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INDEPENDENT AUDITORS' REPORT

The Board of Trustees
Texas Municipal Retirement System
Austin, Texas

Report on the Financial Statements

We have audited the accompanying financial statements of the Texas Municipal Retirement System (TMRS), which comprise the statement of fiduciary net position and the related statement of changes in fiduciary net position as of and for the year ended December 31, 2019, and the related notes to the financial statements, which collectively comprise the TMRS' basic financial statements, as listed in the table 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 accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are 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 audit. We conducted our audit 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 of 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 presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall 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 net position of the Texas Municipal Retirement System as of December 31, 2019, and the respective changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

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Board of Trustees
Texas Municipal Retirement System

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and schedule of investment returns, as listed in the table of contents, 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 that collectively comprise TMRS' basic financial statements. The schedules of changes in fiduciary net position – by fund, administrative expenses, professional services, and investment expenses (supplementary information) and the introductory, investment, actuarial and statistical sections, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The supplementary information 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 basic 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 supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The introductory, investment, actuarial and statistical sections 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 them.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Baltimore, Maryland
June 10, 2020

Management's Discussion and Analysis

Management's Discussion and Analysis (MD&A) of the Texas Municipal Retirement System (TMRS, or the System) for the year ended December 31, 2019, provides a summary of the financial position and performance of TMRS, including highlights and comparisons. The MD&A is presented as a narrative overview and analysis in conjunction with the Letter of Transmittal, which is included in the Introductory Section of the TMRS *Comprehensive Annual Financial Report* (CAFR). For more detailed information regarding TMRS financial activities, the reader should also review the actual financial statements, including the notes and supplementary schedules.

Overview of the Financial Statements

This MD&A is intended to serve as an introduction to the TMRS basic financial statements, which comprise the following components:

- Fund Financial Statements
- Notes to Financial Statements

This report also contains Required Supplementary Information and other supplemental information in addition to the basic financial statements. Collectively, this information presents the fiduciary net position and the changes in fiduciary net position of TMRS as of December 31, 2019. The information contained in each of these fiduciary components is summarized as follows:

Fund Financial Statements. Two statements, both containing financial information for the Pension Trust Fund and the Supplemental Death Benefits Fund (SDBF), are provided. These funds are presented as fiduciary funds of the System and reflect the resources available for benefits to members, retirees, and their beneficiaries (Pension Trust Fund) and other benefits (SDBF). The Statement of Fiduciary Net Position as of December 31, 2019 reflects the financial position of TMRS at a point in time. The Statement of Changes in Fiduciary Net Position for the year ended December 31, 2019 presents the activities that occurred during the respective period.

Notes to Financial Statements. The financial statement notes provide additional information that is essential to a full understanding of the data provided in the fund financial statements.

Required Supplementary Information. Required supplementary information includes the historical investment returns on pension plan investments presented for each of the six years ending December 31, 2019.

Other Supplemental Schedules. Supplemental schedules include additional information regarding fund activity, administrative expenses, professional services, and investment expenses.

Financial Highlights

Net Position Restricted for Pensions – Pension Trust Fund

The following tables display a summary of assets, liabilities, and net position for the TMRS Pension Trust Fund at December 31, 2019 and 2018, and a summary of the change in net position for the years then ended. The overall financial condition of the Pension Trust Fund reflects an increase in net position from 2018 to 2019, primarily as a result of market gains experienced in 2019.

Summary Net Position (in millions)	12/31/2019	12/31/2018	$ Change	% Change
Investments, at fair value	$ 31,871.2	$ 27,973.6	$ 3,897.6	13.9 %
Cash, receivables and other	479.5	778.6	(299.1)	(38.4)
Capital assets, net	8.5	9.1	(0.6)	(6.6)
Total assets	32,359.2	28,761.3	3,597.9	12.5
Due to custodial/depository banks	5.5	103.2	(97.7)	(94.7)
Other liabilities	539.9	974.6	(434.7)	(44.6)
Total liabilities	545.4	1,077.8	(532.4)	(49.4)
Net Position Restricted for Pensions	$ 31,813.8	$ 27,683.6	$ 4,130.2	14.9 %

The most significant component of the System's fiduciary net position is the fair value of its investment portfolio. The change in investments reflects the investment return in 2019 (one-year time-weighted returns of 14.96% gross and 14.71% net). The fluctuation of cash, receivables, and other assets, as well as other liabilities, is due primarily to the change in open trades receivable and payable from year-to-year (i.e, timing of trade activity near year-end). The decrease in due to custodial/depository banks from 2018 to 2019 is due to a custodial overdraft balance at December 31, 2018.

Summary Change in Net Position (in millions)	2019	2018	$ Change	% Change
Additions:				
Employer contributions	$ 930.2	$ 881.5	$ 48.7	5.5 %
Plan member contributions	453.6	427.8	25.8	6.0
Net investment income/(loss)	4,279.5	(858.1)	5,137.6	598.7
Total additions	5,663.3	451.2	5,212.1	1,155.2
Deductions:				
Retirement benefits	1,445.5	1,335.2	110.3	8.3
Refunds	62.7	64.3	(1.6)	(2.5)
Administrative & other costs	24.9	17.5	7.4	42.3
Total deductions	1,533.1	1,417.0	116.1	8.2
Net increase/(decrease) in net position	4,130.2	(965.8)	5,096.0	527.6
Net position - beginning of year	27,683.6	28,649.4	(965.8)	(3.4)
Net position - end of year	**$ 31,813.8**	**$ 27,683.6**	**$ 4,130.2**	**14.9 %**

The increase in employer and plan member contributions from 2018 to 2019 is due to the increase in covered payroll from $6.44 billion in 2018 to $6.79 billion in 2019. City membership also increased over the period, totaling 888 and 887 at December 31, 2019 and 2018, respectively.

Net investment income/(loss) is presented after deduction of investment expenses and comprises interest and dividends, and net appreciation/(depreciation) in fair value of investments. The change in net investment income/(loss) from 2018 to 2019 primarily results from the change in the net appreciation/(depreciation) in the fair value of investments during the periods ($3.8 billion appreciation and $1.4 billion depreciation during the years ended 2019 and 2018, respectively). During 2018 and 2019, TMRS' investment portfolio was impacted by the market volatility experienced during that period, primarily in the public equities asset class.

The increase in retirement benefits is due primarily to growth in the number of retirement accounts each year (69,625 and 66,051 in 2019 and 2018, respectively), as well as annuity increases (COLAs) that may be applied each year.

Net Position – Supplemental Death Benefits Fund

The following table displays a summary of net position at December 31, 2019 and 2018 and a summary of the change in net position for the years then ended for the Supplemental Death Benefits Fund. The overall financial condition of the Supplemental Death Benefits Fund reflects a decrease in net position over the two-year period.

Summary Net Position	12/31/2019	12/31/2018
Total assets and net position	$ 14,073,111	$ 17,306,500

Summary Change in Net Position (in thousands)	2019	2018	$ Change	% Change
Additions:				
Employer contributions	$ 8,321.2	$ 7,758.1	$ 563.1	7.3 %
Income allocation	759.3	885.0	(125.7)	(14.2)
Total additions	9,080.5	8,643.1	437.4	5.1
Deductions:				
Supplemental death benefits	12,313.9	10,267.3	2,046.6	19.9
Total deductions	12,313.9	10,267.3	2,046.6	19.9
Change in net position	(3,233.4)	(1,624.2)	(1,609.2)	(99.1)
Net position - beginning of year	17,306.5	18,930.7	(1,624.2)	(8.6)
Net position - end of year	**$ 14,073.1**	**$ 17,306.5**	**$ (3,233.4)**	**(18.7) %**

Employer contributions are based on the covered payroll of the participating municipalities at actuarially determined rates. The increase in contributions from 2018 to 2019 is due to the increase in covered payroll. The fluctuation in supplemental death benefits over the two-year period is a result of the change in total numbers of claims as well as type of claims in those years (active vs. retired). Active and retired member deaths total 130 and 741, respectively, in 2019 compared with 100 and 717, respectively, in 2018. The Supplemental Death Benefits Fund receives a 5% statutory interest allocation from the Pension Trust Fund based on the fund's average balance during the year.

