$ 19,522,020**	**-**	**19,522,020**	**-**	**-**
Fixed income					
Commercial mortgage-backed securities	10,409,964	-	10,409,964	-	-
Corporate bonds	209,431,437	-	209,431,437	-	-
Government agencies	1,393,027	-	1,393,027	-	-
Government bonds	63,818,127	-	63,818,127	-	-
Government mortgage-backed securities	93,795,192	-	93,795,192	-	-
Domestic fixed income collective trust	160,852,093	160,852,093	-	-	-
	539,699,840	**160,852,093**	**378,847,747**	**-**	**-**
Global equities					
US equities					
US equities	606,989,897	606,989,897	-	-	-
US equity collective trust	237,535,669	237,535,669	-	-	-
	844,525,566	**844,525,566**	**-**	**-**	**-**
Developed markets equities					
Developed markets equities	258,195,301	258,195,301	-	-	-
International equity mutual fund	97,538,181	97,538,181	-	-	-
	355,733,482	**355,733,482**			
Emerging markets equities					
Emerging markets collective trust	104,136,169	104,136,169	-	-	-
Emerging markets equity mutual fund	101,833,810	101,833,810	-	-	-
	205,969,979	**205,969,979**	**-**	**-**	**-**
Real assets					
Real estate	**243,188,632**	**243,188,632**	**-**	**-**	**-**
Multi-asset					
Strategic partnership collective funds	**121,525,284**	**121,525,284**	**-**	**-**	**-**
Total investments by fair value level	**2,330,164,803**	**1,931,795,036**	**398,369,767**	**-**	**-**
Investments measured at NAV:					
Multi-asset					
Risk Parity limited partnership	**112,059,661**	**-**	**-**	**-**	**112,059,661**
Total investments	**2,442,224,464**				
Invested securities lending collateral	**$ 112,048,978**	**-**	**112,048,978**	**-**	**-**

(Continued)

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

Investments measured at the net asset value (NAV)				
2018	**Fair Value**	**Unfunded Commitments**	**Redemption Frequency**	**Redemption Notice**
Risk parity limited partnership	112,059,661	-	Weekly and LBD	5 business days

The risk parity investment with AQR Capital Management is a limited partnership, multi-asset fund that delivers exposure to a risk parity asset allocation strategy. This institutional commingled vehicle is structured as Delaware limited partnership that offers liquidity on a weekly basis with notice.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

		2017				
		Fair value measurements using				
Investments at fair value:		Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Net asset value (NAV)
Short-term investment funds	$	**27,339,218**	**-**	**27,339,218**	**-**	**-**
Fixed income						
Commercial mortgage-backed securities		8,652,901	-	8,652,901	-	-
Corporate bonds		218,198,146	-	218,198,146	-	-
Government agencies		949,162	-	949,162	-	-
Government bonds		73,302,313	-	73,302,313	-	-
Government mortgage-backed securities		77,595,906	-	77,595,906	-	-
Domestic fixed income collective trust		192,284,569	192,284,569	-	-	-
		570,982,997	**192,284,569**	**378,698,428**	**-**	**-**
Global equities						
US equities						
US-equities		737,332,574	737,332,574	-	-	-
US equities collective trust		162,523,707	162,523,707	-	-	-
		899,856,281	**899,856,281**	**-**	**-**	**-**
Developed markets equities		**430,890,368**	**430,890,368**	**-**	**-**	**-**
Emerging markets equities						
Emerging markets collective trust		170,385,131	170,385,131	-	-	-
Emerging markets equity mutual fund		95,975,108	95,975,108	-	-	-
		266,360,239	**266,360,239**	**-**	**-**	**-**
Real assets						
Real estate		**224,622,762**	**224,622,762**	**-**	**-**	**-**
Infrastructure - US equities		**74,751,043**	**74,751,043**	**-**	**-**	**-**
Total investments by fair value level		**2,494,802,908**	**2,088,765,262**	**406,037,646**	**-**	**-**
Investments measured at NAV:						
Real assets						
Commodities institutional fund		**15,808,140**	**-**	**-**	**-**	**15,808,140**
Multi-asset						
Risk Parity limited partnership		**119,317,379**	**-**	**-**	**-**	**119,317,379**
Total investments measured at NAV		**135,125,519**	**-**	**-**	**-**	**135,125,519**
Total investments		**$ 2,629,928,427**				
Invested securities lending collateral		**$ 148,922,849**	**-**	**148,922,849**	**-**	**-**

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

Investments measured at the net asset value (NAV)

2017	Fair Value		Unfunded Commitments	Redemption Frequency	Redemption Notice
Commodities institutional fund	15,808,140	(a)	-	15th and LBD	5 business days
Risk parity limited partnership	119,317,379	(b)	-	Weekly and LBD	5 business days
Total cash collateral received	$ 135,125,519				

(a) The commodities fund with CoreCommodity Management invests in commodity futures. This institutional commingled vehicle is structured as a Delaware limited liability company that offers twice monthly liquidity with five days' notice.

(b) The risk parity investment with AQR Capital Management is a limited partnership, multi-asset fund that delivers exposure to a risk parity asset allocation strategy. This institutional commingled vehicle is structured as Delaware limited partnership that offers liquidity on a weekly basis with notice.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(5) Pension Plan Investments

(a) Investment Policy

The Board has the authority to establish the investment policy and the asset allocation policy. The general investment objective is to obtain a reasonable long-term total return consistent with the degree of risk assumed, while emphasizing the preservation of capital.

(b) Asset Allocation

The System's strategic asset allocation targets as of December 31, 2018 and 2017, as adopted by the Board of Trustees, are as follows:

	2018	2017
US equities	32.00%	30.00%
Developed markets equities	15.00%	20.00%
Emerging markets equities	8.00%	10.00%
Fixed income	20.00%	24.50%
Real estate	10.00%	5.50%
Infrastructure	5.00%	4.00%
Commodities	—	1.00%
Strategic partnership	5.00%	—
Risk parity	5.00%	5.00%
	100.00%	100.00%

During 2018, the Board approved a new asset allocation and continued restructuring the fund which involved the termination of certain existing investment managers and the hiring of new ones.

(c) Method Used to Value Investments

- The System's equity and fixed income investments are reported at fair value based on independent pricing services.
- Short-term cash investments are reported at cost, which approximates fair value.
- International securities are reported at fair value in US dollars converted at current exchange rates.
- Investments that do not have an established market are valued based on the net asset value provided by independent audits.
- The System's portfolio includes the Mellon Dynamic US Equity Fund and the Legal & General Investment Management America Inc Russell 2000 Index Fund. The investments are held as shares of the respective collective investment trust, and pricing of securities and financial instruments is according to each funds' established framework to ensure a fair, accurate and consistent valuation.
- The System's exposure to international emerging markets comes through two funds: one managed by Legal & General Investment Management America Inc. and Baillie Gifford Overseas LTD. These investments are commingled arrangements where assets are pooled with other institutional investors and then unitized with the value of the units determined by the fair value of the entire pool.
- The System also invests in the Northern Trust Investments Inc. (the Trustee) Collective Aggregate Bond Index Fund and MSCI World ex US Small Cap Index Fund that may hold units of participation in any fixed income collective fund established and maintained by the Trustee or any of its affiliates. The Trustee values its securities at fair value; any securities for which no current market quotation is readily available are valued at fair value as determined in good faith by the Trustee.
- The System's real estate commingled fund is an open-end investment fund that includes properties that are valued monthly; all properties within this fund are appraised externally by nationally recognized appraisers.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

- The system's strategic partnership with BlackRock Institutional Trust Company invests in BlackRock managed funds. Each fund's net asset value is based on the market value of the fund's assets on the valuation date minus the Fund's liabilities on the valuation date. The fund's unit value is calculated by dividing the Fund's net asset value on the valuation date by the number of units of the Fund that are outstanding on the valuation date.
- Investment income is recognized in the period earned and purchases and sales of investments are recorded on a trade-date basis. Net appreciation/depreciation in Plan investments includes both realized and unrealized gains and losses.

(d) Rate of Return

For the year ended December 31, 2018, the annual money-weighted rate of return on System investments net of pension plan investment expense was -5.80%, a decrease from 16.84% at December 31, 2017. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

(e) Concentrations

If the pension plan held investments (other than those issued or explicitly guaranteed by the U.S. government, commingled funds, and other pooled investments) in any one organization representing 5% or more of the pension plan's fiduciary net position, the pension plan should disclose this information. At December 31, 2018 and 2017, there are no holdings that exceeded this disclosure trigger.

(6) Contributions and Funding Policy

As of December 31, 2018 and 2017, the System's funding policy, as guided by state law, requires contributions equal to 8% of base compensation by the participants and by the City.

While the contribution requirements are not actuarially determined, state law requires that each plan of benefits adopted by the System must be approved by a qualified actuary. The actuary certifies that the contribution commitment by the participants and the City provides an adequate financing arrangement. Using the entry age actuarial cost method, the System's normal cost is determined as a percentage of payrolls. The excess of the total contribution rate over the normal cost rate is used to amortize the System's unfunded actuarial accrued liability, if any exists, and the number of years needed to amortize the System's unfunded actuarial accrued liability is determined using a level percentage of payroll method.

The funding objective of the System is for contribution rates to be sufficient to cover the normal cost of the Plan and to amortize any unfunded actuarial accrued liabilities over a period not to exceed 25 years.

In 2005, the City of Austin City Council approved a Supplemental Funding Plan (SFP) relating to the System. The basic elements of this plan provided for an initial 1% contribution from the City beginning in October 2006, and increasing 1% each year until reaching a cap of 4%. This additional funding would continue as long as necessary and in an amount necessary, up to 4%, to sustain a 25-year funding period. While compliance with the SFP continued into 2010, the negative impact of 2008 capital markets on the Plan rendered the effect of SFP, the contributions of which had reached the 4% maximum, inadequate to achieve the System's funding goal.

An Amended Supplemental Funding Plan, adopted by the City Council in October 2010, increased the total employer contribution to the System to 14% of base compensation effective October 1, 2010. The Amended Supplemental Funding Plan also increases future employer contributions as follows: 16% of base compensation effective October 1, 2011 for fiscal year 2011-12; and 18% of base compensation effective October 1, 2012 for fiscal year 2012-13, and each fiscal year thereafter.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(7) Capital Assets

The following summarizes the capital asset account balances as of December 31, 2018 and December 31, 2017, and changes to the accounts during the years then ended:

		Balance December 31, 2016	Net Change	Balance December 31, 2017	Net Change	Balance December 31, 2018
Capital assets not being depreciated:						
Land	$	**249,964**	-	**249,964**	-	**249,964**
Capital assets being depreciated:						
Building		1,198,925	-	1,198,925	26,098	1,225,023
Furniture and fixtures		490,391	8,525	498,916	6,100,896	6,599,812
Work in Progress		2,355,487	1,029,237	3,384,724	(3,384,724)	-
Total capital assets being depreciated		**4,044,803**	**1,037,762**	**5,082,565**	**2,742,270**	**7,824,835**
Less accumulated depreciation:						
Building		619,788	29,973	649,761	29,973	679,734
Furniture and fixtures		304,932	30,307	335,239	261,115	596,354
Total accumulated depreciation		**924,720**	**60,280**	**985,000**	**291,088**	**1,276,088**
Total capital assets, net of accumulated depreciation	$	**3,370,047**	**977,482**	**4,347,529**	**2,451,182**	**6,798,711**

(8) Federal Income Taxes

The Plan is a Public Employee Retirement System and is exempt from federal income taxes. A favorable determination letter from the Internal Revenue Service was issued in February 2014.

(9) Risk Management

The System is exposed to various risks of loss related to torts, errors and omission, violation of civil rights, theft of, damage to, and destruction of assets, and natural disaster. These risks are covered by insurance purchased by the System. This coverage is in compliance with the workers' compensation laws of the State of Texas with no accident or aggregate deductibles. Property physical damage is insured to replacement value with a $5,000 deductible and a building limit of $2,189,000 with contents coverage of $745,000. Automobile limits are set at $1,000,000 per occurrence. Insurance coverage by major category of risk has remained relatively constant as compared to the prior fiscal year. Insurance settlements have not exceeded insurance coverage for any of the past three years. The System obtains Workers Compensation and Employers Liability coverage through Texas Mutual Insurance Company.

The System maintains a pension and welfare fund fiduciary responsibility insurance policy with an aggregate limit of liability of $20,000,000, and officers and directors liability coverage of $5,000,000.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(10) Net Pension Liability

The net pension liability is measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets. The Schedule of Net Pension Liability presents multi-year trend information (beginning with FY 2014) to illustrate changes in the plan fiduciary net positions over time, relative to the total pension liability. The components of COAERS' net pension liability at December 31, were as follows:

Schedule of Net Pension Liability

FY Ending December 31	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability
2018	$3,989,560,137	2,461,383,437	1,528,176,700	61.70%

In addition to the above, this information is presented in the Required Supplementary Information section beginning on page 58.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(a) Actuarial Methods and Assumptions Used to Determine Total Pension Liability

The total pension liability was determined by an actuarial valuation as of December 31, 2018, using the following actuarial assumptions:

Summary of Actuarial Assumptions

Valuation date:	December 31, 2018
Notes	Members and employers contribute based on statutorily fixed or negotiated rates. A funding period is solved for through open group projections. The actuarially determined contribution is determined by applying the contribution rate from the funding valuation based on the Board's Funding Policy to the calendar year payroll following the valuation date. In other words the contribution rated determined by the December 31, 2017 valuation is used to determine the actuarially determined contribution amount for the period January 1, 2018 thru December 31, 2018.

Methods and Assumptions Used to Determine Total Pension Liability:

Actuarial cost method	Entry Age Normal
Inflation	2.75%
Salary increases	4.00% to 6.25%
Investment rate of return	7.50%
Retirement age	Experience-based table of rates that are gender specific. Last updated for December 31, 2015 valuation pursuant to an experience study of the 5-year period ending December 31, 2015.
Mortality	RP-2014 Mortality Table with Blue Collar adjustment. Generational mortality improvements in accordance with Scale BB are projected from the year 2014.

Other Information:

Notes	There were no benefit changes during the year.

The Plan does not require regular ad hoc post-employment benefits, and none have been made since 2002.

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CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2018 and 2017

(b) Single Discount Rate

The Single Discount Rate of 7.50% used to measure the total pension liability, was based on the expected rate of return on pension plan investments. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made in accordance with the Supplemental Funding Plan. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Long-Term Expected Real Rate of Return

Asset Class	2018	2017
US equities	5.30%	5.30%
DM equities	6.62%	6.37%
EM equities	7.14%	6.62%
Fixed income	3.58%	3.33%
Real estate	5.27%	5.52%
Infrastructure	6.65%	6.34%
Commodities	-	3.95%
Strategic partnerships	5.39%	-
Risk parity	5.73%	5.48%
Cash	2.96%	2.46%

(c) Sensitivity of the Net Pension Liability to Changes in the Discount Rate

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 7.50%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

1% Decrease 6.50%	Current Single Discount Rate Assumption 7.50%	1% Increase 8.50%
$ 2,011,390,657	$ 1,528,176,700	$ 1,125,047,142

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Required Supplementary Information

December 31, 2018

Schedule of Changes in the Net Pension Liability and Related Ratios

Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	$ 111,438,032	$ 107,767,510	$ 107,111,330	$ 93,506,590	$ 89,235,267
Interest on the Total Pension Liability	281,403,651	266,257,048	251,684,051	236,843,912	222,709,911
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	1,882,436	22,754,618	19,913,690	13,413,789	33,911,010
Assumption Changes	-	-	-	123,493,165	-
Benefit Payments	(198,846,376)	(186,286,855)	(175,218,095)	(165,464,616)	(157,563,807)
Refunds	(4,140,909)	(4,045,324)	(3,910,786)	(4,052,436)	(4,154,419)
Net Change in Total Pension Liability	191,736,834	206,446,997	199,580,190	297,740,404	184,137,962
Total Pension Liability - Beginning	3,797,823,303	3,591,376,306	3,391,796,116	3,094,055,712	2,909,917,750
Total Pension Liability - Ending (a)	$ 3,989,560,137	$ 3,797,823,303	$ 3,591,376,306	$ 3,391,796,116	$ 3,094,055,712
Plan Fiduciary Net Position					
Employer Contributions	$ 116,485,749	$ 110,846,582	$ 104,272,794	$ 100,484,694	$ 93,331,482
Employee Contributions	58,713,327	56,193,592	60,801,253	54,065,793	50,489,091
Pension Plan Net Investment Income	(157,242,103)	376,820,025	171,640,015	(47,607,661)	99,704,100
Benefit Payments	(198,846,376)	(186,286,855)	(175,218,096)	(165,464,616)	(157,563,807)
Refunds	(4,140,909)	(4,045,324)	(3,910,786)	(4,052,436)	(4,154,419)
Pension Plan Administrative Expense	(4,024,367)	(2,778,290)	(2,700,916)	(2,421,331)	(2,631,218)
Other	-	-	-	-	-
Net Change in Plan Fiduciary Net Position	(189,054,679)	350,749,730	154,884,264	(64,995,557)	79,175,229
Plan Fiduciary Net Position - Beginning	2,650,438,116	2,299,688,386	2,144,804,122	2,209,799,679	2,130,624,450
Plan Fiduciary Net Position - Ending (b)	$ 2,461,383,437	$ 2,650,438,116	$ 2,299,688,386	$ 2,144,804,122	$ 2,209,799,679
Net Pension Liability - Ending (a) - (b)	1,528,176,700	1,147,385,187	1,291,687,920	1,246,991,994	884,256,033
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	61.70 %	69.79 %	64.03 %	63.24 %	71.42 %
Covered Payroll	$ 647,143,050	$ 615,814,344	$ 579,293,294	$ 558,248,300	$ 518,508,233
Net Pension Liability as a Percentage of Covered Payroll	236.14 %	186.32 %	222.98 %	223.38 %	170.54 %

Notes to Schedule:

1) Schedule will be built out to 10 years.
2) Covered payroll is imputed from the actual employer contributions during the calendar year.

See accompanying Independent Auditors' report

See accompanying Independent Auditor's report.

CITY OF AUSTIN EMPLOYEES' RETIREMENT SYSTEM

Required Supplementary Information

December 31, 2018

Schedule of Contributions

FY Ending December 31	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered
2014	$ 94,627,753	$ 93,331,482	$ 1,296,271	$ 518,598,233	18.00%
2015	98,419,175	100,484,694	(2,065,519)	558,248,300	18.00%
2016	114,931,790	104,272,793	10,658,997	579,293,294	18.00%
2017	120,761,193	110,846,582	9,914,611	615,814,344	18.00%
2018	125,092,752	116,485,749	8,607,003	647,143,050	18.00%

Note: Schedule will be built out to 10 years.

Schedule of Investment Returns

Year	Annual Return *
2018	-5.80%
2017	16.84%
2016	8.30%
2015	-1.89%
2014	5.02%

** Annual money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of investment expenses*

See accompanying Independent Auditor's report.

