Texas Pension Review Board

BOARD MEETING

NOVEMBER 12, 2020

TEXAS PENSION REVIEW BOARD

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TEXAS PENSION REVIEW BOARD
MEETING AGENDA

Thursday, November 12, 2020 – 10:00 AM

By Teleconference

Public Participation Dial-in Number: (877) 853-5247 (Toll-free)
Meeting ID: 822 2815 6050

The November 12, 2020 meeting of the Pension Review Board will be held by teleconference call as authorized under Sections 551.125 and 551.127 of the Texas Government Code. THIS MEETING WILL BE CONDUCTED BY TELECONFERENCE IN ACCORDANCE WITH THE GOVERNOR'S AUTHORIZATION OF MARCH 16, 2020, CONCERNING SUSPENSION OF CERTAIN OPEN MEETING LAW REQUIREMENTS IN RESPONSE TO THE DECLARATION OF STATE DISASTER OF MARCH 13, 2020 CONCERNING THE COVID-19 (CORONAVIRUS) PANDEMIC. A quorum of members of the board will participate in the meeting and will be audible to the public. Members of the public may provide public comment by registering first with staff by submitting an email to Ashley.Rendon@prb.texas.gov identifying the name of the speaker and topic, no later than 8:00 am on November 12, 2020. The presiding officer will call roll of board members, followed by calling roll of members of the public who have registered. The presiding officer will then ask if other attendees wish to provide comment, at which time each such attendees shall identify themselves by name and topic of the comment. Members of the public who have registered during roll call will be called by name at the appropriate time in the agenda. Attendees are requested to mute their connections when not addressing the board members.

Access to the agenda materials of the meeting is provided at www.prb.texas.gov. A recording of the meeting will be available at www.prb.texas.gov.

The Board may discuss or take action regarding any of the items on this agenda.

1. Meeting called to order
2. Roll call of Board members
3. Roll call of members of the public
4. Board administrative matters
    a. June 30, 2020 meeting minutes
    b. Recognition of outgoing board member

5. Actuarial committee matters
    a. Actuarial Valuation Report
    b. Systems subject to the Funding Soundness Restoration Plan (FSRP) requirement, including compliance
    c. Funding policies received as required by Government Code Section 802.2011 (SB 2224)
    d. Recommended changes to the funding policy requirements under Section 802.2011 and Funding Soundness Restoration Plan (FSRP) requirements under Sections 802.2015 and 802.2016 of the Government Code
    e. Public retirement system reporting and compliance, including noncompliant retirement systems under Section 801.209 of the Texas Government Code
6. Investment committee matters
    a. Investment Practices and Performance Evaluations received as required by Government Code Section 802.109 (SB 322), including compliance.
    b. Recommended improvements to Investment Practices and Performance Evaluation statute
    c. Draft Investment Performance Report
7. Education and Research committee matters
    a. MET compliance reporting
    b. MET sponsor update
8. Possible Texas public pension governance study
9. Legislative committee matters
    a. 2019-2020 Biennial Report
    b. 2021 Guide to Public Retirement Systems in Texas
    c. 87th Legislative Session Update
10. Executive Director's Report
    a. Updated Fiscal Year 2021 Operating Budget
    b. Staff update
11. Call for future PRB agenda items
12. Date and location of future PRB meetings – TBD
13. Invitation for public comment
14. Adjournment

NOTE: The Board may go into closed session concerning any item on this agenda if authorized under the Texas Open Meetings Act, Government Code, Code Ch. 551. Persons with disabilities who plan to attend this meeting and who may need special assistance are requested to contact Mr. Wes Allen at (800) 213-9425/ (512) 463-1736 three to five (3-5) working days prior to the meeting date so that appropriate arrangements can be made.

1. Meeting called to order

2. Roll call of Board members

3. Roll call of members of the public

4. Board administrative matters

4a. June 30, 2020 meeting minutes

Texas Pension Review Board

Board Meeting Minutes
June 30, 2020

1. **Meeting called to order (0:01)**

   The second meeting of 2020 of the Pension Review Board (PRB) began on Tuesday, June 30, 2020, at 10:00 AM by teleconference.

2. **Roll call of Board members (0:37)**

   Board members present:

   Chair Stephanie Leibe
   Marcia Dush
   Shari Shivers
   Ernest Richards
   Keith Brainard
   Rossy Farina-Strauss
   Christopher Zook

   A quorum being present, the meeting was called to order by Chair Leibe.

3. **Roll call of members of the public (1:34)**

   Pre-registered members of the public present:

   David Stacy

4. **Board administrative Matters – Chair Leibe (2:09)**

   A. **February 6, 2020 meeting minutes (2:12)**

      Chair Leibe entertained a motion to suspend the reading of the minutes of the February 6, 2020 meeting and approve them as circulated.

      The motion was made by Mr. Zook and seconded by Ms. Dush.

      The motion passed unanimously.

   B. **Consider excusing the absence of Board members from the February 6, 2020 Board meeting (3:13)**

      Chair Leibe entertained a motion to excuse the absence of Ms. Shivers from the February 6, 2020 Board meeting.

      The motion was made by Ms. Dush and seconded by Mr. Richards.

      The motion passed unanimously.

5. **Actuarial Committee Matters – Keith Brainard (4:16)**

   A. **Actuarial valuation report (4:30)**

      Kenny Herbold provided a summary of the Actuarial Valuation Report which included 15 new valuations. He stated plan assets were generally increasing but valuations did not

reflect recent market impacts of COVID-19. Mr. Herbold noted valuations also did not reflect recent decisions made by Texas ERS, Austin ERS, and Dallas Police and Fire Pension to lower their discount rates.

Marcia Dush noted the valuations received so far had an actuarial value of assets greater than market value, totaling approximately seven billion dollars of deferred losses that had not yet been reflected in the actuarial value of assets.

Shari Shivers asked if the difference between the market value of assets and the actuarial value of assets (AVA) was attributable to the use of five-year smoothing. Ms. Dush confirmed that was correct. Mr. Herbold indicated the values are primarily based on fiscal year-end 2018 information, which was a poor performing year for many plans, and did not reflect positive returns for fiscal year-end 2019. He stated it would likely take a few years for the effects of COVID-19 to be reflected in actuarial valuations due to the nature of delayed reporting. Mr. Herbold stated the unfunded liabilities should continue to grow because the liabilities will grow faster than the AVA as the deferred losses are recognized.

Mr. Herbold explained changes to the supplemental and contribution report: staff added expected depletion date and percentage of recommended contribution columns to the reports, respectively.

Ms. Dush commented Texas pension plans may benefit from incorporating alternate tools for reaching 30-year amortizations. Ms. Dush was interested in seeing additional information when determining recommended contribution calculations. She stated, when targeting a contribution rate, she preferred a calculation that considered a sponsor's normal cost, interest on unfunded liabilities and 1/30th of the unfunded liabilities, rather than amortization based on percentage of pay at the 30-year mark.

Mr. Herbold noted the contribution type in the current report did not reflect recent changes adopted in funding policies.

B. Systems subject to the Funding Soundness Restoration Plan (FSRP) requirement, including compliance (26:48)

Mr. Herbold noted the PRB had been notified that University Park Firemen's Relief & Retirement Fund had switched to a closed 30-year employer actuarially defined contribution (ADC). He provided a summary on the progress of the remaining six plans subject to the FSRP requirement.

Mr. Brainard noted Midland Firemen's Relief & Retirement Fund's (Midland Fire) FSRP was originally triggered in 2015.

Ms. Dush asked Mr. Herbold when a plan's FSRP was due to the PRB and when plans were required to meet the 40-year amortization requirement. Mr. Herbold explained the FSRP trigger and the deadlines that applied once the trigger was met.

Ms. Dush asked about the Board's role in responsibility for plans that are late in submitting FSRPs. Mr. Brainard noted the agenda provided an upcoming section to review the FSRP's statutes and any recommended changes the Board may have.

Anumeha Kumar recommended the Board invite Midland Fire, Orange Firemen's Relief

and Retirement Fund, and Irving Firemen's Relief & Retirement Fund, along with their plan sponsors, to provide an update on their FSRP progress.

Mr. Brainard entertained a motion to invite the plans to update the Actuarial committee on their FSRP progress during the August 6, 2020 meeting.

The motion was made by Ms. Dush and seconded by Mr. Richards.

The motion passed unanimously.

Ms. Shivers commented current statute provided no enforcement authority to the PRB.

Mr. Herbold concluded his presentation, and summarized plans at risk of FSRP formulation, those previously subject to FSRPs, as well as systems that previously completed FSRP requirements.

C. Funding policies received as required by Government Code Section 802.2011 (SB 2224) (53:00)

Ashley Rendon stated 95 of 100 plans had submitted funding policies and noted the PRB had received funding policies from 55 non-ADC plans. One non-ADC system developed the funding policy jointly with its sponsor, and at least three other systems worked with the sponsor to include risk-sharing elements supported by both parties.

Ms. Rendon stated 11 of 55 non-ADC plans used risk-sharing elements within their funding policies and 13 of 55 plans utilized parameters on contributions and/or benefit changes.

Ms. Rendon noted 52 of 55 funding policies from non-ADC plans utilized ADC benchmarking. Three of 55 non-ADC plans used alternative approaches from utilizing an ADC benchmark.

Ms. Dush and Mr. Brainard discussed open or rolling ADC benchmarks, concerned that they did not believe that these met the statutory requirements that required a plan to reach 100% or greater funding.

Ms. Rendon stated that staff communicated with plans that used rolling ADC benchmarks prior to the May 2020 Actuarial committee meeting. Kenny Herbold added that, at the request of the Actuarial committee, staff had sent letters to all plans with rolling ADC benchmarks asking how their funding policies met the statutory requirement to reach 100% or greater funding.

Ms. Dush asked whether plans had provided a formal response to the letters, and what the next steps would be.

Ms. Kumar stated the Board had the option to request a formal response from those plans.

Mr. Brainard asked staff to request plans using rolling ADC benchmarks to submit a formal response or revised funding policy by the August 6, 2020 Actuarial committee meeting.

Christopher Zook questioned if a plan was required to make changes to its funding policy once staff notified it of the committee's position.

Mr. Brainard confirmed the PRB lacked authority to require a plan and its sponsor to take any action to bring its funding policy to target 100% or greater funding. He noted staff was directed at the last Actuarial committee meeting to develop legislative recommendations to require plan sponsors to participate in the plan's funding policy development.

Ms. Shivers suggested providing the PRB with enforcement power as part of the staff's recommendation to Legislature. Mr. Brainard requested Ms. Shivers work with staff on recommendations that can be shared with the Actuarial committee.

Ms. Kumar noted systems had raised concerns due to an inability to change any benefit or contribution amounts without an approval vote of the system's members.

D. Review of Funding Policy requirement under Section 802.2011 and Funding Soundness Restoration Plan (FSRP) requirements under section 802.2015 and 802.2016 of the Government Code (1:15:34)

Michelle Downie Kranes provided a summary of discussion from the previous Actuarial committee meeting. She stated two requests were made of staff at the committee meeting, the first of which requested staff to prepare a report on issues concerning the implementation of the FSRP statute, including the amortization period threshold. The second requested that staff recommend a shortened time period from the first problematic valuation to when the FSRP requirement was triggered.

Ms. Downie Kranes summarized 10 potential policy issues identified by staff related to the funding policy and FSRP requirements. She highlighted the issue of plans submitting perpetual revised FSRPs, which meant a plan may never achieve the minimum amortization period threshold.

Ms. Downie Kranes noted that the Texas Association of Public Employee Retirement Systems (TEXPERS) submitted a letter that offered its concerns on the FSRP threshold and the possible impact on its member plans.

Mr. Brainard encouraged all meeting participants to read the Funding Policy and Funding Soundness Restoration Plan Requirements –Issue Document and the letter from TEXPERS included in the packet. He stated the documents would allow them to begin to address issues with the FSRP.

Ms. Shivers asked if any of the outlined issues were addressed by the House or Senate's interim charges. Ms. Downie Kranes responded she did not believe they were.

Mr. Brainard entertained a motion to direct staff to work with the Actuarial committee to develop legislative recommendations for improvements to the funding policy and FSRP statutory requirements for the Board to consider at its November 12, 2020 meeting.

The motion was made by Ms. Dush and seconded by Mr. Richards.

The motion passed unanimously.

E. Actuarial Standard of Practice (ASOP) 4 Second Exposure Draft (21:13)

Mr. Herbold explained ASOP 4 as the primary ASOP governing how plan liabilities were

measured and stated comments from constituents regarding ASOP 4's Second Exposure Draft were due by the end of July, after which the Actuarial Standards Board would consider any recommended changes. He noted that the ASOP defined "reasonable actuarially determined contribution" (ADC), as well as a reasonable amortization method. Each amortization base must have payments that fully amortize the amortization base within a reasonable time period or reduce the outstanding balance by a reasonable amount each year. Mr. Herbold stated there was an additional requirement to identify whether negative amortization occurred and when it would be resolved.

Mr. Herbold stated he expected plans using 30-year rolling amortization periods would no longer be considered a reasonable actuarially determined amortization method. He stated there was also a potential requirement to calculate a plan's depletion date on the funding valuation.

F. Public retirement system reporting and compliance, including noncompliant retirement systems under Section 801.209 of the Texas Government Code (1:29:36)

Bryan Burnham updated the Board on six plans that were non-compliant as of June 22, 2020. He noted one plan listed had become compliant and two plans had partially submitted the necessary reports requirements for compliance. Mr. Burnham noted two plans were now non-compliant for over sixty days, with the remaining plan non-compliant for less than 60 days.

6. Update on the joint meeting of the Investment and Actuarial committees (1:32:40)

Robert Munter provided a summary of the April 30, 2020 joint Investment and Actuarial committee meeting. He stated the investment portion covered both overall and expected market impacts of COVID-19 on Texas pension plans. Mr. Munter explained markets had rebounded but remained volatile due to the difficult nature of reopening the economy. The volatility of market was expected to continue through the remainder of the year.

Mr. Munter stated the actuarial portion of staff's presentation covered two new metrics meant to improve the PRB's monitoring of plans for fiscal soundness. The first metric was liquidity ratio, which measured a plan's ability to pay benefit payments without having to rely on investment income or having to sell assets. The second was asset to benefit payment ratio, which measured how many years of benefit payments can be made, assuming no change in benefit payments and no new contributions or investment income.

Mr. Munter added staff was instructed to contact plans who were in the bottom quartile for the new metrics. He reported all plans fitting that criteria continued to work with the PRB.

Ms. Dush asked if any plans were experiencing issues with their liquidity ratio that would affect pension payments. Mr. Herbold responded none of the above plans were anticipated to run out of assets for pension payments in the near future.

7. Investment committee matters- Christopher Zook (1:36:03)

A. Investment Practices and Performance Evaluations as required by Government Code Section 802.109 (1:36:32)

Robert Munter reminded the Board that Senate Bill 322 required plans with assets greater than $30 million to submit an evaluation to the PRB.

Mr. Munter stated the PRB received 50 of the 65 expected evaluations as of the June deadline. He noted staff communicated with the remaining 15 and found 11 plans were in the process of submitting evaluations, two were unsure of their evaluation's status and two had not yet responded. Mr. Munter stated a status update on the outstanding 15 plans would be provided at the November Board meeting.

Mr. Zook requested any plans attending the Board meeting that have yet to submit their evaluations to please do so as soon as they were able.

8. Education and Research Committee Matters- Marcia Dush (1:39:17)

A. MET compliance reporting (1:39:30)

Benjamin Warden reminded the Board of the newly adopted rule that changed MET reporting dates from twice annually to once annually, due the first of September. Owing to this change, he stated the MET compliance report would be included in board meeting packets annually at the first Board meeting after the September deadline or upon request by the Board.

9. 2020-2021 Legislative Appropriations Request (1:40:51)

Anumeha Kumar clarified the agenda item should be amended to 2022-2023 Legislative Appropriation Request. She stated the Legislative Appropriations Request (LAR) deadline was before the November Board meeting, but the agency had not yet received LAR instructions. She noted all agencies were required to provide a five percent reduction in their budget.

Ms. Kumar explained that staff had identified two priorities for the request. First, she reminded the Board of the appropriated funds from the 86th Legislature, which through a contingency rider for SB 322, added a 13th full-time employee to the agency. However, due to 90% of the agency's budget going toward staff salaries, the 5% reduction in the agency's budget required no longer utilizing those appropriations; instead they will be returned to the Legislature. Ms. Kumar stated the staff planned to request a restoration of those funds in the 2022-2023 LAR.

The second request pertained to updating the agency's internal database, which had become antiquated. Ms. Kumar stated the anticipated cost was under 5% of the total agency 2022-2023 budget.

Chair Leibe entertained a motion to instruct staff to work with both Chair and Vice Chair to finalize the agency's LAR.

The motion was made by Ms. Dush and seconded by Mr. Richards.

The motion passed unanimously.

10. Executive Director's Report – Anumeha Kumar (1:46:02)

A. 2021 – 2025 Strategic Plan (1:46:10)

Ms. Kumar presented the Strategic Plan, which was a long-term assessment of the agency's goals, strategies to achieve those goals, and overall budget structure. She explained this document helps the agency communicate its goals to the stakeholders. The plan had been submitted to the Governor's Office and Legislative Budget Board.

B. 2020 Customer Service Survey (1:47:40)

Ms. Kumar reminded the Board this survey was a part of the strategic planning process

that took place biennial. She noted the increased participation in the survey, with 93 percent satisfaction with customer service provided by staff. Ms. Kumar stated the survey showed the agency's complaint-handling process needed to be refined. Comments of note from the survey included requests for online continuing education courses and PRB website improvement.

C. Staff update (1:52:04)

Ms. Kumar introduced the newest PRB staff member, Joshua White, Research Specialist. She stated the agency now had 12 full-time staff members, although 13 had been budgeted. She noted the 13th position would remain unfilled throughout the hiring freeze established by the Governor's Office and until the funds were re-appropriated to the agency to do so.

D. Updated Fiscal Year 2020 Operating Budget (1:54:00)

Ms. Kumar stated that the agency was well within appropriated amounts for the year. She noted the agency had funds to lapse due to the hiring freeze. The lapsed funds would be returned to the Legislature.

E. Approval of Fiscal Year 2021 Operating Budget (1:54:27)

Ms. Kumar presented fiscal year 2021 Operating Budget to be approved by the Board.

Chair Leibe entertained a motion to approve the fiscal year 2021 Operating Budget as presented.

The motion was made by Mr. Zook and seconded by Mr. Brainard.

Motion approved unanimously.

11. Call for future PRB agenda items (1:55:43)

There was no discussion on this item.

12. Date and location of future PRB meetings – including November 12, 2020 (1:56:05)

Chair Leibe stated that the upcoming meeting of the full Board would be held November 12, 2020. She noted the Investment committee would meet on July 28, 2020, the Actuarial committee on August 6, 2020, and each committee would have separate meetings on September 29, 2020.

13. Invitation for public comment (1:56:49)

David Stacy, Vice Chairman of Midland Firemen's Relief and Retirement Fund (Midland Fire), stated Midland Fire's initial Funding Soundness Restoration Plan (FSRP) was submitted October 2016, before Midland's amortization period was shown as infinite in December 2017. He stated that Midland Fire was now in the process of an actuarial valuation for 2019, as part of its over five-year span of improving the fiscal soundness of the plan based on requirements and recommendations from the Legislature and the PRB.

Mr. Stacy noted plans, including Midland Fire, lowered both their investment return assumption and payroll growth assumption, leading to an extended amortization period. He requested the Board consider plans currently engaged in the FSRP process when considering upcoming Legislative changes.

14. Adjournment (2:11:31)

Chair Leibe adjourned the meeting at 12:11 PM.