Requests for Information

This financial report is designed to provide a general overview of the Texas Municipal Retirement System's finances. Questions and requests for additional information should be addressed to the Finance Department of the Texas Municipal Retirement System, P.O. Box 149153, Austin, Texas 78714-9153. ■

Statement of Fiduciary Net Position

Statement of Fiduciary Net Position As of December 31, 2019	2019		
	Pension Trust Fund	Supplemental Death Benefits Fund	Total
ASSETS			
Cash	$ 193,356	$ —	$ 193,356
Receivables:			
Contributions	107,528,876	711,366	108,240,242
Interest and dividends	45,994,833	—	45,994,833
Unsettled investment trades	49,258,910	—	49,258,910
Securities sold on a when-issued basis	276,120,220	—	276,120,220
Total Receivables	478,902,839	711,366	479,614,205
Investments, at fair value:			
Short-term investments	902,787,580	—	902,787,580
Fixed income securities	5,790,435,474	—	5,790,435,474
Equities	12,361,255,244	—	12,361,255,244
Non-core fixed income funds	4,641,597,864	—	4,641,597,864
Real return funds	1,759,145,232	—	1,759,145,232
Absolute return funds	2,765,248,440	—	2,765,248,440
Private equity funds	936,779,828	—	936,779,828
Real estate funds	2,713,951,673	—	2,713,951,673
Total investments	31,871,201,335	—	31,871,201,335
Property and equipment, at cost, net of accumulated depreciation of $18,743,012 at December 31, 2019	8,482,497	—	8,482,497
Funds held by Pension Trust Fund	—	13,361,745	13,361,745
Other assets	470,275	—	470,275
TOTAL ASSETS	**32,359,250,302**	**14,073,111**	**32,373,323,413**
LIABILITIES			
Due to depository bank	5,525,710	—	5,525,710
Accounts payable and other accrued liabilities	24,812,747	—	24,812,747
Funds held for Supplemental Death Benefits Fund	13,361,745	—	13,361,745
Unsettled investment trades payable	98,075,770	—	98,075,770
Securities purchased on a when-issued basis	403,663,055	—	403,663,055
TOTAL LIABILITIES	**545,439,027**	**—**	**545,439,027**
FIDUCIARY NET POSITION			
Net position restricted for pensions	31,813,811,275	—	31,813,811,275
Fiduciary net position held in trust for other benefits	—	14,073,111	14,073,111
TOTAL FIDUCIARY NET POSITION	**$ 31,813,811,275**	**$ 14,073,111**	**$ 31,827,884,386**

See accompanying notes to financial statements.

Statement of Changes in Fiduciary Net Position

Statement of Changes in Fiduciary Net Position For the Year Ended December 31, 2019	2019		
	Pension Trust Fund	Supplemental Death Benefits Fund	Total
ADDITIONS			
Contributions:			
Employer	$ 930,236,155	$ 8,321,181	$ 938,557,336
Plan member	453,608,174	—	453,608,174
Total contributions	1,383,844,329	8,321,181	1,392,165,510
Net investment income:			
Net appreciation in fair value of investments	3,757,666,033	—	3,757,666,033
Interest and dividends	566,140,388	—	566,140,388
Total investment income	4,323,806,421	—	4,323,806,421
Less investment expense	(44,321,124)	—	(44,321,124)
Net investment income	4,279,485,297	—	4,279,485,297
Other miscellaneous	32,880	—	32,880
Income allocation from Pension Trust Fund	—	759,316	759,316
TOTAL ADDITIONS	**5,663,362,506**	**9,080,497**	**5,672,443,003**
DEDUCTIONS			
Benefit payments:			
Service retirement	1,247,542,653	—	1,247,542,653
Disability retirement	17,080,384	—	17,080,384
Partial lump sum distributions	180,929,339	—	180,929,339
Supplemental death benefits	—	12,313,886	12,313,886
Total benefit payments	1,445,552,376	12,313,886	1,457,866,262
Refunds of contributions	62,685,940	—	62,685,940
Administrative expenses	24,183,038	—	24,183,038
Income allocation to Supplemental Death Benefits Fund	759,316	—	759,316
TOTAL DEDUCTIONS	**1,533,180,670**	**12,313,886**	**1,545,494,556**
NET INCREASE/(DECREASE) IN NET POSITION	**4,130,181,836**	**(3,233,389)**	**4,126,948,447**
FIDUCIARY NET POSITION			
Fiduciary net position restricted for pensions			
Beginning of year	27,683,629,439	—	27,683,629,439
End of year	31,813,811,275	—	31,813,811,275
Fiduciary net position held in trust for other benefits			
Beginning of year	—	17,306,500	17,306,500
End of year	—	14,073,111	14,073,111
TOTAL FIDUCIARY NET POSITION	**$ 31,813,811,275**	**$ 14,073,111**	**$ 31,827,884,386**

See accompanying notes to financial statements.

1. Summary of Significant Accounting Policies

A. Background and Reporting Entity

The Texas Municipal Retirement System (TMRS, or the System) is an agency created by the State of Texas and administered in accordance with the Texas Municipal Retirement System Act, Subtitle G, Title 8, Texas Government Code (the TMRS Act) as an agent multiple-employer retirement and disability pension system for municipal employees in the State of Texas. As such, TMRS is a public trust fund that has the responsibility of administering the System in accordance with the TMRS Act and bears a fiduciary obligation to its members and their beneficiaries.

The System's financial statements have been prepared in accordance with generally accepted accounting principles (GAAP) as prescribed by the Governmental Accounting Standards Board (GASB). TMRS has no component units and is not a component unit of any other entity. The accompanying financial statements include only the operations of the System, which is comprised of two fiduciary trust funds — the Pension Trust Fund and the Supplemental Death Benefits Fund. The TMRS Act places the general administration and management of the System with a six-member Board of Trustees (the Board). Three Trustees are "Executive Trustees" who are either the chief executive officer, chief finance officer, or other officer, executive, or department head of a participating municipality. Three Trustees are "Employee Trustees" who are employees of a participating municipality. Although the Governor, with the advice and consent of the Senate, appoints the Board, TMRS is not fiscally dependent on the State of Texas.

B. New Accounting Pronouncements

In June 2017, the GASB issued Statement No. 87, *Leases*. The objective of this Statement is to better meet the information needs of financial statement users by improving accounting and financial reporting for leases by governments. This Statement increases the usefulness of governments' financial statements by requiring recognition of certain lease assets and liabilities for leases that previously were classified as operating leases. Statement No. 87 is effective for the System's 2022 fiscal year, implementation of which is currently being evaluated.

C. Basis of Accounting

The Pension Trust Fund and the Supplemental Death Benefits Fund are maintained on the accrual basis of accounting. Revenue is recorded when earned and expenses are recorded when incurred, regardless of when payment is made. Employer and employee contributions are recognized in the period that the employer reports compensation for the employee, which is when contributions are legally due. Participant benefits are recorded when payable in accordance with the System's plan terms. Refunds are recorded and paid upon receipt of an approved application for refund.

The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities, 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. The System utilizes various investment instruments. Investment securities, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term, and that any such changes could materially affect the amounts reported in the Statement of Fiduciary Net Position and the Statement of Changes in Fiduciary Net Position.

D. Basis of Presentation

The financial statements are organized on the basis of funds, as required by the TMRS Act, each of which is considered to be a separate accounting entity. The operations of each fund are accounted for with a separate set of self-balancing accounts. These accounts are segregated for the purpose of carrying out specific activities or attaining certain objectives in accordance with applicable statutory guidelines or restrictions.

Each of the System's funds is considered a fiduciary fund. The following is a brief description of each fund category.

Fiduciary Fund — Pension Trust Fund

The Pension Trust Fund reports the resources held in trust for TMRS members and beneficiaries. The TMRS Act does not create legally required reserves, but establishes accounts that comprise the net position restricted for pensions as follows:

Benefit Accumulation Fund — The purpose of the Benefit Accumulation Fund (BAF) is to accumulate the activity impacting the balance of each municipality's reserve fund. The fund is increased by contributions made by employers and employee members, and decreased by benefit payments and refunds due to withdrawals and death. Effective each December 31, the Board of Trustees approves an interest credit to the BAF, allocated to each municipality in proportion to its BAF balance at January 1 of that year. The fund received an approximate 15.42% interest credit on December 31, 2019.

Full Benefit Arrangement Fund — Section 415(b) of the Internal Revenue Code limits the amount of an annual benefit that may be paid by a tax-qualified pension plan trust to its retirees. This provision is known as the Section 415 limit, which is set by Congress and can be periodically adjusted by the IRS. Any portion of a retiree's annual benefit that exceeds the Section 415 limit cannot be paid from the TMRS Pension Trust Fund. However, Internal Revenue Code Section 415(m) allows pension plans to create a separate fund, known as a qualified governmental excess benefit arrangement, to pay the benefits above the Section 415 limit. Accordingly, the TMRS Act established such an arrangement, which is referred to as the "Full Benefit Arrangement." The purpose of the fund is to record the contributions from employers as well as the benefits paid from such contributions.