OTHER SUPPLEMENTARY INFORMATION

Investment Expenses

		2018	2017
Custodial & Transaction Fees			
The Northern Trust Company	$	132,700	144,950
Transition and other fees		254,792	202,668
		387,492	**347,618**
Investment Management Fees			
1607 Capital International Equities		894,415	813,566
Agincourt Fixed Income		575,005	502,532
BlackRock Multi-Asset Strategic Partnership		99,987	-
CoreCommodity Diversified Fund 1		31,835	59,128
Harvest MLP		175,954	588,076
INTECH Enhanced S&P 500		47,120	108,712
LGIMA Russell 2000 Index		14,000	14,799
LGIMA Scientific Beta EM 4F MBMS Index		241,074	257,175
Mellon Dynamic US Equity		317,475	-
Mondrian International Equities		528,440	919,647
Northern Trust Investment Funds		586,516	491,187
Sprucegrove International Equities		255,662	505,237
Walter Scott International Equities		736,290	687,332
Prior-year accrual-to-actual variance		82,401	130
		4,586,174	**4,947,521**

Note: These expenses are presented on an accrual basis; list does not reflect fees directly charged against commingled funds.

		2018	2017
Investment Consultant Fees			
Summit Strategies Group		-	128,333
RVK Inc		290,000	125,000
		290,000	**253,333**
Investment Counsel Fees			
Jackson Walker LLP		**34,268**	**1,911**
Investment Staff Resources			
Investment Systems			
Bloomberg Finance		22,162	-
FactSet Research Systems Inc		104,600	108,508
Investment Research			
eVestment Inc & Subsidiaries		22,747	21,500
Grants		1,175	-
Preqin		36,540	-
Yardeni Research Inc		6,000	6,000
Subscriptions			
MSCI Inc		1,000	1,000
		194,224	**137,008**
Total	$	5,492,158	5,687,391

Consultant Expenses

		2018	2017
Actuary			
GRS Retirement Consulting Group	$	**68,285**	**75,862**
Attorney			
Clark Hill Strasburger		6,320	-
Strasburger & Price LLP		5,080	2,145
Fletcher Farley Shipman & Salinas LLP		3,408	-
The Knight Law Firm LLP		84,106	82,292
		98,914	**84,437**
Auditing			
KPMG LLP		63,000	63,000
RSM US LLP		24,000	23,000
		87,000	**86,000**
Computer Services			
Levi Ray & Shoup		202,270	89,939
mindSHIFT Technologies		35,825	43,466
Whitehat Virtual Technologies		6,384	-
DNN Corporation		4,893	-
Flexential Colorado		35,182	-
Sikich LLP		12,096	9,590
Other		10,186	3,009
		306,836	**146,004**
Other Consultants			
Avison Young Texas LLC		-	8,925
CBIZ Human Capital Services		3,000	-
CEM Benchmarking Inc		-	3,000
Jonathan Decherd MD		4,169	3,277
Harold Skaggs MD		3,411	2,549
Hillco Partners LLC		36,000	-
Other		-	300
		46,581	**18,051**
Total	$	**607,616**	**410,354**

General & Administrative Expenses

		2018	2017
Actuary	$	68,285	75,862
Attorney		98,914	84,437
Auditing		87,000	86,000
Computer services		306,836	146,004
Consultants		46,581	18,051
Administrative		2,740,616	1,968,529
Depreciation		383,958	72,994
Insurance		156,794	154,182
Member communications		58,561	99,802
Continuing education & site visits		76,822	72,429
Total	$	**4,024,367**	**2,778,290**

See accompanying Independent Auditor's report.

Investment Section

coaers

City of Austin Employees' Retirement System

April 2019

Dear Members:

During 2018 the management of the Fund continued to be guided by the same set of core beliefs that has been articulated in prior annual letters:

- A pension fund has the longest of investment horizons and therefore rightly focuses on those factors that most impact long-term performance such as the pathway of returns.
- Strategic asset allocation is the primary determinant of long-term investment returns, and diversification represents the primary tool for ensuring that risk is fully rewarded over time.
- Effective implementation can also contribute meaningfully to long-term returns, and as such the judicious selection of investment style, vehicle, and structure represent material considerations.

By adhering to these longstanding principles and updating them as global financial markets evolve, we expect continued success in the prudent management of the assets of the Fund.

Sound investment principles are most important in volatile markets, and after a strong start 2018 turned out to be that kind of year in the end. The year opened with the Fund at record levels of $2.635 billion after the ebullient 16.6% returns for the Fund during 2017, which were driven by 20% gains in global equity markets. That growth continued through the third quarter of 2018, when modest gains by global equities put the Fund near $2.7 billion. However, during the fourth quarter global equity markets plunged 12%, a pullback that left most assets with significant losses for the year as shown in the table below.

Index	Asset Class	1 Year	3 Year	5 Year	10 Year
MSCI AC World IMI	Global All-Cap Equities	-10.1%	6.5%	4.2%	9.7%
S&P 500	US Large Cap Equities	-4.4%	9.3%	8.5%	13.1%
Russell 2000	US Small Cap Equities	-11.0%	7.4%	4.4%	12.0%
MSCI EAFE	Developed Markets Large Cap Equities	-13.8%	2.9%	0.5%	6.3%
MSCI EM	Emerging Markets Large Cap Equities	-14.6%	9.3%	1.6%	8.0%
BB Global Aggregate	Global Agg Bond	-1.2%	2.7%	1.1%	2.5%
BB Corporate Credit	US Investment Grade Credit	-2.5%	3.3%	3.3%	5.9%
BB U.S. MBS	US Mortgages	1.0%	1.7%	2.5%	3.1%
BB U.S. Treasury Bonds	US Treasury Bonds	0.9%	1.4%	2.0%	2.1%
BB U.S. Treasury Bills	US Treasury Bills	1.8%	1.0%	0.6%	0.3%
FTSE All Equity REIT	US Real Estate Investment Trusts	-4.0%	4.2%	8.3%	12.5%
BB Commodity	Global Commodities	-11.2%	0.3%	-8.8%	-3.8%

The most notable exception to the downdraft in markets was that T-bills and cash, which with 2% returns turned out to be the best performing assets of the year. It is also notable that global bonds declined for the year, which runs counter to a core assumption of traditional diversification approaches that expect bonds to rise as stocks decline. This trend is consistent with prior downturns in 2001-03 and 2008-09 when bonds proved less resilient than would have been desired. It is for this reason that during 2018 the Board approved the restructuring of the fixed income portfolio from a single sleeve of core US bonds to three separate allocations to credit, mortgages and Treasuries.

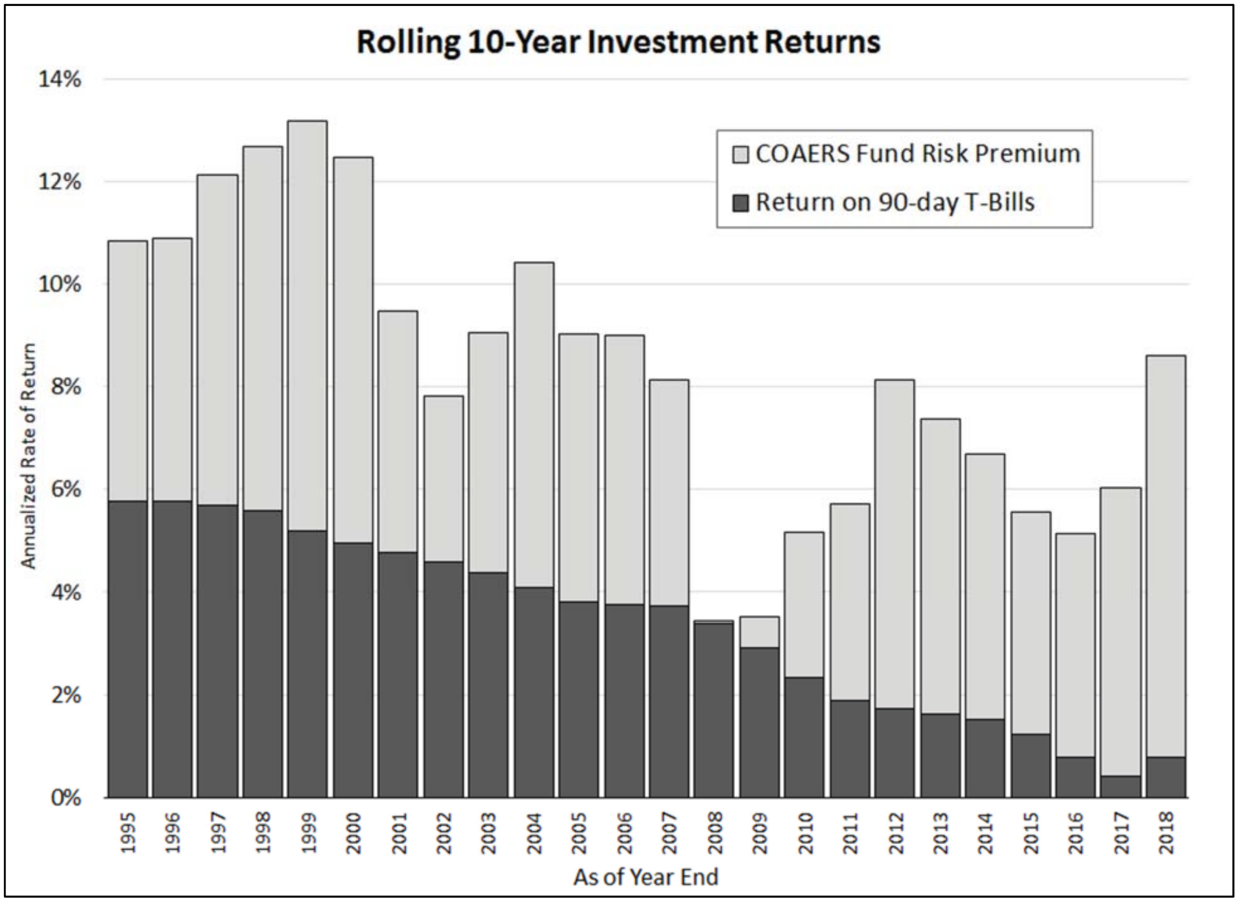
Amid this market turmoil, the Fund remained well diversified across a wide range of assets as shown in the allocation table below. Diversification is often called "the only free lunch" in finance since it represents the only way to reduce the risk of a portfolio without decreasing its expected return. At the end of 2018, all of the allocations were within the designated ranges with the exception of the infrastructure allocation, which was below minimum at that particular date pending the selection of appropriate managers during 2019.

STRATEGIC ASSET ALLOCATION				
ASSET CLASS	**12/31/18**	**Minimum**	**Target**	**Maximum**
GLOBAL EQUITIES	**58.1%**	**50.0%**	**55.0%**	**60.0%**
US Equities	32.6%	27.0%	32.0%	37.0%
DM Equities	17.1%	10.0%	15.0%	20.0%
EM Equities	8.4%	3.0%	8.0%	13.0%
FIXED INCOME	**22.3%**	**15.5%**	**20.0%**	**25.5%**
US Treasuries	5.1%	4.0%	8.0%	18.0%
US Mortgages	6.8%	2.0%	4.0%	8.0%
US Credit	10.4%	4.0%	8.0%	12.0%
REAL ASSETS	**9.9%**	**9.5%**	**15.0%**	**19.5%**
Real Estate	9.9%	7.0%	10.0%	14.0%
Infrastructure	0.0%	1.0%	5.0%	7.0%
MULTI-ASSET	**9.5%**	**7.5%**	**10.0%**	**12.5%**
Strategic Partnership	5.0%	2.5%	5.0%	7.5%
Risk Parity	4.6%	2.5%	5.0%	7.5%
CASH	**0.2%**	**-10.0%**	**0.0%**	**10.0%**

Amid the difficult market environment of 2018 the allocation produced investment returns of -5.91% net of expenses for the Fund, marking the first loss in a full calendar year since the Global Financial Crisis of 2008. Even so, strong implementation allowed the Fund to deliver 75 basis points of excess return above its Policy Benchmark, which amounts to roughly $20 million of capital preservation in a down market. These results allowed the Fund to end the year at $2.447 billion in assets.

While the investment gains of 2018 were certainly disappointing, over the last ten years the Fund has earned average returns of 9.6% annually, a figure well above its actuarially assumed long-term rate of return of 7.5%. By historical standards even this absolute level of realized return may appear relatively low, particularly when compared to the 1980s and 1990s when double-digit returns were common for diversified portfolios. However, the difference in absolute returns is explained by the extremely low interest rate environment that has prevailed in the new millennium and particularly since the 2008-09 global financial crisis.

The following table illustrates the pressure that low interest rates have exerted on long-term returns for the Fund and others like it, as well as the strong relative performance of the portfolio. It shows that over the long-term, the Fund has earned an average of 4-5% annually above the risk-free return that owning US Treasury bills would have provided during the trailing ten-year period. For the period ending in 2018, returns for the Fund were 7.8% over the meager 0.8% return of risk-free investments, which should be viewed as exceptionally healthy compensation for bearing investment risk. In this way, diversification across stocks, bonds, and other assets continues to deliver steady growth in the Fund's principal balance in order to meet its obligations to both current and future generations.



Our continuing commitment to best-in-class stewardship of the Fund also led us to undertake several important strategic initiatives with respect to investments last year.

- This year the Board, in conjunction with its Investment Consultant and Actuary, undertook an Asset/Liability Study. As a result, the Board adopted a new Strategic Asset Allocation, including revised targets and rebalancing ranges that reduced the Fund's exposure to international equities and fixed income while increasing the allocation to US equities and real assets.

- This year the System undertook a comprehensive review of its investment strategy, governance, and process. The strategies of best in class global peers were examined for their appropriateness and best practices adopted as part of what is known internally as the "Austin model." As part of this, the Board articulated an inaugural set of Investment Beliefs to guide its decision making.

- In doing so, the Board adopted meaningful improvements to the Investment Policy, including the creation of a new Investment Implementation Policy to guide more clearly the specifics of this important aspect of value creation. The Board authorized a new process for the selection of investment managers and also the hiring of a Portfolio Manager to oversee this critical role, a position that has been filled quite capably by my new colleague David Stafford.

- Staff continued its strategic review of the Fund's investment management expenses. As a result of these efforts and others that remain in the works, the Fund expects to save several million dollars in fees annually while improving its ability to serve as a secure source of retirement income for all beneficiaries.

In short, the Fund continues to be managed in a professional and principled manner amid an increasingly volatile and unpredictable market environment. In the year ahead, we look forward to implementing these initiatives and many others in the service of the Fund and its beneficiaries.

Sincerely,

David T. Veal, CFA, CAIA, FRM
Chief Investment Officer

RVK

Memorandum

To	Board of Trustees
From	RVK, Inc.
Subject	2018 Comprehensive Annual Financial Report ("CAFR")
Date	March 6, 2019

Dear Trustees:

This letter serves to provide an overview of the capital markets and the City of Austin Employees' Retirement System (the "System") portfolio positioning for the fiscal year ended December 31, 2018.

The 2018 fiscal year was characterized by a continued U.S. equity rally through the first three quarters of 2018, followed by a sharp selloff in fourth quarter. U.S. equity markets were driven by expectations of continued, but slowing, economic growth coupled with generally accommodative central bank policy. While markets remained stable for most of the year, a spike in market volatility was experienced late in the year as investors reacted negatively to the prospect of higher future inflation, rising interest rates, a partially inverted yield curve, and potential global trade conflicts. The U.S. equity markets, as measured by the S&P 500 Index, returned -4.4% in 2018 amidst mixed U.S. economic news including a continued increase in housing demands, a low unemployment rate of 3.9%, rising interest rates, and heightened fears of trade war escalations between the U.S. and China. International equity markets significantly lagged their U.S. counterparts throughout the year as future growth expectations weakened across most emerging and developed economies. A stronger U.S. dollar and geopolitical risks including newly imposed trade tariffs, and uncertainty over the U.K's decision to leave the EU were cited as primary factors contributing to the slowdown. Developed non-U.S. equity markets, as measured by the MSCI EAFE Index, lost 13.8% in 2018, while emerging markets, as measured by the MSCI EM Index, lost 14.6%.

Jerome Powell assumed the role of Chairman of the Federal Open Market Committee ("FOMC") in February 2018, sharing a favorable assessment of the economy with the prior Chair. Through the first three quarters of the year, continued improvement in U.S. economic fundamentals resulted in the FOMC raising the federal funds three times, from a range of 1.25%-1.50% to 2.00%-2.25%. Despite economic and corporate earnings data suggesting a slowdown in U.S. growth, the FOMC voted to raise U.S. interest rates for a fourth time in 2018 at the December meeting, bringing the target range to 2.25%-2.50% by year-end.

The European Central Bank ("ECB") projected slowing economic growth from 2.5% in 2017 to 1.7% by 2020. Despite signs of slowing growth in Europe, the ECB maintained guidance that it would continue to reduce the pace of asset purchases and likely end its quantitative easing program by 2019. Collectively, global central banks continue to pivot away from the use of extraordinary measures to stimulate economic activity.

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Interest rate hikes provided strong headwinds for the U.S. bond market during the fiscal year as the Bloomberg U.S. Aggregate Bond Index returned 0.0%. Internationally, the strengthening of the U.S. dollar, turmoil in Turkey and Argentina, and escalating trade wars in the final months of the year negatively impacted international markets, as the Bloomberg Global Aggregate Index lost 1.2%. The price of oil plummeted from $73 a barrel to $45 a barrel during the fourth quarter, leading the Bloomberg Commodity Index to return -11.2%. While private real estate assets measured by the NCREIF ODCE Index (Gross) returned 8.3% in 2018, public US REITs as measured by the Wilshire U.S. REIT Index returned -4.6%, driven by a sharp selloff in the fourth quarter.

The market value of the System's investments decreased from $2.64 billion to $2.45 billion in the year ended December 31, 2018. The System's current actuarial assumed rate of return is 7.5%, which represents the System's long-term return goal. The System's overall net of fees investment return over the past year was -5.9% while the System's three-year annualized return was 5.8%. The five-year annualized return for the System was 4.0% and the System's ten-year annualized return was 8.6%.

At the end of the fiscal year 2018, all asset classes were within their target ranges.

During the fiscal year, Staff, the Board, and RVK, Inc. ("RVK") conducted an asset/liability study, updated the System's target allocation and allowable allocation bands, and made several changes to the current and proposed manager lineup. Staff, the Board, and RVK will continue to monitor the portfolio, recommending enhancements that can improve potential return and/or diversification as deemed necessary.

The System's investment policies, goals, and objectives, as well as the performance of its assets and transaction costs are regularly monitored by Staff, the Board, and by RVK. These evaluations include analysis of the investment management firms and the custodial bank that serve the System.

The System's publicly traded assets managed through separate accounts, commingled vehicles, and mutual funds are held in custody at Northern Trust. Market values and returns referenced above are based upon statements prepared by Northern Trust. Their statements are, to the best of our knowledge, reliable and accurate. Investment performance is calculated using a time-weighted rate of return methodology (net of fees) based upon market values and cash flows.

RVK

We look forward to continuing to work with Staff and the Board to monitor, review, and best position the System's portfolio to meet its long-term goals and objective.

Sincerely,

Rebecca Gratsinger

Chief Executive Officer
RVK, Inc.

