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**Memo**

To: Individuals Who Serve Texas Local Fire Fighters' Retirement Act Funds

From: John Crider

Subject: A Survey of Investment Experience 1995 to 2022

Date: March 4, 2024

Attached is a survey of the rates of return which Texas Local Fire Fighters' Retirement Act (TLFFRA) funds have experienced since 1995. The report updates last year's survey.

Rate of return information has been broken down between funds which operate on a calendar-year basis and those which close their years on September 30<sup>th</sup>.

Forty-one of the 42 TLFFRA funds covering full-time fire fighters provided financial information for the survey. I would like to thank each individual, fund, and auditor that submitted data.

I also want to express my thanks to Ms. Donna Hamaker, EA, MAAA, FCA, MSPA who has provided much-appreciated assistance on each year's survey. Thanks go as well to Mr. David A. Sawyer, FSA, Director of Actuarial Services, Definiti LLC, Mr. Mark R. Fenlaw, FSA, Principal, Rudd and Wisdom, Inc., and Mr. Randolph M. Friend for the valuable help they provided on the survey.

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If you have questions or comments about this survey, please feel free to contact me.

Work has begun on the survey of 2023 rates of return. Each TLFFRA fund is asked to email a copy of its audit report and its Form PRB-1000 as they become available.

This year's TLFFRA survey is dedicated to the memory of Alva Littlejohn who passed away on December 11, 2023. Alva served as a Trustee, and later, as the Chairman of the Board of Trustees of the Lubbock Fire Pension Fund. For many years, he was also the President of the Texas Local Fire Fighter's Pension Conference Foundation. Alva was dedicated to the TLFFRA system. He gladly shared his extensive knowledge with anyone who asked for his help. Alva's suggestions over the years made significant contributions to this survey. I want to express my gratitude for Alva's help and to extend my deepest sympathies to Alva's family, his fellow fire fighters, and to everyone he served during his distinguished career.

John M. Crider, Jr., ASA

# **Rates of Return Texas Local Fire Fighters' Retirement Act Funds**

**A Survey of Investment Experience  
1995 to 2022**

**March 4, 2024**

***John M. Crider, Jr. - Consulting Actuary, P.O. Box 832066, Richardson, Texas 75083-2066  
(972) 690-5390***

# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

### Introduction

- This presentation shows the 2022 rates of return for 41 plans in the Texas Local Fire Fighter Retirement Act (TLFFRA) system which cover full-time fire fighters. Returns for 2018 through 2021 are also shown. Each rate of return was calculated using the fair value (market value) of plan assets. Returns are net of all plan expenses.
- The first two exhibits are graphs which show average rates of return for one-year, five-year, ten-year, and 28-year periods. (The 28-year averaging period starts January 1, 1995, for calendar-year funds and October 1, 1994, for September 30<sup>th</sup>-year funds.)
  - Exhibit 1 shows average annual rates of return for funds which operate on a calendar-year basis. It is based on the rates of return shown on Exhibits 4 through 7.
  - Exhibit 2 is a similar graph for funds which close their years September 30<sup>th</sup>. It is based on the rates of return shown on Exhibits 8 through 11.
- Exhibit 3A and Exhibit 3B show the distributions of the rates of return achieved by calendar-year funds. Exhibit 3A shows the distribution based on ten-year average rates of return. Exhibit 3B shows the distribution based on average rates of return since January 1, 1995.
  - Each graph separates funds' average rates of return into bands. For Exhibit 3A, the first band runs from 3.50 percent to 4.49 percent. On Exhibit 3B, the first band runs from 4.50 percent to 5.49 percent. Each succeeding band is one percent higher than the preceding one.
  - The data used to construct the graph on Exhibit 3A comes from Exhibit 6. The data used to construct the graph on Exhibit 3B comes from Exhibit 7.
  - Funds which have been in existence less than the specified averaging period were excluded.

# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

- It is not possible to produce graphs similar to Exhibits 3A and 3B for the nine September 30<sup>th</sup>-year funds in the Survey. There are not enough funds in that group to create charts which show how their rates of return are distributed.
- The methods used in the survey are set out in the Appendix of this report. A small modification to the formula used to develop each fund's one-year rate of return was made in connection with this year's Survey. Please see page 22 for a description of the change.

### Calendar-Year Plans versus September 30<sup>th</sup>-Year Plans

- The following is a comparison of the rates of return for the two groups of funds in the TLFFRA system:

	<b>Calendar- Year Plans' Rates of Return</b>	<b>September 30th- Year Plans' Rates of Return</b>
One-year average 2018	-5.51%	7.71%
One-year average 2019	18.84%	3.30%
One-year average 2020	12.34%	6.75%
One-year average 2021	13.11%	20.24%
One-year average 2022	-14.15%	-16.20%
Five-year average 2018-2022	4.12%	3.63%
Ten-year average 2013-2022	5.64%	4.80%
Average Since 1995	6.32%	5.40%

# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

- The *Texas Local Fire Fighters Retirement Act (TLFFRA) Pension Report*, published biennially by the Texas Pension Review Board, lists each TLFFRA fund's investment professionals starting on Acrobat page 66 (report page 61). The most recent report can be found at:

<https://www.prb.texas.gov/local-firefighter-tlffra/>

Click on: View the Pension Review Board's 2022 TLFFRA Report. (A new report should be issued in 2024.)

- Other sources of rate of return information for public employee retirement plans are listed on pages 23 and 24 of this Survey.

### Discussion of Survey Results

- Some of the rate of return information for prior years has been revised due to additional data and corrected data received since last year's survey was published.
- For calendar-year plans, the system-wide average rate of return since January 1, 1995, reached 8.35 percent in 2006. After that, it decreased to a low point of 5.59 percent in 2008. Since then, it increased—with minor fluctuations—rising to 7.16 percent as of December 31, 2021. The system-wide average since January 1, 1995, dropped to 6.32 percent as of December 31, 2022, due to the large decreases in rates of return during the 2022 calendar year.