Supplemental Disability Benefits Fund — The TMRS Board of Trustees initiated legislation to amend the TMRS Act in 1987, which terminated all cities' participation in the Supplemental Disability Benefits Fund effective January 1, 1988. Consequently, there have been no contributions to this Fund since 1987. The fund continues to pay the remaining benefit payments that are obligations of the fund. Each December 31, the Supplemental Disability Benefits Fund receives a 5% interest credit on the mean balance of the fund during the year.

This fund will likely experience fluctuations in funding from year to year, as this is a small closed group; TMRS management will continue to annually monitor the balances and obligations of this fund.

Endowment Fund — The purpose of the Endowment Fund is to accumulate unallocated investment income (Interest Reserve Account), escheated accounts, and funds and assets accruing to the System that are not specifically required by the other funds.

Expense Fund — The purpose of the Expense Fund is to record the expenses incurred for the administration and maintenance of the System. The Board, as evidenced by a resolution of the Board and recorded in its minutes, may transfer from the Interest Reserve Account of the Endowment Fund to the Expense Fund the amount estimated to cover the System's administrative costs for the year.

Fiduciary Fund — Supplemental Death Benefits Fund

The Supplemental Death Benefits Fund (SDBF) reports the resources available to pay supplemental death claims for covered participants. Member cities may elect, by ordinance, to provide a Supplemental Death Benefit for their active members, including or not including retirees. The SDBF is a separate trust fund administered by the TMRS Board of Trustees. The TMRS Act requires that the Pension Trust Fund allocate a 5% interest credit to the SDBF each December 31 based on the mean balance in the SDBF during the year. Death benefit payments are payable only from this fund and are not an obligation of, or a claim against, the other funds of the System.

E. Investments

Investments at December 31, 2019 include investments in short-term custodian-managed funds, repurchase agreements, domestic and international fixed income securities, domestic and international equity securities, commingled equity funds, non-core fixed income funds, real return funds, absolute return funds, private equity funds, and private real estate funds. Investments are reported at fair value, and securities transactions are reported on a trade-date basis. Short-term investment funds and repurchase agreements are reported at cost, which approximates market value. Fixed income securities, including TBA, or "to be announced," securities, are valued by pricing vendors that utilize quoted market prices, broker prices, or other valuation methodologies. Equity securities are valued by the custodian using the last trade date "quoted market price" supplied by various pricing data vendors. Fair values of the commingled equity funds are determined based on the funds' net asset values at the date of valuation. Fair values of the investments in non-core fixed income funds, real return funds, absolute return funds, private equity funds, and private real estate funds are reported at the net asset values as provided by the respective General Partner, which are based on audited financial statements of the fund. Withdrawal from the non-core fixed income funds, real return funds, absolute return funds, private equity funds, and private real estate funds prior to liquidation is allowable, but is subject to certain constraints as defined in the respective Limited Partnership Agreement.

Forward currency contracts and futures contracts are considered derivative financial instruments and are reported at fair value, with valuation changes reported as investment income and the accumulated gain/(loss) included in unsettled investment trades receivable/(payable) in the accompanying statement of fiduciary net position.

The TBA securities market is a forward, or delayed delivery, market for 30-year and 15-year fixed-rate single-family mortgage-backed securities (MBS) issued by Fannie Mae, Freddie Mac, and Ginnie Mae. A TBA trade represents a purchase or sale of single-family mortgage-backed securities to be delivered on a specified future date; however, the specific pools of mortgages that will be delivered are unknown at the time of the trade. Parties to a TBA trade agree upon the issuer, coupon, price, product type, amount of securities, and settlement date for delivery. Settlement for TBA trades is standardized to occur on one specific day each month. Notification date occurs 48 hours prior to settlement date, where the seller communicates to the buyer the exact details of the MBS pools that will be delivered. Securities must meet "good delivery guidelines." Good delivery guidelines, notification, and settlement dates are established by the Securities Industry and Financial Markets Association (SIFMA). TBAs are an eligible security per the TMRS Investment Policy Statement. The policy requires purchases of TBAs to be backed by cash until settlement, and sales of TBAs to be backed by a deliverable security. The receivables and payables associated with the sale and purchase of TBAs are reflected in the accompanying statements of fiduciary net position as securities sold and purchased on a when-issued basis.

F. Property and Equipment

Property and equipment consisting of building and improvements, furniture, software, equipment, and land are recorded at cost. It is the System's policy to capitalize items that individually exceed $10,000. Depreciation on furniture, equipment, and software is calculated on a straight-line basis over estimated useful lives, which range from three to ten years; depreciation for building and improvements is calculated on a straight-line basis over forty years.

2. Plan Description

A. Pension Trust Fund

TMRS is a statewide agent multiple-employer public employee retirement system that administers 888 nontraditional, joint contributory, hybrid defined benefit plans covering all eligible employees of member cities in Texas.

Membership in TMRS as of December 31, 2019	
Inactive plan member accounts (or beneficiaries) currently receiving benefits	**69,625**
Inactive plan member accounts entitled to but not yet receiving benefits	
Vested	32,831
Non-vested	32,729
Total	**65,560**
Active plan member accounts	
Vested	67,841
Non-vested	46,543
Total	**114,384**
Total member municipalities	**888**

Benefits — Upon retirement, benefits depend on the sum of the employee's contributions, with interest, and the city-financed monetary credits, with interest. City-financed monetary credits are composed of three sources: prior service credits, current service credits, and updated service credits. Prior Service Credit, granted by each city joining TMRS, is a monetary credit equal to the accumulated value of the percentage of prior service credit adopted times an employee's deposits that would have been made, based on the average salary prior to participation, for the number of months the employee has been employed, accruing 3% annual interest, and including the matching ratio adopted by the city. Current service credits are monetary credits for service since each plan began and are a percent (100%, 150%, or 200%) of the employee's accumulated contributions. In addition, each city can grant, either annually or on an annually repeating basis, another type of monetary credit referred to as Updated Service Credit. This monetary credit is determined by hypothetically recomputing the member's account balance by assuming that the current member deposit rate of the currently employing city (3%, 5%, 6%, or 7%) has always been in effect. The computation also assumes that the member's salary has always been the member's average salary — using a salary calculation based on the 36-month period ending a year before the effective date of calculation. This hypothetical account balance is increased by 3% each year (not the actual interest credited to the member's account in previous years), and increased by the city match currently in effect (100%, 150%, or 200%). The resulting sum is then compared to the member's actual account balance increased by the actual city match and actual interest credited. If the hypothetical calculation exceeds the actual calculation, the member is granted a monetary credit (or Updated Service Credit) equal to the difference between the hypothetical calculation and the actual calculation times the percentage adopted.

At retirement, the benefit is calculated as if the sum of the employee's contributions with interest and the city-financed monetary credits with interest were used to purchase an annuity. Members may choose to receive their retirement benefit in one of seven payment options: retiree life only; one of three survivor lifetime options; or one of three guaranteed term options. Members may also choose to receive a portion of their benefit as a Partial Lump Sum Distribution (PLSD) in an amount equal to 12, 24, or 36 monthly payments under the retiree life only option, which cannot exceed 75% of the total member deposits and interest. A member city may elect to increase the annuities of its retirees, either annually or on an annually repeating basis, effective January 1 of a calendar year. Cities may adopt annuity increases at a rate equal to either 30%, 50%, or 70% of the increase (if any) in the Consumer Price Index – all Urban Consumers (CPI-U) between the December preceding the member's retirement date and the December one year before the effective date of the increase, minus any previously granted increases.

The plan provisions are adopted by the governing body of each city, within the options available in the state statutes governing TMRS. Members in most cities can retire at age 60 and above with 5 or more years of service or with 20 years of service regardless of age. Some cities have elected retirement eligibility with 25 years of service regardless of age. Most plans also provide death benefits, and all provide disability benefits. Effective January 1, 2002, members are vested after 5 years, unless a city opted to maintain 10-year vesting. Members may work for more than one TMRS city during their career. If an individual has become vested in one TMRS city, he or she is immediately vested upon employment with another TMRS city. Similarly, once a member has met the eligibility requirements for retirement in a TMRS city, he or she is eligible in other TMRS cities as well.