OUTLINE OF INVESTMENT POLICIES

The COAERS Board of Trustees, which has the fiduciary duty of overseeing the pension fund investments, has adopted an Investment Policy Statement and an Investment Implementation Policy, which guide the strategy and implementation aspects of the program, respectively. This summary includes the major elements of these annually reviewed documents. A copy of each, in its entirety, is available upon request.

INVESTMENT GOALS

The purpose of the COAERS Trust Fund (the Fund) is to accumulate the financial reserves necessary to provide for the retirement or pensioning of eligible COAERS members and their beneficiaries. Overseeing the management of the Fund's investments is the fiduciary duty of the COAERS Board of Trustees. The Board, COAERS Staff, and the Investment Consultant work together to formulate and implement an investment strategy that serves the long-term interests of the members by consistently achieving best-in-class results. The COAERS Investment Policy Statement and Investment Implementation Policy articulate the policies, guidelines and procedures employed in the day-to-day management of System assets.

The Fund will be structured and managed to maximize, net of fees and expenses, the probability of:

1. Achieving a long-term, annualized absolute rate of return that:
   - Meets or exceeds the assumed actuarial rate of return for the System;
   - Meets or exceeds the actuarially assumed rate of inflation by 4.75%.

2. Achieving a long-term, risk-adjusted relative rate of return that:
   - Ranks in the top quartile of peer comparisons consistently;
   - Meets or exceeds the Passive Index (i.e. the Reference Portfolio); and
   - Meets or exceeds the Policy Index (i.e. the Strategic Benchmark).

3. Achieving these strategic objectives via fiduciary best practices that:
   - Ensure proper diversification of asset classes and factor exposures;
   - Maintain appropriate long-term risk and return expectations; and
   - Adapt the asset allocation to changing market conditions.

The Board, with consultation, advice and assistance from the System's Staff and Investment Consultant, will use the Fund's Strategic Asset Allocation and its effective implementation as the primary tools to achieve these goals. A primary emphasis of the investment management of the Fund is consistency of growth by seeking to avoid both the permanent impairment of capital and the risk of inadequate long term returns. Taxes shall not be a consideration except that the System's tax exempt status should be preserved.

INVESTMENT BELIEFS

The COAERS Board of Trustees, in fulfilling its responsibility of ensuring that these assets are invested in a manner consistent with high fiduciary standards, has adopted the following investment beliefs to guide its asset allocation and investment implementation decisions.

- The Fund is a permanent entity with long-lived liabilities and, as such, it should strive to be a thoughtful, analytical, and patient investor.
- Clear governance and decision-making structures that promote decisiveness, simplicity, efficiency and accountability are effective and add value to the Fund.
- Strategic asset allocation is the most important choice in the investment process, with the level of risk assumed by the Fund driven primarily by its allocation to equity investments.
- Diversification across asset classes and risk factors is integral to the Fund's design and, as a result, investments that may improve the risk/return profile of the Fund will be considered.
- The Fund should seek to be well compensated for the investment risks it chooses to bear, risks that should be articulated at the time of investment and revisited regularly.
- In the long run, equity investments are the most prudent investment vehicle for the growth and preservation of real values.
- Costs can significantly reduce net returns and therefore must be carefully measured and managed when making decisions regarding investment strategy and implementation.
- Implementation should occur passively and in public markets unless a high likelihood of success on a risk-adjusted, net-of-fees basis can be expected from other approaches.
- To the extent possible, investment decision-making should be driven by data and analysis, including the findings of relevant research on financial markets and investment management.

INVESTMENT RESPONSIBILITIES

In fulfilling its fiduciary duty of overseeing the Fund and the associated investment process, the Board establishes and maintains the Investment Policy. Within this framework, the Board will select, contract with, monitor, and evaluate the Investment Consultant, Investment Managers, Global Custodian, Professional Staff and other parties to serve the goal that actual results meet the objectives. The Investment Policy Statement sets out specific duties and responsibilities for each as a means to achieve the objectives of the Fund, and the Board requires compliance from all parties. In furtherance of this goal, the Investment Implementation Policy (IIP) provides the basis for selecting, contracting, monitoring, and retaining investment managers.

ASSET ALLOCATION

Asset allocation refers to the percentage distribution of investments grouped by asset class. An asset class consists of investments having in common certain fundamental and risk-based characteristics. The Board, in conjunction with advice from Staff and the Investment Consultant, is responsible for setting the Strategic Asset Allocation (SAA) for the Fund and reviewing it periodically.

Asset/Liability studies are conducted at least every five years and provide the primary basis for changes to the SAA. Relevant policies are amended when a proposed investment strategy is adopted, and during times of phased transition to a new allocation, current values may deviate from the target SAA. The Board will review its asset allocations periodically, or sooner, if a material event in either the liability structure of the plan or the capital markets warrants a sooner look.

Market movements may cause the Fund's actual allocation to differ from its strategic targets. As such, a range has been set for the actual asset allocation of the System's assets to allow for fluctuations that are inherent in marketable securities. Rebalancing will take place when allocation amounts move beyond the rebalancing ranges set forth in policy.

PERMISSIBLE INVESTMENTS

The investment vehicles listed below are currently specifically permitted under the Investment Policy. They are categorized as equity, fixed income, or real estate to indicate how they are classified for purposes of the asset allocation guidelines. Unless given authorization in writing, managers are allowed to invest only in the security types listed below for the asset classes for which they have been hired and, when included in the Investment Policy or the IMA, the assigned benchmark.

Equities

- Common Stocks
- Preferred Stocks
- Exchange traded funds (ETFs)
- Real Estate Investment Trusts

Fixed Income

- Domestic and Yankee Bonds
- Mortgages and Mortgage-Backed Securities
- Asset-Backed Securities
- Cash-Equivalent Securities
- Money Market Funds, Bank STIF and STEP Funds

Real Assets

- Open Ended Commingled Funds
- Master Limited Partnerships
- Commodity Futures

1. The above assets can be held in commingled funds as well as separate accounts. If held in a Board-approved commingled fund or mutual fund, the prospectus, organizational document, or Declaration of Trust takes precedence over this document solely to the extent of any conflict with this document, unless provided otherwise in a written agreement between COAERS and the Manager.
2. SEC Rule 144(a) fixed income securities are allowable but private placement bonds are not.
3. No investment may be made that is prohibited by the Internal Revenue Service, the Department of Labor, or other federal or state law.

4. For purposes of definition, cash equivalent securities are any fixed income investment with less than one year to maturity or reset date.
5. The following portfolio concentration limitations will apply:
    - The securities representing equity of any one company shall not exceed 6% of the market value of any manager's Portfolio.
    - Fixed income securities of any issuer may not exceed 6% of the Portfolio at market. This restriction also applies to asset-backed securities, non-agency mortgage-backed securities (including commercial mortgage-backed securities) and taxable municipals.
    - The total holdings of a federal agency-issued mortgage-backed security of the same coupon and maturity series of the same agency shall not exceed 20% of the Portfolio at market (such securities include, but are not limited to GNMAs).
    - The direct debt of the US government (Treasury bonds, bills and notes) shall not be restricted as a percentage of the Portfolio.
6. Quantitative or Enhanced Index strategies may deviate from the above concentration limitations provided the manager is following a pre-established process and relative position limitation (i.e. index weight plus 1%) authorized in the IMA or specifically granted as an exception. The Manager shall monitor the account and shall promptly inform the Staff and Investment Consultant if the concentration restriction noted above is exceeded regardless of authorization or specifically granted exception.
7. Derivatives are permissible for the purpose of equitizing cash (e.g., an overlay program, reducing cash exposure, or in Portfolio transitions and rebalancing activities).
8. Equity managers may invest in depository receipts as long as the underlying security is permissible within these guidelines and the investment does not expose the Fund to any greater risk than the risk from holding the underlying security.
9. Domestic equity managers are allowed to invest in dollar-denominated, SEC registered stock of foreign domiciled companies traded on the NYSE, AMEX or OTC markets. Concentration restrictions for these securities are the same as for any other equity security.
10. Managers may be hired to invest primarily in closed-end and open-end funds as approved by the Board. In such accounts, closed-end and open-end funds are permissible holdings.
11. Risk parity, commodities, and multi-asset managers are authorized to manage portfolios that gain exposure to asset classes by investing in futures and other derivative instruments.
12. Investment vehicles such as limited partnerships are allowed but are subject to Board approval.

ASSET ALLOCATION

City of Austin Employees' Retirement System
Asset Allocation
as of 12/31/2018

INVESTMENT POLICY STRATEGIC ASSET ALLOCATION:	12/31/2018 VALUE	% OF FUND	ASSET ALLOCATION		VARIANCE FROM TARGET	
			TARGET %	TARGET AMOUNT	AMOUNT	%
Global Equity	**$ 1,421,579,322**	**58.08%**	**55.00%**	**1,346,206,464**	**75,372,858**	**3.08%**
US Equities	798,243,790	32.61%	32.00%	783,247,397	14,996,393	
Developed Market Equities	417,364,920	17.05%	15.00%	367,147,218	50,217,702	
Emerging Market Equities	205,970,612	8.42%	8.00%	195,811,849	10,158,763	
Fixed Income	**$ 544,799,321**	**22.26%**	**20.00%**	**489,529,623**	**55,269,698**	**2.26%**
Real Assets	**$ 243,188,632**	**9.94%**	**15.00%**	**367,147,218**	**-123,958,586**	**-5.06%**
Real Estate	243,188,632	9.94%	10.00%	244,764,812	(1,576,180)	
Infrastructure	0	0.00%	5.00%	122,382,406	(122,382,406)	
Multi-Asset	**233,584,945**	**9.54%**	**10.00%**	**244,764,812**	**-11,179,867**	**-0.46%**
Strategic Partnership	121,525,284	4.96%	5.00%	122,382,406	(857,122)	
Risk Parity	112,059,661	4.58%	5.00%	122,382,406	(10,322,745)	
Cash	**4,495,897**	**0.18%**	**0.00%**	**0**	**4,495,897**	**0.18%**
TOTAL	**$ 2,447,648,117**	**100.00%**	**100.00%**	**2,447,648,117**		

ASSET CLASS / MANAGER / STRATEGY		
US EQUITIES	**$ 798,243,790**	**32.61%**
MELLON CAPITAL - DYNAMIC US EQUITY	123,783,071	5.06%
INTECH - US ENHANCED INDEX STRATEGY	84,279,899	3.44%
NTI - SCIENTIFIC BETA US 4F MBMS EW INDEX	236,051,282	9.64%
NTI - SCIENTIFIC BETA US 6F MBMS EW HFI INDEX	240,376,940	9.82%
LGIMA - RUSSELL 2000 INDEX FUND	113,752,598	4.65%
DEVELOPED MARKET EQUITIES	**417,364,920**	**17.05%**
WALTER SCOTT & PARTNERS LTD	156,789,628	6.41%
1607 CAPITAL PARTNERS LLC	113,875,197	4.65%
NTI - SCIENTIFIC BETA DM 4F MBMS EW INDEX	49,186,718	2.01%
NT MSCI WORLD EX-US SMALL CAP INDEX	97,513,377	3.98%
EMERGING MARKET EQUITIES	**205,970,612**	**8.42%**
BAILLIE GIFFORD - EMERGING MARKETS FUND	101,833,810	4.16%
LGIMA - SCIENTIFIC BETA EM 4F MBMS INDEX FUND	104,136,802	4.25%
FIXED INCOME	**544,799,321**	**22.26%**
AGINCOURT CAPITAL MANAGEMENT LLC	383,927,730	15.69%
NTI AGGREGATE BOND INDEX FUND - NON-LENDING	160,871,591	6.57%
REAL ESTATE	**243,188,632**	**9.94%**
PRINCIPAL GLOBAL INVESTORS - US PROPERTY ACCOUNT	243,188,632	9.94%
STRATEGIC PARTNERSHIP	**121,525,284**	**4.96%**
BLACKROCK MULTI-ASSET STRATEGIC PARTNERSHIP	121,525,284	4.96%
RISK PARITY	**112,059,661**	**4.58%**
AQR GRP-EL FUND, LP	112,059,661	4.58%
CASH	**4,495,897**	**0.18%**
CASH	4,495,897	0.18%
TOTAL	**$ 2,447,648,117**	**100.00%**

Reconciliation to Statement of Net Position:

Interest and dividends receivable	**$**	**6,545,436**
Trades pending settlement (net)		**(1,121,783)**
Investments		**2,442,224,464**
Total investments (per global custodian)	**$**	**2,447,648,117**

SCHEDULE OF INVESTMENT RESULTS

Schedule of Investment Results

	Balance 12/31/17	Balance 12/31/18	CY 2018 Gross Return (%)	CY 2018 Mgmt Fees (Cash Basis)	After-Fees Return (%) CY 2018	3 Years	5 Years
US EQUITY	**$840,909,296**	**$798,243,790**	**(5.6)%**	**$694,026**	**(5.6)%**	**7.6 %**	**6.6 %**
Intech - Enhanced S&P 500	$90,992,517	$84,279,899	(7.3)%	$46,428	(7.4)%	7.3 %	7.9 %
S&P 500			(4.4)%		(4.4)%	9.3 %	8.5 %
Mellon Capital - Dynamic US Equity	-	$123,783,071	(5.3)%	$208,274	(5.5)%	N/A	N/A
S&P 500			(4.4)%		(4.4)%	9.3 %	8.5 %
NTI - Sci Beta US MBMS 4F Index	$587,393,072	$236,051,282	(6.1)%	$325,460	(6.1)%	7.5 %	N/A
Russell 1000 Index			(4.8)%		(4.8)%	9.1 %	8.2 %
NTI - Sci Beta US MBMS 6F HFI Index	-	$240,376,940	(6.5)%	$98,874	(6.5)%	N/A	N/A
Russell 1000 Index			(4.8)%		(4.8)%	9.1 %	8.2 %
LGIMA - Russell 2000 Index Fund	$162,523,707	$113,752,598	(10.9)%	$14,990	(11.0)%	N/A	N/A
Russell 2000 Index			(11.0)%		(11.0)%	7.4 %	4.4 %
DM EQUITY	**$512,508,077**	**$417,364,920**	**(13.4)%**	**$2,940,779**	**(13.9)%**	**5.4 %**	**2.1 %**
Walter Scott - International Equities	$168,333,832	$156,789,628	(6.6)%	$742,500	(7.0)%	7.9 %	4.1 %
MSCI EAFE			(13.8)%		(13.8)%	2.9 %	0.5 %
1607 Capital - International Equities	$113,538,341	$113,875,197	(14.3)%	$938,602	(15.0)%	4.6 %	1.9 %
90% MSCI EAFE/10% MSCI Emerging Mkts			(13.9)%		(13.9)%	3.5 %	0.7 %
NTI Sci Beta DM MBMS 4F Index	-	$49,186,718	(13.3)%	$85,946	(13.4)%	N/A	N/A
MSCI EAFE			(13.8)%		(13.8)%	2.9 %	0.5 %
NT - MSCI World ex-US Small Cap Index	-	$97,513,377	(17.3)%	$24,804	(17.3)%	N/A	N/A
MSCI World ex US Small Cap			(18.1)%		(18.1)%	3.9 %	2.3 %
Sprucegrove Investment Mgmt Inc	$87,467,546	-	-	$374,665	-	-	-
MSCI EAFE			(13.8)%		(13.8)%	2.9 %	0.5 %
Mondrian Investment Partners Ltd.	$143,168,358	-	-	$774,263	-	-	-
MSCI World ex US Small Cap			(18.1)%		(18.1)%	3.9 %	2.3 %
EM EQUITY	**$266,360,254**	**$205,970,612**	**(14.1)%**	**$924,938**	**(14.5)%**	**8.9 %**	**1.6 %**
Baillie Gifford - Emerging Markets Fund	$95,975,108	$101,833,810	(14.2)%	$660,543	(14.9)%	N/A	N/A
MSCI Emerging Markets			(14.6)%		(14.6)%	9.3 %	1.7 %
LGIMA - Sci Beta DM MBMS 4F Index Fund	$170,385,145	$104,136,802	(13.7)%	$264,395	(13.9)%	N/A	N/A
MSCI Emerging Markets			(14.6)%		(14.6)%	9.3 %	1.7 %
FIXED INCOME	**$576,095,173**	**$544,799,321**	**0.1 %**	**$647,715**	**0.0 %**	**2.2 %**	**2.6 %**
Agincourt Capital Mgmt LLC	$383,793,896	$383,927,730	0.2 %	$596,282	0.0 %	2.4 %	2.7 %
70% BB US Agg/30% BB Int Govt & Credit			0.3 %		0.3 %	2.0 %	2.4 %
NTI - US Agg Bond Index Fund	$192,301,277	$160,871,591	0.0 %	$51,433	(0.0)%	2.0 %	2.5 %
Barclays US Aggregate			0.0 %		0.0 %	2.1 %	2.5 %
REAL ESTATE	**$224,622,762**	**$243,188,632**	**9.3 %**	**$1,874,968**	**8.3 %**	**8.6 %**	**10.5 %**
Principal Global - US Property Account	$224,622,762	$243,188,632	9.3 %	$1,874,968	8.3 %	8.6 %	10.5 %
NCREIF ODCE			7.4 %		7.4 %	7.3 %	9.4 %
STRATEGIC PARTNERSHIP	**$0**	**$121,525,284**	**(7.1)%**	**$52,525**	**(7.1)%**	**N/A**	**N/A**
BlackRock - Multi-Asset Strategic Partnership	$0	$121,525,284	(7.1)%	$52,525	(7.1)%	N/A	N/A
BlackRock Strategic Partnership Custom			(6.0)%		(6.0)%	N/A	N/A
RISK PARITY	**$119,317,379**	**$112,059,661**	**(5.7)%**	**$448,770**	**(6.1)%**	**5.2 %**	**N/A**
AQR - GRP-EL Fund, LP	$119,317,379	$112,059,661	(5.7)%	$448,770	(6.1)%	5.2 %	N/A
S&P Risk Parity Index (10% Vol)			2.4 %		(4.0)%	3.9 %	2.4 %
MLPs	**$75,919,657**	**-**	**-**	**$314,984**	**-**	**-**	**-**
Harvest - MLP Strategy	$75,919,657	-	-	$314,984	-	-	-
Alerian MLP			(12.6)%		(12.6)%	(2.6)%	(6.4)%
COMMODITIES	**$15,808,140**	**-**	**-**	**$46,750**	**-**	**-**	**-**
CoreCommodity - Diversified Fund I	$15,808,140	-	-	$46,750	-	-	-
Bloomberg Commodity Index			(11.2)%		(11.2)%	0.3 %	(8.8)%
CASH	**$4,169,861**	**$4,495,897**	**1.8 %**	**$45,291**	**1.7 %**	**0.9 %**	**0.6 %**
NT- Government Short Term Investment Fund	$4,169,861	$4,495,897	1.8 %	$45,291	1.7 %	0.9 %	0.6 %
90 Day T-Bills			1.9 %		1.9 %	1.0 %	0.6 %
Total Fund	**$2,635,710,600**	**$2,447,648,117**	**(5.6)%**	**$7,990,746**	**(5.9)%**	**5.8 %**	**4.0 %**
**Policy Index*			(6.7)%		(6.7)%	5.2 %	3.7 %

Calculated using time-weighted rate of return based on market rate of return.