<u>In Attendance:</u>

PRB Staff Present

Westley Allen	Bryan Burnham
Kenny Herbold	James King
Michelle Downie Kranes	Anumeha Kumar
Mariah Miller	Robert Munter
Ashley Rendon	Lindsay Seymour
Benjamin Warden	

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Chair Stephanie Leibe

4b. Recognition of outgoing board member

5. Actuarial committee matters

5a. Actuarial Valuation Report

Actuarial Valuation Report
November 12, 2020

Summary of Key Statistics

Assets and Liabilities

	Current Actuarial Valuation		Prior Actuarial Valuation
	11/12/2020	6/30/2020	
Funded Ratio	77.2%	77.1%	77.3%
Market Value of Assets (MVA)	$ 293,208,832,639	$ 282,551,064,804	$ 278,836,127,860
Actuarial Value of Assets (AVA)	$ 294,463,821,128	$ 289,604,916,887	$ 281,578,863,393
Actuarial Accrued Liability (AAL)	$ 381,233,662,547	$ 375,733,142,590	$ 364,115,529,645
Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA)	$ 86,769,841,419	$ 86,128,225,703	$ 82,536,666,252

Plan Amortization Periods

	Current Actuarial Valuation		Prior Actuarial Valuation
	11/12/2020	6/30/2020	
Infinite	12	13	7
>= 40 years, but not infinite	13	11	16
> 30 years, < 40 years	11	11	12
> 25 years, <= 30 years	17	16	19
>= 10 years, <= 25 years	35	37	32
> 0 years, < 10 years	6	6	8
0 years	5	5	5
Total Plans Registered	99	99	99

Plan Discount Rates

	Current Actuarial Valuation		Prior Actuarial Valuation
	11/12/2020	6/30/2020	
>=8%	2	3	9
> 7.50%, < 8.00%	15	19	25
7.50%	26	23	15
> 7.00%, < 7.50%	20	21	21
7.00%	20	18	17
> 6.50%, < 7.00%	7	6	6
<= 6.50%	9	9	6
Total Plans Registered	99	99	99

	Current Actuarial Valuation		Prior Actuarial Valuation
	11/12/2020	6/30/2020	
Mean	7.22%	7.26%	7.35%
Standard Deviation	0.49%	0.49%	0.49%
Median	7.25%	7.25%	7.40%
Liability Weighted Mean	7.29%	7.30%	7.30%
Liability Weighted Median	7.25%	7.25%	7.25%

Actuarial Valuation Report
November 12, 2020

		Current Actuarial Valuation								Prior Actuarial Valuation		
Plan Name	**Plan Status (1)**	**Effective Date**	**Discount Rate**	**Effective Amort Period (2)**	**Funded Ratio %**	**Market Value of Assets (MVA)**	**Actuarial Value of Assets (AVA)**	**Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA)**	**UAAL as % of Payroll**	**Effective Date**	**Prior Effective Amort Period (2)**	**Funded Ratio %**
Employees Retirement System of Texas	Active	8/31/2019	7.50%	Infinite	70.5	$ 27,351,224,157	$ 28,060,120,223	$ 11,741,238,455	168.10%	8/31/2018	Infinite	70.2
Law Enforcement & Custodial Off Sup. Ret. Fund	Active	8/31/2019	7.50%	Infinite	65.3	$ 943,622,645	$ 968,129,751	$ 514,505,451	31.29%	8/31/2018	Infinite	65.6
Austin Police Retirement System	Active	12/31/2019	7.25%	Infinite	58.4	$ 857,839,229	$ 852,294,229	$ 607,235,559	349.30%	12/31/2018	Infinite	58.1
Judicial Retirement System of Texas Plan Two	Active	8/31/2019	7.50%	Infinite	87.5	$ 456,192,249	$ 467,787,034	$ 66,776,712	73.36%	8/31/2018	69.0	91.7
Irving Firemen's Relief & Retirement Fund	Active	12/31/2017	7.50%	Infinite	71.6	$ 213,960,011	$ 207,493,775	$ 82,260,569	252.13%	12/31/2015	46.5	74.9
Beaumont Firemen's Relief & Retirement Fund	Active	12/31/2018	7.50%	Infinite	55.8	$ 105,769,426	$ 111,769,628	$ 88,543,261	457.43%	12/31/2016	104.0	67.5
Midland Firemen's Relief & Retirement Fund	Active	12/31/2017	7.75%	Infinite	60.9	$ 89,023,115	$ 91,856,742	$ 58,952,399	362.54%	12/31/2015	44.7	65.8
McAllen Firemen's Relief & Retirement Fund	Active	9/30/2018	7.50%	Infinite	68.2	$ 52,675,409	$ 51,901,271	$ 24,240,176	196.53%	10/1/2016	33.4	69.1
Longview Firemen's Relief & Retirement Fund	Active	12/31/2019	7.50%	Infinite	39.4	$ 45,779,786	$ 44,348,518	$ 68,367,542	504.54%	12/31/2018	Infinite	39.9
Conroe Fire Fighters' Retirement Fund	Active	12/31/2018	7.50%	Infinite	58.1	$ 24,501,501	$ 26,951,651	$ 19,476,502	209.84%	12/31/2017	39.0	62.0
Orange Firemen's Relief & Retirement Fund	Active	1/1/2019	7.75%	Infinite	46.3	$ 7,961,733	$ 7,961,733	$ 9,241,746	360.64%	1/1/2017	69.3	49.9
Atlanta Firemen's Relief & Retirement Fund	Active	12/31/2018	7.40%	Infinite	80.0	$ 3,801,042	$ 4,181,146	$ 1,043,126	184.83%	12/31/2016	28.4	82.1
Plainview Firemen's Relief & Retirement Fund	Active	12/31/2019	7.50%	79.7	34.0	$ 6,238,767	$ 5,989,437	$ 11,633,150	576.43%	12/31/2017	44.8	37.7
Dallas Employees' Retirement Fund	Active	12/31/2019	7.25%	65.0	75.7	$ 3,658,088,000	$ 3,682,959,000	$ 1,180,366,000	272.04%	12/31/2018	46.0	80.0
Sweetwater Firemen's Relief & Retirement Fund	Active	12/31/2018	8.00%	63.3	63.9	$ 7,760,982	$ 8,770,824	$ 4,947,393	294.74%	12/31/2016	27.5	70.0
Marshall Firemen's Relief & Retirement Fund	Active	12/31/2018	7.50%	59.0	36.7	$ 7,278,840	$ 7,278,840	$ 12,576,960	429.30%	12/31/2016	56.4	42.0
Texarkana Firemen's Relief & Retirement Fund	Active	12/31/2019	7.60%	58.3	80.0	$ 36,402,489	$ 35,443,388	$ 8,854,932	202.16%	12/31/2017	15.0	86.3
Lubbock Fire Pension Fund	Active	12/31/2018	7.75%	52.9	69.3	$ 186,484,535	$ 199,266,188	$ 88,127,819	258.52%	12/31/2016	33.5	72.6
Cleburne Firemen's Relief & Retirement Fund	Active	12/31/2018	7.35%	48.6	59.6	$ 19,362,808	$ 21,731,172	$ 14,724,082	324.13%	12/31/2016	28.8	66.7
Wichita Falls Firemen's Relief & Retirement Fund	Active	1/1/2020	7.75%	43.3	56.8	$ 52,839,714	$ 52,839,714	$ 40,226,568	326.00%	1/1/2018	Infinite	57.7
Fort Worth Employees' Retirement Fund	Active	12/31/2019	7.00%	43.0	52.3	$ 2,396,727,586	$ 2,400,393,264	$ 2,186,491,299	433.49%	12/31/2018	44.0	52.4
Laredo Firefighters Retirement System	Active	9/30/2018	7.50%	43.0	59.9	$ 154,813,837	$ 155,509,979	$ 104,273,436	282.55%	9/30/2016	28.0	59.3
Texas City Firemen's Relief & Retirement Fund	Active	12/31/2018	7.50%	41.1	45.9	$ 14,389,108	$ 15,828,019	$ 18,643,387	348.98%	12/31/2016	28.0	50.4
Greenville Firemen's Relief & Retirement Fund	Active	12/31/2018	7.75%	40.7	46.6	$ 12,254,104	$ 13,479,514	$ 15,438,433	368.76%	12/31/2016	55.0	47.7
Austin Employees' Retirement System	Active	12/31/2019	7.00%	40.0	63.5	$ 2,928,033,076	$ 2,848,950,000	$ 1,638,934,062	231.64%	12/31/2018	32.0	67.6
Killeen Firemen's Relief & Retirement Fund	Active	9/30/2018	7.50%	39.8	69.4	$ 43,947,221	$ 42,970,465	$ 18,990,872	131.39%	9/30/2016	22.8	69.7
Brownwood Firemen's Relief & Retirement Fund	Active	12/31/2017	7.25%	38.6	45.0	$ 4,158,090	$ 4,165,427	$ 5,085,187	263.23%	12/31/2015	36.1	44.6
Big Spring Firemen's Relief & Retirement Fund	Active	1/1/2019	7.75%	38.3	53.2	$ 10,902,959	$ 11,874,904	$ 10,439,548	245.07%	1/1/2017	36.2	54.9
Amarillo Firemen's Relief & Retirement Fund	Active	12/31/2019	7.50%	38.1	82.0	$ 193,539,560	$ 177,211,704	$ 38,901,102	185.22%	12/31/2017	43.5	81.5

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Actuarial Valuation Report
November 12, 2020

		Current Actuarial Valuation								Prior Actuarial Valuation		
Plan Name	**Plan Status (1)**	**Effective Date**	**Discount Rate**	**Effective Amort Period (2)**	**Funded Ratio %**	**Market Value of Assets (MVA)**	**Actuarial Value of Assets (AVA)**	**Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA)**	**UAAL as % of Payroll**	**Effective Date**	**Prior Effective Amort Period (2)**	**Funded Ratio %**
Dallas Police & Fire Pension System-Combined Plan	Active	1/1/2019	7.25%	38.0	48.1	$ 2,041,914,130	$ 2,161,899,662	$ 2,332,922,842	642.47%	1/1/2018	45.0	47.7
Harlingen Firemen's Relief & Retirement Fund	Active	9/30/2019	7.75%	38.0	64.5	$ 33,712,925	$ 33,712,925	$ 18,528,703	277.57%	9/30/2017	59.1	66.1
San Angelo Firemen's Relief & Retirement Fund	Active	12/31/2019	7.80%	37.6	62.0	$ 71,755,778	$ 69,872,462	$ 42,886,258	339.34%	12/31/2017	31.3	64.9
Odessa Firemen's Relief & Retirement Fund	Active	1/1/2020	7.50%	37.5	36.8	$ 44,792,900	$ 43,361,750	$ 74,452,902	544.63%	1/1/2019	77.5	39.3
Paris Firefighters' Relief & Retirement Fund	Active	12/31/2018	7.25%	32.1	30.5	$ 4,152,310	$ 4,663,640	$ 10,625,400	382.48%	12/31/2016	41.9	35.6
Abilene Firemen's Relief & Retirement Fund	Active	10/1/2019	7.50%	31.4	49.1	$ 55,688,061	$ 58,101,368	$ 60,298,270	393.82%	10/1/2017	31.9	55.7
Lufkin Firemen's Relief & Retirement Fund	Active	12/31/2018	7.50%	30.7	48.8	$ 15,659,035	$ 17,334,531	$ 18,178,233	349.28%	12/31/2016	33.1	46.7
Port of Houston Authority Retirement Plan	Closed	8/1/2019	6.50%	30.0	92.9	$ 184,407,686	$ 184,407,686	$ 14,001,387	46.05%	8/1/2018	30.0	98.4
Galveston Employees' Retirement Plan for Police	Active	1/1/2019	7.00%	30.0	34.0	$ 17,856,397	$ 19,642,037	$ 38,211,442	315.26%	1/1/2018	35.5	39.3
El Paso Police Pension Fund	Active	1/1/2020	7.75%	29.9	76.3	$ 932,430,228	$ 888,936,511	$ 275,499,329	298.45%	1/1/2018	30.5	78.3
Corpus Christi Fire Fighters' Retirement System	Active	12/31/2018	7.50%	29.8	60.2	$ 139,811,086	$ 151,136,552	$ 99,896,125	305.70%	12/31/2016	23.1	62.1
Fort Worth Employees' Retirement Fund Staff Plan (5)	Active	12/31/2019	7.00%	29.2	67.5	$ 5,853,631	$ 5,746,115	$ 2,773,533	181.77%	12/31/2018	30.0	68.9
Teacher Retirement System of Texas	Active	8/31/2019	7.25%	29.0	76.4	$ 157,978,199,075	$ 160,233,295,324	$ 49,486,391,723	104.37%	8/31/2018	87.0	76.9
Corsicana Firemen's Relief & Retirement Fund	Active	12/31/2018	7.00%	28.9	50.7	$ 8,563,597	$ 9,310,272	$ 9,065,130	218.76%	12/31/2016	28.9	53.1
University Park Firemen's Relief & Retirement Fund	Closed	12/31/2018	7.50%	28.8	43.4	$ 9,447,674	$ 10,460,367	$ 13,664,013	441.37%	12/31/2016	Infinite	44.0
Temple Firemen's Relief & Retirement Fund	Active	9/30/2018	7.75%	28.6	73.0	$ 44,243,769	$ 44,233,922	$ 16,392,673	181.02%	9/30/2016	28.4	75.1
Houston Police Officers' Pension System	Active	7/1/2019	7.00%	28.0	81.7	$ 5,674,647,000	$ 5,434,933,000	$ 1,220,210,000	268.36%	7/1/2018	29.0	79.4
Houston Firefighters' Relief & Retirement Fund	Active	7/1/2019	7.00%	28.0	82.9	$ 4,237,692,000	$ 4,190,934,000	$ 866,825,000	315.82%	7/1/2018	29.0	81.4
Houston Municipal Employees Pension System	Active	7/1/2019	7.00%	28.0	59.3	$ 3,100,999,000	$ 3,019,255,000	$ 2,071,890,000	328.17%	7/1/2018	29.0	57.7
Galveston Firefighter's Relief & Retirement Fund	Active	12/31/2017	7.75%	26.8	69.2	$ 44,651,640	$ 44,330,845	$ 19,767,545	248.42%	12/31/2016	Infinite	68.0
El Paso Firemen's Pension Fund	Active	1/1/2020	7.75%	26.6	76.5	$ 643,133,030	$ 615,418,214	$ 189,530,926	281.17%	1/1/2018	28.0	77.8
San Benito Firemen Relief & Retirement Fund	Active	9/30/2019	7.50%	26.1	60.9	$ 3,927,895	$ 3,927,895	$ 2,523,394	184.91%	9/30/2017	21.8	60.7
University Health System Pension Plan	Active	1/1/2018	7.00%	26.0	70.7	$ 363,779,588	$ 347,115,543	$ 143,589,317	39.14%	1/1/2017	27.0	67.5
Tyler Firefighters' Relief & Retirement Fund	Active	12/31/2017	7.50%	25.5	76.2	$ 70,141,881	$ 69,570,894	$ 21,757,655	188.81%	12/31/2015	21.6	75.9
Dallas Co. Hospital Dist. Retirement Income Plan	Active	1/1/2019	7.00%	25.0	71.5	$ 948,034,161	$ 1,026,482,932	$ 408,636,930	61.92%	1/1/2018	26.0	73.4
Texas Emergency Services Retirement System	Active	8/31/2018	7.75%	24.0	83.4	$ 115,863,894	$ 114,668,709	$ 22,845,636	N/A	8/31/2016	30.0	80.2
Port Arthur Firemen's Relief & Retirement Fund	Active	12/31/2017	7.50%	23.7	74.2	$ 49,890,603	$ 48,844,714	$ 16,966,441	182.37%	12/31/2015	18.3	78.0
Houston MTA Workers Union Pension Plan	Closed	1/1/2020	6.25%	23.0	64.2	$ 294,629,862	$ 284,189,712	$ 158,635,309	175.09%	1/1/2019	24.0	62.5
San Antonio Metropolitan Transit Retirement Plan	Active	10/1/2018	7.25%	23.0	64.1	$ 298,393,798	$ 282,899,551	$ 158,753,455	139.47%	10/1/2017	24.0	62.4

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Actuarial Valuation Report
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Plan Name	Plan Status (1)	Current Actuarial Valuation: Effective Date	Discount Rate	Effective Amort Period (2)	Funded Ratio %	Market Value of Assets (MVA)	Actuarial Value of Assets (AVA)	Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA)	UAAL as % of Payroll	Prior Actuarial Valuation: Effective Date	Prior Effective Amort Period (2)	Funded Ratio %
Houston MTA Non-Union Pension Plan	Closed	1/1/2020	6.25%	23.0	60.5	$ 186,645,413	$ 181,431,446	$ 118,527,718	303.71%	1/1/2019	24.0	61.8
Irving Supplemental Benefit Plan	Active	1/1/2019	6.75%	23.0	73.5	$ 58,112,359	$ 63,087,137	$ 22,787,104	20.97%	1/1/2018	32.0	72.5
Nacogdoches County Hospital District (5)	Frozen	7/1/2019	7.25%	22.0	96.8	$ 45,978,650	$ 46,663,570	$ 1,529,744	N/A	7/1/2018	20.0	94.7
Galveston Wharves Pension Plan	Closed	1/1/2019	7.25%	22.0	76.1	$ 12,411,631	$ 12,411,631	$ 3,906,450	255.74%	1/1/2018	23.0	83.8
Austin Fire Fighters Relief & Retirement Fund	Active	12/31/2019	7.50%	21.9	86.8	$ 1,029,892,806	$ 1,001,980,211	$ 152,385,418	159.33%	12/31/2018	17.9	88.0
CPS Energy Pension Plan	Active	1/1/2019	7.25%	21.0	82.3	$ 1,522,045,827	$ 1,625,831,674	$ 349,470,229	123.79%	1/1/2018	29.0	82.6
Lower Colorado River Authority Retirement Plan	Closed	1/1/2020	7.00%	20.0	67.7	$ 428,877,867	$ 431,497,129	$ 205,980,317	202.35%	1/1/2019	18.0	70.3
Capital MTA Bargaining	Frozen	1/1/2019	7.00%	20.0	50.6	$ 29,894,535	$ 32,489,724	$ 31,669,611	N/A	1/1/2018	21.0	51.9
Capital MTA Admin Employees (3)	Active	1/1/2019	6.75%	20.0	76.9	$ 29,770,966	$ 31,697,978	$ 9,500,815	41.75%	1/1/2018	20.0	79.2
Employees of Brownsville Navigation District	Active	1/1/2019	6.15%	19.0	57.6	$ 4,890,148	$ 5,254,517	$ 3,873,642	89.19%	1/1/2018	20.0	54.3
Waxahachie Firemen's Relief & Retirement Fund	Active	10/1/2018	7.00%	18.9	73.1	$ 17,428,039	$ 17,428,039	$ 6,419,351	131.82%	10/1/2016	25.4	66.9
Denton Firemen's Relief & Retirement Fund	Active	12/31/2019	6.75%	18.3	80.8	$ 103,815,795	$ 98,109,262	$ 23,333,103	115.79%	12/31/2017	14.6	82.1
Sweeny Community Hospital	Closed	1/1/2020	7.00%	18.0	88.8	$ 3,490,459	$ 3,306,373	$ 415,513	65.55%	1/1/2019	19.0	86.4
Texas Municipal Retirement System (4)	Active	12/31/2019	6.75%	17.2	88.0	$ 31,813,811,275	$ 31,313,805,957	$ 4,271,031,992	61.15%	12/31/2018	18.2	87.1
Galveston Employees' Retirement Fund	Active	12/31/2019	7.25%	16.5	77.5	$ 57,497,904	$ 54,890,649	$ 15,922,387	60.63%	12/31/2018	16.8	76.6
Harris County Hospital District Pension Plan (5)	Closed	1/1/2019	7.00%	16.4	74.0	$ 635,273,806	$ 679,205,807	$ 239,033,271	145.90%	1/1/2018	16.9	75.5
Denison Firemen's Relief & Retirement Fund	Active	12/31/2017	7.50%	15.8	77.3	$ 17,725,070	$ 17,524,049	$ 5,159,287	155.45%	12/31/2015	27.1	74.4
DFW Airport Board	Active	1/1/2020	7.25%	15.0	85.8	$ 549,954,511	$ 543,581,900	$ 89,741,623	173.42%	1/1/2019	16.0	83.7
DFW Airport Board DPS	Active	1/1/2020	7.25%	15.0	81.2	$ 215,337,151	$ 212,881,725	$ 49,148,757	146.11%	1/1/2019	16.0	78.5
Plano Retirement Security Plan	Active	12/31/2019	6.75%	15.0	95.4	$ 167,755,102	$ 160,483,170	$ 7,711,014	4.87%	12/31/2017	0.0	100.8
Corpus Christi Regional Transportation Authority	Active	1/1/2019	7.40%	15.0	91.8	$ 33,900,179	$ 37,050,795	$ 3,318,026	31.10%	1/1/2018	6.0	98.3
Weslaco Firemen's Relief & Retirement Fund	Active	9/30/2018	7.25%	14.1	72.0	$ 11,577,179	$ 11,412,283	$ 4,440,304	101.90%	9/30/2016	14.1	68.5
City of El Paso Employees Retirement Trust	Active	9/1/2018	7.50%	14.0	80.3	$ 820,416,288	$ 822,926,030	$ 201,453,137	120.47%	9/1/2016	17.0	79.2
San Antonio Fire & Police Pension Fund	Active	1/1/2020	7.25%	13.7	87.6	$ 3,408,690,035	$ 3,434,094,746	$ 484,429,050	141.90%	1/1/2019	13.9	87.9
Brazos River Authority Retirement Plan	Frozen	3/1/2019	6.50%	13.0	61.7	$ 19,851,827	$ 20,372,827	$ 12,641,846	N/A	3/1/2018	14.0	66.4
DART Employees (5)	Closed	10/1/2019	6.75%	12.3	80.5	$ 185,583,667	$ 190,481,841	$ 46,127,286	366.26%	10/1/2018	12.8	79.2
Texas County & District Retirement System (4)	Active	12/31/2019	8.00%	11.3	89.4	$ 33,833,510,529	$ 32,789,744,843	$ 3,880,435,865	52.85%	12/31/2018	12.6	88.5
Guadalupe-Blanco River Authority	Frozen	1/1/2019	6.75%	10.0	86.9	$ 28,731,703	$ 30,900,491	$ 4,643,707	N/A	1/1/2018	7.6	85.6
Dallas Police & Fire Pension System-Supplemental (3)	Active	1/1/2019	7.25%	10.0	57.6	$ 18,317,893	$ 18,317,893	$ 13,506,880	2050.36%	1/1/2018	10.0	51.5

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Actuarial Valuation Report
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Northeast Medical Center Hospital Retirement Plan (3)	Frozen	7/1/2019	7.25%	10.0	82.7	$ 9,405,456	$ 9,405,456	$ 1,963,048	N/A	7/1/2018	10.0	83.8
Colorado River Municipal Water Dist. (5)	Active	1/1/2020	6.00%	7.1	88.3	$ 10,699,777	$ 10,699,777	$ 1,413,550	44.47%	1/1/2019	8.5	83.3
Refugio County Memorial Hospital (5)	Frozen	11/1/2019	6.00%	5.2	96.5	$ 1,861,692	$ 1,861,692	$ 68,240	N/A	11/1/2018	7.0	97.8
JPS - Tarrant County Hospital District	Active	10/1/2018	7.00%	5.0	93.6	$ 292,578,664	$ 278,787,703	$ 19,047,712	6.89%	10/1/2017	3.8	95.1
Guadalupe Regional Medical Center	Active	1/1/2020	7.00%	5.0	99.1	$ 83,831,107	$ 78,104,845	$ 709,550	2.40%	1/1/2019	12.0	96.5
Travis County ESD #6 FRRF	Active	12/31/2017	7.00%	3.3	87.2	$ 19,688,064	$ 19,010,963	$ 2,790,432	48.27%	12/31/2015	5.8	71.6
Northwest Texas Healthcare System Retirement Plan	Frozen	10/1/2018	7.50%	2.0	90.1	$ 23,368,205	$ 22,714,545	$ 2,493,439	N/A	10/1/2017	3.0	83.9
Citizens Medical Center	Active	3/1/2019	7.00%	0.0	110.4	$ 108,407,575	$ 108,340,272	$ (10,217,364)	-17.69%	3/1/2018	0.0	107.1
The Woodlands Firefighters' Retirement System	Active	1/1/2020	7.00%	0.0	107.0	$ 42,315,851	$ 42,315,851	$ (2,769,663)	-22.22%	1/1/2019	3.6	97.8
Arlington Employees Deferred Income Plan	Active	6/30/2019	5.00%	0.0	107.2	$ 2,999,905	$ 2,999,905	$ (200,717)	-5.33%	6/30/2018	0.0	106.2
Anson General Hospital	Frozen	7/1/2019	6.00%	0.0	110.1	$ 1,957,233	$ 1,911,086	$ (176,007)	-81.37%	7/1/2018	0.0	120.1
El Paso Firemen & Policemen's Pension Staff Plan	Active	1/1/2020	7.75%	0.0	113.7	$ 685,883	$ 661,663	$ (79,547)	-9.54%	1/1/2018	0.0	113.1
Grand Totals:					**77.2%**	**$ 293,208,832,639**	**$ 294,463,821,128**	**$ 86,769,841,419**				**77.3%**

Notes

(1) Plan status indicates whether a plan is active (admitting new hires), closed to new hires (but still accruing benefits), or frozen (not accruing benefits).