Contributions — The contribution rates for employees are either 5%, 6%, or 7% of employee gross earnings (three cities have a 3% rate, which is no longer allowed for new cities under the Act), and the city matching percentages are either 100%, 150%, or 200%, both as adopted by the governing body of each city. Under the state law governing TMRS, the contribution rate for each city is determined annually by the actuary, using the Entry Age Normal (EAN) actuarial cost method. This rate consists of the normal cost contribution rate and the prior service cost contribution rate, which is calculated to be a level percent of payroll from year to year. The normal cost contribution rate for an employee is the contribution rate which, if applied to a member's compensation throughout their period of anticipated covered service with the municipality, would be sufficient to meet all benefits payable on their behalf. The salary-weighted average of the individual rates is the total normal cost rate. The prior service contribution rate amortizes the unfunded (overfunded) actuarial liability (asset) over the applicable period for that city. Both the normal cost and prior service contribution rates include recognition of the projected impact of annually repeating benefits, such as Updated Service Credits and Annuity Increases. The employer contribution rate cannot exceed a statutory maximum rate unless the city elects a higher maximum or removes the maximum rate. The statutory maximum rate is based on the employee contribution rate combined with the city matching percentage.

Contributions are made monthly by both the employees and the member cities. Since each member city must know its contribution rate in advance for budgetary purposes, there is a one-year delay between the actuarial valuation that serves as the basis for the contribution rate and the calendar year when the rate goes into effect. Member cities are allowed to make contributions in excess of their actuarially determined contributions to the Pension Trust Fund. Contributions totaling $928.7 million were made in 2019 by the member cities based on the December 31, 2017 actuarial valuation. If affected, a city may also pay contributions for the Full Benefit Arrangement (FBA). Such contributions totaled $1.5 million in 2019. Employees of the cities contributed $453.6 million in 2019 in accordance with the city-adopted employee contribution rate for each city.

Investment Policy — The pension plan's policy in regard to the allocation of invested assets is established and may be amended by the TMRS Board of Trustees. Plan assets are managed on a total return basis with an emphasis on both capital appreciation as well as the production of income, in order to satisfy the short-term and long-term funding needs of TMRS.

Strategic Asset Allocation Policy as of December 31, 2019			
Asset Class	**Minimum %**	**Target %**	**Maximum %**
Global Equities	25%	35%	45%
Core Fixed Income	5%	10%	15%
Non-Core Fixed Income	15%	20%	25%
Real Estate	5%	10%	15%
Real Return	5%	10%	15%
Absolute Return	5%	10%	15%
Private Equity	0%	5%	10%
Cash Equivalents	0%	0%	10%

For the year ended December 31, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was 14.68%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

B. Supplemental Death Benefits Fund

TMRS also administers a defined benefit group-term life insurance plan known as the Supplemental Death Benefits Fund (SDBF). This is a voluntary program in which participating member cities may elect, by ordinance, to provide group-term life insurance coverage (Supplemental Death Benefits) for their active members, including or not including retirees. Employers may terminate coverage under and discontinue participation in the SDBF by adopting an ordinance before November 1 of any year to be effective the following January 1.

Participation in SDBF as of December 31, 2019	
Annuitants eligible for benefits	**32,039**
Terminated vested employees	**9,957**
Current employee accounts	
Vested	45,341
Non-vested	31,612
Total	**76,953**
Number of municipalities providing coverage	**766**

Benefits — Payments from this fund are similar to group-term life insurance benefits, and are paid to the designated beneficiaries upon the receipt of an approved application for payment. The death benefit for active employees provides a lump-sum payment approximately equal to the employee's annual salary (calculated based on the employee's actual earnings for the 12-month period preceding the month of death). The death benefit for retirees is considered an other employment benefit and is a fixed amount of $7,500. The obligations of this plan are payable only from the SDBF and are not an obligation of, or a claim against, the Pension Trust Fund.

Contributions — Contributions are made monthly based on the covered payroll of employee members of the participating member city. The contractually required contribution rate is determined annually for each city. The rate is based on the mortality and service experience of all employees covered by the SDBF and the demographics specific to the workforce of the city. There is a one-year delay between the actuarial valuation that serves as the basis for the employer contribution rate and the calendar year when the rate goes into effect. The contributions to the SDBF are pooled for investment purposes with those of the Pension Trust Fund. The TMRS Act requires the Pension Trust Fund to allocate investment income to the SDBF on an annual basis (see note 1-D). The funding policy of this plan is to assure that adequate resources are available to meet all death benefit payments for the upcoming year; the intent is not to prefund retiree term life insurance during employees' entire careers. As such, contributions are utilized to fund active member deaths on a pay-as-you-go basis; any excess contributions and investment income over payments then become net position available for benefits.

C. TMRS as Employer

Pension Trust Fund — TMRS, as an employer, participates as one of the 888 plans in the statewide agent multiple-employer plan administered by the System, providing pension benefits for all of its eligible employees. The plan provisions that have been adopted by the TMRS Board of Trustees are within the options available in the TMRS Act. Employees can retire at age 60 and above with 5 or more years of service, or with 20 years of service regardless of age. The contribution rate for employees is 7% and the matching percentage for TMRS is 200%. TMRS, as an employer, has also adopted 100% Updated Service Credit (USC) on a repeating basis and annuity increases (AI) on a repeating basis, at 70% of the change in the CPI. Employees are vested after 5 years of service, but their accumulated deposits and interest must remain in the plan to receive any employer-financed benefits. At retirement, death, or disability, the benefit is calculated by converting the sum of the employee's personal account balance and the employer-financed monetary credits to a monthly annuity using annuity purchase rates prescribed by the TMRS Act. Members may choose to receive their retirement benefit in one of seven payment options. Members may also choose to receive a portion of their benefit as a PLSD (see section A of this note for a full description of the pension benefits).

TMRS' Net Pension Liability (NPL) of $10,111,799 at December 31, 2019 was measured as of the December 31, 2018 actuarial valuation and is reported as "accounts payable and other accrued liabilities" in the accompanying Statement of Fiduciary Net Position.

Supplemental Death Benefits Fund — TMRS, as an employer, participates in the defined benefit group-term life insurance plan it operates known as the Supplemental Death Benefits Fund (SDBF). TMRS elected to provide group-term life insurance coverage to both current and retired employees. The death benefit for active employees provides a lump-sum payment approximately equal to the employee's annual salary (calculated based on the employee's actual earnings, for the 12-month period preceding the month of death). Retired employees are insured for $7,500.

TMRS contributes to the SDBF at a contractually required rate as determined by an annual actuarial valuation, which was 0.17% for 2019, of which 0.02% represented the retiree-only portion, as a percentage of annual covered payroll. The rate is equal to the cost of providing one-year term life insurance. The funding policy for the SDBF program is to assure that adequate resources are available to meet all death benefit payments for the upcoming year; the intent is not to prefund retiree term life insurance during employees' entire careers. As an employer, TMRS' contributions to the SDBF for the years ended December 31, 2019, 2018, and 2017 were $21,140, $18,615, and $17,133, respectively, representing contributions for both active and retiree coverage, which equaled the required contributions each year.

See section B of this note for a full description of the SDBF.

TMRS Insurance Plan — TMRS, as an employer, also participates in the Employees Retirement System of Texas (ERS) Group Benefits Program (GBP). ERS provides health, life, disability, and dental insurance benefits through the GBP; the GBP is administered through a trust (irrevocable per statute – Texas Insurance Code, Section 1551.401), which is governed and managed by a Board of Trustees. The State Retiree Health Plan (SRHP) is a cost sharing multiple-employer defined benefit postemployment healthcare plan that covers retired employees of the State and other entities as specified by the state legislature, including TMRS. The plan assets are legally protected from creditors of the State of Texas and ERS. The ERS issues a publicly available financial report that includes financial statements and required supplementary information for the SRHP. The ERS Comprehensive Annual Financial Report is available online at *https://ers.texas.gov*, by writing to ERS, P.O. Box 13207, Austin, Texas 78711-3207, or by calling 877-275-4377.

As a cost sharing plan, all assets and risks are pooled and the contribution rates are the same for each participating employer. Contribution requirements or "premiums" are established and may be amended by the Texas Legislature. TMRS remits monthly premium contributions to ERS to cover both active employees and TMRS retirees that are covered under the plan. TMRS' contributions to ERS for the years ended December 31, 2019, 2018, and 2017 were $1,236,717, $1,212,586, and $1,088,947, respectively, for active employees and $48,674, $45,016, and $44,556, respectively, for TMRS retirees, which equaled the required contributions each year.

TMRS provides health coverage to TMRS retirees based on a tenure schedule approved by the TMRS Board of Trustees through the annual budget process. The retiree, at his/her own expense, may elect spouse health coverage, as well as dental and life insurance offered through the plan.

3. Deposits and Investments

A. Cash in Bank and Deposits

Cash balances represent both demand deposit accounts, held by a local banking institution under terms of a written depository contract, and cash on deposit with the custodian.

Demand deposits with the System's depository bank totaled $931,692, with a carrying value of $(5,525,710) at December 31, 2019, and is classified as "due to depository bank" on the Statement of Fiduciary Net Position. Securities pledged had a market value of $18,857,250 at December 31, 2019. Cash on deposit with the custodian totaled $193,356 at December 31, 2019.