* Historical Composition of Policy Benchmarks as of Year End:

YE 2018: 32% Russell 3000, 15% MSCI ACWI xUS, 3% MSCI ACWI, 8% MSCI EM, 22% BB Global Agg, 10% FTSE NAREIT Equity REITs, 5% S&P Global Infra, 5% BlackRock Custom

YE 2017: 32% Russell 3000, 15% MSCI ACWI xUS, 3% MSCI ACWI, 8% MSCI EM, 22% BB Global Agg, 10% FTSE NAREIT Equity REITs, 5% S&P Global Infra, 5% BlackRock Custom

YE 2016: 32% Russell 3000, 15% MSCI ACWI xUS, 3% MSCI ACWI, 8% MSCI EM, 22% BB Global Agg, 10% FTSE NAREIT Equity REITs, 5% S&P Global Infra, 5% BlackRock Custom

YE 2015: 30% Russell, 30% MSCI ACW xUS, 3 % MSCI ACWI, 24.5% BB US Agg Bond, 2% BB Global Agg, 4% Alerian MLP, 5.5% NCREIF, 1% BB Cmdty

YE 2014: 25% S&P 500, 6% Russell 2000, 31% MSCI ACWI xUS, 24.5% BB US Agg Bond, 6% NCREIF, 5% Risk Parity, 1.5% Alerian MLP, 1% BB Cmdty

LARGEST PORTFOLIO HOLDINGS

TOP TEN EQUITY HOLDINGS

Shares	Stock		Fair Value	% of Fund
101,072	Pargesa Holding SA	$	7,264,101	0.30%
142,600	Taiwan Semiconductor Manufacturing Co.		5,263,366	0.22%
10,020	Keyence Corporation		5,085,117	0.21%
45,200	Daikin Industries, Ltd.		4,818,065	0.20%
522,000	AIA Group Limited		4,333,693	0.18%
198,114	Compass Group PLC		4,163,247	0.17%
14,100	LVMH Moet Hennessy Louis Vuitton SE		4,161,775	0.17%
13,400	SMC Corporation		4,059,755	0.17%
19,400	Adidas AG		4,045,105	0.17%
32,013	Air Liquide SA		3,968,800	0.16%
	Top 10 Equity Holdings	**$**	**47,163,024**	**1.93%**
	Total COAERS Investment Portfolio 12-31-2018	**$**	**2,447,648,117**	**100.00%**

Full listing available upon request.

TOP TEN BOND HOLDINGS

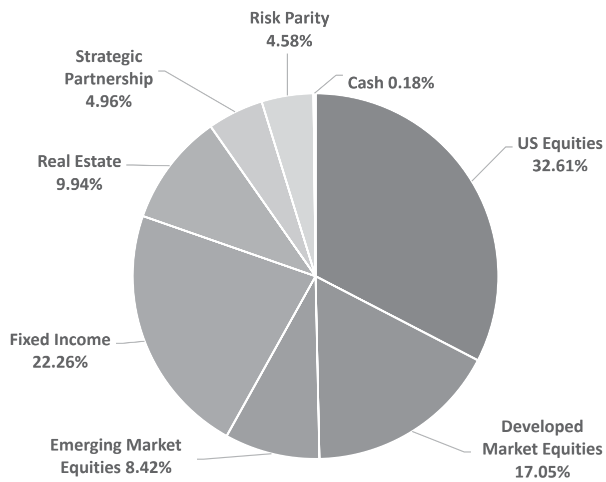
Par	Bond		Fair Value	% of Fund
36,000,000	United States Treasury Notes 1.625% 30-Jun-2020	$	35,513,424	1.45%
13,135,000	United States Treasury Bond 4.5% 15-Aug-2039		16,368,469	0.67%
12,692,946	FHLMC 30yr Pool#G08741 3.000% 01-Jan-2047		12,375,013	0.51%
6,575,610	GNMA II 30yr Pool#MA0783 3.500% 20-Feb-2043		6,678,834	0.27%
11,875,000	United States Treasury 0.0% 15-May-2039		6,555,166	0.27%
5,292,747	FHLMC 30yr Pool#G08726 3.000% 01-Oct-2046		5,164,784	0.21%
4,968,000	Citigroup Inc. 4.5% 14-Jan-2022		5,075,975	0.21%
4,747,000	JPMorgan Chase & Co. 4.35% 15-Aug-2021		4,857,729	0.20%
4,633,657	FNMA 30yr Pool#MA2896 3.500% 01-Feb-2047		4,643,531	0.19%
4,490,807	FNMA 30yr Pool#AS8573 3.500% 01-Dec-2046		4,499,434	0.18%
	Top 10 Bond Holdings	**$**	**101,732,359**	**4.16%**
	Total COAERS Investment Portfolio 12-31-2018	**$**	**2,447,648,117**	**100.00%**

Full listing available upon request.

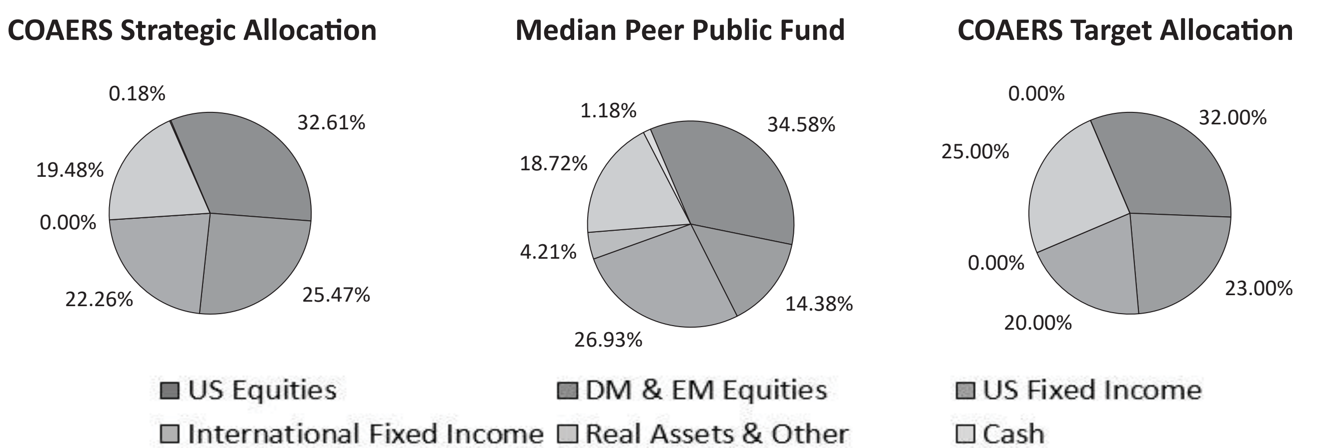
INVESTMENT SUMMARY AT FAIR MARKET VALUE

COAERS Investment Portfolio

Asset Class	Fair Value	Percentage of Total Fair Value
US Equities	798,243,790	32.61%
Developed Market Equities	417,364,920	17.05%
Emerging Market Equities	205,970,612	8.42%
Fixed Income	544,799,321	22.26%
Real Assets		
Real Estate	243,188,632	9.94%
Multi-Asset		
Strategic Partnership	121,525,284	4.96%
Risk Parity	112,059,661	4.58%
	2,443,152,220	99.82%
Cash	4,495,897	0.18%
TOTAL	2,447,648,117	100.00%



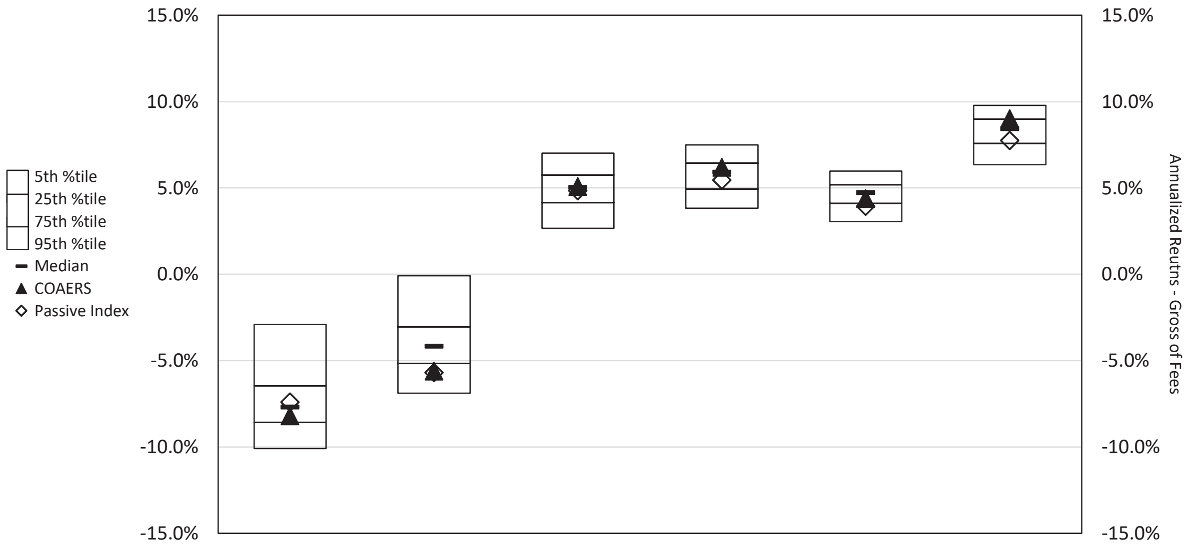
ALLOCATION BY SECTOR



BROKER COMMISSIONS OVER $5,000

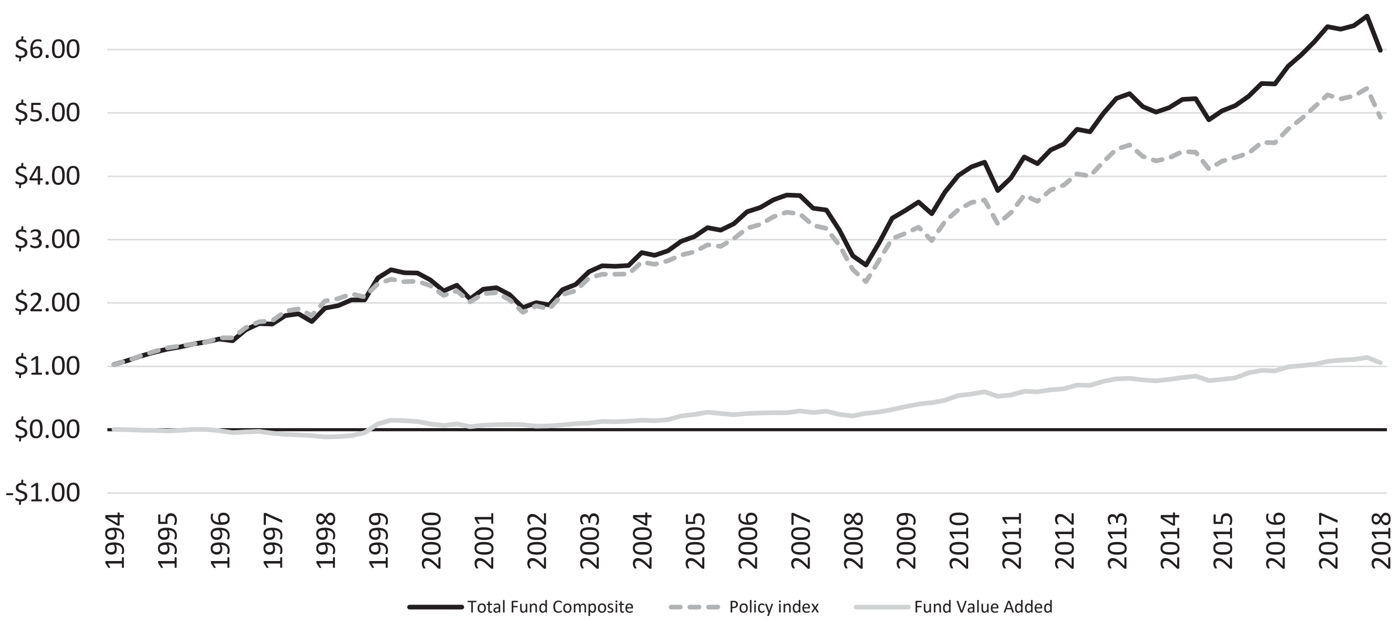
Broker Name	# of Shares Traded	Commission Paid	Cost per Share
Canaccord Genuity Limited	893,300	$ 9,133	$ 0.017
Cantor Fitzgerald Europe	1,248,200	8,299	0.008
Citigroup Global Markets Inc.	6,685,254	6,355	0.002
Citigroup Global Markets Limited	6,495,133	13,189	0.190
Clsa Singapore Pte Ltd.	1,504,173	9,500	0.029
Crest Depository Limited	2,257,967	14,321	0.013
Friedman Billing And Ramsey	213,096	6,393	0.030
Goldman Sachs International	2,741,150	5,573	0.037
Industrial And Commercial Bank Of China Financial	231,821	6,041	0.039
Instinet Europe Limited	1,303,608	7,279	0.010
Instinet, Llc	380,794	8,767	0.028
Investment Technology Group Ltd.	21,224,705	18,031	0.005
J.P. Morgan Securities Llc	12,087,480	6,017	0.023
J.P. Morgan Securities Plc	1,204,576	5,679	0.005
Jones Trading Institutional Service	672,939	5,608	0.009
Merrill Lynch, Pierce, Fenner & Smith Incorporated	232,293	5,510	0.031
National Financial Services Llc	5,062,194	42,558	0.008
Numis Securities Inc.	593,865	5,369	0.021
Raymond James And Associates	1,355,360	7,326	0.006
Sanford C. Bernstein Ltd	3,085,986	11,582	0.042
Smbc Nikko Capital Markets Limited	1,029,800	14,073	0.065
Societe Generale London Branch	3,873,790	14,141	0.049
Combined - 105 Brokers with Commissions < $5,000	541,341,201	76,723	0.014
Total Broker Commission	**615,718,685**	**$ 307,465**	**$ 0.025**

TOTAL FUND AND PASSIVE INDEX VS. MELLON PUBLIC FUND UNIVERSE



	4Q18	1 Year	2 Years	3 Years	5 Years	10 Years
COAERS	-8.20%	-5.62%	5.07%	6.18%	4.38%	9.00%
Passive	-7.41%	-5.71%	4.84%	5.45%	3.94%	7.74%
5th Percentile	-2.91%	-0.09%	7.01%	7.49%	5.98%	9.78%
1st Quartile	-6.47%	-3.04%	5.74%	6.43%	5.19%	8.98%
Median	-7.70%	-4.17%	5.03%	5.90%	4.73%	8.43%
3rd Quartile	-8.58%	-5.16%	4.26%	5.32%	4.13%	7.74%
95th Percentile	-10.10%	-6.89%	2.66%	3.82%	3.05%	6.34%
Observations	503	495	482	471	451	386

TOTAL GROWTH OF $1.00 VS. PASSIVE INDEX



Note: The Policy Index reflects a passive implementation of the Strategic Asset Allocation established by the Board, and outperformance represents the value added by investment implementation and rebalancing activities. At year-end 2018 the Policy Index was comprised of 32% Russell 3000, 15% MSCI ACWI xUS, 3% MSCI ACWI, 8% MSCI EM, 22% BB Global Agg, 10% FTSE NAREIT Equity REITs, 5% S&P Global Infrastructure, 5% BlackRock Custom.

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Actuarial Section

GRS Retirement Consulting

P: 469.524.0000 | F: 469.524.0003 | www.grsconsulting.com

May 15, 2019

Mr. Christopher Hanson
Executive Director
City of Austin Employees' Retirement System
418 E. Highland Mall Blvd.
Austin, TX 78752

Dear Mr. Hanson:

Subject: Actuarial Valuation as of December 31, 2018

We are pleased to present our report on the actuarial valuation of the City of Austin Employees' Retirement System (COAERS or the System). This report describes the current actuarial condition of COAERS, determines the period over which the unfunded liabilities of the System are expected to be paid off and determines the funded status of the System.

In addition, the report provides various summaries of the data. A separate report is issued with regard to valuation results determined in accordance with Governmental Accounting Standards Board (GASB) Statements 67 and 68. Results of this report should not be used for any other purpose without consultation with the undersigned. Valuations are prepared annually as of December 31st, the last day of the COAERS plan year. This report was prepared at the request of the Board and is intended for use by the COAERS staff and those designated or approved by the Board. This report may be provided to parties other than COAERS staff only in its entirety and only with the permission of the Board.

As you know, the employee and employer contribution rates are set by statute. It is expected that these contribution rates will remain level as a percentage of payroll. The System's funding policy is for the contribution rates to be sufficient to cover the normal cost of the plan and to amortize any unfunded actuarial accrued liabilities over a period not to exceed 25 years.

Currently, the total contribution rate is sufficient to amortize the System's unfunded liabilities in approximately 32 years. Therefore, the Board's funding policy is not currently being met. As of the prior valuation, the total contribution rate was sufficient to amortize the unfunded liabilities in 30 years. The increase in the funding period is primarily due to investment shortfalls versus expectations.

In 2010 the City of Austin adopted the Amended Supplemental Funding Plan (ASFP). The ASFP provides for an additional City contribution rate of up to a maximum of 10.0% above the base 8.0% rate. The City is now contributing an additional 10.0%, or a total rate of 18.0%. The additional contribution rate is intended to stay in place until the ASFP is amended or repealed.

We certify that the information presented herein is accurate and fairly portrays the actuarial position of COAERS as of December 31, 2018. All of the supporting schedules and tables contained in this actuarial valuation report were prepared by GRS Retirement Consulting (GRS), including various

Mr. Christopher Hanson
May 15, 2019
Page 2

accounting and statistical tables which should help you compare the results of this plan year with prior years. The information presented in the trend data schedules of this report has been prepared by GRS. The information for years 1993 through 2000 was prepared by Watson Wyatt & Company.

The following schedules in the actuarial section of the COAERS Comprehensive Annual Financial Report were prepared by GRS: Summary of Cost Items, Analysis of Normal Cost by Component, Actuarial Present Value of Future Benefits and Calculation of Actuarial Accrued Liability, Development of Actuarial Value of Assets, Change in Net Position, Change in Unfunded Actuarial Accrued Liability, Relative Size of Unfunded Actuarial Accrued Liability, Schedule of Active Member Valuation Data, Schedule of Retirees and Beneficiaries Added to and Removed from Rolls, Solvency Test, Schedule of Funding Progress.

GRS provided COAERS with the information used in preparing the following trend schedules in the financial section of the CAFR: Notes to the Financial Statements - Schedule of Net Pension Liability, and Sensitivity of the Net Pension Liability to Changes in the Discount Rate; Required Supplementary Information - Schedule of Changes in the Net Pension Liability and Related Ratios. GRS provided no additional assistance in the preparation of any other schedules in the financial section of the CAFR. These schedules were provided to COAERS in a separate GASB report.

As authorized under Article 6243n of the Vernon's Civil Statutes of the State of Texas, actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary. An experience investigation was performed for the five year period ending December 31, 2015. As a result of that study, revised assumptions were adopted by the Board effective with the valuation as of December 31, 2015. We believe the assumptions are internally consistent, reasonable, and, where appropriate, based on the actual experience of COAERS. All of the assumptions and methods used in this valuation were selected in compliance with the Actuarial Standards of Practice.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. 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.