For plans which close their years September 30<sup>th</sup>, the system-wide average rate of return since October 1, 1994, reached 7.23 percent in 2007. After that, it decreased to a low point of 5.25 percent in 2011. Since then, it increased—with minor fluctuations—rising to 6.30 percent as of September 30, 2021. The system-wide average since October 1, 1994, dropped to 5.40 percent as of September 30, 2022, due to the large decreases in rates of return during the fiscal year ending September 30, 2022.

- Thirty-three TLFFRA funds close their years on December 31<sup>st</sup> while only nine funds close their years on September 30<sup>th</sup>.

# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

- The smaller number of September 30<sup>th</sup>-year funds means that just two or three under-performing funds have a significant effect on the average rate of return of the group.
- The average rates of return since 1995 represent more than two market cycles. The averages were lowered significantly by the 2000-to-2002, as well as the 2008 and 2022, market downturns.
- No adjustments have been made for different plans' asset allocations. TLFFRA plans typically allocate between 60 percent and 70 percent of their assets to equities.
- The 41 full-time TLFFRA funds in the Survey had earnings of -\$330,932,688 for the 2022 year, after reductions for administrative and investment expenses. Average assets during the year came to \$2,489,682,322. The rate of return for the combined assets of all funds equaled  $-\$330,932,688 \div 2,489,682,322$ , or -13.29 percent.

This survey was prepared by John M. Crider, Jr., an actuary for the firm of John M. Crider, Jr. – Consulting Actuary. The survey was prepared as a service to Texas Local Fire Fighters' Act funds. It is intended for use by trustees, administrators, and plan sponsors—as well as professional advisors—who serve TLFFRA funds. The survey is furnished without charge. It does not represent an actuarial opinion with respect to any fund in the TLFFRA system. In most cases, information used in the survey came from funds' audited financial statements. In a few cases, preliminary financial results were used. A review of all data supplied—including comparisons with data provided in connection with previous TLFFRA surveys—showed that the information was reasonable, consistent, and complete. Accordingly, the data was relied upon as furnished.

John M. Crider, Jr., ASA, MAAA, FCA, EA

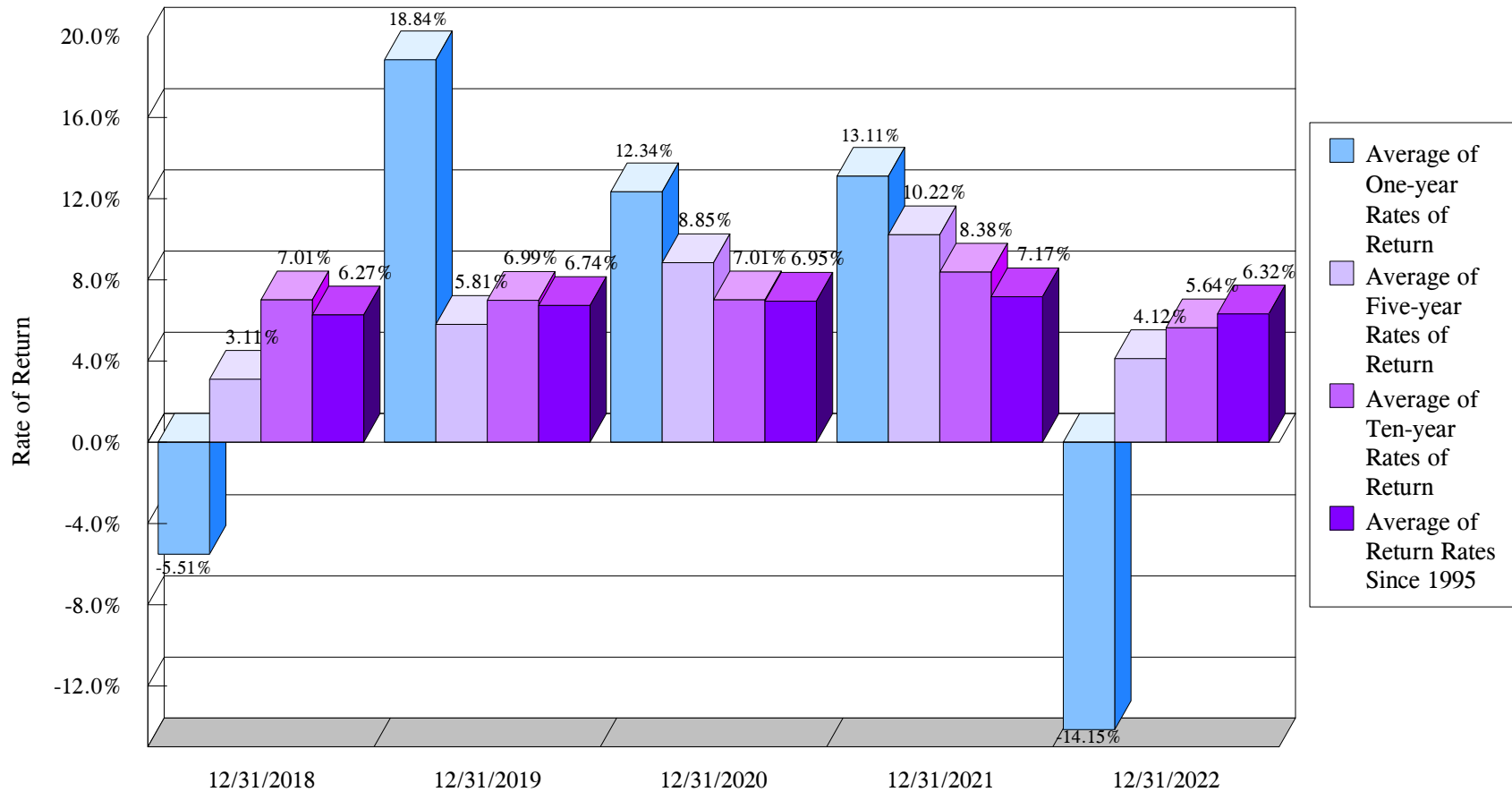
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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