(2) The effective amortization period is the time it would take to theoretically eliminate the UAAL assuming no future gains or losses and taking into account both the plan's stated and historical contribution policy.

(3) Reported amortization period is based on an open amortization funding policy.

(4) Amortization period is calculated using system-wide aggregate UAAL and payroll amounts.

(5) Amortization period is calculated by the PRB.

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AV Supplemental Report
November 12, 2020
(Dollars in Millions)

Plan Name	Fiscal Year End	Discount Rate	(a) Total Pension Liability (TPL) (1)	(b) Fiduciary Net Position (2)	(a) - (b) Net Pension Liability (NPL) (3)	(b) / (a) NPL Funded Ratio %	NPL at Disc. Rate -1% (4)	NPL -1% Funded Ratio %	10 Year Net Return (5)	Expected Depletion Date (6)
Abilene Firemen's Relief & Retirement Fund	9/30/2019	7.50%	$ 118.74	$ 55.69	$ 63.05	46.9	$ 73.51	43.1	6.48%	N/A
Amarillo Firemen's Relief & Retirement Fund	12/31/2018	7.50%	$ 211.24	$ 162.77	$ 48.47	77.1	$ 73.90	68.8	9.45%	N/A
Anson General Hospital	6/30/2018	7.50%	$ 1.54	$ 1.95	$ (0.41)	126.7	$ (0.28)	116.6	5.94%	N/A
Arlington Employees Deferred Income Plan	6/30/2018	5.00%	$ 2.66	$ 2.82	$ (0.16)	106.1	$ 0.10	96.6	3.62%	N/A
Atlanta Firemen's Relief & Retirement Fund	12/31/2019	4.82%	$ 7.44	$ 4.37	$ 3.07	58.7	$ 4.19	51.0	6.66%	2045
Austin Employees' Retirement System	12/31/2019	7.00%	$ 4,487.88	$ 2,928.03	$ 1,559.85	65.2	$ 2,127.42	57.9	8.16%	N/A
Austin Fire Fighters Relief & Retirement Fund	12/31/2019	7.50%	$ 1,156.02	$ 1,029.89	$ 126.13	89.1	$ 236.67	81.3	8.18%	N/A
Austin Police Retirement System	12/31/2019	4.10%	$ 2,175.17	$ 857.84	$ 1,317.33	39.4	$ 1,663.20	34.0	6.33%	2045
Beaumont Firemen's Relief & Retirement Fund	12/31/2018	6.61%	$ 196.88	$ 105.77	$ 91.11	53.7	$ 108.45	49.4	7.58%	2058
Big Spring Firemen's Relief & Retirement Fund	12/31/2018	7.75%	$ 22.38	$ 10.90	$ 11.49	48.7	$ 14.31	43.2	7.22%	N/A
Brazos River Authority Retirement Plan	2/29/2020	6.50%	$ 31.93	$ 20.46	$ 11.47	64.1	$ 14.80	58.0	6.57%	N/A
Brownwood Firemen's Relief & Retirement Fund	12/31/2019	7.25%	$ 9.98	$ 4.66	$ 5.33	46.6	$ 6.59	41.4	5.96%	N/A
CPS Energy Pension Plan	12/31/2019	7.25%	$ 2,053.19	$ 1,779.03	$ 274.16	86.6	$ 535.03	76.9	8.70%	N/A
Capital MTA Admin Employees	12/31/2018	5.54%	$ 49.26	$ 29.77	$ 19.49	60.4	$ 27.18	52.3	8.54%	2054
Capital MTA Bargaining	12/31/2018	7.00%	$ 64.16	$ 29.89	$ 34.26	46.6	$ 40.40	42.5	7.40%	N/A
Citizens Medical Center	2/28/2019	7.25%	$ 101.72	$ 108.40	$ (6.67)	106.6	$ 6.91	94.0	11.47%	N/A
City of El Paso Employees Retirement Trust	8/31/2019	7.50%	$ 1,054.39	$ 806.62	$ 247.76	76.5	$ 372.82	68.4	8.21%	N/A
Cleburne Firemen's Relief & Retirement Fund	12/31/2018	7.35%	$ 36.46	$ 19.36	$ 17.09	53.1	$ 21.26	47.7	7.48%	N/A
Colorado River Municipal Water Dist.	12/31/2019	6.00%	$ 11.79	$ 10.70	$ 1.09	90.7	$ 1.87	85.1	7.52%	N/A
Conroe Fire Fighters' Retirement Fund	12/31/2018	5.51%	$ 64.01	$ 24.50	$ 39.51	38.3	$ 49.83	33.0	4.56%	2054
Corpus Christi Fire Fighters' Retirement System	12/31/2019	7.50%	$ 260.21	$ 157.59	$ 102.63	60.6	$ 131.65	54.5	7.57%	N/A
Corpus Christi Regional Transportation Authority	12/31/2018	7.40%	$ 40.37	$ 33.90	$ 6.47	84.0	$ 11.20	75.2	9.09%	N/A
Corsicana Firemen's Relief & Retirement Fund	12/31/2019	7.00%	$ 18.97	$ 9.90	$ 9.07	52.2	$ 11.60	46.1	5.71%	N/A
DART Employees	9/30/2019	6.75%	$ 236.61	$ 185.58	$ 51.03	78.4	$ 74.44	71.4	7.07%	N/A
DFW Airport Board	12/31/2019	7.25%	$ 633.32	$ 549.95	$ 83.37	86.8	$ 168.49	76.5	7.60%	N/A
DFW Airport Board DPS	12/31/2019	7.25%	$ 262.03	$ 215.34	$ 46.69	82.2	$ 85.88	71.5	7.60%	N/A
Dallas Co. Hospital Dist. Retirement Income Plan	12/31/2019	6.75%	$ 1,576.85	$ 1,173.30	$ 403.55	74.4	$ 624.35	65.3	7.71%	N/A
Dallas Co. Hospital Dist. Retirement Income Plan	12/31/2019	6.75%	$ 1,576.85	$ 1,173.30	$ 403.55	74.4	$ 624.35	65.3	7.71%	N/A
Dallas Employees' Retirement Fund	12/31/2019	5.93%	$ 5,658.73	$ 3,658.09	$ 2,000.64	64.6	$ 2,748.26	57.1	8.56%	2058
Dallas Police & Fire Pension System-Combined Plan	12/31/2018	7.25%	$ 4,501.67	$ 2,041.91	$ 2,459.76	45.4	$ 2,953.14	40.9	3.30%	N/A
Dallas Police & Fire Pension System-Supplemental	12/31/2018	7.25%	$ 31.83	$ 18.32	$ 13.51	57.5	$ 16.36	52.8	3.30%	N/A
Denison Firemen's Relief & Retirement Fund	12/31/2018	7.50%	$ 23.29	$ 16.59	$ 6.70	71.2	$ 9.31	64.0	8.38%	N/A
Denton Firemen's Relief & Retirement Fund	12/31/2018	6.75%	$ 109.45	$ 86.83	$ 22.62	79.3	$ 36.37	70.5	7.57%	N/A
El Paso Firemen & Policemen's Pension Staff Plan (7)	12/31/2018	7.75%	$ 0.45	$ 0.48	$ (0.03)	107.4	$ 0.04	92.9	8.19%	N/A
El Paso Firemen's Pension Fund	12/31/2019	7.75%	$ 809.33	$ 645.01	$ 164.32	79.7	$ 278.73	69.8	7.96%	N/A
El Paso Police Pension Fund	12/31/2019	7.75%	$ 1,161.70	$ 935.19	$ 226.52	80.5	$ 390.85	70.5	7.96%	N/A
Employees Retirement System of Texas	8/31/2019	4.42%	$ 57,336.38	$ 27,351.22	$ 29,985.16	47.7	$ 38,393.84	41.6	8.09%	2047
Employees of Brownsville Navigation District (7)	12/31/2018	6.15%	$ 9.45	$ 4.89	$ 4.56	51.8	$ 5.10	48.9	6.31%	N/A
Fort Worth Employees' Retirement Fund	9/30/2019	7.00%	$ 4,571.92	$ 2,312.86	$ 2,259.06	50.6	$ 2,833.95	44.9	7.09%	N/A

This report is a compilation of pension data reported by retirement systems to the PRB in their most recently published Annual Financial Report and PRB-1000.

(Dollars in Millions)

Plan Name	Fiscal Year End	Discount Rate	(a) Total Pension Liability (TPL) (1)	(b) Fiduciary Net Position (2)	(a) - (b) Net Pension Liability (NPL) (3)	(b) / (a) NPL Funded Ratio %	NPL at Disc. Rate -1% (4)	NPL -1% Funded Ratio %	10 Year Net Return (5)	Expected Depletion Date (6)
Fort Worth Employees' Retirement Fund Staff Plan	9/30/2019	7.00%	$ 8.04	$ 5.46	$ 2.58	67.9	$ 3.86	58.6	7.09%	N/A
Galveston Employees' Retirement Fund	12/31/2018	7.25%	$ 68.35	$ 48.51	$ 19.83	71.0	$ 27.67	63.7	7.37%	N/A
Galveston Employees' Retirement Plan for Police	12/31/2018	7.00%	$ 57.85	$ 17.86	$ 40.00	30.9	$ 47.15	27.5	6.58%	N/A
Galveston Firefighter's Relief & Retirement Fund	12/31/2019	7.75%	$ 69.70	$ 49.03	$ 20.67	70.3	$ 28.45	63.3	6.76%	N/A
Galveston Wharves Pension Plan	12/31/2019	7.25%	$ 16.44	$ 14.83	$ 1.61	90.2	$ 3.25	82.0	9.17%	N/A
Greenville Firemen's Relief & Retirement Fund	12/31/2019	7.75%	$ 30.03	$ 14.29	$ 15.73	47.6	$ 19.05	42.9	7.12%	N/A
Guadalupe Regional Medical Center	12/31/2019	7.00%	$ 80.17	$ 83.83	$ (3.66)	104.6	$ 7.51	91.8	9.68%	N/A
Guadalupe-Blanco River Authority	12/31/2019	6.75%	$ 36.07	$ 33.39	$ 2.67	92.6	$ 6.70	83.3	7.41%	N/A
Harlingen Firemen's Relief & Retirement Fund	9/30/2019	7.75%	$ 53.00	$ 33.71	$ 19.29	63.6	$ 25.34	57.1	7.61%	N/A
Harris County Hospital District Pension Plan	12/31/2019	6.75%	$ 962.26	$ 737.32	$ 224.94	76.6	$ 336.86	68.6	8.90%	N/A
Houston Firefighters' Relief & Retirement Fund	6/30/2019	7.25%	$ 4,928.81	$ 4,237.69	$ 691.12	86.0	$ 1,192.93	78.0	9.13%	N/A
Houston MTA Non-Union Pension Plan	12/31/2019	6.25%	$ 301.37	$ 186.65	$ 114.72	61.9	$ 147.29	55.9	7.80%	N/A
Houston MTA Workers Union Pension Plan	12/31/2019	6.25%	$ 429.29	$ 294.63	$ 134.66	68.6	$ 182.93	61.7	7.90%	N/A
Houston Municipal Employees Pension System	6/30/2019	7.00%	$ 5,236.13	$ 3,101.00	$ 2,135.13	59.2	$ 2,701.00	53.4	9.32%	N/A
Houston Police Officers' Pension System	6/30/2019	7.00%	$ 6,920.55	$ 5,674.65	$ 1,245.90	82.0	$ 2,003.25	73.9	9.20%	N/A
Irving Firemen's Relief & Retirement Fund	12/31/2018	7.50%	$ 296.82	$ 195.30	$ 101.51	65.8	$ 124.00	61.2	8.86%	N/A
Irving Supplemental Benefit Plan	12/31/2019	6.75%	$ 91.42	$ 70.21	$ 21.21	76.8	$ 33.89	67.4	6.13%	N/A
JPS - Tarrant County Hospital District	9/30/2019	7.00%	$ 324.44	$ 312.71	$ 11.73	96.4	$ 51.54	85.9	0.00%	N/A
Judicial Retirement System of Texas Plan Two	8/31/2019	5.45%	$ 648.30	$ 456.19	$ 192.11	70.4	$ 262.67	63.5	8.09%	2045
Killeen Firemen's Relief & Retirement Fund	9/30/2018	7.75%	$ 60.27	$ 43.95	$ 16.32	72.9	$ 24.55	64.2	6.35%	N/A
Laredo Firefighters Retirement System	9/30/2019	7.50%	$ 275.67	$ 159.00	$ 116.67	57.7	$ 153.31	50.9	6.46%	N/A
Law Enforcement & Custodial Off Sup. Ret. Fund	8/31/2019	3.29%	$ 2,609.36	$ 943.62	$ 1,665.73	36.2	$ 2,131.72	30.7	8.09%	2037
Longview Firemen's Relief & Retirement Fund	12/31/2019	4.21%	$ 167.80	$ 45.78	$ 122.02	27.3	$ 148.04	23.6	5.69%	2038
Lower Colorado River Authority Retirement Plan	12/31/2019	7.00%	$ 637.48	$ 429.88	$ 207.60	67.4	$ 273.20	61.1	7.10%	N/A
Lubbock Fire Pension Fund	12/31/2019	7.75%	$ 293.02	$ 211.55	$ 81.47	72.2	$ 117.02	64.4	6.68%	N/A
Lufkin Firemen's Relief & Retirement Fund	12/31/2019	7.50%	$ 37.25	$ 18.98	$ 18.27	50.9	$ 22.39	45.9	6.84%	N/A
Marshall Firemen's Relief & Retirement Fund	12/31/2018	7.50%	$ 20.17	$ 7.28	$ 12.89	36.1	$ 15.52	31.9	7.37%	N/A
McAllen Firemen's Relief & Retirement Fund	9/30/2019	5.67%	$ 99.61	$ 53.97	$ 45.64	54.2	$ 59.69	47.5	6.68%	2062
Midland Firemen's Relief & Retirement Fund	12/31/2018	5.29%	$ 208.63	$ 80.01	$ 128.62	38.4	$ 157.43	33.7	5.39%	2043
Nacogdoches County Hospital District	6/30/2016	7.25%	$ 54.03	$ 43.66	$ 10.37	80.8	$ 17.08	71.9	5.22%	N/A
Northeast Medical Center Hospital Retirement Plan	6/30/2018	7.50%	$ 11.33	$ 9.50	$ 1.83	83.8	$ 2.72	77.8	9.58%	2058
Northwest Texas Healthcare System Retirement Plan	9/30/2019	7.50%	$ 24.70	$ 23.91	$ 0.79	96.8	$ 2.81	89.5	6.83%	N/A
Odessa Firemen's Relief & Retirement Fund	12/31/2019	7.50%	$ 115.74	$ 44.79	$ 70.95	38.7	$ 84.61	34.6	6.88%	N/A
Orange Firemen's Relief & Retirement Fund	12/31/2019	6.67%	$ 19.47	$ 8.94	$ 10.53	45.9	$ 12.82	41.1	6.77%	2060
Paris Firefighters' Relief & Retirement Fund	12/31/2019	7.25%	$ 15.39	$ 4.50	$ 10.89	29.2	$ 12.49	26.5	4.76%	N/A
Plainview Firemen's Relief & Retirement Fund	12/31/2019	7.50%	$ 17.62	$ 6.24	$ 11.38	35.4	$ 13.41	31.7	6.43%	N/A
Plano Retirement Security Plan	12/31/2018	7.00%	$ 152.12	$ 139.93	$ 12.19	92.0	$ 34.70	80.1	9.07%	N/A
Port Arthur Firemen's Relief & Retirement Fund	12/31/2018	7.50%	$ 67.66	$ 44.77	$ 22.89	66.2	$ 30.09	59.8	7.82%	N/A
Port of Houston Authority Retirement Plan	7/31/2018	6.75%	$ 189.63	$ 184.29	$ 5.34	97.2	$ 27.32	87.1	7.06%	N/A

AV Supplemental Report
November 12, 2020
(Dollars in Millions)

Plan Name	Fiscal Year End	Discount Rate	(a) Total Pension Liability (TPL) (1)	(b) Fiduciary Net Position (2)	(a) - (b) Net Pension Liability (NPL) (3)	(b) / (a) NPL Funded Ratio %	NPL at Disc. Rate -1% (4)	NPL -1% Funded Ratio %	10 Year Net Return (5)	Expected Depletion Date (6)
Refugio County Memorial Hospital	10/31/2019	6.00%	$ 1.94	$ 1.86	$ 0.08	96.0	$ 0.35	84.1	6.53%	N/A
San Angelo Firemen's Relief & Retirement Fund	12/31/2019	7.80%	$ 112.76	$ 71.68	$ 41.08	63.6	$ 54.14	57.0	7.68%	N/A
San Antonio Fire & Police Pension Fund	12/31/2019	7.25%	$ 3,922.67	$ 3,408.69	$ 513.98	86.9	$ 1,065.59	76.2	7.70%	N/A
San Antonio Metropolitan Transit Retirement Plan (8)	9/30/2018	7.25%	$ 440.82	$ 298.39	$ 142.42	67.7	$ 191.27	60.9	N/A	N/A
San Benito Firemen Relief & Retirement Fund	9/30/2019	7.50%	$ 6.45	$ 3.93	$ 2.52	60.9	$ 3.35	54.0	3.96%	N/A
Sweeny Community Hospital	12/31/2019	7.00%	$ 3.70	$ 3.49	$ 0.21	94.4	$ 0.44	88.7	9.18%	N/A
Sweetwater Firemen's Relief & Retirement Fund	12/31/2019	8.00%	$ 14.37	$ 9.02	$ 5.35	62.8	$ 7.00	56.3	6.82%	N/A
Teacher Retirement System of Texas	8/31/2019	7.25%	$ 209,961.33	$ 157,978.20	$ 51,983.13	75.2	$ 79,905.62	66.4	9.12%	N/A
Temple Firemen's Relief & Retirement Fund	9/30/2019	7.75%	$ 63.03	$ 45.57	$ 17.46	72.3	$ 24.71	64.8	6.33%	N/A
Texarkana Firemen's Relief & Retirement Fund	12/31/2019	7.60%	$ 44.30	$ 36.40	$ 7.90	82.2	$ 12.77	74.0	7.45%	N/A
Texas City Firemen's Relief & Retirement Fund	12/31/2018	7.75%	$ 33.62	$ 14.39	$ 19.23	42.8	$ 22.81	38.7	6.95%	N/A
Texas County & District Retirement System (9)	12/31/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.10%	N/A
Texas Emergency Services Retirement System	8/31/2019	7.75%	$ 143.50	$ 115.16	$ 28.35	80.2	$ 50.38	69.6	8.22%	N/A
Texas Municipal Retirement System (9)	12/31/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.86%	N/A
The Woodlands Firefighters' Retirement System (7)	12/31/2018	7.00%	$ 33.56	$ 32.95	$ 0.61	98.2	$ 6.28	84.0	-0.18%	N/A
Travis County ESD #6 FRRF	12/31/2019	7.00%	$ 32.47	$ 28.09	$ 4.39	86.5	$ 9.78	74.2	7.31%	N/A
Tyler Firefighters' Relief & Retirement Fund	12/31/2019	7.50%	$ 98.96	$ 74.57	$ 24.38	75.4	$ 34.83	68.2	7.57%	N/A
University Health System Pension Plan	12/31/2019	7.00%	$ 583.57	$ 436.56	$ 147.01	74.8	$ 225.22	66.0	8.63%	N/A
University Park Firemen's Relief & Retirement Fund	12/31/2018	7.50%	$ 24.30	$ 9.45	$ 14.85	38.9	$ 17.70	34.8	6.48%	N/A
Waxahachie Firemen's Relief & Retirement Fund	9/30/2018	7.00%	$ 23.85	$ 17.43	$ 6.42	73.1	$ 9.57	64.6	7.34%	N/A
Weslaco Firemen's Relief & Retirement Fund	9/30/2019	7.25%	$ 16.74	$ 11.93	$ 4.81	71.3	$ 7.41	61.7	5.64%	N/A
Wichita Falls Firemen's Relief & Retirement Fund	12/31/2019	4.99%	$ 125.91	$ 52.88	$ 73.03	42.0	$ 90.18	37.0	7.74%	2046
Grand Totals:			**$ 331,874.21**	**$ 229,233.27**	**$ 102,640.94**	**69.1%**	**$ 146,972**	**60.9%**		

Notes
(1) Total Pension Liability is the actuarial accrued liability calculated in accordance with GASB 67, as reported in the system's Annual Financial Report.
(2) Fiduciary Net Position is the market value of assets as of the Fiscal Year End, as reported in the system's Annual Finaicial Report.
(3) Net Pension Liability is measured as the Total Pension Liability less the amount of the pension plan’s Fiduciary Net Position.
(4) Net Pension Liability measured using a discount rate 1% lower than the stated discount rate.
(5) 10 Year Net Return (gross return net of investment expenses) as reported for the Fiscal Year on the PRB-1000 Investment Returns and Assumptions Report.
(6) Expected Depletion date is reported in GASB 67 when applicable.
(7) The plan is less than 10 years old; return is calculated since date of inception.
(8) A 10 Year Net Return was not available from this plan.
(9) Plan is an Agent Multiple Employer Defined Benefit Plan and is not subject to the majority of GASB 67 reporting requirements.