B. Fair Value of Investments

The Plan categorizes its fair value measurements within the fair value hierarchy as established by generally accepted accounting principles. These principles recognize a three-tiered fair value hierarchy, as follows:

- **Level 1:** Investments with values based on quoted prices (unadjusted) for identical assets in active markets at the measurement date.
- **Level 2:** Investments with inputs — other than quoted prices included within Level 1 — that are observable for an asset, either directly or indirectly.
- **Level 3:** Investments with unobservable inputs for an asset that may require a degree of professional judgment.

Fair Value of Investments at December 31, 2019		Fair Value Measurements Using Level 1	Level 2	Level 3
Fixed-income				
U.S. Treasury bonds/notes	$ 1,031,677,816	$ —	$ 1,031,677,816	$ —
U.S. Treasury inflation-protected	263,353,112	—	263,353,112	—
U.S. government agency	13,291,419	—	13,291,419	—
Municipal	76,973,131	—	76,973,131	—
Corporate	1,802,124,444	—	1,802,124,444	—
Residential mortgage-backed	1,163,461,029	—	1,163,461,029	—
Commercial mortgage-backed	749,631,478	—	749,631,478	—
Other asset-backed	254,172,973	—	254,172,973	—
Foreign government	159,499,529	—	159,499,529	—
Foreign government inflation-linked	276,250,543	—	276,250,543	—
	5,790,435,474	—	5,790,435,474	—
Equities				
Equity securities - domestic	1,661,192,494	1,661,192,494	—	—
Equity securities - international	1,626,849,953	1,626,849,953	—	—
	3,288,042,447	3,288,042,447	—	—
Total investments by fair value level	$ 9,078,477,921	$ 3,288,042,447	$ 5,790,435,474	$ —
Investments measured at the net asset value (NAV):				
Non-core fixed income funds	4,641,597,864			
Real return funds	1,759,145,232			
Equity commingled funds	9,073,212,797			
Absolute return funds	2,765,248,440			
Private equity funds	936,779,828			
Private real estate funds	2,713,951,673			
Total investments measured at the NAV	$ 21,889,935,834			
Short-term investments at cost:				
Short-term investment funds	782,188,455			
Short-term corporate fixed income security	18,186,125			
Repurchase agreements	102,600,000			
Broker collateral	(187,000)			
Total short-term investments at cost	$ 902,787,580			
Total Investments	**$ 31,871,201,335**			
Other investment-related items not included above:				
Interest and dividends receivable	45,994,833			
Unsettled investment trades receivable/(payable), net	(48,816,860)			
Securities sold/(purchased) on a when-issued basis, net	(127,542,835)			
Total	$ (130,364,862)			

Equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those investments. Fixed income securities classified in Level 2 of the fair value hierarchy are valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. TMRS does not hold any investments classified in Level 3 of the fair value hierarchy as of December 31, 2019.

Investments measured at the net asset value (NAV) per share (or its equivalent) generally do not have readily obtainable fair values. TMRS values these investments based on the financial statements of the investment funds. The following table presents the unfunded commitments, redemption frequency (if currently eligible), and the redemption notice period for TMRS' alternative investments measured at NAV.

Investments Measured at the Net Asset Value (NAV)	Fair Value at 12/31/2019	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Equities:				
U.S. commingled funds	$ 5,454,240,075	$ —	Daily	1 - 2 days
International commingled funds	3,618,972,722	—	Daily	1 - 2 days
Non-core fixed-income funds:				
Bank loan/collateralized loan obligation	953,040,300	—	Quarterly	Varies: 45 - 60 days
Direct lending	1,033,325,364	530,928,314	Varies: Quarterly, N/A	Varies: 30 - 90 days, N/A
Opportunistic credit	1,491,478,077	342,924,251	Varies: Monthly, Quarterly, Yearly, N/A	Varies: 60 - 90 days, N/A
Emerging market debt	820,677,820	—	Weekly	10 days
High yield	343,076,303	—	Daily	10 days
Real return funds:				
Agriculture	140,811,989	74,960,012	N/A	N/A
Energy	230,013,452	205,265,080	N/A	N/A
Infrastructure	372,192,536	604,597,174	Varies: Daily, N/A	Varies: 90 days, N/A
Mining	133,799,585	333,663,159	N/A	N/A
Public markets	882,327,670	—	Daily	5 days
Absolute return funds:				
Fund of hedge funds	16,423,780	—	Quarterly	95 days
Equity	396,838,375	—	Varies: Monthly, Quarterly, Yearly, N/A	Varies: 45 - 80 days
Global macro	672,465,970	—	Quarterly	Varies: 30 - 90 days
Multi-strategy opportunistic	345,175,704	143,718,147	Varies: Quarterly, Rolling 3-year	Varies: 60 days, N/A
Credit	539,963,175	54,406,576	Varies: Quarterly, Annually, N/A	Varies: 90 - 180 days
Relative value	789,467,157	—	Varies: Monthly, Quarterly, 2.5 years	Varies: 25 - 180 days
Event-driven	4,914,279	—	Quarterly	90 days
Private equity funds:				
Buy-out	353,556,160	431,740,286	N/A	N/A
Venture/growth	384,921,563	421,484,879	N/A	N/A
Special situations	198,302,105	487,876,345	N/A	N/A
Private real estate funds:				
Core	1,802,044,684	186,268,592	Varies: Quarterly, N/A	Varies: 45 - 90 days, N/A
Opportunistic	469,226,682	445,320,664	N/A	N/A
Value-added	442,680,307	280,876,731	N/A	N/A
Total Investments Measured at the NAV	**$ 21,889,935,834**	**$ 4,544,030,210**		

- **Equity commingled funds.** TMRS invests in passively managed commingled fund structures that offer daily liquidity. TMRS' commingled funds essentially have the same objective — to provide similar return and risk characteristics that approximate the overall performance of domestic and international securities included in the underlying index.

- **Non-core fixed income funds.** Non-core fixed income includes a wide variety of fixed income strategies, including emerging market debt, high yield, bank loans, collateralized loan obligations, direct lending, mortgage-backed securities, asset-backed securities, and opportunistic credit funds, among others. These investments are research-intensive based on fundamental bottom-up analysis. Generally, non-core fixed income seeks to capture both high income and price appreciation. Liquidity, volatility, expected return, and investment horizon vary with each strategy.

- **Real return funds.** Real return funds invest primarily in the capital structures of U.S. and other global hard assets such as infrastructure, minerals, agriculture, energy, and timber, among others. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the Plans' ownership interest in partners' capital. TMRS' real return fund investments may typically be classified into two structural categories: i) open end vehicles and ii) closed end funds. TMRS invests in vehicles, which also invest in publicly tradable assets. TMRS invests in closed end funds with average contractual vehicle lives of 6 – 14 years over which the funds will first purchase and subsequently dispose of assets. Distributions from each fund will be received as the underlying investments of the funds are liquidated. TMRS has invested in closed end real return vehicles since calendar year 2015.

- **Absolute return funds:**

  - **Fund of hedge funds.** TMRS invests in a custom fund of hedge funds with the objective of pursuing capital appreciation by allocating assets among a variety of alternative investment strategies. The mandate seeks to decrease portfolio risk by providing attractive, risk-adjusted returns with low correlation to traditional asset classes. Leverage may be used by some managers. The fund allows for quarterly redemptions, with a notice period of 95 days.

  - **Equity hedge funds.** TMRS invests in equity hedge funds. These funds hold positions in equities on both the long and short side. Typically, managers will rely on fundamental bottom-up research in order to select stocks to go long or short, but managers may also incorporate technical analysis. Often managers will use a top-down approach, looking at macro themes and trends to direct research and portfolio construction. Some managers will add a macro overlay in order to guide regional or country allocations. Managers may also make use of non-equity instruments such as CDs, swaps, currency overlay, and derivatives if they are desirable. Leverage may be used by some managers. Funds in this group are typically subject to gating provisions, limiting withdrawals.

  - **Global macro hedge funds.** TMRS invests in global macro hedge funds. These funds take directional positions in currencies, bonds, equities, and commodities. Investment decisions are based on a manager's top-down view of the world: analysis of the economy, interest rates, inflation, government policy, and geopolitical factors. The relative valuations of financial instruments within or between asset classes can also play a role in investment decisions. Leverage may be used by some managers. Funds in this group are typically subject to gating provisions, limiting withdrawals.