Exhibit 1, Average Annual Rates of Return - Funds with Plan Years Ending December 31st

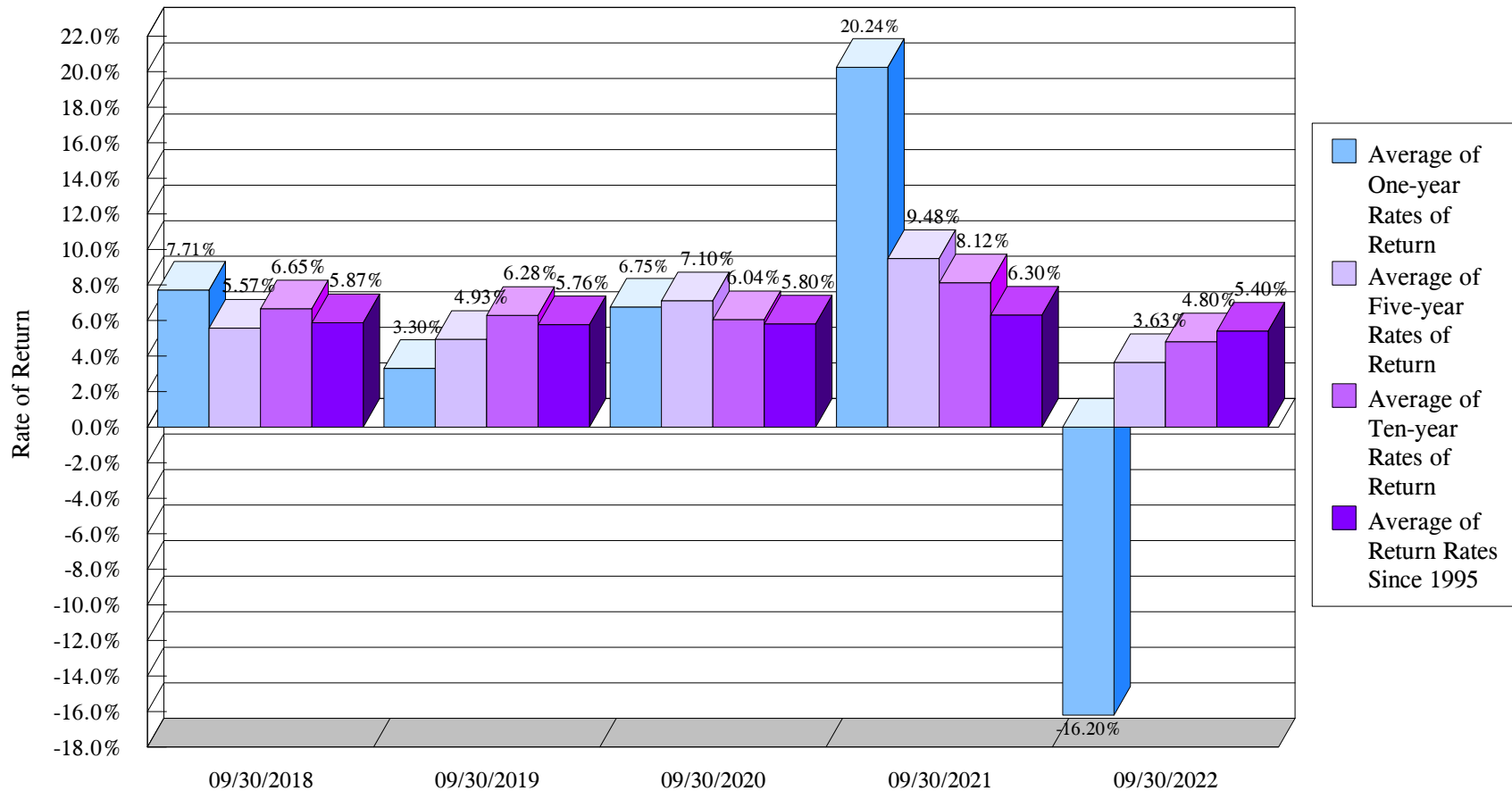




# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

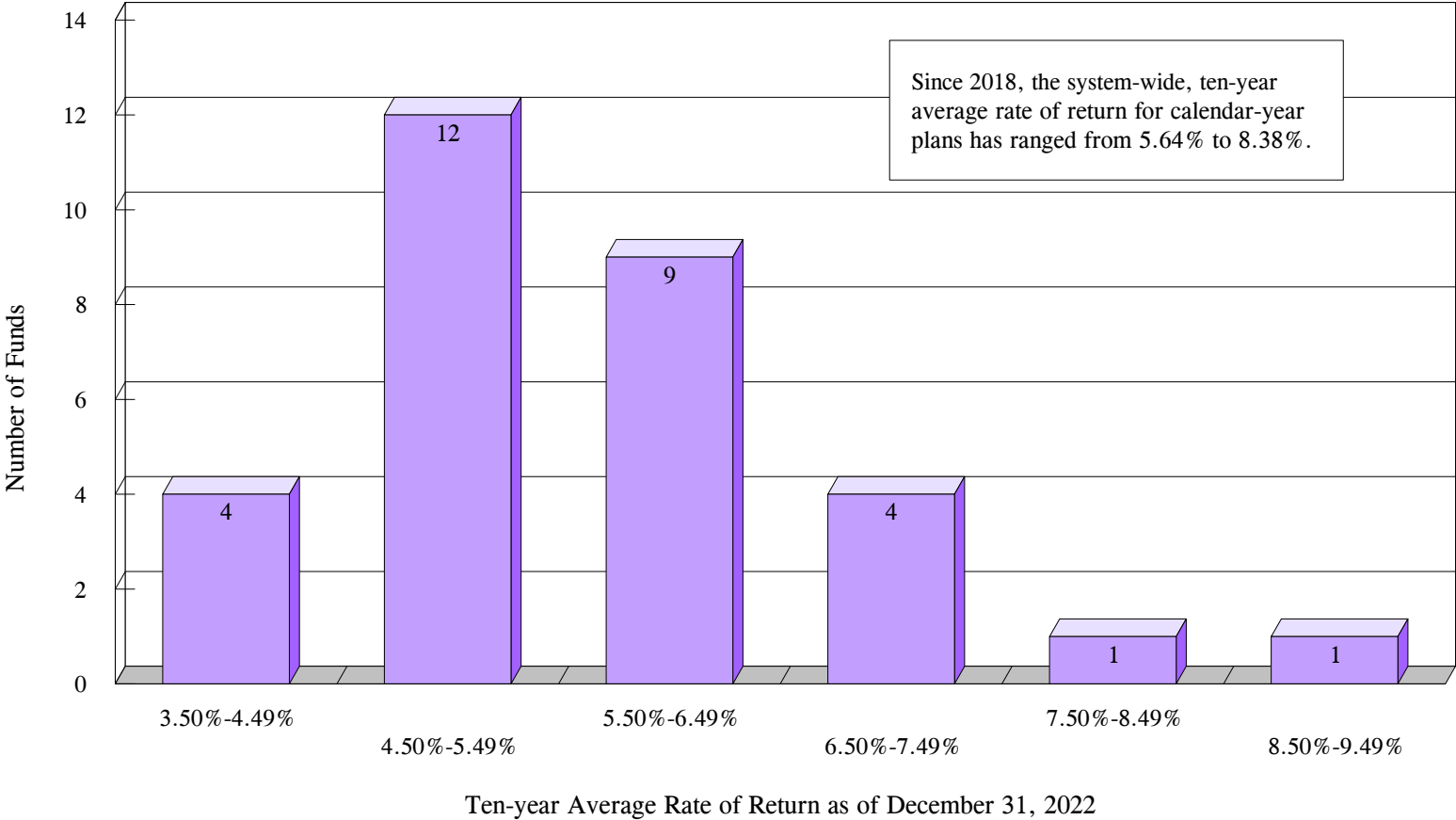
Exhibit 2, Average Annual Rates of Return - Funds with Plan Years Ending September 30th



# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Study of Investment Experience through 2022