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Contribution Report
November 12, 2020

Plan Name	Plan Status (1)	Fiscal Year End	Covered Payroll	(a) Total NC (% of Pay) (2), (3)	(b) EE Cont (% of Pay) (3)	(c) = (a) - (b) ER Normal Cost (% of Pay) (3)	(d) Amort Pmt (% of Pay) (3)	(e) = (c) + (d) ER Rec Cont (% of Pay) (3), (4)	(f) Actual ER Cont (% of Pay) (5)	Actual ER Cont Type	(f) / (e) Percent of Rec Cont Paid
Refugio County Memorial Hospital	Frozen	10/31/2019	$ 2,928,887	0.00%	0.00%	0.00%	0.25%	0.25%	0.00%	Actuarial	0%
Law Enforcement & Custodial Off Sup. Ret. Fund	Active	8/31/2019	$ 1,682,633,066	2.09%	0.50%	1.59%	1.67%	3.26%	1.54%	Other	47%
Galveston Employees' Retirement Plan for Police	Active	12/31/2018	$ 11,808,927	12.05%	12.00%	0.05%	22.62%	22.67%	14.51%	Actuarial	64%
Orange Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 2,523,746	12.24%	12.50%	0.00%	23.45%	23.19%	14.94%	Fixed	64%
Wichita Falls Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 11,295,885	15.19%	13.00%	2.19%	17.34%	19.53%	12.77%	Other	65%
Austin Police Retirement System	Active	12/31/2019	$ 168,782,554	24.99%	13.00%	11.99%	19.98%	31.97%	21.33%	Fixed	67%
Dallas Employees' Retirement Fund	Active	12/31/2019	$ 433,591,000	20.95%	13.32%	7.63%	13.64%	21.27%	14.34%	Other	67%
Longview Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 13,359,496	16.74%	16.76%	0.00%	27.98%	27.96%	19.10%	Fixed	68%
Midland Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 17,568,234	25.98%	14.20%	11.78%	20.08%	31.86%	22.20%	Fixed	70%
Odessa Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 13,948,594	14.89%	18.00%	0.00%	31.97%	28.86%	20.18%	Fixed	70%
McAllen Firemen's Relief & Retirement Fund	Active	9/30/2019	$ 12,505,315	16.89%	12.00%	4.89%	12.31%	17.20%	13.00%	Fixed	76%
Irving Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 33,831,773	21.22%	13.00%	8.22%	13.80%	22.02%	16.75%	Fixed	76%
Sweetwater Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 1,659,628	23.01%	17.00%	6.01%	17.64%	23.65%	18.00%	Fixed	76%
Beaumont Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 18,605,194	18.93%	15.13%	3.80%	16.37%	20.17%	15.50%	Fixed	77%
Marshall Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 2,770,350	16.39%	14.00%	2.39%	22.00%	24.39%	19.05%	Fixed	78%
Fort Worth Employees' Retirement Fund	Active	9/30/2019	$ 484,410,754	13.29%	8.08%	5.21%	22.90%	28.11%	23.35%	Fixed	83%
Employees Retirement System of Texas (7)	Active	8/31/2019	$ 6,947,624,737	13.86%	9.50%	4.36%	9.26%	13.62%	11.74%	Fixed	86%
Laredo Firefighters Retirement System	Active	9/30/2019	$ 37,125,900	20.90%	15.00%	5.90%	17.65%	23.55%	20.35%	Fixed	86%
Harlingen Firemen's Relief & Retirement Fund	Active	9/30/2019	$ 6,486,567	18.74%	15.00%	3.74%	14.57%	18.31%	15.92%	Fixed	87%
Houston Firefighters' Relief & Retirement Fund	Active	6/30/2019	$ 272,498,000	27.71%	10.50%	17.21%	20.44%	37.65%	32.99%	Actuarial	88%
Colorado River Municipal Water Dist.	Active	12/31/2019	$ 3,604,131	10.08%	0.00%	10.08%	8.57%	18.65%	16.38%	Actuarial	88%
Atlanta Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 601,869	19.96%	13.00%	6.96%	9.64%	16.60%	14.78%	Fixed	89%
Greenville Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 4,343,865	17.64%	16.30%	1.34%	20.86%	22.20%	19.80%	Fixed	89%
Plainview Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 2,006,573	15.23%	15.00%	0.23%	29.38%	29.61%	26.73%	Fixed	90%
Amarillo Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 20,282,338	25.60%	13.00%	12.60%	8.89%	21.49%	19.57%	Fixed	91%
Dallas Police & Fire Pension System-Supplemental	Active	12/31/2018	$ 916,000	32.23%	13.98%	18.25%	218.38%	236.63%	216.08%	Actuarial	91%
University Health System Pension Plan	Active	12/31/2019	$ 380,744,589	4.09%	2.00%	2.09%	4.59%	6.68%	6.15%	Actuarial	92%
Conroe Fire Fighters' Retirement Fund	Active	12/31/2018	$ 9,018,331	19.57%	13.24%	6.33%	9.91%	16.24%	15.00%	Fixed	92%
Austin Employees' Retirement System	Active	12/31/2019	$ 686,720,461	17.46%	8.00%	9.46%	9.91%	19.37%	18.00%	Fixed	93%

This report is a compilation of pension data reported by retirement systems to the PRB in their most recently published Annual Financial Report and Actuarial Valuations.

Contribution Report
November 12, 2020

Plan Name	Plan Status (1)	Fiscal Year End	Covered Payroll	(a) Total NC (% of Pay) (2), (3)	(b) EE Cont (% of Pay) (3)	(c) = (a) - (b) ER Normal Cost (% of Pay) (3)	(d) Amort Pmt (% of Pay) (3)	(e) = (c) + (d) ER Rec Cont (% of Pay) (3), (4)	(f) Actual ER Cont (% of Pay) (5)	Actual ER Cont Type	(f) / (e) Percent of Rec Cont Paid
El Paso Police Pension Fund	Active	12/31/2019	$ 95,292,546	21.23%	18.00%	3.23%	16.59%	19.82%	18.50%	Fixed	93%
Lubbock Fire Pension Fund	Active	12/31/2019	$ 34,639,673	22.95%	14.98%	7.97%	15.12%	23.09%	21.81%	Other	94%
Paris Firefighters' Relief & Retirement Fund	Active	12/31/2019	$ 2,808,113	9.63%	16.00%	0.00%	21.11%	14.74%	14.00%	Fixed	95%
Dallas Police & Fire Pension System-Combined Plan	Active	12/31/2018	$ 346,037,000	17.89%	13.50%	4.39%	41.01%	45.40%	43.16%	Other	95%
San Angelo Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 12,562,703	21.58%	16.45%	5.13%	15.42%	20.55%	19.58%	Fixed	95%
Killeen Firemen's Relief & Retirement Fund	Active	9/30/2018	$ 13,983,445	16.00%	11.00%	5.00%	8.55%	13.55%	13.00%	Fixed	96%
Abilene Firemen's Relief & Retirement Fund	Active	9/30/2019	$ 14,246,004	16.61%	13.20%	3.41%	16.55%	19.96%	19.25%	Fixed	96%
Teacher Retirement System of Texas	Active	8/31/2019	$ 45,232,074,364	11.69%	7.70%	3.99%	5.49%	9.48%	9.20%	Fixed	97%
Brownwood Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 2,016,738	14.77%	8.00%	6.77%	14.96%	21.73%	21.31%	Fixed	98%
Corpus Christi Fire Fighters' Retirement System	Active	12/31/2019	$ 33,683,725	16.11%	13.10%	3.01%	18.27%	21.28%	20.90%	Fixed	98%
Capital MTA Admin Employees	Active	12/31/2018	$ 22,758,461	8.22%	0.00%	8.22%	3.81%	12.03%	11.83%	Actuarial	98%
Houston Municipal Employees Pension System	Active	6/30/2019	$ 614,451,273	11.27%	3.00%	8.27%	20.73%	29.00%	28.69%	Actuarial	99%
Lufkin Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 5,331,845	16.43%	14.20%	2.23%	21.00%	23.23%	23.00%	Fixed	99%
Fort Worth Employees' Retirement Fund Staff Plan	Active	9/30/2019	$ 1,533,139	18.90%	8.25%	10.65%	5.23%	15.88%	15.74%	Fixed	99%
Travis County ESD #6 FRRF	Active	12/31/2019	$ 6,965,200	24.11%	20.00%	4.11%	15.09%	19.20%	19.20%	Fixed	100%
Galveston Firefighter's Relief & Retirement Fund	Active	12/31/2019	$ 8,244,583	19.50%	18.00%	1.50%	15.50%	17.00%	17.00%	Fixed	100%
Plano Retirement Security Plan	Active	12/31/2018	$ 149,344,120	3.56%	0.00%	3.56%	0.06%	3.62%	3.62%	Actuarial	100%
Brazos River Authority Retirement Plan (6)	Frozen	2/29/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Actuarial	100%
Denison Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 3,365,460	14.19%	12.00%	2.19%	12.81%	15.00%	15.00%	Fixed	100%
Northeast Medical Center Hospital Retirement Plan (6)	Frozen	6/30/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Actuarial	100%
JPS - Tarrant County Hospital District	Active	9/30/2019	$ 276,492,971	6.38%	1.91%	4.47%	1.78%	6.25%	6.25%	Other	100%
Denton Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 18,562,198	21.77%	12.60%	9.17%	9.33%	18.50%	18.50%	Other	100%
Galveston Employees' Retirement Fund	Active	12/31/2018	$ 26,308,178	9.33%	6.00%	3.33%	5.67%	9.00%	9.00%	Fixed	100%
Harris County Hospital District Pension Plan	Closed	12/31/2019	$ 163,835,000	4.92%	0.00%	4.92%	15.60%	20.52%	20.52%	Actuarial	100%
Sweeny Community Hospital	Closed	12/31/2019	$ 881,890	8.10%	0.00%	8.10%	5.63%	13.73%	13.74%	Actuarial	100%
Houston MTA Non-Union Pension Plan	Closed	12/31/2019	$ 40,747,394	8.22%	0.00%	8.22%	22.77%	30.99%	31.04%	Actuarial	100%
Cleburne Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 4,507,461	19.90%	14.00%	5.90%	16.10%	22.00%	22.06%	Other	100%
Judicial Retirement System of Texas Plan Two	Active	8/31/2019	$ 79,710,813	20.83%	7.46%	13.37%	3.01%	16.38%	16.43%	Fixed	100%
El Paso Firemen's Pension Fund	Active	12/31/2019	$ 68,727,915	22.17%	18.00%	4.17%	14.33%	18.50%	18.61%	Fixed	101%

This report is a compilation of pension data reported by retirement systems to the PRB in their most recently published Annual Financial Report and Actuarial Valuations.

Contribution Report
November 12, 2020

Plan Name	Plan Status (1)	Fiscal Year End	Covered Payroll	(a) Total NC (% of Pay) (2), (3)	(b) EE Cont (% of Pay) (3)	(c) = (a) - (b) ER Normal Cost (% of Pay) (3)	(d) Amort Pmt (% of Pay) (3)	(e) = (c) + (d) ER Rec Cont (% of Pay) (3), (4)	(f) Actual ER Cont (% of Pay) (5)	Actual ER Cont Type	(f) / (e) Percent of Rec Cont Paid
Houston Police Officers' Pension System	Active	6/30/2019	$ 444,871,000	24.35%	10.50%	13.85%	17.89%	31.74%	32.02%	Actuarial	101%
Houston MTA Workers Union Pension Plan	Closed	12/31/2019	$ 94,602,405	4.12%	0.00%	4.12%	14.70%	18.82%	19.03%	Actuarial	101%
Port Arthur Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 9,194,408	16.10%	13.50%	2.60%	11.45%	14.05%	14.27%	Other	102%
Texas Emergency Services Retirement System (6)	Active	8/31/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Other	102%
Temple Firemen's Relief & Retirement Fund	Active	9/30/2019	$ 8,566,960	19.67%	15.00%	4.67%	10.29%	14.96%	15.31%	Fixed	102%
Citizens Medical Center	Active	2/28/2019	$ 55,569,699	8.47%	3.94%	4.53%	-0.71%	3.82%	3.96%	Other	104%
Texas City Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 5,176,888	12.77%	16.00%	0.00%	18.59%	15.36%	16.00%	Fixed	104%
Corsicana Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 4,286,307	14.97%	14.00%	0.97%	14.13%	15.10%	15.74%	Fixed	104%
Texas Municipal Retirement System	Active	12/31/2019	$ 6,790,788,227	15.06%	6.63%	8.43%	4.66%	13.09%	13.70%	Actuarial	105%
Port of Houston Authority Retirement Plan	Closed	7/31/2018	$ 29,960,300	13.86%	0.00%	13.86%	2.85%	16.71%	17.55%	Actuarial	105%
Guadalupe Regional Medical Center	Active	12/31/2019	$ 27,861,128	9.36%	4.00%	5.36%	1.11%	6.47%	6.89%	Other	107%
Waxahachie Firemen's Relief & Retirement Fund	Active	9/30/2018	$ 4,437,733	18.19%	12.00%	6.19%	8.36%	14.55%	15.51%	Other	107%
Tyler Firefighters' Relief & Retirement Fund	Active	12/31/2019	$ 11,892,452	21.10%	13.50%	7.60%	11.90%	19.50%	21.12%	Fixed	108%
DFW Airport Board	Active	12/31/2019	$ 53,256,000	17.74%	0.00%	17.74%	20.18%	37.92%	41.15%	Actuarial	109%
Big Spring Firemen's Relief & Retirement Fund	Active	12/31/2018	$ 4,030,000	15.84%	13.00%	2.84%	11.47%	14.31%	15.72%	Fixed	110%
DFW Airport Board DPS	Active	12/31/2019	$ 31,820,000	23.62%	7.00%	16.62%	14.23%	30.85%	33.94%	Actuarial	110%
Guadalupe-Blanco River Authority	Frozen	12/31/2019	$ 5,636,970	5.02%	0.00%	5.02%	11.10%	16.12%	17.80%	Other	110%
Texas County & District Retirement System	Active	12/31/2019	$ 7,342,564,173	13.30%	6.78%	6.52%	5.05%	11.57%	12.79%	Actuarial	111%
Irving Supplemental Benefit Plan	Active	12/31/2019	$ 110,411,883	3.34%	2.50%	0.84%	1.16%	2.00%	2.23%	Other	112%
San Antonio Fire & Police Pension Fund	Active	12/31/2019	$ 328,796,000	24.42%	12.32%	12.10%	9.61%	21.71%	24.64%	Fixed	113%
The Woodlands Firefighters' Retirement System	Active	12/31/2018	$ 11,482,958	22.66%	12.00%	10.66%	0.00%	10.66%	12.18%	Fixed	114%
Austin Fire Fighters Relief & Retirement Fund	Active	12/31/2019	$ 95,500,068	28.43%	18.70%	9.73%	9.29%	19.02%	22.05%	Fixed	116%
Employees of Brownsville Navigation District	Active	12/31/2018	$ 4,368,477	8.38%	4.00%	4.38%	5.87%	10.25%	12.01%	Fixed	117%
San Benito Firemen Relief & Retirement Fund	Active	9/30/2019	$ 1,338,375	13.90%	12.00%	1.90%	8.20%	10.10%	12.00%	Fixed	119%
Corpus Christi Regional Transportation Authority	Active	12/31/2018	$ 10,677,430	9.99%	0.00%	9.99%	1.17%	11.16%	13.35%	Actuarial	120%
Dallas Co. Hospital Dist. Retirement Income Plan	Active	12/31/2019	$ 685,520,000	8.16%	6.20%	1.96%	3.65%	5.61%	6.81%	Actuarial	121%
Texarkana Firemen's Relief & Retirement Fund	Active	12/31/2019	$ 4,370,067	21.60%	13.50%	8.10%	7.44%	15.54%	19.50%	Fixed	125%
Lower Colorado River Authority Retirement Plan	Closed	12/31/2019	$ 104,489,000	5.49%	0.00%	5.49%	13.00%	18.49%	23.40%	Actuarial	127%
Nacogdoches County Hospital District	Frozen	6/30/2016	$ 30,057,297	4.56%	2.91%	1.65%	2.66%	4.31%	5.66%	Other	131%

This report is a compilation of pension data reported by retirement systems to the PRB in their most recently published Annual Financial Report and Actuarial Valuations.

Contribution Report
November 12, 2020

Plan Name	Plan Status (1)	Fiscal Year End	Covered Payroll	(a) Total NC (% of Pay) (2), (3)	(b) EE Cont (% of Pay) (3)	(c) = (a) - (b) ER Normal Cost (% of Pay) (3)	(d) Amort Pmt (% of Pay) (3)	(e) = (c) + (d) ER Rec Cont (% of Pay) (3), (4)	(f) Actual ER Cont (% of Pay) (5)	Actual ER Cont Type	(f) / (e) Percent of Rec Cont Paid
CPS Energy Pension Plan	Active	12/31/2019	$ 281,410,419	14.04%	5.00%	9.04%	10.65%	19.69%	26.27%	Actuarial	133%
Weslaco Firemen's Relief & Retirement Fund	Active	9/30/2019	$ 4,276,933	14.50%	12.00%	2.50%	5.79%	8.29%	12.15%	Fixed	147%
San Antonio Metropolitan Transit Retirement Plan	Active	9/30/2018	$ 65,166,072	7.58%	4.23%	3.35%	9.09%	12.44%	19.15%	Actuarial	154%
El Paso Firemen & Policemen's Pension Staff Plan	Active	12/31/2018	$ 734,360	10.24%	5.00%	5.24%	-0.39%	4.85%	7.47%	Fixed	154%
City of El Paso Employees Retirement Trust	Active	8/31/2019	$ 167,255,529	11.94%	8.95%	2.99%	6.87%	9.86%	15.80%	Fixed	160%
Capital MTA Bargaining (6)	Frozen	12/31/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Actuarial	161%
DART Employees	Closed	9/30/2019	$ 12,374,000	7.40%	0.02%	7.38%	41.21%	48.59%	80.81%	Actuarial	166%
Galveston Wharves Pension Plan	Closed	12/31/2019	$ 1,527,483	6.91%	0.00%	6.91%	14.19%	21.10%	37.64%	Actuarial	178%
University Park Firemen's Relief & Retirement Fund	Closed	12/31/2018	$ 3,011,825	18.13%	10.48%	7.65%	22.05%	29.70%	56.87%	Fixed	191%
Northwest Texas Healthcare System Retirement Plan (6)	Frozen	9/30/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Fixed	417%
Anson General Hospital	Frozen	6/30/2018	$ 222,685	17.53%	4.00%	13.53%	-13.53%	0.00%	0.00%	Actuarial	N/A
Arlington Employees Deferred Income Plan	Active	6/30/2018	$ 3,337,767	4.97%	3.00%	1.97%	-1.97%	0.00%	1.39%	Actuarial	N/A

Notes

(1) Plan status indicates whether a plan is active (admitting new hires), closed to new hires (but still accruing benefits), or frozen (not accruing benefits).

(2) Normal Cost includes any explicit provisions for administrative expenses.

(3) Values may differ from that reported by the system due to differences in timing and/or rounding. For systems that do not indicate the fiscal year associated with this value (or the requisite valuation has not been provided to the PRB), they are based on the most recently reported valuation date on or before the beginning of the fiscal year.

(4) Recommended Contribution needed for the system to achieve and maintain an amortization period that does not exceed 30 years, in accordance with Texas Code §802.101(a).

(5) Actual contribution rate is determined as the employer contributions made to the plan during the fiscal year divided by the covered payroll shown. This may differ from the plan's stated contribution rate due to differences between actual and assumed covered payroll.

(6) Covered payroll is not reported for this plan.

(7) Plan calculates a recommended contribution based on a 31-year amortization period.

5b. Systems subject to the Funding Soundness Restoration Plan (FSRP) requirement, including compliance.

TEXAS PENSION REVIEW BOARD

Systems Immediately Subject to FSRP Formulation Requirement

The FSRP requirement is triggered for retirement systems that have had amortization periods over 40 years for three consecutive annual actuarial valuations, or two consecutive actuarial valuations if the systems conduct the valuations every two or three years.

Systems Immediately Subject to an FSRP Formulation Requirement							
Retirement System	Am Period	Date of AV	Am Period	Date of AV	Am Period	Date of AV	FSRP Due Date
Irving Firemen's Relief & Retirement Fund – Revised FSRP[1]	63.4	1/1/2014	46.5	12/31/2015	Infinite	12/31/2017	4/2019
Midland Firemen's Relief & Retirement Fund – Revised FSRP[1]	59.1	1/1/2014	44.7	12/31/2015	Infinite	12/31/2017	8/2019
Longview Firemen's Relief & Retirement Fund	50.7	12/31/2016	40.2	12/31/2017	Infinite	12/31/2018	2/2020
Orange Firemen's Relief & Retirement Fund – Second Revised FSRP[1]	58.2	1/1/2015	69.3	1/1/2017	Infinite	1/1/2019	4/2020
Marshall Firemen's Relief & Retirement Fund – Revised FSRP[1]	43.2	12/31/2014	56.4	12/31/2016	59.0	12/31/2018	5/2020
Beaumont Firemen's Relief & Retirement Fund	39.1	12/31/2014	104.0	12/31/2016	Infinite	12/31/2018	7/2020
Dallas Employees' Retirement Fund – Revised FSRP[1]	47	12/31/2017	46	12/31/2018	65.0	12/31/2019	1/2021
Plainview Firemen's Relief & Retirement Fund	31.6	12/31/2015	44.8	12/31/2017	79.7	12/31/2019	3/2021

[1] Texas Government Code Section 802.2015(d) requires systems to formulate a revised FSRP if the system conducts an actuarial valuation showing that the system's amortization period exceeds 40 years, and the previously formulated FSRP has not been adhered to.

Systems at Risk of FSRP Formulation Requirement

These at-risk systems' most recent actuarial valuation shows an amortization period that exceeds 40 years but does not yet trigger the FSRP requirement.