  - **Multi-strategy opportunistic hedge funds**. TMRS invests in multi-strategy hedge funds, which include hedge funds where capital is shifted on an opportunistic basis between a small number of hedge fund styles. Funds in this group are typically subject to gating provisions, limiting withdrawals.

- **Credit hedge funds**. TMRS invests in credit hedge funds, which may invest in a variety of fixed income strategies. While many invest in multiple strategies, others may focus on a single strategy less followed by most fixed income hedge funds. Leverage may be used by some managers. Areas of focus include municipal bonds, corporate bonds, and global fixed income securities. Funds in this group are typically subject to gating provisions, limiting withdrawals.

- **Relative value hedge funds**. TMRS invests in relative value hedge funds. These funds attempt to take advantage of relative pricing discrepancies between instruments, including equities, debt, options, and futures. Managers may use mathematical, fundamental, or technical analysis to determine misvaluation. Securities may be mispriced relative to the underlying security, related securities, groups of securities, or the overall market. Many funds use leverage and seek opportunities globally. Arbitrage strategies include dividend arbitrage, pairs trading, options arbitrage, and yield curve trading. Funds in this group are typically subject to gating provisions, limiting withdrawals.

- **Event-driven hedge funds**. TMRS invests in an event-driven hedge fund, which involves investing in opportunities created by significant transactional events, such as spin-offs, mergers and acquisitions, bankruptcy, reorganizations, recapitalizations, and share buybacks. The portfolio of some event-driven managers may shift in majority weighting between risk arbitrage and distressed securities, while others may take a broader scope. Instruments include long and short common and preferred stocks, as well as debt securities and options. Leverage may be used by some managers. Fund managers may hedge against market risk by purchasing put options or put option spreads. Funds in this group are typically subject to gating provisions, limiting withdrawals.

- **Private equity funds.** Private equity funds generally invest primarily in non-publicly traded equity and debt securities in U.S. and other global companies. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. TMRS invests in closed end funds with average contractual vehicle lives of 10 – 14 years, over which the funds will first purchase and subsequently dispose of assets. Distributions from each fund will be received as the underlying investments of the funds are liquidated. TMRS has invested in closed end private equity funds since calendar year 2015. Accordingly, given the recent vintage profile, net capital call activity (i.e., capital is being funded into these vehicles) is currently occurring.

- **Private real estate funds.** Real estate funds generally invest primarily in U.S. and other global commercial real estate, equity, or debt collateralized by commercial real estate. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. TMRS classifies its real estate investments into three fund strategies — Core, Value-Added, and Opportunistic — and are held in two structural categories: i) open end funds and ii) closed end funds. TMRS invests in open end funds, some of which TMRS may redeem capital on a quarterly basis with 45 – 90 day notice, some of which TMRS may redeem on an annual basis with 90 day notice, or funds which are subject to initial lock-out periods, and all of which have provisions for administering limited liquidity and/or gated liquidity in any given period. TMRS invests in closed end funds with average contractual vehicle lives of 8 – 12 years over which the funds will first purchase and subsequently dispose of assets. Distributions from each fund will be received as quarterly income or as the underlying investments of the funds are liquidated. TMRS has invested in closed end real estate vehicles since calendar year 2012 and accordingly is receiving distributions from earlier vintage funds (i.e., capital is being returned to TMRS). TMRS has continued to invest in real estate funds in each calendar year since that time, resulting in net capital call activity (i.e., capital is being funded into these vehicles) for later vintage funds.

C. Deposit and Investment Risk

State and local governments have deposits and investments that are subject to various risks. GASB Statement No. 40, *Deposit and Investment Risk Disclosures – an amendment of GASB Statement No. 3*, provides disclosure requirements related to deposit and investment risks: custodial credit risk, credit risk, concentrations of credit risk, interest rate risk, and foreign currency risk.

Custodial Credit Risk — Deposits

Custodial credit risk is the risk that, in the event of a bank failure, the System's deposits might not be recovered. TMRS does not have a formal deposit policy for custodial credit risk of its deposits. Demand deposits held by the depository bank as of December 31, 2019 to the extent not insured by the Federal Deposit Insurance Corporation, were collateralized by securities held by a third party independent custodian, in the System's name, under a joint custody agreement giving the System unconditional rights and claims to collateral. The current FDIC coverage limit is $250,000 for deposits held in noninterest-bearing accounts. Deposits denominated in a foreign currency are neither collateralized nor insured as of December 31, 2019.

Custodial Credit Risk — Investments

Custodial credit risk is the risk that, in the event of failure of the counterparty, the System will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. The assets of the System may be held in the name of agents, nominees, depository trust companies, or other entities designated by the Board of Trustees. At December 31, 2019, all investment securities were registered in the System's name or in the name of the System's custodian, which was established through a master trust custodial agreement, and are held by the custodian in the name of the System.

The System's investments in repurchase agreements of $102,600,000 at December 31, 2019 were collateralized by a U.S. Treasury note, held in the System's name, with a total market value of $98,363,000.

Credit Risk — Investments

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. According to the TMRS Investment Policy Statement (IPS) as adopted by the TMRS Board of Trustees, credit risk of the core fixed income portfolio is managed by requiring minimum credit ratings by sector and mandate as outlined below:

(1) All securities must be rated at least B- by S&P or Fitch, or B3 by Moody's. (2) The portfolio shall maintain a minimum weighted average credit quality of A+. (3) Global U.S. dollar denominated — issue and national government of the country where the issuer's primary operations are located (if the issuer is not the national government itself) must be rated investment grade, at least BBB- by S&P or Fitch, or Baa3 by Moody's. (4) Securitized — the weighted average credit quality of securitized product must be AA. (5) Municipal — Municipal issues must be rated investment grade, at least BBB- by S&P or Fitch, or Baa3 by Moody's. (6) Non U.S. dollar denominated bonds — Both the issue and issuer's national government (if the issuer is not the national government itself) must be rated at least A- by S&P or Fitch, or A3 by Moody's.

As of December 31, 2019, TMRS' Core Fixed Income Portfolio was in compliance with its policy on credit default risk. Investment guidelines established with the individual investment managers address the management of credit default risk for the Non-Core Fixed Income and Real Return portfolios.

Fixed Income Securities with Exposure to Credit Risk at December 31, 2019	Fair Value	Rating
U.S. government agency	$ 6,618,117	AAA
U.S. government agency	6,673,302	NR
Municipal	6,073,164	AAA
Municipal	31,421,644	AA
Municipal	29,602,912	A
Municipal	9,875,411	BBB
Corporate	31,164,262	AAA
Corporate	89,157,048	AA
Corporate	427,192,542	A
Corporate	643,281,028	BBB
Corporate	312,714,411	BB
Corporate	230,999,890	B
Corporate	55,684,405	CCC
Corporate	305,182	CC
Corporate	11,625,676	NR
Residential mortgage-backed	4,728,174	BBB
Residential mortgage-backed	2,137,823	BB
Residential mortgage-backed	1,156,595,032	NR
Commercial mortgage-backed	108,989,535	AAA
Commercial mortgage-backed	22,753,125	AA
Commercial mortgage-backed	18,796,162	A
Commercial mortgage-backed	38,137,369	BBB
Commercial mortgage-backed	41,759,347	BB
Commercial mortgage-backed	31,623,429	B
Commercial mortgage-backed	101,662,581	CCC
Commercial mortgage-backed	34,958,165	CC
Commercial mortgage-backed	9,676,861	C
Commercial mortgage-backed	341,274,904	NR
Other asset-backed	21,114,646	AAA
Other asset-backed	17,788,028	AA
Other asset-backed	16,933,140	A
Other asset-backed	22,388,922	BBB
Other asset-backed	241,690	BB
Other asset-backed	18,780,709	B
Other asset-backed	15,456,175	CCC
Other asset-backed	16,595,499	CC
Other asset-backed	30,576,117	C
Other asset-backed	1,387,726	D
Other asset-backed	92,910,321	NR
Foreign government	16,616,501	AAA
Foreign government	24,363,426	AA
Foreign government	79,894,511	A
Foreign government	27,968,678	BBB
Foreign government	10,656,413	NR
Foreign government inflation-linked	50,133,772	AAA
Foreign government inflation-linked	208,268,088	AA
Foreign government inflation-linked	17,848,683	A
Total	**$ 4,495,404,546**	

Note:
Excluded from the table at left are investments in U.S. Treasury bonds/notes and inflation-protected securities, and non-core fixed income funds. While the underlying investments of the non-core fixed income funds are exposed to credit risk, credit rating information of the funds themselves is not available.