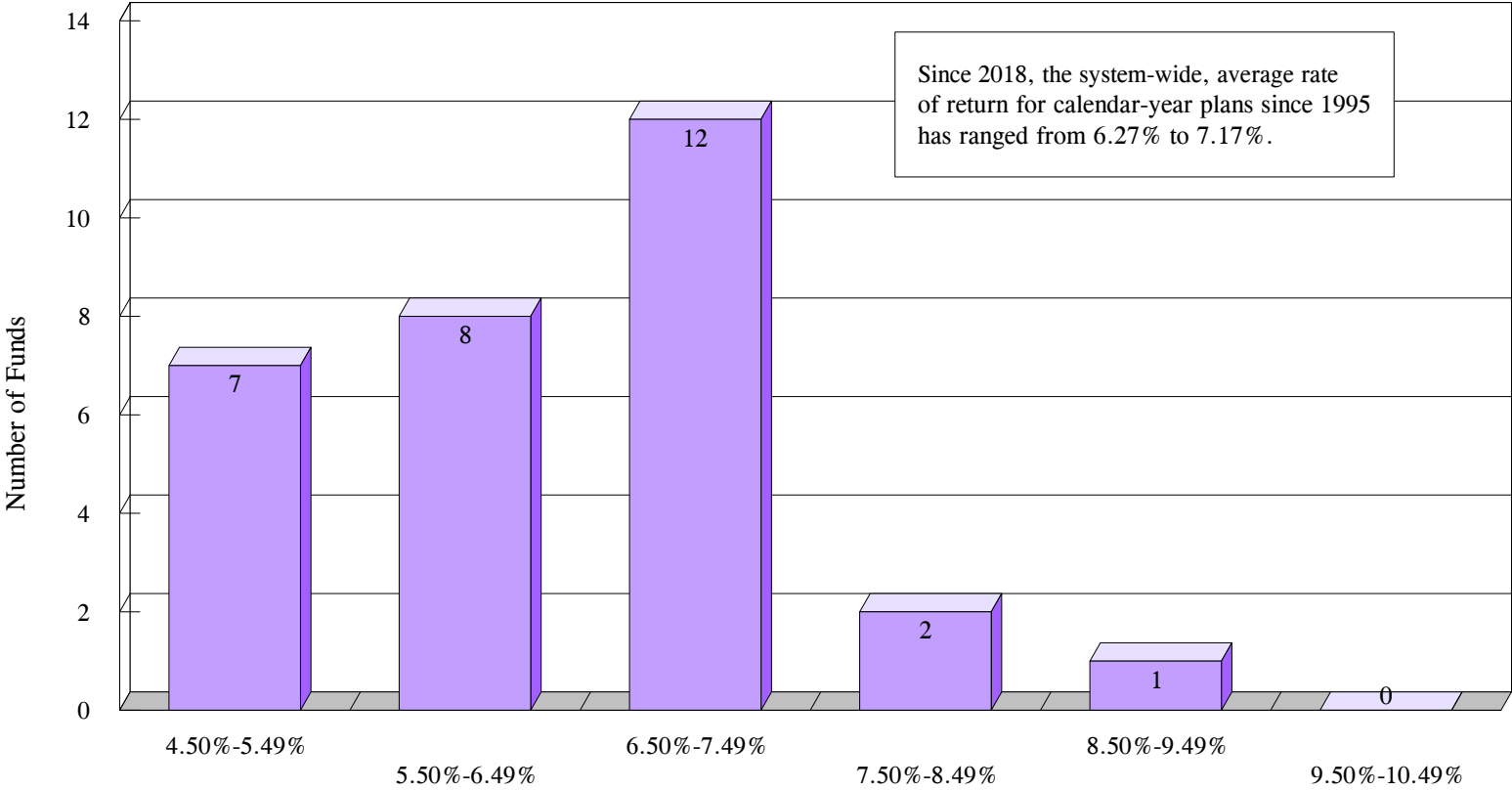
Exhibit 3A, Distribution of Ten-year Average Rates of Return - Funds with Plan Years Ending December 31st



# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

Exhibit 3B, Distribution of Average Rates of Return Since 1995 - Funds with Plan Years Ending December 31st



Since 2018, the system-wide, average rate of return for calendar-year plans since 1995 has ranged from 6.27% to 7.17%.