Systems at Risk of an FSRP - Not Yet Subject to FSRP Requirement							
Retirement System	Am Period	Date of AV	Am Period	Date of AV	Am Period	Date of AV	FSRP Due Date
Atlanta Firemen’s Relief & Retirement Fund	36.2	12/31/2014	28.4	12/31/2016	Infinite	12/31/2018	N/A
Austin Employees’ Retirement System	30	12/31/2017	32	12/31/2018	40	12/31/2019	N/A
Austin Police Retirement System	35.0	12/31/2017	Infinite	12/31/2018	Infinite	12/31/2019	N/A
Cleburne Firemen’s Relief & Retirement Fund	27.3	12/31/2014	28.8	12/31/2016	48.6	12/31/2018	N/A
Conroe Fire Fighter’s Retirement Fund	31.4	12/31/2015	39.0	12/31/2017	Infinite	12/31/2018	N/A
Laredo Firefighters Retirement System	29.8	9/30/2014	28.0	9/30/2016	43.0	9/30/2018	N/A
Lubbock Fire Pension Fund	27.6	1/1/2015	33.5	12/31/2016	52.8	12/31/2018	N/A
McAllen Firemen's Relief & Retirement Fund	29.0	10/1/2014	33.4[1]	10/1/2016	Infinite	10/1/2018	N/A
Sweetwater Firemen's Relief & Retirement Fund	58.8	12/31/2014	27.5	12/31/2016	63.3	12/31/2018	N/A
Texas City Firemen’s Relief & Retirement Fund	31.6	12/31/2014	28.0	12/31/2016	41.1	12/31/2018	N/A
Texarkana Firemen’s Relief and Retirement Fund	16.3	12/31/2015	15.0	12/31/2017	58.3	12/31/2019	N/A
Sweetwater Firemen's Relief & Retirement Fund	58.8	12/31/2014	27.5	12/31/2016	63.3	12/31/2018	N/A

[1] Reflects an increase in employee contribution from 11% to 12% effective April 9, 2018.

Progress Report on Previously Submitted FSRPs

The following systems have previously formulated an FSRP. The table below outlines their progress towards the FSRP requirement.

Systems Still Working Towards Meeting the 40-Year Amortization Period Requirement						
	FSRP Trigger		Current Progress[1]			
Retirement System	Am Period	Date	Am Period	Date	Goal Year[2]	Update Required
Greenville Firemen's Relief & Retirement Fund – Revised FSRP	70.4	12/31/2014	40.7	12/31/2018	2026	9/2021
Fort Worth Employees' Retirement Fund	72.5	12/31/2015	43.0	12/31/2019	2026	5/2022
Wichita Falls Firemen's Relief & Retirement Fund – Revised FSRP	Infinite	1/1/2015	43.3	1/1/2020	2026	5/2022
Systems that Have Submitted Post-FSRP Actuarial Valuations Showing Amortization Period Below 40 Years						
Odessa Firefighters' Relief & Retirement Fund – Revised FSRP	Infinite	1/1/2016	37.5	1/1/2020	2026	N/A

[1] Based on the most recent actuarial valuation or FSRP.
[2] The year in which a system must reach an amortization period of 40 years or less.

Previously Completed FSRP Requirement Systems

The following table is a list of all systems that have submitted an FSRP that has lowered their amortization period below 40 years in a subsequent actuarial valuation.

Systems that Have Submitted Post-FSRP Actuarial Valuations Showing Amortization Period Below 40 Years					
	FSRP Trigger		Completed Progress[1]		
Retirement System	Am Period	Date	Am Period	Date	Goal Year[2]
Dallas Police & Fire Pension System (Combined Plan)	44.0	1/1/2017	38.0[3]	1/1/2019	2027
Galveston Employees' Retirement Plan for Police	55.1	1/1/2014	35.3	1/1/2018	2026
Galveston Firefighter's Relief & Retirement Fund	50.2	1/1/2014	26.8	12/31/2017	2026
Harlingen Firemen’s Relief & Retirement Fund	59.1	9/30/2017	38.0	9/30/2019	2026
Lufkin Firemen's Relief & Retirement Fund	40.6	12/31/2014	33.1	12/31/2016	2026
Sweetwater Firemen's Relief & Retirement Fund	58.8	12/31/2014	27.5	12/31/2016	2026
University Park Firemen’s Relief & Retirement Fund	53.7	1/1/2015	28.8	12/31/2018	2026

[1] Based on the valuation in which the system completed its FSRP requirement.
[2] The year in which a system was expected to reach an amortization period of 40 years or less.
[3] The amortization period reflects a payroll projection based upon the City of Dallas’ Hiring Plan which has yet to materialize, a concern that was noted by the system’s actuary in its latest actuarial valuation.

5c. Funding policies received as required by Government Code Section 802.2011 (SB 2224)

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting			Additional Components			
		ADC Benchmark Am Pd	Condition(s) that Trigger Actions	Actions Resulting from Trigger	Risk Sharing	Contribution Change Parameters	Benefit Change Parameters	Additional Amortization Policy Provisions
Closed Benchmarks at/under 30 yrs								
Weslaco Firemen's Relief & Retirement Fund	Fixed	15-yr closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify the City and member employee groups - Work with the City and the active members to consider changes to benefit and contribution levels	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
San Antonio Fire & Police Pension Fund	Fixed	25-yr closed	Effective am pd not sufficient to reach a 100% FR by 12/31/2044	**Board will:** - Work with the City to address contribution rate and/or plan modifications	None	**Board may not recommend any changes that result in:** - a FR < 90%; or - an effective am pd > 15 yrs	**Board may not recommend any changes that result in:** - a FR < 90%; or - an effective am pd > 15 yrs	30-yr amort of surpluses
The Woodlands Firefighters' Retirement System	Fixed	20-yr closed	3 AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Work with system's actuary to develop proposals for changes to the system that results in 100% funding over 15-yr closed pd - Notify Township governing body and member assn - Request work together with Township and member assn to develop plan that will establish fixed contrib	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Payroll Growth Assumption for Benchmark:** - Lesser of 3% and avg payroll growth of fire dept over the since Jan, 2016, or once 10 Avs have been performed, over the last 10
Amarillo Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Atlanta Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Beaumont Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Brownwood Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting: ADC Benchmark Am Pd	Benchmark and Actions Resulting: Condition(s) that Trigger Actions	Benchmark and Actions Resulting: Actions Resulting from Trigger	Additional Components: Risk Sharing	Additional Components: Contribution Change Parameters	Additional Components: Benefit Change Parameters	Additional Components: Additional Amortization Policy Provisions
Cleburne Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Corpus Christi Fire Fighters' Retirement System	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Corsicana Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Galveston Firefighter's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Killeen Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Laredo Firefighters Retirement System	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting: ADC Benchmark Am Pd	Benchmark and Actions Resulting: Condition(s) that Trigger Actions	Benchmark and Actions Resulting: Actions Resulting from Trigger	Additional Components: Risk Sharing	Additional Components: Contribution Change Parameters	Additional Components: Benefit Change Parameters	Additional Components: Additional Amortization Policy Provisions
Lufkin Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
McAllen Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Texarkana Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Texas City Firemen's Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Travis County ESD #6 Firefighters' Relief and Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Tyler Firefighters' Relief & Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 2% of payroll	**Positive Divergence:** - Board may consider benefit increase, such as ad hoc COLA, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting: ADC Benchmark Am Pd	Benchmark and Actions Resulting: Condition(s) that Trigger Actions	Benchmark and Actions Resulting: Actions Resulting from Trigger	Additional Components: Risk Sharing	Additional Components: Contribution Change Parameters	Additional Components: Benefit Change Parameters	Additional Components: Additional Amortization Policy Provisions
Galveston Employees' Retirement Fund	Fixed	30-yr closed	- Am pd is not reasonably in line with ADC benchmark am pd, such as within 5 yrs; **or** - Total contribution rate is not reasonably in line with ADC benchmark rate, such as within 1% of payroll	**Positive Divergence:** - Board may consider benefit increases, such as inc in dollar cap on benefits or ad hoc COLA, or lowering investment return assumptions, that results in am pd somewhat less than ADC benchmark am pd **Negative Divergence:** - Board will notify the City and member employee group/assn - Board may consider contrib rate increase, benefit formula reduction or combination	None	None	None	None
Lubbock Fire Pension Fund	TMRS Linked	30-yr closed	None	**Board will:** - Take all appropriate measures to maintain a fiscally responsible fund such as make changes to benefits and eligibility requirements, inc/dec in member's contribution rate, changes to investment portfolio sector allocations, or changes to the assumed rate of return	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Austin Police Retirement System	Fixed	30-yr closed, beginning 12/31/2020 System is currently in discussions and planning with the City to improve the financial stability of the system.	- 2 AVs showing effective funding period > ADC benchmark by 3+ yrs; **or** - 2 AVs showing ADC benchmark > fixed contribution rates by 2% or more	**Board will:** - Notify the City - Engage in planning as needed with the City to ensure continued progress toward policy goals	**Board intends to maintain cost-sharing arrangement with City where:** - City contributes ≥ 60% of increases - Members contribute ≤ 40% - If the increase is insufficient to pay full ADC, the Board will consider/recommend corrective action including possible benefit changes and/or additional contribution increases	**Per APRS statute:** - Any member contribution rate change must be approved by majority vote of contributory members - City council must approve City contribution changes	**Per APRS statute, before any enhancements:** - Must be approved by Fund's actuary and otherwise permitted under the System's statute and policies	None
Funding Policies with Layered Closed Benchmarks at/under 30 yrs								
Irving Supplemental Benefit Plan	Fixed	20-yr layered closed	2 AVs showing actual contribution over/under ADC benchmark by more than 0.5%	**Board will:** - Notify the City - Consider and may recommend combined rate change **ADC Contribution** - It is the intent of the Board that the ADC determined by a given AV will be contributed in the calendar yr beginning 1 yr after the AV date	**Contributions:** - Increases capped for members/City at 0.5% of pay in one yr, or 1% total - If max contribution increase has been applied and contribution still insufficient, Board shall recommend corrective action, including benefit or contribution changes	**Employer rate decreases only considered if:** - FR ≥ 105% - Total contribution rate is not < normal cost	**Enhancements may only occur when:** - FR ≥ 110% after incorporating enhancement - ADC rate ≤ actual contribution rate	**Negative Amortization:** - Board's goal is to eliminate negative amortization as quickly as possible and ultimately maintain a contribution rate above the threshold that results in negative amortization
City of El Paso Employees Retirement Trust	Fixed	25-yr layered closed	ADC benchmark > City contribution rate in any yr	**Board will:** - Recommend additional City contribution	None	None	**Enhancements may only occur when:** - FR ≥ 80% after the increase - Decrease in FR due to enhancement not > 1% - Max COLA not > CPI since last COLA	None

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting: ADC Benchmark Am Pd	Benchmark and Actions Resulting: Condition(s) that Trigger Actions	Benchmark and Actions Resulting: Actions Resulting from Trigger	Additional Components: Risk Sharing	Additional Components: Contribution Change Parameters	Additional Components: Benefit Change Parameters	Additional Components: Additional Amortization Policy Provisions
San Benito Firemen Relief & Retirement Fund	Fixed	30-yr layered closed	2 AVs showing actual contributions > 2% over/under ADC benchmark	**Board will:** - Notify City - Recommend a contribution rate change	**Jointly Developed with City:** - Funding policy presented, approved and adopted by the City of San Benito City Commission. Signed by Mayor **Contributions:** - Increases split 60% sponsor/40% employee, max 2% each (or 4% total) - If max contribution increase has been applied and contribution still insufficient, Board shall recommend corrective action, including benefit or contribution changes **Benefits:** - COLAs tied to investment returns. Crediting rate the lesser of CPI or 100% of 5-yr smoothed return minus 5%, min 0%, max 4%	**Employer contribution reductions considered if:** - FR ≥ 105% - Benefit reductions for current active members implemented within the last 10 yrs reinstated; - Regular COLAs built into funding assumptions; - Total contribution rate not < normal cost	**Enhancements considered if:** - Annual COLAs built into funding assumptions; - FR > 120% after incorporating benefit enhancement; - ADC ≤ actual contrib rate Benefit changes as per TLFFRA statute[2]	**Negative Amortization:** - Board's goal is to eliminate negative amortization as quickly as possible and ultimately maintain a contribution rate above the threshold that results in negative amortization
Denison Firemen's Relief & Retirement Fund	Fixed	30-yr layered closed	2 AVs showing actual contributions < ADC benchmark by more than 2%	**Board and City will:** - Develop a plan of action including contribution increases or benefit changes to bring the contribution rate to ≥ ADC benchmark	**Contributions:** - Increases either split evenly between City and members or different agreed-upon amounts - May be phased in over time	Contribution changes per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Negative Amortization:** - Board will periodically review whether contributions are sufficient to pay normal cost plus interest on UAAL
Sweetwater Firemen's Relief & Retirement Fund	Fixed	30-yr layered closed	2 AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board and City will:** - Develop a plan of action including contribution increases or benefit changes so that combined contribution rate will be ≥ ADC benchmark	**Contributions:** - Increases either split evenly between City and members or different agreed-upon amounts - May be phased in over time	Contribution changes per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Negative Amortization:** - Board will periodically review whether contributions are sufficient to pay normal cost plus interest on UAAL
Longview Firemen's Relief & Retirement Fund	Fixed	30-yr layered closed	4 AVs showing actual contrib > 2% over/under ADC benchmark	**Board will:** - Notify the City - Recommend City and member contributions to increase by no more than 1% of pay in one yr or 2% total - Employees will have option to increase contribution or make benefit changes	**Contributions:** - Increases split 50%/50% City and members	**Reductions should only be considered if:** - FR ≥105% and total contribution rate not < normal cost Contribution changes per TLFFRA statute[1]	**Board supports enhancements only when:** - FR ≥ 105% after incorporating enhancement - ADC rate ≤ actual contrib rate Benefit changes as per TLFFRA statute[2]	**Negative Amortization:** - Board's goal is to eliminate negative amortization as quickly as possible and ultimately maintain a contribution rate above the threshold that results in negative amortization
Port Arthur Firemen's Relief & Retirement Fund	TMRS Linked	30-yr layered closed	2 AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board and City will:** - Develop a plan of action including contribution increases or benefit changes so that combined contribution rate will be ≥ ADC benchmark	**Contributions:** - Increases either split evenly between City and members or different agreed-upon amounts - May be phased in over time	Contribution changes per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Negative Amortization:** - Board will periodically review whether contributions are sufficient to pay normal cost plus interest on UAAL
Closed Benchmarks at/under 30 yrs to Ultimate Layered Closed Benchmark at/under 30 yrs								
Waxahachie Firemen's Relief & Retirement Fund	TMRS Linked	25-yr closed to ultimate 15 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify City and member group/assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting: ADC Benchmark Am Pd	Benchmark and Actions Resulting: Condition(s) that Trigger Actions	Benchmark and Actions Resulting: Actions Resulting from Trigger	Additional Components: Risk Sharing	Additional Components: Contribution Change Parameters	Additional Components: Benefit Change Parameters	Additional Components: Additional Amortization Policy Provisions
Austin Employees Retirement System	Fixed	- 25-yr closed beginning 12/31/2020 - All other changes in UAAL amortized over 15-yr closed pd	- 2 AVs showing actual funding period > ADC benchmark; **or** - 1 AV showing funding period > maximum PRB *Funding Guidelines* period	**Board will:** - Notify the City and members - Work with City to consider contribution/benefit modifications to return funding period to ADC benchmark period	None	**Reductions may only occur if:** - COLAs built into assumptions; and - FR will remain ≥ 105%. - ER should not decrease by >1% of pay per yr - Board has reviewed sensitivty and stress testing analysis **Increases may occur after:** - Majority vote from regular full-time members	**Enhancements may only occur after:** - COLA included in assumptions; - FR ≥ 120% after incorp; - Employer ADC = statutory rate; and - Board has reviewed sensitivty and stress testing analysis **COLAs only considered when:** - Financially supported on a regular, periodic basis; - FR ≥ 80% after incorporating COLA; - Am pd ≤ 20 yrs after incorp COLA; - Actual employer contrib rate ≥ ADC rate; and - Board has reviewed sensitivity and stress testing analysis	Under the Amended Supplemental Funding Plan, any future benefit enhancemetns or COLAs will require recommendation from the City Manager and approval by the City Council
Dallas Police & Fire Pension System - Combined Plan	Fixed	25-yr closed to ultimate 20 yr layered closed	2 AVs showing actual contribution varies from the ADC benchmark by > 2%	**Negative Divergence:** - With 2/3rds vote, Board will recommend an increase in City rate **Positive Divergence:** - With 2/3rds vote, Board may recommend a reduction in City rate if the reduction does not extend funding pd	**Contributions/Benefits:** - Per statute, in 2024 an analysis will be conducted to asses the adequacy of the funding of the plan and, if necessary, changes may be made at that time	**City contributions may be decreased if:** - 2/3rds Board vote and City in agreement - Does not increase the am pd	**Granting COLA/Reduction of retirement age/ Reduction am pd of DROP annuities:** - Per statutory criteria **All other enhancements may only occur:** - If funding pd would not exceed 25 yrs after adoption	None
Temple Firefighters' Relief & Retirement Fund	Fixed	25-yr closed to ultimate 20 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify City and member group/assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Greenville Firemen's Relief & Retirement Fund	Fixed	30-yr closed to ultimate 15 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify City and member group/assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Conroe Fire Fighters' Retirement Fund	Fixed	30-yr closed to ultimate 20 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify City and member group/assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Paris Firemen's Relief & Retirement Fund	Fixed	30-yr closed to ultimate 20 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify City and member group/assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Closed Benchmarks over 30 yrs to Ultimate Layered Closed Benchmark at/under 30 yrs								
Plainview Firemen's Relief & Retirement Fund	Fixed	35-yr closed to ultimate 20 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify the City and member group/assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Marshall Firemen's Relief & Retirement Fund	Fixed	35-yr closed to ultimate 20 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify the City and member/group assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting: ADC Benchmark Am Pd	Condition(s) that Trigger Actions	Actions Resulting from Trigger	Additional Components: Risk Sharing	Contribution Change Parameters	Benefit Change Parameters	Additional Amortization Policy Provisions
Harlingen Firemen's Relief & Retirement Fund	Fixed	35-yr closed to ultimate 30 yr layered closed	2 AVs showing funding period > ADC benchmark am pd	**Board will:** - Notify the City and member group/assn of difference - Work with City and active members to consider benefit/contribution modifications to return funding pd to ADC benchmark	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	None
Layered Closed Benchmarks over 30 yrs								
Irving Firemen's Relief and Retirement Fund	Fixed	40-yr layered closed	2 AVs showing actual contribution over/under ADC benchmark by more than 0.5%	**Board will:** - Notify the City - Consider and may recommend combined rate change **ADC Contribution** - It is the intent of the Board that the ADC determined by a given AV will be contributed in the calendar yr beginning 1 yr after the AV date	**Contributions:** - Increases capped at 0.5% of pay in one yr or 1% total - Increases split 60%/40% between City and employees - If max contribution increase has been applied and contribution still insufficient, Board shall recommend corrective action, including benefit or contribution changes	**Reductions in employer rate should only be considered if:** - FR ≥ 105% - Benefit reductions for current active members implemented within the last 10 yrs have been reinstated - Total contribution rate is not < normal cost	**Board supports enhancements only when:** - FR ≥ 110% after incorporating enhancement - ADC rate ≤ actual contribution rate	**Negative Amortization:** - Board's goal is to eliminate negative amortization as quickly as possible and ultimately maintain a contribution rate above the threshold that results in negative amortization
Alternative Benchmark								
Employees Retirement System of Texas - including ERS, LECOS & JRS II	Fixed	Once 31 yr amortization pd achieved, the system will reset ADC benchmark to match the avg yrs/svc at retirement for the plan as of the AV date when the 31-yr pd was achieved.[3]	Funding period > ADC benchmark am pd	**Board will:** - Direct staff to request funding from the legislature to achieve a 31-year funding period - After 31-yr period achieved, staff will request funding from the legislature to achieve the ADC benchmark	None	Min 6% contribution for members and a range of 6-10% of aggregate compensation for State contributions as per Texas Constitution	**Board recommends that enhancements should occur only if:** - Before and after enhancement, funding period is ≤ 25 yrs - Enhancement does not increase normal cost - FR ≥ 90% before and after enhancement ERS statute requires the am period to be < 31 yrs for the legislature to consider a benefit enhancement	None
Teacher Retirement System of Texas	Fixed	Declining UAAL	If after the phase-in of scheduled contribution rate increases, AV projects UAAL will not begin to decline by the 5th yr following AV	**Board will:** - Request a contribution change in legislative appropriations request	**Contributions:** - All contributions (sponsor, member, district) will increase per statutorily set schedule (5-year phase-in)	A minimum of 6% contribution for members and a range of 6-10% of aggregate compensation for State contributions as per Texas Constitution	TRS statute requires the am period to be under 31 years in order for the legislature to consider a benefit enhancement.	None
Rolling Benchmarks								
El Paso Firemen's & Policemen's Staff Plan and Trust	Fixed	10-yr rolling	2 AVs showing am pd > ADC benchmark am pd	**Sponsor and Board shall adhere to FSRP policy set forth in the plan document:** - Will increase employer and member contribution rates	**Contributions:** - Contribution changes (inc/dec) are proportional for employee and sponsor	**Contributions may decrease if:** - 2 AVs showing an am pd of 0 yrs (overfunded) - Sum of contribution decrease cannot exceed what is necessary to amortize UAAL over 0 yrs	**Benefit increases may only occur if:** - Board votes on and approves the change - Increase approved by an actuary - Approved by majority of members - Increase does not raise the am pd	None
Abilene Firemen's Relief & Retirement Fund	Fixed	30-yr rolling	2 (or 3 if annual) AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Notify City, members and member assn - Request meeting with City/members to develop a 20-yr (at the latest) plan that will establish fixed contrib rates that will result in 100% funding over a 30-yr closed period - Provide updates on progress after each AV	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Payroll Growth Assumption for Benchmark:** - Lesser of 3% and avg payroll growth of fire dept over the last 10 yrs
Big Spring Firemen's Relief & Retirement Fund	Fixed	30-yr rolling	2 (or 3 if annual) AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Notify City, members and member assn - Request meeting with City/members to develop a 20-yr (at the latest) plan that will establish fixed contrib rates that will result in 100% funding over a 30-yr closed period - Provide updates on progress after each AV	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Payroll Growth Assumption for Benchmark:** - Lesser of 4.5% and avg payroll growth of fire dept over the last 10 yrs
Odessa Firemen's Relief & Retirement Fund	Fixed	30-yr rolling	2 (or 3 if annual) AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Notify City and member assn - Request meeting with City/members to develop a 20-yr plan (at the latest) that will establish fixed contrib rates that will result in 100% funding over a 30-yr closed period - Provide updates on progress after each AV	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Payroll Growth Assumption for Benchmark:** - Lesser of 3% and avg payroll growth of fire dept over the last 10 yrs