Concentration of Credit Risk — Investments

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. The System's Investment Policy requires that issuer diversification limits be applied separately to investment mandates as follows:

1. Investments in a single government related issuer (excluding U.S. Treasuries and U.S. government agencies) will not exceed 5% of the total market value of the Core Fixed Income and Manager mandates;
2. Investments in a single corporate issuer will not exceed 2% of the total market value of the Core Fixed Income and Manager mandates; and
3. For asset-backed, non-agency mortgage-backed, and commercial mortgage-backed securities, each separate trust (pool of assets) is defined as a separate issuer and shall not exceed 1.5% of the total market value of the Core Fixed Income and Manager mandates.
4. Investment guidelines established with the individual investment managers address the management of concentration of credit risk for the public securities held in the Equities, Non-Core Fixed Income, and Real Return portfolios. As of December 31, 2019, the System did not exceed any of the issuer diversification limits.

Interest Rate Risk — Investments

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The System's Investment Policy states that interest rate risk of the Core Fixed Income portfolio will be controlled through duration management. Duration is a measure of the sensitivity of the price (the value of principal) of a fixed income investment to a change in interest rates, and is expressed as a number of years. TMRS' Investment Policy requires duration of the Core Fixed Income portfolio be maintained within +/- 25% of the Barclay's U.S. Aggregate Bond Index, which was 6.15% as of December 31, 2019. As of December 31, 2019, the System's Core Fixed Income portfolio was in compliance with its policy on interest rate risk.

Investment guidelines established with the individual investment managers address the management of interest rate risk for the Non-Core Fixed Income and Real Return portfolios.

Fixed Income Securities with Exposure to Interest Rate Risk at December 31, 2019	Fair Value	Effective Duration
U.S. Treasury bonds/notes	$ 1,031,677,816	7.93
U.S. Treasury inflation-protected	263,353,112	9.54
U.S. government agency	13,291,419	6.35
Municipal	76,973,131	9.25
Corporate	1,802,124,444	4.95
Residential mortgage-backed	1,163,461,029	4.00
Commercial mortgage-backed	749,631,478	2.98
Other asset-backed	254,172,973	3.08
Foreign government	159,499,529	9.91
Foreign government inflation-linked	276,250,543	11.25
Total	**$ 5,790,435,474**	**5.66**

Note 1: Mortgage-backed securities are sensitive to changes in prepayment rates, which impact duration.

Note 2: Excluded from the tables above are investments in non-core fixed income funds. While such investments are exposed to interest rate risk, duration information for these funds is not available.

Foreign Currency Risk — Investments

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. Currency risk is generally considered in the diversification benefits of foreign investments and so is not expected to be hedged except as specifically authorized by TMRS and according to the relevant asset class mandate guidelines. Otherwise, foreign securities managers may engage in forward currency transactions only to eliminate foreign risk in the settlement of trades. Foreign currency exposure of the Core Fixed Income asset class is addressed in the IPS, which allows foreign currency be held for the purposes of settling a transaction and foreign currency forward contracts for purposes of hedging or settling a transaction. TMRS may invest in non-dollar denominated securities on a currency hedged or unhedged basis.

Foreign Currency Exposure at 12/31/2019 (in US Dollars)						
Currency	Cash Equivalents	Foreign Currency Contracts	Fixed Income Securities	Equities	Private Real Estate	Total
Australian Dollar	$ 10,147	$ (457,029)	$ 16,616,501	$ 85,490,967	$ 47,970,504	$ 149,631,090
Brazilian Real	42,320	—	2,091,092	58,473,147	—	60,606,559
Canadian Dollar	108,046	(2,022)	2,059,069	77,493,074	—	79,658,167
Chilean Peso	2,006	—	—	5,358,444	—	5,360,450
Colombian Peso	4,429	—	6,633,149	194,514	—	6,832,092
Danish Krone	—	—	—	14,697,696	—	14,697,696
Egyptian Pound	10,131	—	—	439,468	—	449,599
Euro Currency	8,895	(105,900)	33,639,325	317,601,740	29,334,168	380,478,228
Hong Kong Dollar	530	—	—	149,557,582	—	149,558,112
Hungarian Forint	—	—	—	3,481,999	—	3,481,999
Indian Rupee	118,753	—	—	69,501,513	—	69,620,266
Indonesian Rupiah	1,420	—	—	17,412,549	—	17,413,969
Japanese Yen	5,721	722	17,848,683	298,680,117	—	316,535,243
Malaysian Ringgit	3,296	—	17,567,739	5,771,806	—	23,342,841
Mexican Peso	13,940	(31,025)	30,435,164	18,696,892	—	49,114,971
New Israeli Shequel	—	—	—	2,272,200	—	2,272,200
New Taiwan Dollar	—	—	—	52,697,650	—	52,697,650
New Zealand Dollar	13,037	(1,456,952)	45,362,816	6,349,454	—	50,268,355
Norwegian Krone	4	1,072	—	18,118,811	—	18,119,887
Philippine Peso	8,829	—	—	3,398,971	—	3,407,800
Polish Zloty	21,006	(46,897)	11,689,836	4,243,055	—	15,907,000
Pound Sterling	2,522	(132,101)	210,449,704	190,585,437	53,135,111	454,040,673
Qatari Rial	—	—	—	1,040,885	—	1,040,885
Singapore Dollar	—	3	1,654,961	39,435,580	—	41,090,544
South African Rand	64	—	—	28,957,778	—	28,957,842
South Korean Won	2	—	—	60,783,304	—	60,783,306
Swedish Krona	27,302	—	4,770,955	32,777,520	—	37,575,777
Swiss Franc	74	—	—	40,618,410	—	40,618,484
Thailand Baht	1,104	—	—	14,951,677	—	14,952,781
Turkish Lira	—	—	—	13,730,839	—	13,730,839
UAE Dirham	—	—	—	1,223,565	—	1,223,565
Yuan Renminbi	70,836	—	—	38,036,954	—	38,107,790
Total	**$ 474,414**	**$ (2,230,129)**	**$ 400,818,994**	**$ 1,672,073,598**	**$ 130,439,783**	**$ 2,201,576,660**

Derivatives

Derivative instruments are financial contracts whose values depend on the values of one or more underlying assets, reference rates, or financial indexes. They include forward currency contracts and futures contracts. TMRS' derivative instruments are considered investments and not hedges for accounting purposes. The notional values associated with the derivative contracts are generally not recorded on the financial statements; however, the exposure to forward currency contracts is recorded as unsettled trades receivable or payable in the Statement of Fiduciary Net Position. The change in unrealized appreciation on futures contracts for the year ended December 31, 2019 of $1,364,768 is included as investment income in the Statement of Changes in Fiduciary Net Position.

Foreign currency managers may engage in forward currency transactions to eliminate foreign currency risk in the settlement of trades.

Forward Currency Contracts at December 31, 2019

Currency	Net Notional Long/(Short)	Exposure
Australian Dollar	$ (14,323,007)	$ (457,029)
Canadian Dollar	(265,030)	(2,022)
Euro Currency	(9,793,613)	(105,900)
Japanese Yen	171,758	722
Mexican Peso	(592,307)	(31,025)
New Zealand Dollar	(43,865,944)	(1,456,952)
Norwegian Krone	387,725	1,072
Polish Zloty	(2,764,119)	(46,897)
Pound Sterling	(18,447,457)	(132,101)
Singapore Dollar	(409,574)	3
U.S. Dollar	87,671,439	—
Total	**$ (2,230,129)**	**$ (2,230,129)**

TMRS could be exposed to risk if the counterparties to the contracts are unable to meet the terms of the contracts. Currently, TMRS limits counterparty exposure on its forward currency contracts to its custodian bank.

TMRS Investment Managers may be allowed to invest in U.S. Treasury Note and U.S. Treasury Bond futures contracts, cleared on a U.S. futures exchange, with a maximum maturity of the contract being no greater than 360 days. U.S. Treasury futures contracts that are used to gain nominal exposure in a portfolio must be fully backed by cash equivalents equaling the notional contract value. U.S. Treasury futures contracts used solely for risk management purposes do not need to be backed by cash equivalents.