Twenty-eight Year Average Rate of Return Experience as of December 31, 2022

# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 4, Annual Rates of Return - Funds with Plan Years Ending December 31st

	2018	2019	2020	2021	2022
Average	-5.51%	18.84%	12.34%	13.11%	-14.15%
High	-0.31%	28.54%	20.07%	21.42%	-4.63%
Low	-8.37%	9.97%	5.44%	9.01%	-19.04%
Range	8.06%	18.57%	14.63%	12.41%	14.41%
Amarillo	-1.97%	23.25%	20.07%	19.38%	-14.79%
Atlanta	-7.48%	18.54%	10.86%	10.04%	-15.24%
Beaumont	-4.00%	20.45%	15.47%	12.84%	-15.81%
Big Spring	-6.61%	21.46%	13.43%	12.40%	-15.56%
Brownwood	-6.38%	20.30%	13.92%	10.68%	-19.04%
Cleburne	-7.67%	14.88%	8.82%	14.92%	-10.84%
Conroe	-4.54%	15.59%	8.16%	18.72%	-13.42%
Corpus Christi	-3.74%	14.93%	13.45%	9.74%	-14.23%
Corsicana	-5.43%	15.46%	16.21%	19.30%	-15.21%
Denison	-2.80%	28.54%	6.78%	21.42%	-17.66%
Denton	-0.31%	17.19%	11.70%	17.88%	-4.63%
Galveston	-5.88%	18.28%	11.95%	11.69%	-15.18%
Greenville	-6.92%	19.26%	11.13%	10.78%	-14.84%
Irving	-3.43%	15.41%	-	-	-
Longview	-2.82%	17.33%	12.91%	12.79%	-11.80%
Lubbock	-1.36%	15.83%	9.59%	17.38%	-4.72%
Lufkin	-6.73%	18.94%	11.89%	9.97%	-15.08%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 4, Annual Rates of Return - Funds with Plan Years Ending December 31st (continued)

	2018	2019	2020	2021	2022
Marshall	-6.56%	19.24%	11.04%	9.82%	-15.28%
Midland	-8.37%	9.97%	5.44%	14.50%	-11.33%
Odessa	-7.24%	21.93%	15.25%	14.79%	-12.79%
Orange	-6.26%	19.66%	13.31%	14.00%	-17.19%
Paris	-7.26%	18.49%	10.45%	9.01%	-12.70%
Plainview	-6.18%	20.85%	10.58%	11.19%	-16.30%
Port Arthur	-6.29%	19.63%	11.82%	10.91%	-16.91%
San Angelo	-6.10%	19.37%	10.54%	10.25%	-14.39%
Sweetwater	-6.91%	19.28%	11.24%	9.87%	-15.61%
Texarkana	-6.04%	20.40%	15.49%	11.42%	-12.85%
Texas City	-6.77%	19.03%	10.61%	10.36%	-15.49%
Travis Co. ESD No. 6	-5.23%	20.56%	15.55%	11.83%	-14.86%
Tyler	-6.61%	19.08%	13.54%	12.60%	-14.40%
University Park	-6.94%	19.14%	11.28%	9.95%	-15.14%
Wichita Falls	-4.78%	20.06%	15.12%	14.10%	-14.12%
The Woodlands	-6.17%	19.39%	17.28%	15.07%	-15.43%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 5, Five-year Average Rates of Return - Funds with Plan Years Ending December 31st

	2018	2019	2020	2021	2022
Average	3.11%	5.81%	8.85%	10.22%	4.12%
High	5.34%	8.89%	13.03%	14.97%	8.09%
Low	1.62%	2.93%	4.26%	6.37%	1.52%
Range	3.72%	5.96%	8.77%	8.60%	6.57%
Amarillo	5.34%	8.89%	13.03%	14.97%	8.09%
Atlanta	2.58%	5.14%	7.85%	8.49%	2.55%
Beaumont	3.97%	7.35%	10.94%	11.92%	4.87%
Big Spring	3.25%	6.34%	9.40%	10.76%	4.08%
Brownwood	1.89%	5.42%	8.92%	10.32%	2.83%
Cleburne	2.81%	4.56%	6.76%	8.22%	3.41%
Conroe	2.79%	4.44%	6.74%	9.19%	4.17%
Corpus Christi	4.07%	5.89%	8.59%	9.42%	3.39%
Corsicana	1.89%	4.84%	8.61%	11.77%	5.12%
Denison	4.31%	7.87%	10.79%	13.53%	5.93%
Denton	4.41%	6.43%	9.87%	11.39%	7.96%
Galveston	3.05%	5.87%	8.81%	10.08%	3.38%
Greenville	2.87%	5.54%	8.37%	9.10%	3.08%
Irving	4.41%	6.57%	-	-	-
Longview	1.97%	4.86%	8.63%	10.57%	5.07%
Lubbock	2.83%	5.80%	8.39%	10.83%	6.97%
Lufkin	2.87%	5.45%	8.43%	9.01%	3.00%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 5, Five-year Average Rates of Return - Funds with Plan Years Ending December 31st (continued)