Summary of Funding Policies Received by Pension Review Board
Non-ADC Plans

System Name	Contribution Type	Benchmark and Actions Resulting: ADC Benchmark Am Pd	Benchmark and Actions Resulting: Condition(s) that Trigger Actions	Benchmark and Actions Resulting: Actions Resulting from Trigger	Additional Components: Risk Sharing	Additional Components: Contribution Change Parameters	Additional Components: Benefit Change Parameters	Additional Components: Additional Amortization Policy Provisions
Orange Firemen's Relief & Retirement Fund	Fixed	30-yr rolling	2 (or 3 if annual) AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Notify City and member assn - Request meeting with City/members to develop a 20-yr plan (at the latest) that will establish fixed contrib rates that will result in 100% funding over a 30-yr closed period - Provide updates on progress after each AV	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Payroll Growth Assumption for Benchmark:** - Lesser of 3% and avg payroll growth of fire dept
San Angelo Firemen's Relief & Retirement Fund	Fixed	30-yr rolling	2 (or 3 if annual) AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Notify City and member assn - Request meeting with City/members to develop a 20-yr plan (at the latest) that will establish fixed contrib rates that will result in 100% funding over a 30-yr closed period - Provide updates on progress after each AV	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Payroll Growth Assumption for Benchmark:** - Lesser of 3% and avg payroll growth of fire dept over the last 10 yrs
Wichita Falls Firemen's Relief & Retirement Fund	TMRS Linked	30-yr rolling	2 AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Notify City and member assn - Request meeting with City/members to develop a 20-yr plan (at the latest) that will establish fixed contrib rates that will result in 100% funding over 30-yr closed pd - Provide updates on progress after each AV	None	Contribution changes as per TLFFRA statute[1]	Benefit changes as per TLFFRA statute[2]	**Payroll Growth Assumption for Benchmark:** - Lesser of 3% and avg payroll growth of fire dept
Austin Fire Fighters Relief & Retirement Fund	Fixed	30-yr rolling	3 AVs showing fixed contrib rates < ADC benchmark by more than 2%	**Board will:** - Notify City and member assn - Request meeting with City/members to develop a 20-yr plan (at the latest) that will establish fixed contrib rates that will result in 100% funding over 30-yr closed pd - Provide updates on progress after each AV	None	None	**Enhancements:** - Policy references that enhancements must meet the requirements of the fund's Benefit Improvement Policy **COLAs:** - Policy references COLA Adjustment Policy, which contains parameters to determine when COLAs may be provided	None
El Paso Firemen's & Policemen's Pension Fund	Fixed	40-yr rolling	2 AVs showing funding period > 40 yrs	**Board and City shall adhere to FSRP policy set forth in El Paso F&PPF Statute:** - City may increase contribution rate	**Contributions:** - Contribution changes (inc/dec) are proportional for employee and employer - If City rate inc/dec, member rate must change proportionately	**City/member contribution decreases may be considered if:** - 2 AVs showing funding pd < 25 yrs - Decrease cannot exceed what is necessary to amortize UAAL over a 25-yr period **City/member increases:** - Sum of contribution increase cannot exceed what is necessary to amortize UAAL over 40 yrs	**Enhancement may only occur if:** - Am pd is not increased	None
No Benchmark								
Texas Emergency Services Retirement System	Fixed	None	None	None	None	**Contributions:** - Members do not contribute - If am pd > 30 yrs, state contributions required and limited to 1/3 of all contributions made by the governing bodies of participating departments - Participating departments may contribute more if local and state contributions are inadequate to bring am pd below 30 yrs	**Enhancements:** - Prohibited if am period > 30 yrs **Reductions:** - Future benefit accruals if local and state contributions are inadequate to bring am pd below 30 yrs	None

[1] Per TLFFRA statute, City may change its rate by formal action by governing body, provided it does not reduce City contribution rate below minimum required TLFFRA rate. Members may change rate by majority member vote as recommended by the Board, after actuary approval.
[2] Per TLFFRA statute, any benefit changes must be approved by Fund's actuary and a majority of members.
[3] 31 years is the "Actuarially Sound Contribution" (ASC) rate per Section 811.006 of the Texas Government Code. As an example, 22.1 years was the average years of service at retirement for a service retiree in the ERS plan as of 8/31/17.

Summary of Funding Policies Received by Pension Review Board
Modified ADC Plans

System Name	Components: Amortization Policy	Risk Sharing	Contribution Change Parameters	Benefit Change Parameters	Additional Provisions
Closed Amortization Periods at/under 30 yrs					
JPS Pension Plan - Tarrant County Hospital District (THA)	Preferred range of 10-25 yrs, never to exceed 30-yr am pd	**Contribution changes may be:** - Phased in over a period not to exceed 5 yrs	None	**Benefit increases should not occur if:** - Resulting am pd exceeds 25 yrs	**Negative Amortization:** - Contributions should always be sufficient to pay normal cost plus interest on UAAL. Negative amortization is not permitted.
Retirement Plan for Anson General Hospital (THA)	Preferred range of 10-25 yrs, never to exceed 30-yr am pd	**Contribution changes may be:** - Phased in over a period not to exceed 5 yrs	None	**Benefit increases should not occur if:** - Resulting am pd exceeds 25 yrs	**Negative Amortization:** - Contributions should always be sufficient to pay normal cost plus interest on UAAL. Negative amortization is not permitted.
Retirement Plan for Citizens Medical Center (THA)	Preferred range of 10-25 yrs, never to exceed 30-yr am pd	**Contribution changes may be:** - Phased in over a period not to exceed 5 yrs	None	**Benefit increases should not occur if:** - Resulting am pd exceeds 25 yrs	**Negative Amortization:** - Contributions should always be sufficient to pay normal cost plus interest on UAAL. Negative amortization is not permitted.
Retirement Plan for Guadalupe Regional Medical Center (THA)	Preferred range of 10-25 yrs, never to exceed 30-yr am pd	**Contribution changes may be:** - Phased in over a period not to exceed 5 yrs	None	**Benefit increases should not occur if:** - Resulting am pd exceeds 25 yrs	**Negative Amortization:** - Contributions should always be sufficient to pay normal cost plus interest on UAAL. Negative amortization is not permitted.
Retirement Plan for Sweeny Community Hospital (THA)	Preferred range of 10-25 yrs, never to exceed 30-yr am pd	**Contribution changes may be:** - Phased in over a period not to exceed 5 yrs	None	**Benefit increases should not occur if:** - Resulting am pd exceeds 25 yrs	**Negative Amortization:** - Contributions should always be sufficient to pay normal cost plus interest on UAAL. Negative amortization is not permitted.
Capital MTA Retirement Plan for Bargaining Unit Employees	Greater of: - 19-yr closed am pd as of 1/1/2020 with 3% annual increases or $4M minus non-investment admin expenses incurred during the year	None	None	Plan is frozen and no benefit enhancements are being considered.	- Plan frozen as of 8/18/2020
Fort Worth Employees Retirement Fund	- 30-yr closed beginning 12/31/2018 - Goal of eliminating UAAL and attaining 100% funding by 12/31/2048	**Contributions:** - Increases split 60%/40% by City/members, capped at 2% of pay and 4% aggregate annually - If ADC benchmark < combined contribs 2 consecutive yrs, City Council may reduce contribs to the ADC (but not less), split 60%/40%	**City rate reduction considered only if:** - FR $\geq$ 120% - Member contribution reduced by same proportionate percentage - All members elig. for periodic COLA - Regular COLAs built into assumptions - Total contribution not < normal cost **City rate changed/member rates increased after:** - Actuary performs analysis of fiscal impact of proposed change - Majority of elig. members vote in favor; and - Approved by Board (if City called vote) or City Council (if Board called vote)	**COLAs may be granted to certain groups if:** - Am pd < 28 yrs **Benefit enhancements considered only if:** - Annual COLAs incorporated into funding assumptions for all members - FR > 120% after enhancement - ADC benchmark < City contribution	**Negative Amortization:** - Board's goal is to eliminate negative amortization as quickly as possible and ultimately maintain a contribution rate that expected to result in the reduction of the UAAL each year
Layered Closed Amortization Periods at/under 30 yrs					
Houston Firefighter's Retirement & Relief Fund	30-yr layered closed as of 7/1/2017	**Contributions:** A "target contribution rate," along with an associated min/max corridor, is established via a risk sharing valuation study (RSVS).	**Contributions:** - Contributions set by initial risk sharing valuation study unless rate falls outside of corridor.	**Benefits:** - Statutory corridor mechanism which allows for benefit changes if the plan's funded ratio and contribution rates reach certain thresholds.	- Per statute, if plan's FR falls below 65% any time after 6/30/2021, plan must establish separate cash balance plan for new hires
Houston Municipal Employees Pension System	30-yr layered closed as of 7/1/2017	**Contributions:** A "target contribution rate," along with an associated min/max corridor, is established via a risk sharing valuation study (RSVS).	**Contributions:** - Contributions set by initial risk sharing valuation study unless rate falls outside of corridor.	**Benefits:** - Statutory corridor mechanism which allows for benefit changes if the plan's funded ratio and contribution rates reach certain thresholds.	- Per statute, if plan's FR falls below 60% any time after 6/30/2027, plan must establish separate cash balance plan for new hires

Summary of Funding Policies Received by Pension Review Board
Modified ADC Plans

System Name	Components				
	Amortization Policy	Risk Sharing	Contribution Change Parameters	Benefit Change Parameters	Additional Provisions
Houston Police Officers' Pension System	30-yr layered closed as of 7/1/2017	**Contributions:** A "target contribution rate," along with an associated min/max corridor, is established via a risk sharing valuation study (RSVS).	**Contributions:** - Contributions set by initial risk sharing valuation study unless rate falls outside of corridor.	**Benefits:** - Statutory corridor mechanism which allows for benefit changes if the plan's funded ratio and contribution rates reach certain thresholds.	- Per statute, if plan's FR falls below 65% any time after 6/30/2021, plan must establish separate cash balance plan for new hires
Galveston Employee's Retirement Plan for Police	30-yr layered closed beginning 1/1/2019	**Contributions:** - Per Galveston Ret Plan for Police statute, beginning 1/1/2025, any increases will be split equally between members and City	**Reductions may only occur if:** - Am pd would not exceed 25 yrs	**Enhancements may only occur if:** - Am pd would not exceed 25 yrs	**Negative Amortization:** - Board's goal is to eliminate negative amortization as quickly as possible and ultimately maintain a contribution rate above the threshold that results in negative amortization
Rolling Amortization Periods					
Northwest Texas Healthcare System Retirement Plan	5-yr rolling	The UAAL measured in each annual actuarial valuation will be re-amortized over a 5-year period.	**Contribution Changes** Contributions may be reduced to provide a reasonable margin for adverse experience. A Partial ADC is permitted when the year-over-year ADC increase is greater than 25% and the funded ratio is over 105% after reduction. The shortfall will be amortized over a 10 year closed period.	None	None
Dallas Employees' Retirement Fund	- 30-yr rolling for valuations prior to retirement of POBs - After retirement of POBs, determined by DERF board in place at the time	None	**Contribution adjustments:** - Automatically occur for both members and City under Chapter 40A - City contributions capped at 36% of payroll	**Board supports enhancements only when:** - FR >= 100% after enhancements	None

Summary of Funding Policies Received by Pension Review Board
ADC Plans

System Name	Components			
	Amortization Policy	Contribution Change Parameters	Benefit Change Parameters	Additional Provisions
Fully Funded				
Arlington Employees Deferred Income Plan	- Plan is over 100% funded and continues to pay ADC - Uses layers to amortize the cost of benefits over the expected remaining service of active employees	None	None	None
Closed Amortization Periods at/under 30 yrs				
Guadalupe-Blanco River Authority	10-yr closed period beginning 1/1/2019	Plan participants do not make contributions Supplemental contributions recommended when funds are available and deemed appropriate	**Benefit enhancements** evaluated on a case-by-case basis taking into consideration: - actuarial soundness, - its relationship to targeted funding ratio, - stress testing of performance in down market conditions	- Targets 110% funding of TPL - Frozen plan as of 12/31/2018 **Adverse experience:** - Could work with actuary to test effects of extending the closed am pd to mitigate contribution volatility
Lower Neches Valley Authority Employee Benefits Plan	10-yr closed	**Plan trustees will notify LNVA and consider reductions only when:** - 2 AVs showing actual contribution more than 2% over/under ADC - FR >= 105% and total contribution rate is not < normal cost. In such case, may consider reduction in employer contribution	None	None
Brazos River Authority Retirement Plan	- 20-yr closed period beginning 3/1/2012 - As of 3/1/2019, there are 13 years remaining	**Partial contribution reductions (i.e. deferral from the ADC) are permitted when:** - Year-over-year ADC contribution increase exceeds 25%. Shortfall amortized over 5-yr pd and added to the ADC beginning with next AV	None	- Plan closed to new members and frozen as of 9/30/2007
Dallas/Fort Worth Airport Board Retirement Plan	- 30-yr closed effective 1/1/2004 - Will be fully funded by 12/31/2034	None	None	None
Corpus Christi Regional Transportation Authority	15-yr closed effective 1/1/2019	None	**COLA only considerd if:** - FR $\geq$ 85% after COLA	None
Lower Colorado River Authority Retirement Plan	- 20-yr closed beginning 2020	None	None	- Closed plan to new hires effective 5/1/2012 **Adverse experience:** - Could work with actuary to test effects of extending the closed am pd to mitigate contribution volatility
Houston MTA Non-Union Pension Plan	- 30-yr closed effective 2013 - As of 2019, 24-yr period remaining	None	**Enhancements only considered if:** - Contributions meet or exceed the ADC	- Closed to new hires effective 9/30/2007
Houston MTA Workers Union Pension Plan	- 30-yr closed effective 2013 - As of 2019, 24-yr period remaining	None	**Enhancements only considered if:** - Contributions meet or exceed the ADC	- Closed to new hires effective 10/1/2012
Dallas County Hospital District Retirement Income Plan	- 25-yr closed period beginning 1/1/2019 - Intent that the FR will be 100% on/before 1/1/2044	None	None	None

Summary of Funding Policies Received by Pension Review Board
ADC Plans

System Name	Components: Amortization Policy	Contribution Change Parameters	Benefit Change Parameters	Additional Provisions
Denton Firemen's Relief & Retirement Fund	- 25-yr closed - City will maintain current contribution level of 18.5%. - Each yr, City's contribution level based on actuarial study which calculates rated needed to amortize UAAL over 25 yr closed pd	**City contributions:** - Not lowered based on actuarial experience unless am pd <= 20 yrs - Not < City's contribution to TMRS	**Benefit enhancements:** - May not be made during the term of the agreement	**Funding Policy adopted through Meet and Confer Agreement with City:** - 4 yr agreement as of 9/2019 **Contributions:** - Actuarial gains will be used to pay down UAAL rather than reducing contribution rate during the first 5 yrs
Layered Closed Amortization Periods at/Under 30 yrs				
Refugio County Memorial Hospital	- 7-yr layered closed	None	None	- Plan frozen as of 12/31/2011
Dallas/Fort Worth Airport Board DPS Retirement Plan	- 15-yr layered closed effective 1/1/2020 - Each subsequent AV a new closed 15-yr amortization base will be established for any unanticipated changes in the UAAL from prior yr	None	None	None
Plano Retirement Security Plan	- 15-yr layered closed effective 12/31/2019 - New amortization bases established and separately maintained for each AV on/after 12/31/2021 and amortized over closed 15-yr pd	**Contributions:** - If net amortization cost is negative, then City's contribution will not be less than normal cost - expected earnings on surplus assets (determined as % payroll) to preserve assets to offset adverse experience that may occur in a	None	None
Harris County Hospital District Pension Plan	20-yr layered closed	None	None	- Closed plan to new hires effective 1/1/2007
Dallas Police & Fire Pension System-Supplemental	- 20-yr closed as of 1/1/2020 - 10-yr amortization bases beginning 1/1/2021	**Contribution reductions may only occur if:** - Reduction does not increase am pd	**Granting COLA/Reduction of retirement age/ Reduction am pd of DROP annuities:** - Per statute criteria **Enhancements may only occur:** - If funding pd would not exceed 25 yrs after adoption	**Contributions/Benefits:** - Per statute, in 2024 an analysis will be conducted to asses the adequacy of the funding of the plan and, if necessary, changes may be made at that time
Retirement Plan for Employees of Brownsville Navigation District	- 20-yr layered closed - 15-yr amortization base for UAAL as of 1/1/2020 - 20-yr am pd base for actuarial gains/losses and assumption method	**Employee contribution increases may be considered if:** - ADC becomes unsustainable	**Benefit reductions may occur if:** - ADC becomes unsustainable	If the ADC becomes unsustainable, District may consider adjusting the funding policy by potentially extending the amortization periods
Nacogdoches County Hospital District Retirement Plan	- 20-yr layered closed - All other changes in UAAL amortized over 20-yr closed pd - Level dollar amortization method will not result in an am pd of > 25 yrs	None	**Benefit enhancements and COLAs:** - Are not anticipated to occur - Would only be granted if there would not be a substantial increase to the timeframe to full funding - Would result in a resetting of the am pd to 20 yrs	- Plan frozen as of 9/4/2017

Summary of Funding Policies Received by Pension Review Board
ADC Plans

	Components			
System Name	**Amortization Policy**	**Contribution Change Parameters**	**Benefit Change Parameters**	**Additional Provisions**
Texas County & District Retirement System	- 20-yr layered closed - Benefit enhancements amortized over 15-yr closed pd - All other changes in UAAL amortized over 20-yr closed pd	None	None	**Investment Surpluses:** - May be set aside to help offset future negative economic cycles and are not considered part of the plan's assets
Galveston Wharves Pension Plan	- 21-yr layered closed effective 1/1/2020 until ultimate 10-yr pd - Am pd base of lesser of avg expected remaining lifetime and 10 yrs for benefit inc for existing retirees	None	**COLAs only considered when:** - Plan is at least 80% funded	- Closed plan to new hires effective 1/1/2010
Texas Municipal Retirement System	- 25-yr layered closed beginning in 2015 - Amortization base for actuarial gains and losses ranging from 1 to 25 yrs - All new losses occurring after 1/1/2020 and benefit increases effective on/after 1/1/2021 amortized over max 20-yr pd	Contributions based on plan options selected within statutory guidelines	Benefits based on plan options selected within statutory guidelines	None
San Antonio Metropolitan Transit Retirement Plan	- 30-yr closed period beginning 10/1/2012 - As of 10/1/2019, there are 23 yrs remaining - New amortization bases established and separately maintained for each AV on/after 10/1/2027 and amortized over	None	None	- Plan closed to new members as of 7/1/2013
CPS Energy Pension Plan	- 30-yr layered closed effective 2017 - Will be fully funded by 2046	**Contributions:** - Any change requires approval of Employee Benefits Oversight Committee	**Enhancements:** - Factored into ADC calculation - Must be approved by Employee Benefits Oversight Committee	None
Fort Worth Employees' Retirement Fund Staff Plan	- 30-yr layered closed effective 12/31/2018 - Additional 30-yr closed period layers with level-dollar amortization payments for actuarial gains/losses for future years	**If FR < 80 and am pd > 28 for 2 calendar years, Board may consider:** - Increase in contribution rate (requires participant election with majority agreement) **If FR is > 120% and am pd < 5 yr for 2 calendar years, Board may consider (provided that the FR does not fall below 100% and am pd does not exceed 25 yrs after changes):** - reduction in contrib rate, after annual COLA incorporated in funding assumptions - adoption of temporary contribution holiday	**If FR < 80 and am pd > 28 for 2 calendar years, Board may consider:** - Adoption of benefit reductions, after annual COLA is incorporated in funding assumptions **If FR is > 120% and am pd < 5 yr for 2 calendar years, Board may consider (provided that the FR does not fall below 100% and am pd does not exceed 25 yrs after changes):** - adoption of benefit enhancements, after annual COLA incorporated in funding assumptions - adoption of 13th check	**If FR < 80 and am pd > 28 for 2 calendar years, Board may consider:** - Non-recurring lump sum cash infusion to attain 80% or higher funded status **If FR is ≥ 120% and am pd ≤ 5 yr for 2 calendar years, Board may consider (provided that the FR does not fall below 100% and am pd does not exceed 25 yrs after changes):** - Examination & possible action of de-risking plan
Port of Houston Authority Retirement Plan	- 30-yr layered closed - Amortization bases ranging from 5 to 30 yrs	None	None	- Plan closed to new hires effective 8/1/2012

Summary of Funding Policies Received by Pension Review Board
ADC Plans

System Name	Components: Amortization Policy	Contribution Change Parameters	Benefit Change Parameters	Additional Provisions
DART Employee's Defined Benefit Retirement Plan	- 30-yr layered closed pd, level dollar - Actuarial gains/losses amortized over 15-yr base - Assumption/method changes amortized over 30 yrs - Benefit changes amortized over 30 yrs	None	None	- Plan closed to new entrants - Funding Policy is reviewed at least once every 5 years (in connection with actuarial experience study)
Rolling Amortization Periods				
Capital MTA Retirement Plan for Administrative Employees	- 20-yr rolling	**Contribution changes may be recommended when:** - 2 AVS showing actual contribution > 2% over/under ADC	None	None
University Health System Pension Plan	- 24-yr closed (1/1/2020) to ultimate 20-yr open (1/1/2024)	None	None	None

5d. Recommended changes to the funding policy requirements under Section 802.2011 and Funding Soundness Restoration Plan (FSRP) requirements under Sections 802.2015 and 802.2016 of the Government Code

PRB Draft Legislative Recommendations
Funding Policy and Funding Soundness Restoration Plan

Funding policy and FSRP requirements are currently separate and do not tie together to form a continuum of funding support to plans and sponsors. The funding policy requirement, enacted in 2019, requires plans to adopt a funding policy targeting full funding. The FSRP statute, enacted in 2015, requires plans and their sponsors to adopt a remediation plan if the unfunded liability cannot be amortized over 40 or fewer years.