Member data for retired, active and inactive participants was supplied as of December 31, 2018, by the COAERS staff. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data. Asset information was also supplied by the COAERS staff.

The last actuarial valuation of COAERS was prepared as of December 31, 2017 by GRS. Valuations are prepared annually as of December 31st.

GRS Retirement Consulting

Mr. Christopher Hanson
May 15, 2019
Page 3

This valuation is the first valuation performed since Actuarial Standards of Practice (ASOP) No. 51 – "Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions" became effective. Please see the new section of this report (pages B-7 through B-9) for further information.

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

We would like to thank you and your staff for your assistance in providing all necessary information to complete this valuation. Your courteous help is very much appreciated. We look forward to discussing this actuarial valuation report with you at your convenience. Please do not hesitate to let us know if you have any questions or need additional information.

Sincerely,

Lewis Ward

Lewis Ward	R. Ryan Falls, F.S.A, E.A., M.A.A.A.
Consultant	Senior Consultant

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Table of Contents

Executive Summary

The key results from the valuation of the City of Austin Employees' Retirement System as of December 31, 2018 may be summarized as follows:

	December 31, 2018 (1)	December 31, 2017 (2)
• Members		
— Actives	9,838	9,612
— Retirees (including disabled) and beneficiaries	6,414	6,225
— Vested - terminated	1,217	964
— Total	17,469	16,801
• Covered payroll	$ 664,335,027	$ 629,943,122
• Normal cost as % of payroll*	17.46%	17.73%
• Actuarial accrued liability	$ 3,989,560,137	$ 3,797,823,303
• Actuarial value of assets	$ 2,695,388,392	$ 2,592,460,631
• Unfunded actuarial accrued liability (UAAL)	$ 1,294,171,745	$ 1,205,362,672
• Estimated yield on assets		
— Actuarial value basis	5.23%	8.10%
— Market value basis	-5.97%	16.48%
• Contribution rate		
— Employee	8.00%	8.00%
— Employer	18.00%	18.00%
• Benefit and refund payments	$ 202,987,285	$ 190,332,179
• Amortization period of unfunded actuarial accrued liability	32 years	30 years
• Funding Policy employer contribution rate	19.37%	19.33%
• Funded ratio using actuarial value of assets	67.6%	68.3%
• Funded ratio using market value of assets	61.7%	69.8%

* Includes 0.51% of payroll for administrative expenses.

Introduction

This December 31, 2018 actuarial valuation of the City of Austin Employees' Retirement System has been prepared by GRS. The primary purpose of the valuation is to value the liabilities of the System as of December 31, 2018, determine the funding period of any unfunded liability for the plan year beginning January 1, 2019, and to provide certain required disclosure information. We are pleased to have the privilege of working for the Board, and look forward to discussing the results with you at your convenience.

Pages B-2 and B-3 of this report provides the current funded status of the plan and reviews the valuation results. Assets are discussed on page B-4, while page B-5 contains an analysis of the actuarial gains and losses during the past year.

Page B-6 discusses some of the historical comparisons and statistical summaries for the plan. Pages B-7 through B-9 provides an assessment and disclosure of risk associated with measuring pension obligations and determining pension plan contributions. Page B-10 provides a summary of the valuation results along with other comments.

Various tables supporting the report are contained in Sections C and D. Section E describes the actuarial methods and assumptions used in the valuation, and Section F outlines the Plan's benefit provisions, including any changes since the last valuation. Finally, Section G provides definitions of terms used throughout this report.

Funded Status of the Plan

The funded status of the plan is shown in Table 1, Table 2, and Table 3. Table 1 summarizes the various cost items from the current year's and prior year's actuarial valuations, while Table 2 provides an allocation of the normal cost by its various components. Table 3 shows the components of the actuarial liability.

Reviewing the composition of normal cost of the System, Table 2 indicates that the employer normal cost as of December 31, 2018, is 17.46% of pay. This compares with 17.73% of pay as of the last valuation on December 31, 2017. This normal cost is developed based on the Individual Entry Age Normal (EAN) actuarial cost method. As may be seen in Item 1, the normal cost for the retirement benefits is 13.84% of pay. Similarly, the normal cost is 1.03% for the deferred termination benefits, 1.40% for refunds of terminated employees (both vested and non-vested), 0.20% for disability benefits, and 0.48% for death benefits. In addition, the cost of anticipated administrative expenses is being added to the normal cost rate. This adds 0.51% of pay to the normal cost rate as of December 31, 2018. The decline in the average normal cost reflects the continued shift in the active membership from Group A to Group B. We expect this pattern of declining normal costs (as a percentage of payroll) to continue until the active population is mostly Group B.

Table 1 illustrates a number of the key actuarial items for the 2018 valuation. As mentioned above, the total normal cost rate is 17.46% of covered payroll. The actuarial accrued liability is $3,989.6 million as shown in Item 5 and as detailed in Table 3. The actuarial value of assets equals $2,695.4 million, as shown in Item 6. Item 7 of Table 1 shows that the plan has an $1,294.2 million unfunded liability (i.e. liabilities exceed plan assets) as of the valuation date. As of the last valuation (December 31, 2017), the System was underfunded by $1,205.4 million. The increase in the unfunded liability is described in greater detail on page B-5 and Table 7.

On October 1, 2012, the City began contributing 18% of payroll and the employees are contributing 8% of payroll. Combining the employees' contributions with the City contribution, the System will have 26.00% of payroll to fund benefits. The current normal cost of the plan is 17.46%, which means that the System is currently receiving contributions in excess of the normal cost equal to 8.54% of pay (26.00% less 17.46%). These excess contributions are available to amortize any unfunded actuarial accrued liability. Based on these contribution rates, if all assumptions are exactly met then the current unfunded liability will be fully amortized over the next 32 years.

Funded Status of the Plan
(Continued)

The actuarial valuation report as of December 31, 2018 reveals that the funded ratio (the ratio of actuarial assets to actuarial accrued liability) is 67.6%. On a market value of asset basis the funded status is 61.7%. The funded status is one of many metrics used to show trends and develop future expectations about the health of the System. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

Under the Amended Supplemental Funding Plan (ASFP) the total City contribution rate is 18.0% of pay. The additional contribution is intended to stay in place until the ASFP is amended or repealed.
The normal cost was determined using the Individual Entry Age Normal (EAN) actuarial cost method. This method determines the normal cost for all employees on an individual basis, based on the benefits applicable to each individual member. Because employees hired on or after January 1, 2012 (Group B) have a less valuable benefit tier than employees hired prior to that date (Group A), the normal cost for Group B is less than the normal cost of Group A. With the application of the Individual EAN method, the normal cost is equal to the average of the individual members' normal costs. Since the current group of employees is approximately 50% Group A, this means that the average normal costs for the System will decline over time as Group B employees replace Group A employees.

Because the contributions to the System are a fixed percentage of payroll, this means that the percentage of payroll that will go to pay off the unfunded liability will increase in the future as the average normal cost decreases. This result makes it difficult to calculate the funding period using a mathematical formula since the amount of contributions to pay off the unfunded liability will not be either a constant dollar amount or a constant percentage of payroll in the future. For this reason we are using an open group projection to determine when the System is expected to pay off its unfunded liability. The open group projection assumes a constant active population and that there will be no actuarial gains or losses on liabilities or the actuarial value of assets. Based on the open group projection the funding period of the System as of the valuation date is 32 years. Please see Table 5 which shows selected information from this projection.

Change in Assets

Table 4 shows the development of the actuarial value of assets. Item 11 of Table 4, shows that the actuarial value of assets as of December 31, 2018 is $2,695.4 million. Table 4 also shows the development of the gain/(loss) on the actuarial value of assets for the prior plan year. As shown in Item 12, the System had a loss on an actuarial asset basis of $58.5 million in 2018. This compares to the $14.5 million gain in 2017.

The method for determining the actuarial value of assets offsets excesses or shortfalls in the current year's investment income dollar for dollar against prior years' deferred gains or losses. Any remaining amounts from the current or prior years continue to be recognized over a five-year period. The investment income fell short of the assumed 7.50% rate of return on a market value of assets (MVA) basis. As shown in column 2 of Table 4, this investment income shortfall fully offset the prior years' deferred gains in investment income. In addition, $292.5 million in income shortfall remained, 20% of which ($58.5 million) is recognized in this year's actuarial value of assets with the remainder deferred for future valuations.

The total deferral of all Excess/(Shortfall) investment income for all prior years (shown in Table 4, Column 6 of Item 8) is ($234.0 million).

An analysis of the change in the System's market value of assets for the last two plan years and an estimate of the return on assets for the System are included in Table 6. The estimated average annual rate of return for the year ending December 31, 2018, assuming that income, revenue, and expenditures are evenly distributed throughout the year is -5.97% on a market value of assets basis. The rate of return for the year ending December 31, 2018, on an actuarial value basis was 5.23%. This compares with the actuarial assumed investment return at the beginning of the year of 7.50%.

Actuarial Gains and Losses

An important part of the change in unfunded actuarial accrued liability from year to year is due to the impact of actuarial gains and losses of the System. This section summarizes the combined asset and liability experience changes since the prior valuation on December 31, 2017.

As can be seen in Item 7 of Table 7, the expected value of the unfunded actuarial accrued liability as of December 31, 2018, was an underfunded position of $1,238.6 million. This expected value reflects an assumed investment return assumption of 7.50% on the beginning of year unfunded actuarial accrued liability, normal cost, and contributions during 2018.

Since the actual unfunded actuarial accrued liability as of December 31, 2018 is $1,294.2 million, it represents a total unexpected net increase for the period of $55.6 million, as shown in Item 9 of Table 7. That is, the unfunded actuarial accrued liability is greater than expected. The net increase in the unfunded actuarial accrued liability includes an asset loss of $58.5 million as shown in Table 4, and an unexpected decrease on the liability side equal to $2.9 million, which is broken out by source in Items 15-22 of Table 7.

Please see Section E for a more detailed description of the assumptions and methods.

Historical Comparisons and Statistical Summaries

Various statistical data on the System is shown in the tables contained in Section D. In addition, Tables 8 through 11 of Section C contain certain actuarial trend information which may be of interest.

Table 8 relates the size of the unfunded actuarial accrued liability (UAAL) to three different measurements. In Columns 3 and 4 the UAAL is related to the covered payroll of the System. Columns 5 and 6 relate the UAAL to the actuarial value of assets, while Columns 7 and 8 relate the UAAL to the total actuarial liabilities of the System.

Tables 9 through 11 provide information which should be included in your annual report. Table 9 provides a schedule of active member valuation data. Table 10 provides a schedule of retirees and beneficiaries added to and removed from payment rolls. Solvency test results are presented in Table 11.

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 (or funding period) 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 (or funding period) 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;
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 rate shown on the Executive Summary may be considered as a minimum contribution rate 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 the measurements for COAERS.

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% different than assumed would equal 10% 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% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll 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 (5 to 2 ratio), 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.

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. Some scenario tests and sensitivity tests are included in the valuation summary PowerPoint presentation presented to the Board at the Board's March Board Meeting.

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

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Ratio of the market value of assets to payroll	3.71	4.21	3.84	3.83	4.10	4.34	3.96	3.69	3.90	3.58
Ratio of actuarial accrued liability to payroll	6.01	6.03	5.99	6.06	5.74	5.93	6.31	6.03	5.61	5.52
Ratio of actives to retirees and beneficiaries	1.53	1.54	1.58	1.60	1.67	1.68	1.74	1.84	1.91	1.99
Ratio of net cash flow to market value of assets	-1.3%	-1.0%	-0.7%	-0.8%	-0.9%	-0.9%	-1.2%	-1.4%	-1.7%	-2.3%
Duration of the actuarial accrued liability*	13.81	NA	NA	NA	NA	NA	NA	NA	NA	NA

*Duration measure not available prior to 2018

Summary and Closing Comments

It is our opinion that the results of this valuation provide a reasonable reflection of the funded status of the System. The System's contributions are currently sufficient to amortize the unfunded liability of the System.

As previously mentioned, in 2010 the City of Austin adopted an Amended Supplemental Funding Plan (ASFP) which provides for an additional contribution from the City, above the 8.0% base rate, which has resulted in a gradual increase the City's total contribution rate to the System to 18.0%. This additional contribution is intended to remain in place until the ASFP is either amended or repealed.

The overall funded position of the System decreased from 68.3% at the prior valuation to 67.6% at this valuation. Using an open group projection, we have determined that the System is expected to be fully funded in 32 years, assuming all valuation assumptions are realized in the future. The increase in the funding period is primarily due to the significant investment shortfall in calendar year 2018. Some of this impact was offset by an increase in active membership and the corresponding increase in covered payroll. Because the payroll base is larger, we are now expecting larger future contributions towards the unfunded liability than in the prior year.

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Actuarial Tables

Table 1
Summary of Cost Items

	December 31, 2018		December 31, 2017	
	Cost Item	Cost as % of Pay	Cost Item	Cost as % of Pay
	(1)	(2)	(3)	(4)
1. Participants				
a. Active	9,838		9,612	
b. Terminated vested	1,217		964	
c. Retired participants and beneficiaries	6,302		6,116	
d. Disabled	112		109	
e. Total	17,469		16,801	
2. Covered Payroll	$ 664,335,027		$ 629,943,122	
3. Averages for Active Participants				
a. Average age	45.1		44.9	
b. Average years of service	9.5		9.4	
c. Average pay	$ 67,527		$ 65,537	
4. Total Normal Cost				
a. Normal Cost Rate	16.95%		17.22%	
b. Administrative Expenses	0.51%		0.51%	
c. Total	17.46%		17.73%	
5. Actuarial Accrued Liability				
a. Active participants	$ 1,805,258,347		$ 1,712,224,107	
b. Terminated vested participants	78,912,143		67,799,224	
c. Refunds of terminated nonvested participants	9,298,315		10,694,535	
d. Retired participants and beneficiaries	2,075,457,016		1,987,299,166	
e. Disabled participants	20,634,316		19,806,271	
f. Total	$ 3,989,560,137	600.53%	$ 3,797,823,303	602.88%
6. Actuarial Value of Assets	$ 2,695,388,392	405.73%	$ 2,592,460,631	411.54%
7. Unfunded Actuarial Accrued Liability (UAAL)	$ 1,294,171,745	194.81%	$ 1,205,362,672	191.34%
8. Relative Size of UAAL				
a. As percent of actuarial value of assets	48.01%		46.49%	
b. As percent of covered payroll	194.81%		191.34%	
9. Funding period using open group projection	32		30	
10. Employer contribution rate to satisfy funding policy*	19.37%		19.33%	

* employer rate that produces fully funded plan in 25-years in open group projection

Table 2
Analysis of Normal Cost by Component

Benefit Component	Cost as % of Pay	
	December 31, 2018	December 31, 2017
(1)	(2)	(3)
1. Retirement Benefits	13.84%	14.10%
2. Termination - Deferred Benefits	1.03%	1.06%
3. Termination - Refund Benefits	1.40%	1.38%
4. Disability Benefits	0.20%	0.20%
5. Death Benefits	0.48%	0.48%
6. Administrative Expenses	0.51%	0.51%
7. Normal Cost	17.46%	17.73%

Table 3
Actuarial Present Value of Future Benefits and Calculation of Actuarial Accrued Liability

	December 31, 2018 (1)	December 31, 2017 (2)
A. Present Value of Future Benefits		
1. Active participants		
a. Retirement benefits	$ 2,445,360,268	$ 2,340,048,470
b. Deferred termination benefits	88,617,179	87,649,687
c. Refund of contributions terminations	63,337,457	56,829,069
d. Disability benefits	17,283,635	16,162,004
e. Death benefits	61,929,503	58,706,177
f. Total	$ 2,676,528,042	$ 2,559,395,407
2. Retired participants		
a. Service retirements and beneficiaries	$ 2,075,457,016	$ 1,987,299,166
b. Disability retirements	20,634,316	19,806,271
c. Total	$ 2,096,091,332	$ 2,007,105,437
3. Inactive participants		
a. Vested terminations with deferred benefits	$ 78,912,143	$ 67,799,224
b. Nonvested terminations with refunds payable	9,298,315	10,694,535
c. Total	$ 88,210,458	$ 78,493,759
4. Total actuarial present value of future benefits	$ 4,860,829,832	$ 4,644,994,603
B. Normal Cost Rate (including administrative expenses)	17.46%	17.73%
C. Present Value of Future Normal Costs	$ 871,269,695	$ 847,171,300
D. Actuarial Accrued Liability for Active Members		
1. Present value of future benefits (Item A.1.f)	$ 2,676,528,042	$ 2,559,395,407
2. Less present value of future normal costs (Item C)	871,269,695	847,171,300
3. Actuarial accrued liability	$ 1,805,258,347	$ 1,712,224,107
E. Total Actuarial Accrued Liability (Item A.2.c + Item A.3.c + Item D.3)	$ 3,989,560,137	$ 3,797,823,303

Table 4
Development of Actuarial Value of Assets

		Year Ending December 31, 2018
1.	Actuarial value of assets at beginning of year	$ 2,592,460,631
2.	Net new investments	
	a. Contributions	$ 175,199,076
	b. Benefits and refunds paid	(202,987,285)
	c. Administrative expenses	(4,024,367)
	d. Subtotal	$ (31,812,576)
3.	Assumed investment return rate for fiscal year	7.50%
4.	Expected net investment income	$ 193,241,576
5.	Expected actuarial value at end of year (Item 1+ Item 2 + Item 4)	$ 2,753,889,631
6.	Market value of assets at end of year	$ 2,461,383,437
7.	Difference (Item 6 - Item 5)	$ (292,506,194)
8.	Development of amounts to be recognized as of December 31, 2018:	

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)
2014	$ 0	$ 0	$ 0	1	$ 0	$ 0
2015	0	0	0	2	0	0
2016	0	0	0	3	0	0
2017	57,977,485	(57,977,485)	0	4	0	0
2018	(350,483,679)	57,977,485	(292,506,194)	5	(58,501,239)	(234,004,955)
Total	$ (292,506,194)	$ 0	$ (292,506,194)		$ (58,501,239)	$ (234,004,955)

9.	Preliminary actuarial value of plan assets, end of year (Item 5 + Item 8: Column 5)	$ 2,695,388,392
10.	Actuarial value of assets corridor	
	a. 80% of market value, end of year	$ 1,969,106,750
	b. 120% of market value, end of year	$ 2,953,660,124
11.	Final actuarial value of plan net assets, end of year (Item 9, but recognize 1/3 of any deferred gains or losses outside of Item 10)	$ 2,695,388,392
12.	Asset gain (loss) for year (Item 11 - Item 5)	$ (58,501,239)
13.	Asset gain (loss) as % of final actuarial value of assets	(2.17%)
14.	Ratio of actuarial value to market value	109.5%

Notes: Remaining deferrals in Column (1) for prior years are from Column (6) in last year's report. The number in the current year is the difference between the remaining deferrals for prior years and Item 7 (which is the difference between the market value of assets and the expected actuarial value of assets). Column 2 is a direct offset of the current year's excess/(shortfall) return against prior years' excess/(shortfall) of the opposite type.