	2018	2019	2020	2021	2022
Marshall	3.03%	5.68%	8.54%	8.94%	2.85%
Midland	1.62%	2.93%	4.26%	6.37%	1.52%
Odessa	3.12%	6.22%	9.91%	11.41%	5.47%
Orange	2.84%	6.08%	9.29%	11.18%	3.71%
Paris	2.18%	5.09%	7.73%	8.21%	2.93%
Plainview	1.95%	5.50%	8.72%	10.18%	3.13%
Port Arthur	4.21%	6.52%	9.05%	9.89%	2.93%
San Angelo	3.62%	6.25%	8.88%	9.48%	3.18%
Sweetwater	2.58%	5.29%	8.23%	8.86%	2.75%
Texarkana	2.79%	5.63%	9.42%	10.44%	4.87%
Texas City	1.82%	5.06%	8.06%	9.19%	2.74%
Travis Co. ESD No. 6	4.36%	6.97%	9.96%	11.43%	4.68%
Tyler	2.99%	5.86%	9.60%	10.40%	4.00%
University Park	2.70%	5.39%	8.34%	8.91%	2.85%
Wichita Falls	4.50%	6.91%	9.81%	11.56%	5.22%
The Woodlands	-	4.95%	9.37%	11.14%	5.04%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 6, Ten-year Average Rates of Return - Funds with Plan Years Ending December 31st

	2018	2019	2020	2021	2022
Average	7.01%	6.99%	7.01%	8.38%	5.64%
High	9.45%	9.88%	10.59%	12.21%	9.27%
Low	4.56%	4.78%	4.50%	5.98%	3.56%
Range	4.89%	5.10%	6.09%	6.23%	5.71%
Amarillo	9.45%	9.88%	10.59%	12.21%	9.27%
Atlanta	6.94%	6.67%	6.58%	7.72%	4.81%
Beaumont	6.99%	7.34%	7.71%	9.15%	6.07%
Big Spring	7.22%	7.23%	7.37%	8.71%	5.80%
Brownwood	6.11%	6.02%	6.21%	7.82%	4.47%
Cleburne	7.15%	6.71%	6.33%	7.88%	5.59%
Conroe	4.56%	5.57%	5.46%	7.42%	5.22%
Corpus Christi	8.26%	7.58%	7.86%	8.84%	5.79%
Corsicana	6.50%	5.73%	6.07%	8.30%	5.42%
Denison	8.39%	8.81%	8.62%	10.16%	7.43%
Denton	7.57%	7.82%	7.96%	9.02%	7.76%
Galveston	6.96%	6.76%	6.91%	8.06%	5.26%
Greenville	7.37%	7.14%	7.05%	8.18%	5.25%
Irving	8.87%	8.30%	-	-	-
Longview	6.88%	5.70%	5.85%	7.40%	4.79%
Lubbock	7.01%	6.68%	6.55%	8.14%	6.80%
Lufkin	6.36%	6.85%	6.90%	8.03%	5.09%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 6, Ten-year Average Rates of Return - Funds with Plan Years Ending December 31st (continued)

	2018	2019	2020	2021	2022
Marshall	7.30%	7.11%	6.99%	8.06%	5.12%
Midland	5.40%	5.12%	4.50%	6.24%	3.87%
Odessa	6.95%	6.82%	6.82%	8.70%	6.18%
Orange	6.73%	6.79%	6.98%	8.54%	5.41%
Paris	5.08%	4.78%	4.81%	5.98%	3.56%
Plainview	5.54%	6.38%	6.52%	7.44%	4.66%
Port Arthur	7.82%	7.73%	7.84%	8.93%	5.81%
San Angelo	7.61%	7.69%	7.51%	8.63%	5.73%
Sweetwater	7.03%	6.83%	6.80%	7.88%	4.88%
Texarkana	7.61%	7.46%	7.64%	8.80%	6.09%
Texas City	7.60%	6.78%	6.48%	8.01%	4.35%
Travis Co. ESD No. 6	6.20%	7.32%	8.01%	9.37%	6.83%
Tyler	7.54%	7.57%	7.66%	9.05%	5.91%
University Park	6.49%	6.84%	6.81%	7.90%	4.99%
Wichita Falls	6.87%	7.76%	7.92%	9.19%	6.59%
The Woodlands	-	-	-	-	-

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 7, Average Rates of Return Since 1995 - Funds with Plan Years Ending December 31st

	2018	2019	2020	2021	2022
Average	6.27%	6.74%	6.95%	7.17%	6.32%
High	8.34%	8.90%	9.31%	9.67%	8.69%
Low	4.08%	4.51%	4.94%	5.44%	4.62%
Range	4.26%	4.39%	4.37%	4.23%	4.07%
Amarillo	8.34%	8.90%	9.31%	9.67%	8.69%
Atlanta	5.57%	6.06%	6.24%	6.38%	5.52%
Beaumont	6.41%	6.94%	7.25%	7.45%	6.52%
Big Spring	7.43%	7.96%	8.16%	8.32%	7.36%
Brownwood	5.03%	5.60%	5.91%	6.08%	5.07%
Cleburne	5.90%	6.24%	6.34%	6.65%	5.97%
Conroe	4.42%	4.84%	4.97%	5.45%	4.71%
Corpus Christi	7.31%	7.61%	7.82%	7.89%	7.01%
Corsicana	4.08%	4.51%	4.94%	5.44%	4.62%
Denison	6.37%	7.18%	7.16%	7.66%	6.63%
Denton	7.30%	7.68%	7.83%	8.19%	7.70%
Galveston	6.30%	6.75%	6.95%	7.12%	6.23%
Greenville	6.23%	6.73%	6.89%	7.04%	6.16%
Irving	6.17%	6.53%	-	-	-
Longview	6.08%	6.51%	6.75%	6.97%	6.23%
Lubbock	7.42%	7.74%	7.81%	8.15%	7.66%
Lufkin	4.63%	5.17%	5.42%	5.58%	4.76%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 7, Average Rates of Return Since 1995 - Funds with Plan Years Ending December 31st (continued)