Futures Contracts at December 31, 2019

Futures Contract	Expiration Date	Notional Value	Notional Cost	Accumulated Gain/(Loss)
U.S. 10-Yr Treasury Note Futures	3/20/2020	$ 5,522,141	$ 5,518,109	$ 4,031
U.S. 5-Yr Treasury Note Futures	3/31/2020	3,202,453	3,218,695	(16,242)
U.S. 10-Yr Ultra Futures	3/20/2020	8,864,297	8,997,273	(132,976)
U.S. Ultra Treasury Bond Futures	3/20/2020	(4,359,750)	(4,531,054)	171,304
Total		**$ 13,229,141**	**$ 13,203,023**	**$ 26,117**

4. Property and Equipment

The following is a schedule of property and equipment balances as of December 31, 2019, and changes to those account balances during the year then ended:

	Land	Buildings and Improvements	Furniture, Software, and Equipment	Total
Property and Equipment				
Balance, December 31, 2018	$ 254,388	$ 13,897,216	$ 14,800,944	$ 28,952,548
Additions	—	—	98,287	98,287
Retirements	—	—	(1,825,326)	(1,825,326)
Balance, December 31, 2019	254,388	13,897,216	13,073,905	27,225,509
Accumulated depreciation				
Balance, December 31, 2018	—	6,249,385	13,562,064	19,811,449
Additions	—	305,913	450,976	756,889
Retirements	—	—	(1,825,326)	(1,825,326)
Balance, December 31, 2019	—	6,555,298	12,187,714	18,743,012
Net balances, December 31, 2019	**$ 254,388**	**$ 7,341,918**	**$ 886,191**	**$ 8,482,497**

5. Commitments and Contingencies

As of December 31, 2019, TMRS had outstanding commitments to private investment funds of $4.5 billion.

6. Risk Management

The System is exposed to various risks of loss related to torts; errors and omissions; violation of civil rights; theft of, damage to, and destruction of assets; and natural disasters. These risks (with the exception of pension and welfare fund fiduciary responsibility insurance, which is covered by a commercial carrier) are covered by the System's participation in the Texas Municipal League Intergovernmental Risk Pool. This is a pooled arrangement whereby the participants pay experience-rated annual premiums that are designed to pay claims and build sufficient reserves so that the pool will be able to protect the participating entities with its own capital. The pool reinsures excess losses to preserve the capital base. Claims for unemployment compensation are funded by the System on a pay-as-you-go basis.

No significant reductions in insurance coverage occurred in the past year, and settled claims have not exceeded insurance coverage in any of the past three fiscal years.

7. Subsequent Event

Subsequent to December 31, 2019, global economies and capital markets have been adversely impacted by the COVID-19 pandemic, and these events will be appropriately monitored for potential long-term impact on the TMRS portfolio and funding position.

Pension Trust Fund

	Schedule of Investment Returns Last 10 Fiscal Years*
	Annual money-weighted rate of return, net of investment expense
2019	14.68%
2018	(2.38)%
2017	13.82%
2016	7.55%
2015	0.08%
2014	5.85%

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying Independent Auditors' Report.

Changes in Fiduciary Net Position — by Fund • Year Ended December 31, 2019	Benefit Accumulation Fund	Full Benefit Arrangement	Supplemental Disability Benefits Fund	Endowment Fund	Expense Fund	Total Pension Trust Fund	Supplemental Death Benefits Fund	Total
ADDITIONS:								
Employer contributions	$ 928,732,266	$ 1,503,889	$ —	$ —	$ —	$ 930,236,155	$ 8,321,181	$ 938,557,336
Plan member contributions	453,608,174	—	—	—	—	453,608,174	—	453,608,174
Net investment income	—	—	—	4,290,116,393	(10,631,096)	4,279,485,297	—	4,279,485,297
Other miscellaneous	—	—	—	32,385	495	32,880	—	32,880
Total additions	**1,382,340,440**	**1,503,889**	—	**4,290,148,778**	**(10,630,601)**	**5,663,362,506**	**8,321,181**	**5,671,683,687**
DEDUCTIONS:								
Service retirement benefits	1,246,038,764	1,503,889	—	—	—	1,247,542,653	—	1,247,542,653
Disability retirement benefits	17,020,531	—	59,853	—	—	17,080,384	—	17,080,384
Partial lump sum distributions	180,929,339	—	—	—	—	180,929,339	—	180,929,339
Supplemental death benefits	—	—	—	—	—	—	12,313,886	12,313,886
Refunds of contributions	62,685,940	—	—	—	—	62,685,940	—	62,685,940
Administrative expenses	—	—	—	—	24,183,038	24,183,038	—	24,183,038
Total deductions	**1,506,674,574**	**1,503,889**	**59,853**	—	**24,183,038**	**1,532,421,354**	**12,313,886**	**1,544,735,240**
FUND TRANSFERS:								
Operating budget transfer	—	—	—	(30,082,000)	30,082,000	—	—	—
Income allocation	4,218,306,318	—	18,042	(4,219,083,676)	—	(759,316)	759,316	—
Escheated funds	(2,194,114)	—	—	2,194,114	—	—	—	—
Net Fund Transfers	4,216,112,204	—	18,042	(4,246,971,562)	30,082,000	(759,316)	759,316	—
Total Change in Fiduciary Net Position	4,091,778,070	—	(41,811)	43,177,216	(4,731,639)	4,130,181,836	(3,233,389)	4,126,948,447
Net Position, beginning of year	27,354,504,430	—	390,771	318,850,201	9,884,037	27,683,629,439	17,306,500	27,700,935,939
Net Position, end of year	**$ 31,446,282,500**	**$ —**	**$ 348,960**	**$ 362,027,417**	**$ 5,152,398**	**$ 31,813,811,275**	**$ 14,073,111**	**$ 31,827,884,386**

See accompanying Independent Auditors' Report.

Schedule of Administrative Expenses Year ended December 31, 2019	
Personnel services	
Staff salaries	$ 9,605,094
Contract labor	47,454
Payroll taxes	626,897
Employee benefits	6,566,794
Total personnel services	16,846,239
Professional services	
Consulting	1,459,758
Actuarial	740,000
Banking	36,283
Legal	248,053
Medical	26,520
Audit	199,750
Total professional services	2,710,364
Communication	
Printing	15,199
Postage	256,355
Travel	333,989
Telephone	94,887
Member education and mailings	408,633
Total communication	1,109,063
Rentals/equipment maintenance	
Data processing	917,453
Online services	241,647
Office equipment	117,896
Offsite record storage	101,913
Total rentals/equipment maintenance	1,378,909
Miscellaneous	
Dues	36,953
Subscriptions/publications	193,931
Training	184,477
Utilities	176,207
Supplies	113,000
Building/grounds maintenance	177,077
Building security	138,270
Bonds and insurance	168,525
Board and Advisory Committee expenses	132,773
Depreciation	756,889
Other administrative expenses	60,361
Total miscellaneous	2,138,463
Total administrative expenses	**$ 24,183,038**

See accompanying Independent Auditors' Report.

Schedule of Professional Services Year ended December 31, 2019		
Consulting		
Pension Administration System assessment	$	243,569
Human resources management		175,708
Quality assurance/testing		157,344
Legislative		112,500
Governance/strategic planning		95,250
Network security		86,221
Benchmarking studies		80,000
Business continuity planning		74,957
Privacy policy		70,000
Digital identity verification		58,085
Crisis management plan development		57,180
Disaster recovery		53,490
Electronic records program		45,171
Information systems support		39,861
Economic advisory		35,000
Annuity mortality records and address research		28,362
Phone system replacement		24,700
Insurance risk management		12,360
Internal audit peer review		10,000
Total Consulting		1,459,758
Actuarial		
GRS Retirement Consulting (GRS)		740,000
Banking		
JPMorgan Chase Bank		36,283
Legal		
Klausner, Kaufman, Jensen & Levinson		157,475
Groom Law Group		70,450
Cornell Smith Mierl Brutocao Burton, LLP		13,244
Other miscellaneous legal services		6,884
Total Legal		248,053
Medical		
Ace Alsup, III, M.D.		10,180
William P. Taylor, M.D.		9,340
William J. Deaton, M.D.		7,000
Total Medical		26,520
Audit		
CliftonLarsonAllen LLP - annual financial and system and controls audits		154,750
Colmore - co-source internal audits		45,000
Total Audit		199,750
Total Professional Services	**$**	**2,710,364**

Note:
The members of the Board of Trustees serve without compensation; they are reimbursed for actual expenses incurred.

See accompanying Independent Auditors' Report.

Schedule of Investment Expenses Year ended December 31, 2019		
Internal operating expenses		
Staff salaries	$	3,412,075
Payroll taxes		198,603
Employee benefits		848,205
Electronic investment services		1,602,409
Travel		200,339
Dues		5,310
Subscriptions/publications		43,598
Training		35,236
Other administrative expenses		7,143
Total		6,352,918
Investment management and other external expenses		
Investment management		33,449,461
Investment transaction costs		240,567
Custodial services		2,032,992
Consulting		1,766,459
Legal		478,727
Total		37,968,206
Total investment expenses	**$**	**44,321,124**

Note: Fees for private investments are not reflected as investment expenses in the System's financial statements, but are instead included in net appreciation in fair value of investments as reported on the Statement of Changes in Net Position.

See accompanying Independent Auditors' Report.

Notes