Now that plans have funding policies, they have long-term plans to achieve full funding. However, the remediation plan requirement for plans that face serious funding shortfalls operates independently of the newer funding policy mandate and does not require plans to target full funding over a closed period in line with *PRB Funding Guidelines*.

Ideally, funding policies and funding restoration plans should work together to provide a clear path toward full funding (funding policy), and when negative experience impedes funding progress, provide a mechanism to get back on track (restoration plan). To provide an effective continuum of funding support for Texas pension plans, the FSRP, which is designed to quickly shore up dramatic funding problems, should tie back to the funding policy, which is designed to prevent funding deficiencies.

The Actuarial Committee is recommending the following for Board approval, incorporating comments and input from public retirement systems, their consultants, and other stakeholders, to improve current funding policy and funding soundness restoration plan statutory requirements.

<u>Potential Change to Funding Policy Requirements</u>

1. **Sponsor involvement.** Add the sponsor to the funding policy requirement so that both the pension board and plan sponsor have ownership in the plan to achieve full funding rather than only in the remediation plan once funding problems require immediate action. Specifically, require the plan and sponsor to jointly develop the funding policy.

<u>Potential Changes to FSRP Requirements</u>

2. Increase sponsor accountability and tie funding policy and FSRP together

Funding policy revision. Incorporate the funding policy upon trigger of FSRP. If an FSRP were triggered, the plan and sponsor would be required to adopt an FSRP and revise the funding policy together to ensure both parties are involved in long-term improvement. For FSRP plans, the revised funding policy should include a detailed plan to share the cost of unexpected actuarial losses that could derail progress toward the FSRP goal.

Sponsor adoption. Require the sponsor’s governing body (e.g., city council) to adopt the FSRP through resolution to ensure full sponsor involvement and ownership.

3. Update threshold, target and trigger

Lower threshold and target to 30 years. Bring the FSRP threshold and target in line with *PRB Guidelines* and other standard-setting bodies by changing 40 years to 30 years (*PRB Guidelines* upper bound).

Tiered trigger and phase in of lower threshold. (Effective 9/1/2025) Trigger the FSRP requirement <u>immediately</u> for:

a. plans that receive an AV with the amortization period **over 40 years**; and
b. plans that receive an AV with an amortization period **between 30 - 40 years and a funded ratio lower than 65%**.

For plans that receive an AV with an amortization period **between 30 - 40 years and a funded ratio of 65% or above**, the FSRP is triggered after three consecutive annual AVs, or two consecutive AVs if the systems conduct the valuations every two or three years. 30-year amortization period target would not be expected to be achieved until 9/1/2025.

Credit for reforms already made. (Effective 9/1/2025) Plans (and sponsors) that receive an AV with an amortization period between 30 – 40 years should not become subject to the FSRP requirement if they are implementing a contribution rate structure that utilizes, or will ultimately utilize, the ADC and the AV indicates they are on a path towards full funding.

4. Update timelines and consequences if original FSRP is not working

Timeframe for developing FSRP. Allow **one year**, rather than 6 months, for the completion of the FSRP, but also require a progress update at 6 months which should include a draft plan or changes under consideration.

OR

Allow **2 years**, rather than 6 months, for the completion of the FSRP, but also require progress updates at 1 year and at 18 months. Progress updates should include a draft plan or changes under consideration.

Future actions. Clarify that FSRPs <u>may not</u> include items requiring future action such as votes of the membership and that the FSRP must memorialize actions taken. FSRPs may include contribution schedules for future increases.

Shorter implementation timeframe. Remove 10-year period to reach target and require plans to achieve 30 years or less no later than 2 years from the triggering valuation.

Failure to achieve FSRP goal. If a plan and sponsor become subject to a second FSRP within a period of 10 years from adoption of the first FSRP, the second FSRP and revised funding policy shall include stricter requirements for funding restoration, such as:

a. risk-sharing mechanisms;
b. an ADC-based contribution structure;
c. adjustable benefit or contribution mechanisms;
d. a lower amortization period target: 10-25 years (per the PRB *Funding Guidelines)*

5. Update required documentation

- Require FSRPs to provide an aggregate analysis of multiple changes specifically showing how the combined impact of the changes in the FSRP would result in meeting the statutory requirements. The analysis must include an actuarial projection that shows the unfunded liability decreasing to zero within the required time period. The plan and sponsor should share the cost of the analysis.
- Clarify that any assumptions must be made in accordance with ASOPs.

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Funding Policy and Funding Soundness Restoration Plan Requirements
Policy Objectives and Considerations
Comments

Background:

On August 6, the Actuarial Committee had preliminary discussion on the objectives and potential statutory changes below and asked staff to solicit stakeholder input to bring to the next committee meeting on September 29. The comment period fell between August 28, 2020 and September 14, 2020. This document provides an overview of the received comments.

1. Funding policy and funding soundness restoration plan requirements should be in sync.

Funding policy and FSRP requirements are currently separate and do not tie together to form a continuum of funding support to plans and sponsors. The funding policy requirement, enacted in 2019, requires plans to adopt a funding policy targeting full funding. The FSRP statute, enacted in 2015, requires plans and their sponsors to adopt a remediation plan if the unfunded liability cannot be amortized over 40 or fewer years.

Now that plans have funding policies, they have long-term plans to achieve full funding. However, the remediation plan requirement for plans that face serious funding shortfalls operates independently of the newer funding policy mandate and does not require plans to target full funding over a reasonable closed period.

To provide an effective continuum of funding support for Texas pension plans, the FSRP, which is designed to quickly shore up dramatic funding problems, should tie back to the funding policy, which is designed to prevent funding deficiencies.

No comments received on Objective 1.

2. Plan sponsors should share in plan ownership and needed changes.

Plan sponsors are not required to be involved in the funding policy development process. The PRB has continually recommended that funding policies should be established in conjunction with the plan sponsor. Funding policies received from plans that did collaborate with their sponsors included risk-sharing components, such as splitting needed contribution increases and considering benefit changes, ensuring the sponsor shared in the ownership of the plan. Through intensive actuarial reviews, the PRB has also worked with sponsors and plan representatives to assist plans with addressing funding deficiencies, recommending in all 11 intensive reviews that the plan and sponsor collaborate on an appropriate funding policy to prevent further problems.

Potential Change to Funding Policy Requirement

2a) Add the sponsor to the funding policy requirement so that both the pension board and plan sponsor have ownership in the plan to achieve full funding rather than only in the remediation plan once funding problems require immediate action. Specifically, require the plan and sponsor to jointly develop the funding policy.

Potential Changes to FSRP Requirement (also addresses Objective 1)

2b) Since the sponsor is already part of the FSRP process in Texas, one way to link the two laws and enhance sponsor ownership could be to incorporate the funding policy into the FSRP. For example, if an FSRP were triggered, the plan and sponsor could be required to do two things: adopt a remediation plan (FSRP) and revise the funding policy, together, to ensure both parties are involved in long-term improvement. For FSRP plans, the revised funding policy could have to include certain elements such as a detailed plan to share the cost of unexpected actuarial losses that could derail progress toward the FSRP goal.

2c) Require the sponsor's governing body (e.g., city council) to adopt the FSRP through resolution to ensure full sponsor involvement and ownership.

Respondent	Response
John Harrell, Cleburne Firefighter's Relief and Retirement Fund	As a TLFFRA plan we have struggled with getting our plan sponsor to share ownership, and I believe most plans share the same problems. Our 2016 valuation had such a large increase in UAAL strictly from the city adjusting their funding policy because they want keep it tied to the ADC that they use for their TMRS plan. The plan membership had to make the necessary changes to our fund because of this and it was definitely not a shared ownership. In the past few weeks our plan voted and adopted many more changes including employee contribution increases and reductions in every aspect of our benefit, while yet again the city does not make any changes. I feel that these potential changes presented would help our fund have more leverage in creating a shared ownership with the plan sponsor. When a plan goes to change their contribution, it has to be "studied" and approved by the actuarial firm to show that a plan could decrease it's rate. Why do we not go through the same process for the plan sponsor? When our plan sponsor decided to change their contribution rate, it increased our UAAL by over 17 years, and the membership had to make changes because of this. Why do we not have something in the statute that says a plan sponsor would have to have the effects of the rate change approved/studied prior to implementing it? We have to do it as members but the sponsor doesn't and as we found out they can cause a large negative effect on the plan. Pg. 8 of our 2016 valuation- "5. The change in the assumed average city contribution rate from 23.5% to 21% had the effect of increasing the amortization period by 17.2 years." This should have not been allowed, we did not even have a chance to discuss it with the sponsor, they simply implemented the change.

Robert Studer, City of El Paso Employees Retirement Trust	We suggest the best option would be option 2b wherein the funding policy and FSRP would be linked at the time a FSRP would be required.
Tyler Grossman, El Paso Police and Fire Pension Fund	(**2a**) - We fully support joint participation by plan sponsors in the development of funding policy and believe every effort should be made to encourage meaningful sponsor input in the planning process. However, while this is an undeniably worthy objective, what happens when the sponsoring entity does not or will not participate? Does the Fund simply share a copy of its funding proposal with the plan sponsor, document its attempts to forge agreement and then submit its written policy document to the PRB unilaterally? In our view, the enforceability of the broad mandate proposed in 2a is uncertain. A more practical alternative would be the objectives proposed in 2b and 2c. Plan sponsors for the most part have appeared to understand the importance of participation in the Funding Soundness Restoration Plan process, thus 2b and 2c represent logical, reasonable next steps. **2b** appears logical in order to show what the two parties are attempting to do. We feel **2c** should occur to place it on the record.
Ryan Falls, Gabriel, Roeder, Smith & Company	The funding policy requirements that were recently put into law were a great first step. They prompted a lot of retirement systems and plan sponsors to discuss what proper plan funding should really look like. Since the plan sponsors are not obligated to contribute in accordance with the funding policy, the effectiveness of the requirement is somewhat limited.
Art Alfaro, Texas Association of Public Employee Retirement Systems (TEXPERS)	We agree with you that more can be done by plan sponsors to address chronic underfunding of some systems. This has always been a problem and we appreciate the PRB's recognition of this fact.

3. <u>Clarify that funding policies must include actuarial methods that achieve 100% funding.</u>

The PRB Actuarial Committee at its May 7, 2020 meeting discussed how rolling amortization periods were not designed to achieve full funding. Most standard-setting bodies listed below under Objective 4 utilize closed amortization approaches.

Potential Change to Funding Policy Requirement

3a) Require funding policies to utilize actuarial methods (amortization policies for ADC plans or ADC benchmarks for fixed-rate plans) that are based on a closed amortization period, and thus, move toward, and ultimately achieve, 100% funding.

Respondent	Response
Robert Studer, City of El Paso Employees Retirement Trust	We have no objection to this suggestion.
Tyler Grossman, El Paso Fire and Police Pension Fund	Due to the variances and constraints in the discrete laws that govern each plan, we believe this requirement would be difficult to achieve and likely unenforceable without modifying individual statutes.

4. Reduce the 40-year amortization period.

A rolling 40-year amortization period threshold is no longer reasonable. Generally, an amortization period over 20 years will cause a plan to experience negative amortization, which means the unfunded liability will grow, rather than decrease, as contributions will not cover the interest accrued. The following sources recommend shorter amortization periods.

CCA White Paper - recommends a layered, fixed period amortization depending on the source of the UAAL, with a 25-yr max.

SOA Blue Ribbon Panel - recommends gains/losses to be amortized over a period of no more than 15-20 years.

GFOA - recommends using a closed period never to exceed 25 years, but to fall between 15-20 years.

PRB *Pension Funding Guidelines* - utilize a 30-year threshold, with a preferred period of 10-25 years.

ASOP 4 Second Exposure Draft - states that each amortization base must either have payments that fully pay off the balance within a reasonable timeframe; or reduce the unfunded balance by a reasonable amount each year.

Potential Change to FSRP Requirement

4a) Bring the FSRP trigger in line with *PRB Guidelines* and other standard-setting bodies by changing 40 years (11 plans currently subject to FSRP) to:

- 30 years (*PRB Guidelines* upper bound) – 19 additional plans would become subject to FSRP, for a total of 30 plans;
- 25 years (*PRB Guidelines* target range upper bound) – 34 additional plans would become subject to FSRP, for a total of 45 plans; or

- 20 years (within *PRB Guidelines* and GFOA target range, SOA Blue Ribbon Panel upper bound) – 51 additional plans would become subject to FSRP, for a total of 62 plans.

Respondent	Response
Paul Barham, CPS Energy Pension Plan	Regarding the recommendation to modify funding guidelines to shorten the amortization period, CPS Energy has been proactively working with our actuaries to perform analyses of how the proposed changes would impact our plan. The initial data shows minimal impact on CPS Energy, but we understand that is not going to be the case for all pensions plans. Other stakeholders have raised concerns with this recommendation and we appreciate the PRB's willingness to consider all perspectives as you continue discussing it, especially considering that many Texas entities have been significantly affected by both pandemic and economic global pressures.
Robert Studer, City of El Paso Employees Retirement Trust	We agree that 25-years or 30-years seems reasonable. A 20-years amortization period seems to short and may require FSRP plans when temporary market corrections occur.
Tyler Grossman, El Paso Fire and Police Pension Fund	Given that the PRB just three years ago adjusted its guidelines to a 30-year amortization period as the upper end funding target for all plans, it would be unreasonable this soon to impose in statute anything lower than 30 years as an FSRP trigger. Additionally, consistent with the latest PRB guidelines, a fair and realistic phase-in period for triggering the FSRP should remain an essential part of the statute. It is also important that the policy objectives proposed in items 4 and 5 not be viewed as separate, unrelated issues; rather we respectfully request that any proposed changes to the amortization period threshold and time allowed to trigger an FSRP be considered holistically so as to prevent any unintended harsh repercussions for the impacted plans. (Please also see comments on Objective 5.)
Mark Fenlaw and Rebecca Morris, Rudd and Wisdom, Inc.	We recommend that you not ask for a change in the trigger for the Funding Soundness Restoration Plan (FSRP) in Section 802.2015(c). Keep the "over 40 years" part of the trigger since the PRB Pension Funding Guidelines consider 40 years the acceptable maximum until 2025 when 30 years becomes effective.
Art Alfaro, TEXPERS	We think that adjusting HB 3310 so that more systems must develop FSRPs is rushed. Pension systems need time for their investment, contribution, and workforce dynamics to show in actuarial numbers. The 3- to 4- year implementation period which has been granted by the PRB for the 10-year time frame of HB 3310 needs the opportunity to accomplish its original intent. Waving a magic wand for intermediate-term results is not realistic.

Art Alfaro, TEXPERS (cont)	Also, asking the 14 systems which initially implemented plans to go back to the drawing board for another plan that reaches 25- or 30- years imposes additional costs on them and their sponsors, even while their first plans seem to be working in most cases.

5. <u>Reduce the period between identification of an amortization period beyond the threshold and trigger of an FSRP.</u>

The time period between the first actuarial valuation over the threshold and when the FSRP is triggered can be lengthy. The FSRP requirement is triggered after three consecutive annual AVs, or two consecutive AVs if the systems conduct the valuations every two or three years, which could allow funding problems to grow considerably worse between valuations.

<u>Potential Changes to FSRP Requirement</u>

<u>Timing of Trigger</u>

<u>5a)</u> The FSRP requirement is triggered immediately for plans that receive an AV with the amortization period over a higher threshold only; existing law applies to amortization periods over a lower threshold.

For example, if an AV showing an amortization period over 40 is received, the FSRP would be immediately required, given that at higher amortization periods, funding problems can quickly accelerate, as higher amortization periods are much more volatile (i.e., can jump from 40 to infinite over one valuation cycle). For amortization periods above 25 but not above 40, existing law would continue to apply (the FSRP is triggered after three consecutive annual AVs, or two consecutive AVs if the systems conduct the valuations every two or three years).

OR

<u>5b)</u> The FSRP requirement is triggered immediately for plans that receive an AV with the amortization period over a higher threshold only; for plans reporting amortization periods over a lower threshold, an additional metric would apply to determine FSRP status.

For example, if an AV showing an amortization period over 40 is received, the FSRP would be immediately required. For amortization periods above 25 but not above 40, only plans that also had funded ratios of less than 65% would become subject to the FSRP, as the two factors considered together provide a clearer picture of the severity of funding problems.

<u>Setting the Target Lower than the Threshold (also addresses Objective 1)</u>

<u>5c)</u> If the threshold to trigger an FSRP was 30 years, the FSRP would be required to achieve an amortization period within 10-25 years.

Consideration for Plans Having Made Funding Reforms

5d) Plans with amortization periods between 30 and 40 years do not become subject to the FSRP requirement if they are implementing an ADC or modified-ADC contribution structure and their AVs indicate they are on a path towards full funding.

Respondent	Response
Robert Studer, City of El Paso Employees Retirement Trust	We believe option identified as 5a is most appropriate and will adequately address the issue without the need for a substantial change in the law.
Tyler Grossman, El Paso Fire and Police Pension Fund	**(5a suggested change)** For amortization periods above **~~25~~ 30** but not above 40, existing law would continue to apply (the FSRP is triggered after three consecutive annual AVs, or two consecutive AVs if the systems conduct the valuations every two or three years). As stated in comments related to Objective 4 above, the Fund strongly believes a reasonable and fair minimum amortization period would be no lower than 30 in the FSRP statute. Of the options presented under Objective 5, 5a is 2nd choice with the change provided. **(5b)** - **Please see example below for alternative approach:** For example, if an AV showing an amortization period over 40 is received, the FSRP would be immediately required. For amortization periods above **~~25~~ 30 (see our comments in 4a for rationale)** but not above 40, only plans that also had funded ratios of less than 65% would become subject to the FSRP, as the two factors considered together provide a clearer picture of the severity of funding problems. The Fund agrees that **an immediate trigger at 40 years AM is reasonable and appropriate. While we also believe there is merit in using the 65 percent funded ratio as an additional metric in determining if plans in the 30-40 AM range should be subject to an immediate FSRP, existing law's provision allowing multiple valuations before an FSRP is triggered should continue to apply when the Fund is between 30-40 AM but above 65%. A bad AV cycle due to investments could move a Fund briefly above 30. Consideration of such a brief fluctuation would be accounted for if this important component of existing law is preserved.** **(5c)** - We believe this is problematic due its complexity—too many elements; simple is better. **(5d)** - Again, we believe this is overly complex and would unfairly fail to take into account other improvements Funds have voluntarily made to improve funding health.

Mark Fenlaw and Rebecca Morris, Rudd and Wisdom, Inc.	We think the multiple valuations requirement provides an opportunity for a plan to avoid being subject to the FSRP. We encourage our clients to start working to make changes to restore an adequate contribution arrangement the first time we present an actuarial valuation with an amortization period of over 40 years. Please continue to allow boards the opportunity to take appropriate actions, working with the active plan participants and the sponsoring employer, to avoid being subject to the FSRP. Change the target amortization period to 30 years in Section 802.2015(e)(2) in anticipation of the maximum acceptable period in the PRB Pension Funding Guidelines beginning in 2025. Remove the 10-year period to achieve the target amortization period in Section 802.2015(e)(2).

6. <u>Clarify the role of future actions in FSRPs.</u>

Some FSRPs rely on future actions that may or may not happen. Staff seeks clarification as to what extent future actions may be incorporated in FSRPs. For example, can an FSRP include a benefit change that has not yet been voted on by members; feature contribution increases not yet approved by the sponsor; or rely on future increases in active plan population for the existing amortization period calculations?

<u>Potential Changes to FSRP Requirement</u>

<u>6a)</u> When changes must be made that require significant time to implement or are contingent on a voting process or other approval, require the FSRP to include evidence of intent, such as the following:

a) a resolution or motion from the sponsor approving additional funding or contribution schedules for contribution increases phased in overtime;

b) draft ballot language and an estimated date the vote will take place.

<u>6b)</u> Clarify that any assumptions used in conjunction with future actions, such as hiring, must be made in accordance with ASOPs.

<u>6c)</u> The plan and sponsor must provide updates to the Board within 6 months on the implementation of the future actions outlined in the FSRP.

Respondent	Response
Robert Studer, City of El Paso Employees Retirement Trust	We believe the options identified as 6b or 6c would both provide the clarity requested by SPRB staff.

Tyler Grossman, El Paso Fire and Police Pension Fund	The Fund feels **6c** is logical and best choice.

7. Clarify documentation required to demonstrate that FSRP will achieve the amortization period requirement.

Supporting documentation requirements are unclear. Staff seeks clarification regarding what evidence must be provided to show that the FSRP meets the amortization period requirement. For example, does an analysis of individual pieces of the changes and assurance from the system and/or plan actuary that the combined impact will achieve the necessary amortization period suffice, or must the FSRP contain an analysis of the combined impact of all changes?

Potential Change to FSRP Requirement

7a) FSRPs must provide an aggregate analysis of multiple changes specifically showing how the combined impact of the changes in the FSRP would result in meeting the statutory requirements. The analysis must include an actuarial projection that shows the unfunded liability decreasing to zero within the required time period.

Respondent	Response
Robert Studer, City of El Paso Employees Retirement Trust	Appears reasonable.
Tyler Grossman, El Paso Fire and Police Pension Fund	The Fund feels this is logical but also feels the cost should be shared 50/50 as it should be with any reports required by the FSRP.
Mark Fenlaw and Rebecca Morris, Rudd and Wisdom, Inc.	It would be reasonable to require an FSRP to be accompanied by an actuarial analysis signed by the board's retained actuarial firm that would indicate how the FSRP would be expected to result in no more than a 30-year amortization period as of the date of the most recently completed actuarial valuation. An actuarial projection would be an **unnecessary** expense, and one is **not required** by the Actuarial Standards of Practice in an actuarial valuation report.