	2018	2019	2020	2021	2022
Marshall	5.79%	6.29%	6.47%	6.60%	5.72%
Midland	7.28%	7.39%	7.31%	7.57%	6.83%
Odessa	6.98%	7.54%	7.83%	8.08%	7.25%
Orange	6.13%	6.64%	6.89%	7.15%	6.16%
Paris	5.07%	5.58%	5.76%	5.88%	5.15%
Plainview	4.65%	5.26%	5.46%	5.67%	4.79%
Port Arthur	6.82%	7.31%	7.48%	7.60%	6.62%
San Angelo	7.04%	7.51%	7.62%	7.72%	6.84%
Sweetwater	7.42%	7.87%	8.00%	8.07%	7.12%
Texarkana	7.35%	7.84%	8.13%	8.25%	7.41%
Texas City	5.25%	5.77%	5.95%	6.11%	5.25%
Travis Co. ESD No. 6	-	-	-	-	-
Tyler	6.83%	7.30%	7.53%	7.72%	6.84%
University Park	5.70%	6.21%	6.40%	6.53%	5.67%
Wichita Falls	7.02%	7.51%	7.80%	8.02%	7.14%
The Woodlands	-	-	-	-	-

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 8, Annual Rates of Return - Funds with Plan Years Ending September 30th

	2018	2019	2020	2021	2022
Average	7.71%	3.30%	6.75%	20.24%	-16.20%
High	8.70%	6.13%	10.03%	26.02%	-12.01%
Low	6.22%	1.25%	2.46%	16.32%	-23.49%
Range	2.48%	4.88%	7.57%	9.70%	11.48%
Abilene	6.26%	3.22%	5.29%	19.80%	-16.93%
Harlingen	7.33%	4.72%	6.77%	18.88%	-14.82%
Killeen	8.70%	2.71%	10.03%	18.73%	-15.01%
Laredo	7.44%	1.25%	4.40%	26.02%	-16.15%
McAllen	8.62%	3.78%	9.94%	16.32%	-18.20%
San Benito	6.22%	3.28%	4.19%	17.72%	-12.85%
Temple	8.04%	6.13%	9.82%	21.86%	-16.31%
Waxahachie	8.37%	3.31%	7.85%	21.01%	-23.49%
Weslaco	8.43%	1.31%	2.46%	21.79%	-12.01%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 9, Five-year Average Rates of Return - Funds with Plan Years Ending September 30th

	2018	2019	2020	2021	2022
Average	5.57%	4.93%	7.10%	9.48%	3.63%
High	6.49%	5.79%	8.67%	11.02%	5.13%
Low	3.12%	3.02%	4.31%	7.60%	2.25%
Range	3.37%	2.77%	4.36%	3.42%	2.88%
Abilene	5.28%	4.77%	6.44%	8.61%	2.82%
Harlingen	5.79%	5.71%	7.67%	9.42%	3.97%
Killeen	6.26%	5.55%	8.67%	10.44%	4.39%
Laredo	5.81%	4.43%	6.37%	9.69%	3.72%
McAllen	5.74%	5.33%	8.58%	10.12%	3.35%
San Benito	3.12%	3.02%	4.31%	7.60%	3.24%
Temple	5.81%	5.79%	8.59%	11.02%	5.13%
Waxahachie	5.82%	4.96%	7.38%	10.11%	2.25%
Weslaco	6.49%	4.80%	5.85%	8.32%	3.82%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 10, Ten-year Average Rates of Return - Funds with Plan Years Ending September 30th

	2018	2019	2020	2021	2022
Average	6.65%	6.28%	6.04%	8.12%	4.80%
High	9.09%	7.40%	6.87%	9.28%	5.61%
Low	5.15%	4.19%	4.03%	6.01%	3.61%
Range	3.94%	3.21%	2.84%	3.27%	2.00%
Abilene	6.51%	6.49%	5.84%	8.05%	4.36%
Harlingen	9.09%	7.40%	6.87%	8.77%	5.29%
Killeen	6.36%	5.86%	5.87%	7.68%	4.98%
Laredo	6.46%	6.47%	5.90%	8.15%	5.19%
McAllen	6.72%	6.88%	6.76%	8.73%	4.80%
San Benito	5.15%	4.19%	4.03%	6.01%	3.61%
Temple	6.69%	6.76%	6.81%	9.28%	5.61%
Waxahachie	7.35%	6.85%	6.80%	8.93%	4.48%
Weslaco	5.53%	5.65%	5.44%	7.48%	4.88%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience through 2022

### Exhibit 11, Average Rates of Return Since 1995 - Funds with Plan Years Ending September 30th

	2018	2019	2020	2021	2022
Average	5.87%	5.76%	5.80%	6.30%	5.40%
High	7.31%	7.23%	7.33%	7.83%	6.86%
Low	2.71%	2.73%	2.79%	3.30%	2.68%
Range	4.60%	4.50%	4.54%	4.53%	4.18%
Abilene	6.39%	6.26%	6.22%	6.70%	5.75%
Harlingen	7.31%	7.20%	7.19%	7.60%	6.70%
Killeen	5.80%	5.67%	5.84%	6.29%	5.44%
Laredo	5.13%	4.98%	4.95%	5.67%	4.80%
McAllen	7.19%	7.05%	7.16%	7.49%	6.44%
San Benito	2.71%	2.73%	2.79%	3.30%	2.68%
Temple	7.27%	7.23%	7.33%	7.83%	6.86%
Waxahachie	5.79%	5.69%	5.77%	6.30%	5.06%
Weslaco	5.22%	5.06%	4.96%	5.54%	4.85%

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# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