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Table 5
Open Group Projection

Projection Results Based on December 31, 2018 Actuarial Valuation

Valuation as of December 31,	Compensation (in Millions)	Contributions Year Following Valuation (in Millions)	Benefit Payments Year Following Valuation (in Millions)	Actuarial Accrued Liability (AAL, in Millions)	Actuarial Value of Assets (AVA, in Millions)	Unfunded Actuarial Accrued Liability (UAAL, in Millions)	Funded Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2018	$664	$174	$224	$3,990	$2,695	$1,294	67.6%
2019	686	180	231	4,176	2,842	1,334	68.1%
2020	709	186	247	4,367	2,998	1,369	68.7%
2021	733	192	264	4,559	3,156	1,403	69.2%
2022	758	199	282	4,749	3,313	1,436	69.8%
2023	784	206	300	4,938	3,472	1,466	70.3%
2024	811	213	318	5,124	3,630	1,494	70.8%
2025	839	220	336	5,308	3,789	1,519	71.4%
2026	868	228	354	5,490	3,949	1,541	71.9%
2027	898	236	372	5,669	4,109	1,560	72.5%
2028	930	244	391	5,845	4,271	1,574	73.1%
2029	962	252	411	6,018	4,433	1,585	73.7%
2030	996	261	430	6,186	4,596	1,590	74.3%
2031	1,032	271	449	6,350	4,760	1,589	75.0%
2032	1,070	281	466	6,510	4,927	1,583	75.7%
2033	1,110	291	483	6,668	5,098	1,569	76.5%
2034	1,152	302	497	6,824	5,276	1,548	77.3%
2035	1,196	314	510	6,982	5,463	1,519	78.2%
2036	1,243	326	521	7,145	5,663	1,482	79.3%
2037	1,292	339	531	7,313	5,879	1,434	80.4%
2038	1,344	353	540	7,489	6,114	1,375	81.6%
2039	1,398	367	549	7,676	6,362	1,313	82.9%
2040	1,453	382	557	7,874	6,604	1,270	83.9%
2041	1,511	397	565	8,086	6,872	1,214	85.0%
2042	1,571	412	574	8,313	7,168	1,145	86.2%
2043	1,632	429	585	8,554	7,494	1,061	87.6%
2044	1,696	445	596	8,811	7,851	961	89.1%
2045	1,762	463	609	9,084	8,240	844	90.7%
2046	1,830	480	624	9,372	8,664	708	92.4%
2047	1,901	499	639	9,675	9,123	552	94.3%
2048	1,975	519	657	9,995	9,621	374	96.3%
2049	2,052	539	675	10,330	10,157	173	98.3%
2050	2,132	560	695	10,681	10,736	-54	100.5%

Projection assumes all assumptions exactly met, including a 7.50% annual return on the current actuarial value of assets.

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Table 6
Change in Net Position

		Valuation Period Ending December 31,	
		2018	2017
		(1)	(2)
1.	Assets in plan at beginning of year **(A)**	$ 2,650,438,116	$ 2,299,688,386
2.	Employer contributions	116,485,749	110,846,582
3.	Employee contributions	58,713,327	56,193,592
4.	Benefit payments made*	198,846,376	186,286,855
5.	Refunds of contributions	4,140,909	4,045,324
6.	Expenses paid from trust	4,024,367	2,778,290
7.	Investment expense	5,492,075	5,687,391
8.	Investment return	(151,750,028)	382,507,416
9.	Assets in plan at end of year **(B)** (1 + 2 + 3 - 4 - 5 - 6 - 7 + 8)	$ 2,461,383,437	$ 2,650,438,116
10.	Approximate rate of return on average invested assets		
	a. Net investment income (8 - 7 = **I**)	$ (157,242,103)	$ 376,820,025
	b. Estimated yield based on **(2I/(A + B - I))**	-5.97%	16.48%

* Benefit payments exclude any distributions from the 415 Restoration Plan

Table 7
Change in Unfunded Actuarial Accrued Liability as of December 31, 2018

	CALCULATION OF TOTAL ACTUARIAL GAIN OR LOSS	2018	2017
1.	Unfunded actuarial accrued liability (UAAL) as of prior year	$ 1,205,362,672	$ 1,168,107,291
2.	Actual normal cost paid during year (includes service purchases)	120,089,686	115,956,014
3.	Subtotal (1 + 2)	$ 1,325,452,358	$ 1,284,063,305
4.	Interest at prior valuation's rate of 7.50%	94,905,564	91,956,397
5.	Contributions during year	(175,199,076)	(167,040,174)
6.	Interest on contributions for one-half year	(6,569,965)	(6,264,007)
7.	Expected UAAL as of December 31st (3 + 4 + 5 + 6)	$ 1,238,588,881	$ 1,202,715,521
8.	Actual UAAL as of December 31st	1,294,171,745	1,205,362,672
9.	Unexpected Change in UAAL for the period (8 - 7)	$ 55,582,864	$ 2,647,151
	SOURCE OF CHANGE IN UAAL		
10.	Asset (gain)/loss (See Table 4)	$ 58,501,239	$ (14,494,371)
11.	Total unanticipated increase/(decrease) in liabilities for the period (9-10)	(2,918,375)	17,141,522
12.	Increase/(decrease) due to benefit enhancements	0	0
13.	Increase/(decrease) due to assumption & method changes	0	0
14.	Liability experience (gain)/loss (11 - 12 - 13)	$ (2,918,375)	$ 17,141,522
	SOURCE OF LIABILITY (GAINS) AND LOSSES		
15.	Salary Increases	$ (9,857,906)	$ (3,049,050)
16.	Service Retirement	(13,318,101)	(2,383,543)
17.	Withdrawal	3,226,936	4,523,214
18.	Disability Retirement	123,103	(20,028)
19.	Active Mortality	616,530	689,417
20.	Retiree Mortality	645,119	3,438,647
21.	Rehires	1,952,042	2,518,641
22.	Other (Data) including proportionate program	13,693,902	11,424,224
23.	Total Liability Experience (Gain)/Loss	$ (2,918,375)	$ 17,141,522

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Table 8
Relative Size of Unfunded Actuarial Accrued Liability

		Relative to Covered Payroll		Relative to Actuarial Value of Present Assets		Relative to Total Actuarial Accrued Liability	
Valuation as of 31-Dec	Unfunded/ (Overfunded) Actuarial Accrued Liability	Covered Payroll	Percent of Covered Payroll	Present Assets	Percent of Present Assets	Actuarial Accrued Liability	Percent of Actuarial Accrued Liability
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1999	(60,632,797)	244,538,110	(24.8%)	1,105,121,657	(5.5%)	1,044,488,860	(5.8%)
2000	(18,353,201)	268,635,564	(6.8%)	1,230,971,746	(1.5%)	1,212,618,545	(1.5%)
2001	48,980,941	316,793,390	15.5%	1,311,288,668	3.7%	1,360,269,609	3.6%
2002	189,347,298	322,007,672	58.8%	1,250,851,348	15.1%	1,440,198,646	13.1%
2003	203,040,300	312,790,966	64.9%	1,348,790,502	15.1%	1,551,830,802	13.1%
2004	321,383,795	326,590,164	98.4%	1,356,797,448	23.7%	1,678,181,243	19.2%
2005	395,382,953	348,619,141	113.4%	1,398,798,722	28.3%	1,794,181,675	22.0%
2006	476,226,660	390,963,991	121.8%	1,497,783,958	31.8%	1,974,010,618	24.1%
2007	459,277,808	417,450,797	110.0%	1,653,533,484	27.8%	2,112,811,292	21.7%
2008	765,526,422	448,740,469	170.6%	1,481,377,439	51.7%	2,246,903,861	34.1%
2009	658,466,636	422,539,199	155.8%	1,672,470,344	39.4%	2,330,936,980	28.2%
2010	749,087,565	438,877,002	170.7%	1,711,577,229	43.8%	2,460,664,794	30.4%
2011	932,942,173	451,831,198	206.5%	1,790,902,641	52.1%	2,723,844,815	34.3%
2012	1,070,656,825	470,231,969	227.7%	1,897,722,867	56.4%	2,968,379,692	36.1%
2013	861,988,246	490,553,170	175.7%	2,047,929,504	42.1%	2,909,917,750	29.6%
2014	900,174,491	539,158,693	167.0%	2,193,881,221	41.0%	3,094,055,712	29.1%
2015	1,083,708,976	559,829,504	193.6%	2,308,087,140	47.0%	3,391,796,116	32.0%
2016	1,168,107,291	599,574,934	194.8%	2,423,269,015	48.2%	3,591,376,306	32.5%
2017	1,205,362,672	629,943,122	191.3%	2,592,460,631	46.5%	3,797,823,303	31.7%
2018	1,294,171,745	664,335,027	194.8%	2,695,388,392	48.0%	3,989,560,137	32.4%

Table 9
Schedule of Active Member Valuation Data

Year Ending 31-Dec	Active Participants	Percent Change	Covered Payroll	Percent Change	Average Salary	Percent Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1999	6,512	3.2%	244,538,110	11.5%	37,552	8.1%
2000	6,894	5.9%	268,635,564	9.9%	38,967	3.8%
2001	7,713	11.9%	316,793,390	17.9%	41,073	5.4%
2002	7,647	-0.9%	322,007,672	1.6%	42,109	2.5%
2003	7,432	-2.8%	312,790,966	-2.9%	42,087	-0.1%
2004	7,489	0.8%	326,590,164	4.4%	43,609	3.6%
2005	7,638	2.0%	348,619,141	6.7%	45,643	4.7%
2006	8,055	5.5%	390,963,991	12.1%	48,537	6.3%
2007	8,358	3.8%	417,450,797	6.8%	49,946	2.9%
2008	8,643	3.4%	448,740,469	7.5%	51,920	4.0%
2009	8,142	-5.8%	422,539,199	-5.8%	51,896	0.0%
2010	8,270	1.6%	438,877,002	3.9%	53,069	2.3%
2011	8,348	0.9%	451,831,198	3.0%	54,124	2.0%
2012	8,387	0.5%	470,231,969	4.1%	56,067	3.6%
2013	8,592	2.4%	490,553,170	4.3%	57,094	1.8%
2014	9,028	5.1%	539,158,693	9.9%	59,721	4.6%
2015	9,063	0.4%	559,829,504	3.8%	61,771	3.4%
2016	9,364	3.3%	599,574,934	7.1%	64,030	3.7%
2017	9,612	2.6%	629,943,122	5.1%	65,537	2.4%
2018	9,838	2.4%	664,335,027	5.5%	67,527	3.0%

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Table 10
Schedule of Retirees and Beneficiaries Added to and Removed From Rolls

Year Ending December 31	Added to Rolls		Removed from Rolls		Rolls-End of Year			
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	% Increase in Annual Allowances	Average Annual Allowances
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2002	309	7,754,803	118	2,534,050	2,783	72,520,159	10.5%	26,058
2003	271	7,706,066	59	1,502,757	2,995	78,596,302	8.4%	26,243
2004	227	5,619,478	85	1,741,624	3,137	82,121,249	4.5%	26,178
2005	258	6,699,023	98	2,438,555	3,297	85,324,686	3.9%	25,879
2006	259	6,788,190	89	1,883,938	3,467	90,312,037	5.8%	26,049
2007	289	8,523,459	123	2,262,126	3,633	96,071,149	6.4%	26,444
2008	290	8,299,468	88	2,056,217	3,835	101,840,870	6.0%	26,556
2009	331	9,953,411	80	1,630,148	4,086	109,656,152	7.7%	26,837
2010	341	10,495,807	92	2,029,423	4,335	117,954,059	7.6%	27,210
2011	324	9,851,119	117	2,785,375	4,542	124,748,580	5.8%	27,466
2012	405	13,035,228	116	3,011,032	4,831	134,653,163	7.9%	27,873
2013	387	12,451,142	98	2,176,950	5,120	144,755,297	7.5%	28,273
2014	397	12,737,257	121	2,568,479	5,396	154,937,553	7.0%	28,713
2015	411	13,547,663	128	2,980,334	5,679	165,579,191	6.9%	29,156
2016	385	12,920,841	130	3,199,901	5,934	175,327,721	5.9%	29,546
2017	422	14,942,887	131	2,979,178	6,225	187,304,849	6.8%	30,089
2018	338	12,352,947	149	3,496,334	6,414	196,302,394	4.8%	30,605

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Table 11
Solvency Test

	Aggregated Accrued Liabilities for				Portions of Accrued Liabilities Covered by Reported Assets		
Valuation Date	Active and Inactive Members Contributions	Retirees and Beneficiaries	Active and Inactive Members (Employer Financed Portion)	Reported Assets	(5)/(2)	[(5)-(2)]/3	[(5)-(2)-(3)]/(4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
December 31, 2002	265,812,595	718,187,586	456,198,465	1,250,851,348	100.0%	100.0%	58.5%
December 31, 2003	252,182,701	777,100,825	522,547,276	1,348,790,502	100.0%	100.0%	61.1%
December 31, 2004	261,905,526	812,266,336	604,009,381	1,356,797,448	100.0%	100.0%	46.8%
December 31, 2005	280,994,642	848,185,652	665,001,381	1,398,798,722	100.0%	100.0%	40.5%
December 31, 2006	295,166,238	904,166,079	774,678,301	1,497,783,958	100.0%	100.0%	38.5%
December 31, 2007	333,340,167	968,493,997	810,977,128	1,653,533,484	100.0%	100.0%	43.4%
December 31, 2008	357,423,035	1,025,407,475	864,073,351	1,481,377,439	100.0%	100.0%	11.4%
December 31, 2009	362,288,592	1,109,773,550	858,874,838	1,672,470,344	100.0%	100.0%	23.3%
December 31, 2010	377,651,365	1,195,328,215	887,685,214	1,711,577,229	100.0%	100.0%	15.6%
December 31, 2011	413,944,399	1,267,467,354	1,042,433,062	1,790,902,641	100.0%	100.0%	10.5%
December 31, 2012	417,481,360	1,375,244,710	1,175,653,622	1,897,722,867	100.0%	100.0%	8.9%
December 31, 2013	436,164,975	1,478,146,019	995,606,756	2,047,929,504	100.0%	100.0%	13.4%
December 31, 2014	453,220,166	1,580,320,342	1,060,515,204	2,193,881,221	100.0%	100.0%	15.1%
December 31, 2015	471,000,910	1,771,674,810	1,149,120,396	2,308,087,140	100.0%	100.0%	5.7%
December 31, 2016	497,752,958	1,873,037,310	1,220,586,038	2,423,269,015	100.0%	100.0%	4.3%
December 31, 2017	517,234,871	2,007,105,437	1,273,482,995	2,592,460,631	100.0%	100.0%	5.3%
December 31, 2018	549,887,200	2,096,091,332	1,343,581,605	2,695,388,392	100.0%	100.0%	3.7%

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Table 12
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)
December 31, 1999	1,105.1	1,044.5	(60.6)	105.8%	244.5	(24.8%)
December 31, 2000	1,231.0	1,212.6	(18.4)	101.5%	268.6	(6.8%)
December 31, 2001	1,311.3	1,360.3	49.0	96.4%	316.8	15.5%
December 31, 2002	1,250.9	1,440.2	189.3	86.9%	322.0	58.8%
December 31, 2003	1,348.8	1,551.8	203.0	86.9%	312.8	64.9%
December 31, 2004	1,356.8	1,678.2	321.4	80.8%	326.6	98.4%
December 31, 2005	1,398.8	1,794.2	395.4	78.0%	348.6	113.4%
December 31, 2006	1,497.8	1,974.0	476.2	75.9%	391.0	121.8%
December 31, 2007	1,653.5	2,112.8	459.3	78.3%	417.5	110.0%
December 31, 2008	1,481.4	2,246.9	765.5	65.9%	448.7	170.6%
December 31, 2009	1,672.5	2,330.9	658.5	71.8%	422.5	155.8%
December 31, 2010	1,711.6	2,460.7	749.1	69.6%	438.9	170.7%
December 31, 2011	1,790.9	2,723.8	932.9	65.7%	451.8	206.5%
December 31, 2012	1,897.7	2,968.4	1,070.7	63.9%	470.2	227.7%
December 31, 2013	2,047.9	2,909.9	862.0	70.4%	490.6	175.7%
December 31, 2014	2,193.9	3,094.1	900.2	70.9%	539.2	167.0%
December 31, 2015	2,308.1	3,391.8	1,083.7	68.0%	559.8	193.6%
December 31, 2016	2,423.3	3,591.4	1,168.1	67.5%	599.6	194.8%
December 31, 2017	2,592.5	3,797.8	1,205.4	68.3%	629.9	191.3%
December 31, 2018	2,695.4	3,989.6	1,294.2	67.6%	664.3	194.8%

Note: Dollar amount in millions.

Statement of Actuarial Methods and Assumptions
(Effective as of December 31, 2018)

The most recent experience study was completed in conjunction with the December 31, 2015 actuarial valuation. Please see our Experience Study report dated May 2016 to see more detail of the rationale for the current assumptions. As authorized under Article 6243n of the Vernon's Civil Statutes of the State of Texas, actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary.

A. ACTUARIAL ASSUMPTIONS

1. Investment Return Rate (adopted effective December 31, 2015)

   7.50% per annum, compounded annually, composed of an assumed inflation rate of 2.75% and a real rate of return of 4.75%, net of investment expenses.

2. Mortality

   a. Nondisabled annuitants (adopted effective December 31, 2015)

      Healthy retirees and beneficiaries – The 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 (see Item 20 for further discussion of mortality improvement).

   b. Disabled annuitants (adopted effective December 31, 2015)

      Disabled annuitants – The 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 (see Item 20 for further discussion of mortality improvement).

   c. Active members (adopted effective December 31, 2015)

      Active employees – The RP-2014 Employee Mortality Tables with Blue Collar Adjustments. Generational mortality improvements in accordance with Scale BB from the table's base year of 2014 (see Item 20 for further discussion).

Statement of Actuarial Methods and Assumptions (Effective as of December 31, 2018) (Continued)

3. Retirement Rates: (adopted effective December 31, 2015)
   The following rates of retirement are assumed for members eligible for normal retirement.

Age	Rates of Retirement	
	Males	Females
44 & under	22.0%	25.0%
45	22.0%	23.0%
46	22.0%	23.0%
47	22.0%	23.0%
48	22.0%	23.0%
49	22.0%	23.0%
50	22.0%	26.0%
51	22.0%	26.0%
52	22.0%	26.0%
53	22.0%	26.0%
54	22.0%	26.0%
55	22.0%	26.0%
56	22.0%	26.0%
57	22.0%	26.0%
58	22.0%	26.0%
59	22.0%	26.0%
60	22.0%	21.0%
61	22.0%	21.0%
62	27.0%	24.0%
63	22.0%	21.0%
64	22.0%	21.0%
65	22.0%	24.0%
66	30.0%	24.0%
67	30.0%	24.0%
68	22.0%	21.0%
69	22.0%	21.0%
70	22.0%	20.0%
71	22.0%	20.0%
72	22.0%	20.0%
73	22.0%	20.0%
74 & older	100.0%	100.0%

Group B members are assumed to retire at twice the applicable rate upon the first year they attain eligibility for normal retirement. Early retirement rates (of 1% at age 55 increasing by 1% every two years to 5% at ages 63 and 64) apply for Group B members.