### Appendix of Methods Used in the Survey and Additional Sources of Rate of Return Information

#### How the Rates of Return in the Survey Were Developed

- In most cases, information came from funds' audited financial statements. In a few cases, preliminary financial results were used.
- The “Dollar-weighted Rate of Return Method”—also referred to as the “Simple Deitz Method”—was used to calculate each fund's one-year rate of return (reduced for all expenses). The formula is:  $i = \frac{I_{EarningsWa}}{AvgAssetsWaWbWc}$  where:

A = the fair value (market value) of the fund at the beginning of the year (some textbooks use “B<sub>0</sub>” instead)

B = the fair value of the fund at the end of the year (some textbooks use “B<sub>1</sub>” instead)

n = contributions during the year (some textbooks use “C” instead of n - w<sub>a</sub> - w<sub>b</sub> - w<sub>c</sub>)

w<sub>a</sub> = withdrawals for *benefits* paid during the year

w<sub>b</sub> = withdrawals for *administrative* expenses paid during the year

w<sub>c</sub> = withdrawals for *investment* expenses paid during the year

I<sub>EarningsWa</sub> = plan earnings, taking into account only contributions and benefit payments = B - A - n + w<sub>a</sub>

I<sub>EarningsWaWbWc</sub> = plan earnings, taking into account contributions, benefits, administrative expenses, and investment expenses  
= B - A - n + w<sub>a</sub> + w<sub>b</sub> + w<sub>c</sub>

AvgAssetsWaWbWc = average plan assets during the year taking into account beginning and ending fund balances, contributions, benefits, administrative expenses, and investment expenses =  $\frac{1}{2}(A + B - I_{EarningsWaWbWc})$



# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

### Appendix of Methods Used in the Survey and Additional Sources of Rate of Return Information

- The formulas have been modified in order to make it possible to obtain rates of return when (1) both administrative and investment expenses are taken into account (“all expenses”), (2) when only administrative expenses are taken into account, (3) when only investment expenses are taken into account, and (4) when no expenses are taken into account. However, this report only looks at rates of return with both administrative expenses and investment expenses taken into account.
- The use of  $\text{AvgAssets}_{WaWbWc}$  in the denominator represents a change from the method used in calculating rates of return in prior Surveys. Prior Surveys used  $\frac{1}{2}(A + B - I)$  in the denominator. This is the traditional Simple Deitz Method formula, which is  $i = I \div \frac{1}{2}(A + B - I)$ . The difference in the results of the two methods is small. The average difference for all funds in the Survey was -0.0005, or -0.05 percent.
- The rates of return shown in this report for years prior to 2017 were calculated using the method employed in prior-year Surveys.

There are more sophisticated formulas which use cash flows for each quarter or which take actual dates of contributions and withdrawals into account. It is also possible to use a computer-based iterative approach called the Internal Rate of Return (IRR) Method. However, dates of contributions and withdrawals are not entered on funds' financial statements, the source of data used to calculate the rates of return given in this Survey. Most TLFRA funds have relatively uniform contributions and disbursements. Thus, the formula on page 21,  $i = \text{IEarnings}_{Wa} \div \text{AvgAssets}_{WaWbWc}$ , is an appropriate measure of a TLFRA fund's rate of return.

- Each *fund's* five-year average rate of return was calculated by first adding 1.0 to each applicable one-year rate. The five results were then multiplied, and the product was raised to the one-fifth power. Subtracting 1.0 from this result gives the fund's average rate of return for the five-year period. (This procedure takes year-to-year compounding into account and is called the geometric mean or geometric average.) Similar calculations were used to develop each fund's ten-year, twenty-year, and 1995-to-2022 average rate of return.

# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

### Appendix of Methods Used in the Survey and Additional Sources of Rate of Return Information

- Each *year's* average rate for all funds, combined, was calculated as the sum of the individual funds' rates, divided by the number of funds. (This is called the arithmetic mean or arithmetic average.) Similar calculations were used to develop the five-year average, the ten-year average, and the 1995-to-2022 average rate of return, for each *year's* average for all funds combined.

#### Additional Sources of Rate of Return Information

- As noted on page three, the Texas Pension Review Board publishes a report on Texas Local Fire Fighter Retirement Act funds biennially, in even-numbered years. The most recent *Texas Local Fire Fighters Retirement Act (TLFFRA) Pension Report* was released in May of 2022 and can be found at:

<https://www.prb.texas.gov/local-firefighter-tlffra/>

Click on: View the Pension Review Board's 2022 TLFFRA Report. (A new report should be issued in 2024.)

- In odd-numbered years, the PRB issues a report covering all public plans in the State of Texas. The 2023 *Guide to Public Retirement Systems in Texas* was released in March of 2023 and can be found at:

<https://www.prb.texas.gov/wp-content/uploads/2023/03/2023-Legislative-Guide.pdf>

# Rates of Return of Texas Local Fire Fighters' Retirement Act Funds

## A Survey of Investment Experience 1995 to 2022

### Appendix of Methods Used in the Survey and Additional Sources of Rate of Return Information

- The Texas Association of Public Employee Retirement Systems annually publishes its *Report on the Asset Allocation and Investment Performance of Texas Public Employee Retirement Systems*. The most recent report is dated August 2023 and can be found at:

[https://texpers.memberclicks.net/assets/docs/2023\\_Asset\\_Allocation/2023%20Asset%20Allocation%20Study%20-%20TEXPERS%20-%20for%202022.pdf](https://texpers.memberclicks.net/assets/docs/2023_Asset_Allocation/2023%20Asset%20Allocation%20Study%20-%20TEXPERS%20-%20for%202022.pdf)

- Horizon Actuarial Services, LLC publishes its *Survey of Capital Market Assumptions* annually. The 2023 Edition was released in August of 2023 and can be found at:

[https://www.horizonactuarial.com/files/ugd/f76a4b\\_1057ff4efa7244d6bb7b1a8fb88236e6.pdf?index=true](https://www.horizonactuarial.com/files/ugd/f76a4b_1057ff4efa7244d6bb7b1a8fb88236e6.pdf?index=true)