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Statement of Actuarial Methods and Assumptions
(Effective as of December 31, 2018)
(Continued)

4. Rates of Decrement Due to Withdrawal (adopted effective December 31, 2015)

Rates of withdrawal are comprised of a select period for the first 3 years of employment and ultimate rates based on years of service from retirement after the end of the select period. The following rates during the select period apply at all ages during the applicable year of employment:

Years of Employment	Males	Females
1	0.125	0.175
2	0.115	0.160
3	0.090	0.140

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Statement of Actuarial Methods and Assumptions (Effective as of December 31, 2018) (Continued)

After the select period ends, rates of withdrawal are based on the number of years from retirement. The rates are shown below for males and females

Years from Eligibility for Unreduced Retirement	Rates of Withdrawal After Select Period	
	Males	Females
1	0.0090	0.0086
2	0.0122	0.0160
3	0.0146	0.0201
4	0.0166	0.0237
5	0.0182	0.0238
6	0.0198	0.0239
7	0.0212	0.0261
8	0.0225	0.0282
9	0.0237	0.0302
10	0.0248	0.0320
11	0.0323	0.0422
12	0.0348	0.0444
13	0.0399	0.0465
14	0.0401	0.0525
15	0.0430	0.0575
16	0.0430	0.0575
17	0.0430	0.0575
18	0.0430	0.0575
19	0.0430	0.0575
20	0.0430	0.0575
21	0.0450	0.0600
22	0.0450	0.0600
23	0.0450	0.0600
24	0.0450	0.0600
25	0.0450	0.0600
26	0.0470	0.0650
27	0.0470	0.0650
28	0.0470	0.0650
29	0.0470	0.0650
30	0.0470	0.0650
31+	0.0500	0.0700

Statement of Actuarial Methods and Assumptions (Effective as of December 31, 2018) (Continued)

5. Disability Rates* (adopted effective December 31, 2015)

Sample rates are shown below:

Age	Rates of Decrement Due to Disability Males and Females
20	0.000004
25	0.000025
30	0.000099
35	0.000259
40	0.000494
45	0.000804
50	0.001188
55	0.001647
60	0.002180

* Rates are for disability due to all causes, occupational disability rates are assumed to be 10% of all causes.

6. Rates of Salary Increase (adopted effective December 31, 2015)

Years of Service	Promotional Rate of Increase	Total Annual Rate of Increase Including 2.75% Inflation Component and 1.25% Productivity Component
1 – 7	2.25%	6.25%
8	2.00%	6.00%
9	1.50%	5.50%
10	1.25%	5.25%
11 - 15	1.00%	5.00%
16 - 19	0.75%	4.75%
20 or more	0.00%	4.00%

7. DROP Participation: (adopted effective December 31, 2015)

It was assumed that 20% of retiring active members with at least 20 years of service would elect a “Backward” DROP. It is assumed that all members who Back Drop will elect to DROP back to the date that would provide the greatest actuarial value to the member.

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Statement of Actuarial Methods and Assumptions (Effective as of December 31, 2018) (Continued)

8. Married Percentage: (adopted effective December 31, 1997)

   100% of the active members are assumed to be married.

9. There will be no recoveries once disabled: (adopted effective December 31, 1997)

10. Spousal Age Difference: (adopted effective December 31, 2012)

    Males are assumed to be three years older than females.

11. Normal Form of Payment: (adopted effective December 31, 1997)

    It is assumed that all retiring members will elect the Life only form of payment with a guaranteed return of accumulated employee contributions.

12. Crediting Rate on Employee Contributions: (adopted effective December 31, 2002)

    It is assumed that the interest credit rate on employee contributions will be 6.0%.

13. Individual salaries used to project benefits: (adopted effective December 31, 1997)

    Rates of pay as of the valuation date are reported for all employees.

14. Pay increase timing: (adopted effective December 31, 1997)

    Middle of calendar year.

15. Decrement timing: (adopted effective December 31, 1997)

    Decrements of all types are assumed to occur mid-year.

16. Eligibility testing: (adopted effective December 31, 2002)

    Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

Statement of Actuarial Methods and Assumptions (Effective as of December 31, 2018) (Continued)

17. Decrement relativity: (adopted effective December 31, 2002)

    Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

18. Incidence of Contributions: (adopted effective December 31, 2002)

    Contributions are assumed to be received continuously throughout the year based upon the contribution rates as a percent of payroll (established in statute or agreed upon under the Supplemental Funding Plan) shown in this report and the actual payroll payable at the time contributions are made.

19. Benefit Service: (adopted December 31, 1997)

    All members are assumed to accrue one year of eligibility service each year.

20. Mortality Improvement:

    The base mortality tables are anchored at the year 2014. To account for future mortality improvement, the base mortality rates shown in Item 2 are projected forward using Scale BB for all future years.

21. Service Purchases (military, permissive, and sick leave conversion):

    No service purchases of any type are assumed. Any gains or losses due to these purchases are recognized in the valuation following the purchase.

22. Cost of Living Adjustments and One-time Payments:

    No future cost of living adjustments are assumed. In addition, no one-time payments (13th checks) are assumed.

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 actuarial 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. This can and will result in some bases being recognized in a period shorter than five years.

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Statement of Actuarial Methods and Assumptions (Effective as of December 31, 2018) (Continued)

If the resulting preliminary asset value is less than 80% or more than 120% of the market value of assets, then 1/3 of the amount outside of the 80% to 120% corridor is recognized in the final actuarial value of assets. In extreme market conditions, this could result in an actuarial value of assets outside of the 80% to 120% market value of assets corridor.

B. ACTUARIAL FUNDING METHOD

The actuarial accrued liability is determined using the Entry Age Normal actuarial cost method. This method assigns the System's total actuarial present value of future benefits to various periods. The actuarial accrued liability is assigned to years prior to the valuation and the normal cost is assigned to the year following the valuation. The remaining costs are assigned to future years.

The normal cost is determined on an individual basis using the Individual Entry Age Normal Cost method. The actuarial accrued liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs where future normal costs are based on the benefit provisions that are applicable to each individual member. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of assets.

C. FUNDING PERIOD

The funding period is determined using an open group projection. In the open group projection, the demographic assumptions are applied to the current active employees and any employees that are assumed to leave employment are replaced one for one with a new employee. Over time this results in the change of the employee group from mostly Group A members to Group B members. The projection is built to assume no gains or losses on the actuarial accrued liability or the actuarial value of assets. The funding period is the length of time it takes in the open group projection for the actuarial value of assets to exceed the actuarial accrued liability.

In the projection, new members' pay are assumed to increase at 4.00% year over year (i.e. a new employee in 2015 is assumed to be hired at a salary that is 4.00% greater than a new employee hired in 2014. The 4.00% growth rate is equal to our wage inflation assumption of 4.00% (ultimate salary increase assumption showing in Item A.6.). Note that this is not an assumption that payroll will grow at 4.00% per year. Payroll could grow more slowly in the near-term due to membership demographics.

D. CHANGES IN ASSUMPTIONS AND METHODS

No changes in the actuarial assumptions and methods since the prior valuation.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018

A. EFFECTIVE DATE

January 1, 1941.

B. ELIGIBILITY AND PARTICIPATION

Any regular and permanent employee of the City of Austin, excluding all civil service commissioned police officers and firefighters, the Mayor and members of the City Council and all part-time employees who work less than 75 percent of a normal work week.

Members originally hired prior to January 1, 2012 are classified as Group A members and members hired on or after January 1, 2012 are classified as Group B members.

Unless noted otherwise, the provisions for Group A and Group B are the same.

C. MEMBERSHIP SERVICE

The period of time during which an eligible employee pays into and keeps on deposit the contribution prescribed to be paid by the employee into the System.

D. AVERAGE FINAL COMPENSATION

The average of the monthly compensation for the 36 calendar months of highest compensation during the last 120 months prior to termination. The monthly compensation used in the determination of benefits cannot exceed the compensation limits of Internal Revenue Code §401(a)(17) for the applicable period. The limit for 2011 is up to $20,416.67 for persons who first become members after 1995 (members hired prior to 1996 have no limit on their compensation).

E. CITY AND MEMBER CONTRIBUTION RATES

The City currently contributes a base rate of 8.00% of pay for each active member. Under the Amended Supplemental Funding Plan, the City is providing an additional contribution for each active member. Beginning October 1, 2012, this additional contribution became 10% of pay, for a total city contribution of 18%. Each active member contributes 8.00% of pay. These employee contributions are made under a pre-tax 401(h) pick-up arrangement.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

F. RETIREMENT BENEFITS

1. Normal Retirement

a. Eligibility:

Group A – A participant may retire upon attaining age 62, or any age with 23 years of service, or attaining age 55 with 20 years of service.

Group B – A participant may retire upon attaining age 62 with 30 years of service, or at age 65 with 5 years of service.

b. Monthly Benefit:

Group A – 3.00% of average final compensation times years of service.

Group B – 2.50% of average final compensation times years of service.

c. Payment Form: Benefits are paid as a monthly life annuity to the participant, with a provision that should the participant die prior to receiving monthly payments whose sum is greater than or equal to the participant's accumulated employee contributions, then the participant's beneficiary shall receive a lump-sum equal to the excess of the participant's accumulated employee contributions with interest over the sum of the monthly payments received.

d. Optional Forms of Payment:

i) Joint and contingent annuity with either 100%, 66 2/3%, or 50% of the reduced retirement income payable for the life of the contingent annuitant upon the death of the retiring participant, with the provision that, should the contingent annuitant predecease the participant, the monthly annuity will revert to the amount that would have been payable under the normal form of payment,

ii) Joint and 66 2/3% last survivor provides a reduced retirement income payable as long as both the member and the joint annuitant are alive, and upon the death of either the member or the joint annuitant, the benefit reduces to 2/3 of such amount for the remainder of the life of the last survivor,

iii) Period certain and life annuity with 15 years of payments guaranteed, or

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

e. Deferred Retirement Option Program (DROP): A member may elect to retroactively participate in the System's DROP (i.e. a Backward DROP). The member would receive a lump-sum payment equal to 90% of the sum of the monthly annuities the participant would have received if the member had retired at the DROP entry date. No COLAs are included but changes in the benefit multiplier are reflected. The maximum period a member may retroactively elect under the DROP is 60 months.

2. Early Retirement:

a. Eligibility:

Group A – Currently there are no reduced retirement benefits under the plan.

Group B – A participant may retire with a reduced benefit upon attaining age 55 with 10 years of service.

b. Monthly Benefit:

Group A – Not applicable.

Group B – the same formula benefit as determined under normal retirement multiplied by an actuarial equivalent early retirement reduction factor.

G. DISABILITY RETIREMENT

1. Eligibility: If the employee is terminated by reason of a total and permanent disability which prevents the employee from engaging in any employment duties. If the employee has less than five years of service, the disability must be job related.

2. Monthly Benefit: Same as Normal Retirement benefit using pay and service at date of disability.

3. Form of Payment: The normal form of payment that is available to a member taking normal retirement and the optional forms of payments described in F.1.d.i) and F.1.d.ii) above.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

H. VESTING OF BENEFITS

1. Vesting

An employee is vested according to the following schedule:

Years of Vesting Service	Vested Percentage
Less than 5	0%
5 or more	100%

Benefits Upon Vesting

A vested participant is entitled to the retirement benefit payable at normal retirement earned to the date of participant's termination multiplied by his/her vested percentage, or a refund of the employee's accumulated employee contributions with interest.

I. DEATH IN SERVICE

1. Eligibility: All active members.

2. Benefit: The amount of the benefit payable to the beneficiary is:

a. Employee eligible for retirement at date of death:

The surviving spouse if any may elect to receive an annuity equal to the monthly benefit as if the member had retired under any retirement option that would have been available to the member at the end of the month in which the member died. If there is no surviving spouse, then the beneficiary may elect to receive a 15 years certain and life annuity. The surviving spouse or beneficiary instead of electing the annuity may elect to receive a death benefit equal to twice the member's accumulated employee contributions with interest.

b. Employee not eligible for retirement at date of death:

A refund of the member’s accumulated deposits (with interest) plus a death benefit from COAERS equal to the member's accumulated deposits (with interest), but excluding any purchases for Non-contributory time, prior military service purchases, or Supplementary Service Credit.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

J. RETIREE LUMP-SUM DEATH BENEFIT

Upon death of a retired member, a $10,000 lump-sum death benefit is payable. This benefit is also payable upon the death of an active member eligible for retirement whose surviving spouse or beneficiary elects to receive an annuity.

K. COST-OF-LIVING ADJUSTMENT (COLA)

On January 1 of each year the Board may approve a cost-of-living adjustment for those retirees who retired on or before December 31 of the previous year. The maximum adjustment which can be approved is 6%. The amount of the adjustment is set by the Board upon recommendation by the System's actuary that such an adjustment will not make the Fund financially unsound, and the adjustment is not inconsistent with the Code. The adjustment is prorated for any benefit which has been in effect for less than a year, with the proration being 1/12 for each monthly payment received during the prior year.

L. LUMP-SUM ADDITIONAL BENEFIT PAYMENT

Once each year the Board may approve a lump-sum additional benefit payment to be paid to those members and beneficiaries currently in payment status. The additional payment would be equal to a percentage of the member's monthly annuity with a maximum percentage of 100%.

M. LEGISLATED PLAN CHANGES ENACTED BY 1995 LEGISLATURE

1. 2.3% Multiplier

   The benefit multiplier was increased from 2.2% per year of service to 2.3% per year of service effective October 1995.

2. 2.3% Retiree Gross-up

   Effective October 1995, current retirees received an increase in their benefit amount to bring their retirement benefit amount up to what it would be currently if they had retired under the 2.3% multiplier.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

3. $10,000 Retiree Lump-Sum Death Benefit

   The lump-sum death benefit payable upon the death of a retiree was increased from $2,000 to $10,000.

4. Plan Participation Begins at Date of Hire

   The six-month service requirement for participation was eliminated. Current active members were granted service for the period between their date of hire and their date of participation, up to six months.

N. LEGISLATED PLAN CHANGES ENACTED BY 1997 LEGISLATURE

1. 2.6% Multiplier

   The benefit multiplier was increased from 2.3% per year of service to 2.6% per year of service effective October 1997.

2. 2.6% Retiree Gross-up

   Effective October 1997, current retirees received an increase in their benefit amount to bring their retirement benefit amount up to what it would be currently if they had retired under the 2.6% multiplier.

3. Military Service Purchase

   Increased the number of months of military service that may be purchased from 24 to 48.

4. Noncontributory Service Purchase

   Allowed an employee to purchase noncontributory service for the following periods of time: (1) while employee was on workers' compensation leave, (2) while employee was on an authorized leave of absence, and (3) while employee performed service for the employer in a position for which the service was not otherwise creditable. The employee pays the full actuarial cost of the service purchase.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

5. Employer Purchase of Creditable Service

   Allowed the employer to purchase the amount of service required to qualify an employee for an unreduced retirement benefit at age 55. To be eligible for the purchase, the employee must never have been a highly compensated employee within the meaning of IRC Section 414(q). The cost of the service purchase is the full actuarial cost of both the benefit and the retirement eligibility.

O. LEGISLATED PLAN CHANGES ENACTED BY 1999 LEGISLATURE

1. 2.7% Multiplier

   The benefit multiplier was increased from 2.6% per year of service to 2.7% per year of service effective October 1999.

2. 2.7% Retiree Gross-up

   Effective October 1999, current retirees received an increase in their benefit amount to bring their retirement benefit amount up to what it would be currently if they had retired under the 2.7% multiplier.

3. 23 & Out Provision

   The service requirement at which a participant may retire with an unreduced retirement benefit was decreased from 25 years of Creditable Service to 23 years of Creditable Service.

4. Pop-Up Provisions for Certain Joint and Survivor Payment Options

   Certain optional forms of payment which extend coverage to a joint annuitant (Options I, II, and III) were amended so that, should the contingent annuitant predecease the participant, the monthly annuity will revert to the amount that would have been payable under the normal form of payment.

5. LUMP-SUM ADDITIONAL BENEFIT PAYMENT

   The Board was given the ability to make an additional payment to members and beneficiaries in payment status in the form of a lump-sum additional benefit payment. The additional payment would be a percentage of the current monthly payment with a maximum percentage of 100%.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

6. EMPLOYER PURCHASE OF CREDITABLE SERVICE

   Limitations on employer purchases of Creditable Service for a Member before actual retirement were removed.

P. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2000

1. “415 Restoration of Retirement Income Plan”

   Certain highly compensated members may have their retirement annuity limited because of Section 415(b)(1) of the Internal Revenue Code. A plan amendment effective January 1, 2000, provides for COAERS to pay a benefit payment that exceeds the maximum benefit limitation imposed by the Internal Revenue Code from a separate, non-qualified, pay-as-you-go “Restoration of Retirement Income Plan.”

2. 2.98% Multiplier

   The benefit multiplier was increased from 2.7% per year of service to 2.98% per year of service effective April 2000.

3. 2.98% Retiree Gross-up

   Effective April 2000, current retirees received an increase in their benefit amount to bring their retirement benefit amount up to what it would be currently if they had retired under the 2.98% multiplier.

4. “Pop-up” Benefit Amendment

   The “pop-up” benefit is extended to retirees who selected the actuarial equivalent of Life Annuity option with underlying options of I, II, or III.

Q. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2001

None

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

R. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2002

1. 3.00% Multiplier

   Benefit multiplier was increased from 2.98% per year of service to 3.00% per year of service effective January 2002.

2. 3.00% Retiree Gross-up

   Effective January 2002, current retirees received an increase in their benefit amount to bring their retirement benefit amount up to what it would be currently if they had retired under the 3.00% multiplier.

3. Deferred Retirement Option Program

   A "Backward" DROP was added as an optional benefit effective in 2002. The retiring member may elect to retroactively participate in a DROP. The member would receive a lump-sum payment equal to 90% of the sum of the monthly annuities the participant would have received if the member had retired at the DROP entry date. No COLAs are included but changes in the benefit multiplier are reflected.

4. Purchase of Permissive Time

   A member may purchase up to five years of Permissive Time. The purchase price charged to the member is the anticipated actuarial cost to the System for the additional service. Minimum purchase is one month with a maximum of 60 months (5 years) or the number of months needed to reach first eligibility for retirement whichever is less.

5. Conversion of Unused Sick Leave

   At retirement an employee may elect to purchase Creditable Service for unused sick leave. The Board requires payment by the Member, and then by the City of the equivalent amount of retirement contributions that would have been made had the sick hours been exercised as sick hours. An employee must already be eligible for retirement to purchase the service.

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

S. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2003

1. “Pop-up” Benefit Amendment

   “Pop-up” benefit was extended to any Joint and Survivor option (including level income options), other than Joint and Last Survivor.

2. Permissive Time Amendment

   Permissive Time resolution was amended removing the provision that restricts members from purchasing Permissive Time in excess of the amount needed to reach first retirement eligibility.

T. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2004

None

U. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2005

None

V. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2006

None

W. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2007

None

X. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2008

None

Y. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2009

None

Z. BENEFIT ENHANCEMENTS ENACTED BY THE BOARD OF TRUSTEES IN 2010

None

Summary of Benefit Provisions of the Retirement Plan as of December 31, 2018 (Continued)

AA. LEGISLATED PLAN CHANGES ENACTED BY THE 2011 LEGISLATURE

1. Retirement Provisions

   For members hired on after January 1, 2012 (Group B members), changed the eligibility for normal retirement to age 65 with 5 years of service, or age 62 with 30 years of service. Also for members hired on or after January 1, 2012, added an eligibility for early retirement upon age 55 with 10 years of service.

2. Benefit Multiplier

   For members hired on after January 1, 2012, the benefit multiplier was changed to 2.5% per year of service. Early retirement benefits would be reduced on an actuarially equivalent basis.

BB. BENEFIT ENHANCEMENTS ENACTED IN 2012-2018

There have been no changes to the benefit provisions of the Plan since January 1, 2012.

Definition of Terms

1. ***Actuarial Cost Method***

   A method for determining the actuarial present value of future benefits and allocating such value to time periods in the form of a normal cost and an actuarial accrued liability.

2. ***Present Value of Future Benefits***

   This is computed by projecting the total future benefit cash flow from the System, using actuarial assumptions, and then discounting the cash flow to the valuation date.

3. ***Normal Cost***

   Computed differently under different actuarial cost methods, the normal cost generally represents the value of the portion of the participant's anticipated retirement, termination, and/or death and disability benefits accrued during a year.

4. ***Actuarial Accrued Liability***

   Computed differently under different actuarial cost methods. Generally actuarial accrued liability represents the value of the portion of the participant's anticipated retirement, termination, and/or death and disability benefits accrued as of the valuation date.

5. ***Entry Age Actuarial Cost Method***

   A method under which a participant's actuarial present value of future benefits is allocated on a level basis over the earnings of the participant between his/her entry into the System and his/her assumed exit.

6. ***Unfunded Actuarial Accrued Liability***

   The difference between total actuarial present value of future benefits over the sum of the tangible assets of the System and the actuarial present value of the members' future normal costs. The System is underfunded if the difference is positive and overfunded if the difference is negative.

7. ***Actuarial Value of Assets***

   The value of cash, investments, and other property belonging to the System, as valued by the actuary for purposes of the actuarial valuation.

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Definition of Terms (Continued)

8. ***Actuarial Gain or Loss***

From one valuation to the next, if the experience of the plan differs from that anticipated by the actuarial assumptions, an actuarial gain or loss occurs. For example, an actuarial gain would occur if the assets in the trust had a yield of 12% based on actuarial value, while the assumed yield on the actuarial value of assets was 7.50%.

Statistical Section

The Statistical Section provides additional historical perspective, context, and detail to assist the reader in using the information in the financial statements and note disclosures to understand and assess the economic condition of the City of Austin Employees' Retirement System (COAERS). In compliance with *GASB Statement No. 44, Economic Condition Reporting: The Statistical Section*, schedules are classified into the following categories: Demographic and Economic Information, Operating Information, and Financial Trends.

Statistical Tables

Sources: *Schedules and data are provided by the consulting actuary, GRS Retirement Consulting, unless otherwise noted.*

Table 13A
Distribution of All Active Participants by Age and Length of Service
As of December 31, 2018

Attained Age	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Number of Employees	Average Annual Salary
Under 25	76	44	31	12	9	0	0	0	0	0	0	0	172	$ 39,784
25-29	187	135	133	71	62	76	1	0	0	0	0	0	665	46,625
30-34	175	173	163	123	113	306	85	1	0	0	0	0	1,139	55,575
35-39	127	157	138	101	146	336	300	77	4	0	0	0	1,386	63,636
40-44	103	99	79	82	116	301	313	229	56	0	0	0	1,378	70,749
45-49	81	85	87	48	93	283	308	296	169	32	0	0	1,482	73,001
50-54	76	45	51	41	78	203	289	243	187	81	19	1	1,314	74,803
55-59	60	53	40	33	64	198	232	252	167	87	25	1	1,212	74,036
60-64	18	22	26	33	41	129	180	144	101	55	14	8	771	74,073
65 & Over	7	7	8	7	15	61	74	66	43	13	11	7	319	75,781
All Ages	910	820	756	551	737	1,893	1,782	1,308	727	268	69	17	9,838	$ 67,527

Table 13B
Distribution of Group A Active Participants by Age and Length of Service as of December 31, 2018

Attained Age	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Number of Employees	Average Annual Salary
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0	$ 0
25-29	0	0	0	0	0	12	1	0	0	0	0	0	13	49,795
30-34	0	0	0	0	0	122	85	1	0	0	0	0	208	62,427
35-39	0	0	0	1	2	160	298	77	4	0	0	0	542	68,562
40-44	0	1	0	2	2	155	311	229	56	0	0	0	756	75,711
45-49	1	0	0	0	2	134	307	295	169	32	0	0	940	76,023
50-54	0	0	1	1	1	104	288	243	187	81	19	1	926	77,897
55-59	1	0	0	1	3	107	229	252	167	87	25	1	873	77,085
60-64	0	0	0	1	0	67	180	144	101	55	14	8	570	76,089
65 & Over	0	0	0	0	0	37	73	66	43	13	11	7	250	77,702
All Ages	2	1	1	6	10	898	1,772	1,307	727	268	69	17	5,078	$ 75,171

Table 13C
Distribution of Group B Active Participants by Age and Length of Service as of December 31, 2018

Attained Age	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Number of Employees	Average Annual Salary
Under 25	76	44	31	12	9	0	0	0	0	0	0	0	172	$ 39,784
25-29	187	135	133	71	62	64	0	0	0	0	0	0	652	46,562
30-34	175	173	163	123	113	184	0	0	0	0	0	0	931	54,044
35-39	127	157	138	100	144	176	2	0	0	0	0	0	844	60,472
40-44	103	98	79	80	114	146	2	0	0	0	0	0	622	64,717
45-49	80	85	87	48	91	149	1	1	0	0	0	0	542	67,760
50-54	76	45	50	40	77	99	1	0	0	0	0	0	388	67,419
55-59	59	53	40	32	61	91	3	0	0	0	0	0	339	66,183
60-64	18	22	26	32	41	62	0	0	0	0	0	0	201	68,358
65 & Over	7	7	8	7	15	24	1	0	0	0	0	0	69	68,821
All Ages	908	819	755	545	727	995	10	1	0	0	0	0	4,760	$ 59,374

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Table 14
Distribution of All Active Participants by Service and Current Rate of Pay as of December 31, 2018

Completed Years of Service	Number of Employees	Total Average Salary
0	910	$ 54,897
1	820	55,082
2	756	57,140
3	551	58,412
4	737	63,704
5-9	1,893	67,765
10-14	1,782	72,095
15-19	1,308	77,319
20-24	727	79,524
25-29	268	86,373
30-34	69	96,032
35+	17	82,706
All Years	9,838	$ 67,527

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Table 15
Schedule of Average Benefit Payments

Retirement Effective Dates	Years Creditable Service						
January 1, 2013 to December 31, 2018	0-4	5-9	10-14	15-19	20-24	25-29	30+
Period 01/01/2013 to 12/31/2013							
Average Monthly Benefit	$249	$701	$1,541	$2,325	$3,330	$4,714	$5,418
Average Final Salary	$38,808	$43,790	$54,621	$57,891	$64,170	$76,055	$71,320
Number of Active Retirees	19	43	43	47	140	46	17
Period 01/01/2014 to 12/31/2014							
Average Monthly Benefit	$304	$934	$1,748	$2,059	$3,457	$4,653	$5,142
Average Final Salary	$41,458	$54,808	$61,215	$55,462	$66,771	$74,120	$70,799
Number of Active Retirees	23	51	50	39	115	56	22
Period 01/01/2015 to 12/31/2015							
Average Monthly Benefit	$342	$826	$1,856	$2,469	$3,650	$4,597	$5,533
Average Final Salary	$45,450	$49,458	$65,657	$66,219	$71,037	$70,821	$76,571
Number of Active Retirees	30	44	49	51	112	54	25
Period 01/01/2016 to 12/31/2016							
Average Monthly Benefit	$205	$1,072	$1,801	$2,320	$3,592	$4,801	$6,625
Average Final Salary	$35,701	$66,456	$64,162	$60,699	$69,051	$75,365	$85,827
Number of Active Retirees	22	43	50	44	108	49	21
Period 01/01/2017 to 12/31/2017							
Average Monthly Benefit	$371	$925	$1,788	$3,032	$3,871	$4,630	$6,037
Average Final Salary	$50,749	$54,135	$61,636	$71,751	$73,301	$74,520	$80,261
Number of Active Retirees	21	43	63	61	114	43	28
Period 01/01/2018 to 12/31/2018							
Average Monthly Benefit	$293	$1,112	$1,772	$2,863	$3,979	$5,495	$6,080
Average Final Salary	$56,345	$69,022	$64,441	$70,931	$78,425	$87,300	$84,409
Number of Active Retirees	10	44	45	39	78	43	23

Table 16

Retired Members by Type of Benefit (as of December 31, 2018)

Amount of Monthly Benefit	Number of Retired Members	Type of Retirement[a] 1	2	3	4	Option Selected[b] Unmod.	1	2	3	4	5	6	7
Deferred						1,217							
$1-250	201	170	11	2	18	130	52	7	1		11		
251-500	293	236	31	12	14	160	95	13	7	2	14	1	1
501-750	338	268	46	11	13	205	99	14	8	3	9		
751-1,000	363	274	61	14	14	208	104	21	14	4	11	1	
1,001-1,250	346	258	64	16	8	185	112	17	17	6	9		
1,251-1,500	398	322	58	15	3	190	138	29	25	3	10	1	2
1,501-1,750	416	354	52	10	0	184	132	33	46	4	11	1	5
1,751-2,000	440	383	43	11	3	193	156	42	38	4	6		1
Over $2,000	3,619	3,420	168	21	10	1,368	1,454	328	314	31	94	26	4
Total	**6,414**	**5,685**	**534**	**112**	**83**	**4,040**	**2,342**	**504**	**470**	**57**	**175**	**30**	**13**

Notes:

[a] Type of Retirement

1. Normal retirement for age and service
2. Beneficiary payment, normal retirement or death in service
3. Disability retirement
4. QDRO - alternate payee

[b] Option Selected:

Unmodified Plan: life annuity (includes Type 2 receiving survivor benefit for life)

The following options reduce the retired member's monthly benefit:

Option 1 - Beneficiary receives 100 percent of member's reduced monthly benefit
Option 2 - Beneficiary receives 50 percent of member's reduced monthly benefit
Option 3 - Beneficiary receives 66-2/3 percent of member's reduced monthly benefit
Option 4 - Survivor receives 66-2/3 percent of member's reduced monthly benefit upon first death
Option 5 - Life annuity with 15 years guaranteed
Option 6 - Other: participant created actuarial equivalent forms of payment
Option 7 - Beneficiary of Option 5 receiving payment until termination of guaranteed period

Note: The number of Retired Members and the number of options selected are not equal due to the inclusion of 0 deferred vested members in the Unmodified option selection.

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Table 17
Schedule of Participating Employers

The City of Austin and the City of Austin Employees' Retirement System are the only participating employers in the plan.

Table 18
Change in Net Position, Last Ten Fiscal Years

	Fiscal Year									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Additions										
Member Contributions	$38,752	$40,629	$41,503	$43,922	$47,449	$50,489	$54,066	$60,801	$56,194	$58,713
Employer Contributions	45,263	53,576	66,718	76,217	86,713	93,470	100,637	104,488	111,058	116,671
Investment Income (net of expenses)	310,844	230,102	(21,964)	220,199	287,075	99,704	(47,608)	171,641	376,819	(157,242)
Total additions to plan net assets	394,859	324,307	$86,257	$340,338	$421,237	$243,663	$107,095	$336,930	544,071	$18,142
Deductions										
Benefit Payments	108,090	115,665	123,558	131,606	141,923	152,664	162,085	171,736	183,344	195,538
Refunds	4,858	4,205	3,801	4,916	4,738	4,154	4,052	3,911	4,045	4,141
Administrative Expenses	2,032	2,113	2,218	2,280	2,561	2,631	2,421	2,701	2,778	4,024
Lump-sum Payments	3,095	2,013	2,483	3,843	4,858	5,039	3,532	3,697	3,154	3,494
Total deductions from plan net assets	118,075	123,996	132,060	142,645	154,080	164,488	172,090	182,045	193,321	207,197
Change in net assets	$276,784	$200,311	($45,803)	$197,693	$267,157	$79,175	($64,995)	$154,884	$350,750	($189,055)

Notes: Dollar amounts in thousands
Columns may not add due to rounding
Includes contributions to and benefit payments from 415 Restoration Plan

Table 19

Benefit and Refund Deductions from Net Position by Type, Last Ten Fiscal Years

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Type of Benefit										
Age and service benefits:										
Retirees [a]	$106,148	$114,244	$121,366	$130,019	$139,667	$150,335	$160,219	$170,031	$181,270	$192,905
Beneficiaries [a]										
Lump-sum payments	$3,095	$2,011	$2,483	$3,843	$4,858	$5,039	$3,532	$3,697	$3,154	$3,494
In service death benefits: [b]	$1,942	$1,421	$2,192	$1,587	$2,256	$2,329	$1,866	$1,705	$2,074	$2,633
Disability benefits: [c]										
Total benefits	$111,185	$117,676	$126,041	$135,449	$146,781	$157,703	$165,617	$175,433	$186,498	$199,032
Type of Refund										
Death [b]										
Separation	$4,858	$4,205	$3,801	$4,916	$4,738	$4,154	$4,052	$3,911	$4,045	$4,141
Total refunds	$4,858	$4,205	$3,801	$4,916	$4,738	$4,154	$4,052	$3,911	$4,045	$4,141

Notes: Dollar amounts in thousands

[a] Segregation of age benefits for beneficiaries not currently available

[b] Segregation of death benefits between refunds and in service death benefits not currently available

[c] Segregation of disability benefits from age and service benefits not currently available

Includes benefit payments from 415 Restoration Plan

Excludes administrative expenses

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HISTORY OF CONTRIBUTIONS AND BENEFIT RATES

Year	Employer Contribution Rate	Member Contribution Rate	Interest Paid on Member Deposits	Benefits Multiplier	Cost of Living Adjustment
1941	4.00%	4.00%	-	N/A	-
1942	"	"	-	"	-
1943	"	"	-	"	-
1944	"	"	-	"	-
1945	"	"	2.00%	"	-
1946	"	"	2.00%	"	-
1947	"	"	2.00%	"	-
1948	"	"	2.00%	"	-
1949	"	"	2.00%	"	-
1950	"	"	2.00%	"	-
1951	5.00%	5.00%	2.00%	"	-
1952	"	"	2.00%	"	-
1953	"	"	1.91%	"	-
1954	"	"	2.46%	"	-
1955	"	"	2.52%	"	-
1956	"	"	2.60%	"	-
1957	"	"	2.00%	"	-
1958	"	"	2.62%	"	-
1959	"	"	2.79%	"	-
1960	"	"	3.27%	"	-
1961	"	"	2.77%	"	-
1962	"	"	3.65%	1.125%	-
1963	"	"	3.76%	"	-
1964	"	"	3.31%	"	-
1965	"	"	3.25%	"	-
1966	"	"	3.56%	"	-
1967	"	"	3.68%	1.25%	-
1968	"	"	4.25%	"	-
1969	"	"	4.66%	"	0.50% [a]
1970	"	"	4.98%	"	1.50%
1971	6.00%	6.00%	5.43%	1.50%	2.00%
1972	"	"	6.04%	"	3.00%
1973	"	"	6.22%	1.75%	3.00%
1974	"	"	6.33%	"	3.00%
1975	"	"	6.82%	"	3.00%
1976	"	"	6.94%	"	3.00%
1977	"	"	6.51%	"	3.00%
1978	"	"	6.66%	"	3.00%
1979	"	"	7.84%	"	3.00%
1980	"	"	8.01%	"	3.00%
1981	6.00%	6.00%	8.14%	"	3.00%

HISTORY OF CONTRIBUTIONS AND BENEFIT RATES, CONTINUED

Year	Employer Contribution Rate	Member Contribution Rate	Interest Paid on Member Deposits	Benefits Multiplier	Cost of Living Adjustment
1982	6.60%	6.60%	8.21%	"	3.00%
1983	"	"	8.39%	"	3.00%
1984	7.00%	7.00%	8.29%	1.85%	3.00%
1985	"	"	8.22%	2.00%	3.00%
1986	"	"	8.00%	"	3.00%
1987	6.20%	6.20%	8.00%	"	1.50%
1988	7.00%	7.00%	8.00%	"	3.00%
1989	"	"	8.00%	"	3.00%
1990	"	"	8.00%	2.10%	3.00%
1991	"	"	6.50%	"	3.00%
1992	"	"	6.00%	"	4.00%
1993	"	"	5.00%	2.20%	3.10%
1994	"	"	6.00%	"	6.00%
1995	"	"	6.75%	2.30%	6.00%
1996	"	"	6.75%	"	6.00%
1997	"	"	6.75%	2.60%	6.00%
1998	"	"	5.00%	"	5.00%
1999	"	8.00%	6.25%	2.70%	3.00%
2000	8.00%	"	5.75%	2.98%	0.00%
2001	"	"	4.25%	"	3.50%
2002	"	"	3.75%	3.00%	2.50%
2003	"	"	3.75%	"	0.00%
2004	"	"	3.75%	"	0.00%
2005	"	"	4.50%	"	0.00%
2006	9.00% [b]	"	4.50%	"	0.00%
2007	"	"	4.50%	"	0.00%
2008	10.00% [b]	"	4.00%	"	0.00%
2009	12.00% [b]	"	3.25%	"	0.00%
2010	12.00% [c]	"	2.75%	"	0.00%
2011	14.00% [c]	"	2.25%	"	0.00%
2012	16.00% [c]	"	1.85%	3.00%/2.50% [d]	0.00%
2013	18.00% [c]	"	2.17%	"	0.00%
2014	"	"	2.63%	"	0.00%
2015	"	"	2.14%	"	0.00%
2016	"	"	1.83%	"	0.00%
2017	"	"	2.32%	"	0.00%
2018	"	"	2.81%	"	0.00%

[a] In 1969, the adjustment was 1.5% prorated for 4 months, 4/12 x 1.5% or .05%.

[b] Includes City of Austin subsidy payment, effective at beginning of their fiscal year, October 1, pursuant to Supplemental Funding Plan.

[c] Increased to 14.00% effective October 1, 2010; increased to 16.00% effective October 1, 2011; increased to 18.00% effective October 1, 2012 and thereafter; pursuant to Amended Supplemental Funding Plan.

[d] The multiplier was set at 2.50% for those hired on and after January 1, 2012. The multiplier remained at 3.00% for those hired before January 1, 2012.

***Notes**: The System was a money purchase plan until 1962 when a formula for computing benefits was introduced with a multiplier of 1.125%. Special adjustments based on years of retirement granted by City Council in 1985 and 1990 are not reflected in table.*

***Source:** Information derived from COAERS internal sources.*