8. <u>Identify consequences that should apply when an FSRP does not result in statutory compliance. Perpetual revised FSRPs should be discouraged.</u>

Preparing a revised FSRP does not ensure a plan is back on track towards the original FSRP goal. Statute calls for a revised FSRP if the original is not adhered to. To date, several systems have been required to formulate revised FSRPs, and some are on their second revised FSRP. There are no consequences in place to prevent perpetual revised FSRPs, which means a plan may never achieve the minimum amortization period threshold and may have no incentive to make meaningful changes in the original FSRP.

<u>Potential Change to FSRP Requirement</u>

<u>8a)</u> If the original FSRP will no longer achieve the statutory amortization period requirement, the plan and sponsor should become subject to stricter requirements for funding restoration, such as adopting risk-sharing mechanisms in their funding policy or an ADC-based contribution structure.

Respondent	Response
Robert Studer, City of El Paso Employees Retirement Trust	We suggest that the SPRB adopt different wording. Public plans are too varied for a “one-size fits all approach.” We are not in favor of limiting the “consequences” to implementing risk sharing or the adoption of an ADC methodology for contributions. These may be options but plans should not be limited to just those options for remediating a FSRP. Also of concern is when will it be determined a plan will not meet the requirements of the FSRP?
Tyler Grossman, El Paso Fire and Police Pension Fund	If Objective 7 is in place and a professional actuary has attested that the proposed FSRP is practical, then the plan should work. However, if it doesn’t, then there should be an additional chance to revise without imposing structural changes or other measures. While it is fair to allow a second chance with an actuary’s approval, if the revised FSRP is not successful, or if the parties fail to comply with its terms a second time, then it is reasonable for the PRB to include such non-compliance in its ongoing reporting to the Legislature, which is the appropriate venue to address structural changes to plans.
Ryan Falls, Gabriel, Roeder, Smith & Company	Including adjustable benefit and/or adjustable contribution provisions into future FSRPs could limit the number of plans that have to go through the FSRP process multiple times. Examples of this would be COLAs that reduce or contributions that increase based on the actuarial condition of the plan. A simplified version of this could be an “automatic Plan B” that kicks in after a few years if “Plan A” is not working. As example of this is the Fort Worth ERF contribution increases that will begin in 2022 if the first set of reforms enacted in 2019 are not meeting the predetermined funding goals. These types of provisions allow all of the parties to decide what happens if the initial round of reforms do not work without having to start the negotiation process all over again in the future and also reducing the chances that the plan has to go through the FSRP another time.

Mark Fenlaw and Rebecca Morris, Rudd and Wisdom, Inc.	It is in the long-term interest of the plan board of trustees, the active plan participants, and the sponsoring employer for their plan to have an adequate contribution arrangement. It is unlikely in our opinion that any additional consequence of having an inadequate contribution arrangement put into Section 802.2015 would help. We applaud you for initiating the Intensive Actuarial Reviews. Those are very effective in our opinion in getting the attention of key stakeholders and will gradually have their intended effects.

9. Clarify effective dates and required documentation for FSRP triggers and progress.

Progress updates and criteria for determining adherence to the FSRP require clarification. Statute requires systems and sponsors that formulate an FSRP to report "any updates of progress made by the entities toward improved actuarial soundness" to the PRB every two years. A revised FSRP must be formulated if the "system's amortization period exceeds 40 years and the previously formulated FSRP has not been adhered to."

Staff seeks clarification as to what the 2-year progress updates should include and what indicates the prior FSRP has been "adhered to." What evidence should the system provide to illustrate that the required 40-year amortization period is still expected to be achieved by the original deadline? Does a plan's actuarial valuation provide enough evidence?

Potential Change to FSRP Requirement (also addresses Objective 2)

9a) To track progress on the FSRP, plans and sponsors should provide updates to the Board at least every two years, based on actual progress made.

9b) Updates should be provided on a PRB form and signed by the sponsor and/or adopted by city council. Updates should include an actuarial projection that shows the unfunded liability decreasing to zero within the required time period. Statute should clarify that the actuarial valuation alone does not qualify as an FSRP update.

Respondent	Response
Robert Studer, City of El Paso Employees Retirement Trust	We believe the option identified as 9a is the better of the two options provided.

Tyler Grossman, El Paso Fire and Police Pension Fund	**(9a)** - It should be evident in the AV and if not, then the Actuary should simply add a page to the AV addressing the changes proposed as part of the FSRP, whether these changes have been implemented and if they appear to be working or it is too early to tell. We believe this issue can be adequately addressed in the AV by incorporating the Actuary's professional opinion in a page/letter/addendum directly required to address the FSRP.
Mark Fenlaw and Rebecca Morris, Rudd and Wisdom, Inc.	We believe that an actuarial valuation report is a key update to an FSRP. We do **not** believe a required PRB form or actuarial projection would add value to an actuarial valuation report as an update. If the PRB staff need to ask follow-up questions about an actuarial valuation, that would be more effective in our opinion than any standardized reporting form.

10. <u>Clarify deadline for submittal of FSRPs.</u>

FSRP deadlines do not prevent substantial delays or speak to the time period over which a revised FSRP must achieve results. Although the bill author clarified the deadline to formulate an FSRP is 6 months from the adoption of the AV that triggers the formulation requirement, this deadline is not currently in statute. Plans and sponsors subject to the FSRP have missed the 6-month FSRP formulation deadline, sometimes by several years. Understandably, sometimes the plan and sponsor need more time to finalize their FSRP.

Statute does not address how to handle late FSRPs, which requires striking a balance between allowing time for the development of a thorough joint plan but also preventing extremely delayed FSRPs.

<u>Potential Changes to FSRP Requirement</u>

<u>10a)</u> Statute should be updated to include the 6 month deadline and to provide for an extension process that the PRB may grant if a reasonable draft is submitted with an extension request, so that the PRB, Legislature, and other stakeholders could be made aware of the plan and sponsor's intended plan of action. If the allowed number of extensions is met and the FSRP is still not submitted or accepted by the PRB, the plan and sponsor would be noncompliant with statute.

OR

<u>10b)</u> Statute should be amended to allow one year, rather than 6 months, for the completion of the FSRP, but also to require a progress update at 6 months which should include a draft plan or changes under consideration.

Respondent	Response
Robert Studer, City of El Paso Employees Retirement Trust	We believe that in some cases it may take more than a year to develop the most effective FSRP. We would favor up to one-year with possible extensions to be considered/granted by the SPRB based upon specific circumstances.
Tyler Grossman, El Paso Fire and Police Pension Fund	**10b** is the best choice as it adds structure and certainty to the existing law. The PRB should not be granting extensions. The PRB could potentially allow themselves to become a reason why a Fund is not compliant (ie "the Fund would be compliant but the PRB refused an extension for no good reason!").
Mark Fenlaw and Rebecca Morris, Rudd and Wisdom, Inc.	Six months is an unrealistic deadline for developing a well-designed FSRP. The plan board of trustees has to authorize actuarial studies of potential changes and decide on a package of changes to take to the active participants and the sponsoring employer. The communications required to develop an FSRP can be challenging. Not only must active plan participants be educated on potential changes but also the sponsoring employer will often require multiple people to hear presentations (city manager, CFO, city council), all of which takes time. It is probably unrealistic to enforce a deadline, but you could require a report to the PRB of what progress has been made toward completing an FSRP if not submitted after a year.

<u>**General**</u>

Respondent	Response
Paul Barham, CPS Energy Pension Plan	Given the unprecedented circumstances presented by COVID-19, we would like to take this opportunity to express our preference that policy discussions of this nature be postponed until a later date. That being said, we have closely followed the PRB's discussions and appreciate the opportunity to remain engaged and provide input at future points along the way. CPS Energy, the Plan's sponsor, is directly involved with the Plan's funding policy and does not have multiple major concerns at this time with the PRB Actuarial Committee's proposal to include engaging pension plan sponsors in pension funding requirements.
Tyler Grossman, El Paso Fire and Police Pension Fund	We thought it was relevant to first lay out some overarching principles and concerns that we respectfully submit are vital to any fair and workable legislative reform effort: • **One size does not fit all.** In any policy reform effort, there should be an explicit acknowledgement and understanding that local retirement systems in Texas each have unique requirements and constraints imposed

Tyler Grossman, El Paso Fire and Police Pension Fund (cont)	upon them by their governing statutes, and, in some cases, their city charters, ordinances, and contractual labor agreements. We would request that the Board continue to recognize that each system brings discrete legal and historical context to any initiative to revise public policy impacting all funds. • **Fair and reasonable transition period essential:** Without a reasonable phase-in period, significant policy shifts, such as structural changes to the current Funding Soundness Restoration Plan, can immediately and perhaps inadvertently cast otherwise well-performing or improving plans in a negative light. Consistent with the fair transition period approved by the Board when updated PRB Funding guidelines were implemented in 2017, it would also be reasonable to include a more realistic phased-in approach that allows plans to adapt to any new requirements without being subjected to immediate harsh repercussions. • **Credit where credit is due:** The Fund appreciates the Committee's recognition that plans that continuously seek to improve their funding health should be given proper "credit" for such improvements, most of which have been made without statutory or regulatory intervention, including, for example, the members of the El Paso Firemen and Policemen's Pension Fund voting in 2017 to voluntarily approve a contribution rate increase that brought their contribution level to parity with the City of El Paso (18 percent). We request that any recommendations for legislative reform account for the range of actions taken in good faith by local plans to improve funding health. • **Reasonable expectations about plan sponsor participation:** While the Fund applauds any legislative recommendation that would require and result in more participation on the part of plan sponsors, we remain concerned about the enforceability of such mandates, given the historical preference of plan sponsors to engage mostly when a growing funding problem gets the attention of the rating agencies. Over time, our Fund has made strides in communicating with our City sponsor and building a greater understanding of funding realities. But realistically, the impetus for change has rarely come from Austin; but rather has emanated from a looming credit crisis. We believe this dynamic—i.e., concerns about their growing risk exposure and cost of debt—has played the biggest role in compelling cities to participate in the Funding Soundness Restoration Plan and should inform policymakers' expectations regarding future plan sponsor participation.
Robert Rodriguez, City of Harlingen	In reviewing the funding policy and FSRP requirements policy objective and consideration, we understand the need to move toward a funding policy with a closed amortization period that achieves 100% funding and also the need for reducing the FSRP requirement below 40 years. For our City and its plan members, this may impose a significant financial burden and may trigger our plan to continually be under an FSRP for the foreseeable future. It is also concerning with the time frame in which this may be implemented and with the ripple effect this may have on the City's financial position. We are open for further discussion and guidance, as we are currently still reviewing what the full financial affect this may have on our City, its plan members and to our citizens.

Mark Fenlaw and Rebecca Morris, Rudd and Wisdom, Inc.	Please consider giving more time for the existing funding policies to have their intended effects before asking the Legislature to make additional and more complex changes to Section 802.2011 of the Government Code. We believe that the more measured approach to making changes will advance both the legal and PRB oversight environment to provide encouragement for adequate contribution arrangements for public employee defined benefit plans in Texas.
Art Alfaro, TEXPERS	After careful review of the almost four-year history of implementation of HB 3310, we are not in agreement that changes causing 3/4s of the plans to end up on a FSRP would be advisable.

5e. Public retirement system reporting and compliance, including noncompliant retirement systems under Section 801.209 of the Texas Government Code

6. Investment committee matters

6a. Investment Practices and Performance Evaluations received as required by Government Code Section 802.109 (SB 322), including compliance

6b. Recommended improvements to Investment Practices and Performance Evaluation statute

6c. Draft Investment Performance Report

Draft Investment Performance Report

November 12, 2020

Pension Review Board

PRB report to the legislature

Section 802.109(i) "the board shall submit an investment performance report … [that] must compile and summarize information received under this section."

I. Executive Summary
II. Overview of Law and Compliance
III. PRB Analysis
IV. Recommendations
V. Evaluation Summaries
VI. Resources

Overview

Texas Government Code Section 802.109 requires public retirement systems with assets of at least $30 million to select an independent firm with substantial experience … **to evaluate the appropriateness, adequacy, and effectiveness of the retirement system's investment practices and performance and to make recommendations for improving the retirement system's investment policies, procedures, and practices**. Each evaluation must include:

1) an analysis of any **investment policy or strategic investment plan** adopted by the retirement system and the retirement system's compliance with that policy or plan;
2) a detailed review of the retirement system's investment **asset allocation**;
3) a review of the appropriateness of **investment fees and commissions** paid by the retirement system;
4) a review of the retirement system's **governance processes** related to investment activities; and
5) a review of the retirement system's **investment manager selection and monitoring** process.

Implementation

- The first evaluation reports were due from systems by June 1, 2020.
- Per PRB records, **62 plans** have assets of at least $30 million as of the fiscal year end immediately preceding the effective date, 6/10/2019. Adjusting for evaluations that include more than one plan (e.g. ERS, JRS II & LECOS), **55 evaluations** were expected.
- **51 of the 55** expected evaluations were received and included in this analysis.
- **2 additional evaluations** from systems with less than $30 million:
  - Guadalupe-Blanco River Authority (received)
  - Capital MTA Admin & Capital MTA Bargaining (expected)

Compliance

4 expected evaluations have not been submitted

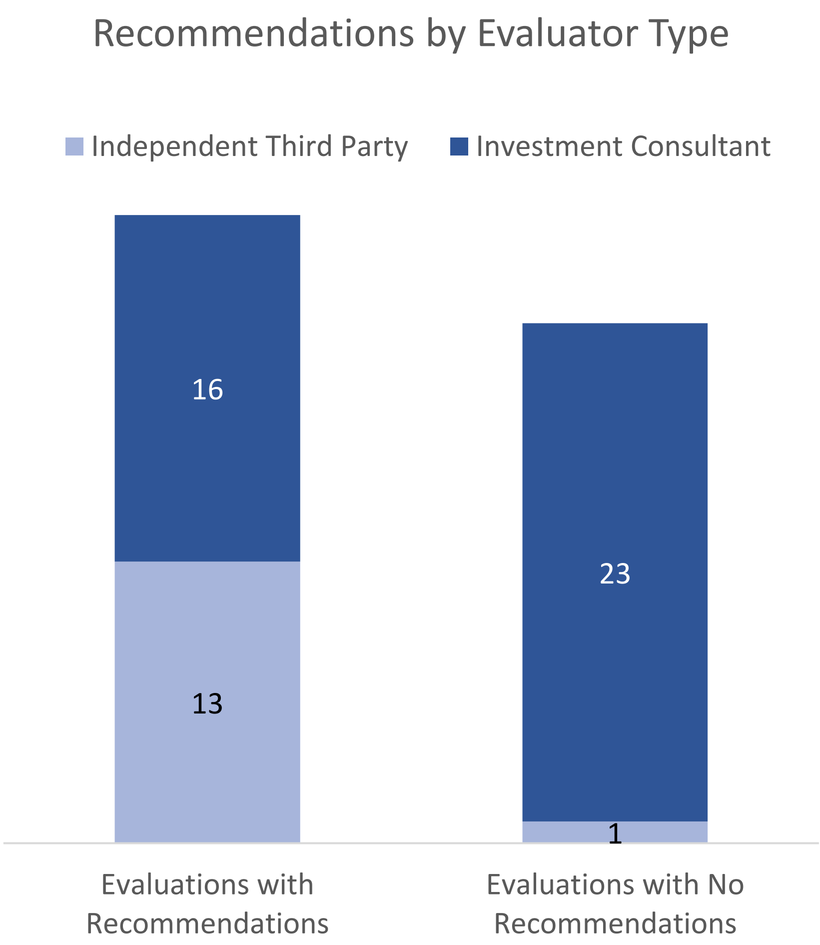
System	Communicated Issue
Corpus Christi Regional Transportation Authority	The System indicated it was experiencing a COVID-related delay but hopes to complete evaluation by the end of the year.
Harris County Hospital District Pension Plan	The System indicated it was experiencing a delay, but the report is expected soon.
Midland Firemen's Relief & Retirement Fund	The System indicated it was working on the evaluation but did not provide an expected completion date.
Nacogdoches County Hospital District Retirement Plan	The System indicated it was experiencing a COVID-related delay but did not provide an expected completion date.

Overview of evaluations

802.109(c)(2) [a public retirement system may] *select a firm regardless of whether the firm has an* ***existing relationship*** *with the retirement system*

802.109(a) [the independent firm should] *evaluate … the retirement system's investment practices and performance and* ***make recommendations*** *for improving the retirement system's investment policies, procedures, and practices*

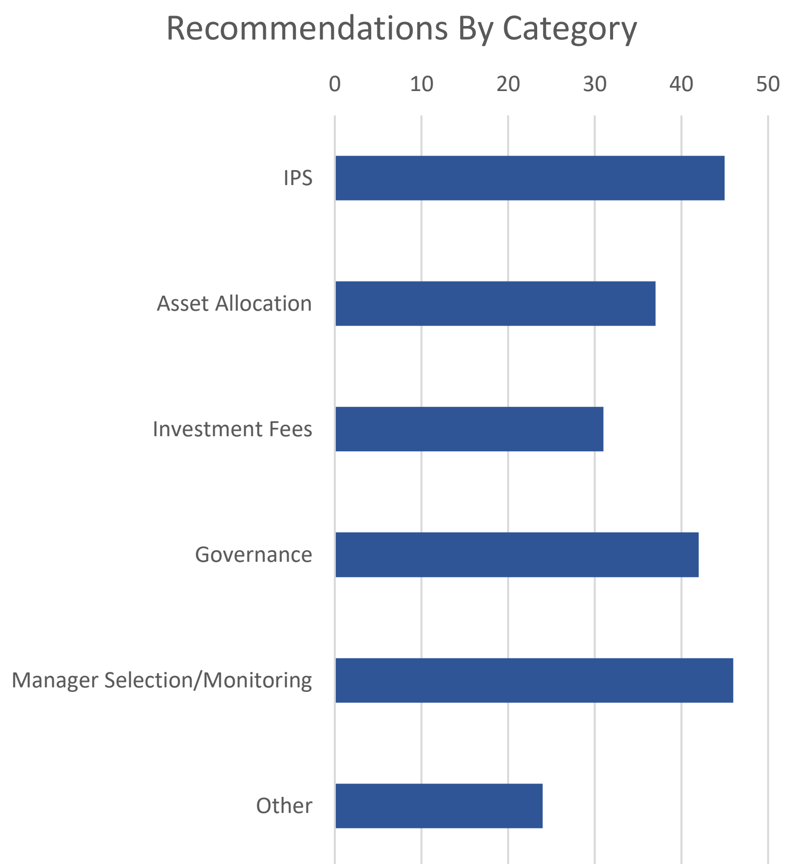
Overview of evaluations



- 30 different evaluators
- 39 evaluations by existing investment consultant
- 14 evaluations by independent 3rd party
- 29 evaluations with recommendations for improvement

Pension Review Board

Overview of recommendations



- No clear lines between categories but recommendations can generally be grouped by the 5 subsections of 802.109(a)
- Over 200 recommendations with several types of recommendations very common
- A small subset of recommendations covered areas not specific to investment decision-making

Investment policy statement analysis

- Annual IPS Review
  - One of the top general recommendations

- Written Fee Policies
  - Regularly review fees
  - Document fee review processes in the IPS

Asset allocation and risk analysis

- Brief discussion of asset-liability vs asset-only analysis

- Many evaluations emphasized the importance of utilizing asset-liability analysis when setting the strategic asset allocation

  "For public pension funds, asset/liability studies are a critical tool to examine how well alternative investment strategies (differing asset allocations) impact the key long-term actuarial circumstances, including funded status and contribution requirements."

- While all evaluations indicate the use of asset-only analysis, several evaluations indicate the primary method of asset-allocation development and risk analysis is an asset-only risk assessment

Investment fee analysis

- Investment Fee Benchmarking
  - Emphasized using quality benchmarks when reviewing
- Investment Fee Transparency
  - Improving documentation of investment fees through SB 322 changes
- Passive Investments
  - Consider passive investments to reduce fees where appropriate

Governance analysis

- Roles and Responsibilities
  - Most common rec representing approximately 10% of all recommendations
  - Approximately half of these recommendations were regarding investment fee review

- Delegation
  - Having clear roles and responsibilities is needed to effectively delegate

Investment manager selection and monitoring

- Net-of-fee Performance Benchmarking
  - Systems need to use net-of-fee benchmarking when reviewing performance

- Investment Manager Hiring and Firing Policies
  - Document specifics of the criteria used in selecting or terminating managers
  - Document the rationale when decisions are made
  - References back to net-of-fee metrics and recommendations

Legislative recommendations

- Legislative intent was to provide more transparency surrounding board activities with respect to investment governance and decision-making.
- Systems continue to seek clarity about what information should be included in an evaluation report.
- The evaluation report provides a unique opportunity for a comprehensive review, and communication, of investment decision-making practices.
- Legislative recommendations primarily focus on clarifying what should be included within the evaluation report for the benefit of all stakeholders.

Legislative recommendations

1) Amend statute to require evaluations to detail how the evaluator determined the need, or lack thereof, for any recommendations.

- **Goal.** To evaluate the appropriateness, adequacy, and effectiveness of the retirement system's investment practices and performance and to make recommendations for improving the retirement system's investment policies, procedures, and practices.
- **Issue.** It would be helpful to the systems if the existing law were clearer regarding which aspects of the evaluation should be communicated and how. In general, evaluations received included at least a high-level description of the existing "investment policies, procedures, and practices." When a recommendation was made, most evaluators justified the recommendation with an explanation where the existing approach fell short. However, when no recommendation was made, not all evaluators provided an explanation as to why existing practices are appropriate, adequate and/or effective.
- **Recommendation.** Require evaluations to provide detail both when a recommendation is made and when no recommendation is deemed necessary, to enhance understanding of the investment decision-making process and help foster informed decision-making.

Legislative Recommendations

2) Amend statute to require a formal review-and-comment process prior to publication.

- **Goal.** Evaluations are intended to offer an independent perspective on the pension system's practices and policies; ideally, they will prompt a thoughtful review of the system's practices and promote positive change, as appropriate.
- **Issue.** In some cases, it is not clear whether systems have reviewed the evaluation and considered the recommended changes. In contrast, §802.1012(g) of the Texas Government Code requires a formal review-and-comment process for actuarial audits of certain retirement systems, making clear that the systems have considered the results.
- **Recommendation.** Statute should require a formal review-and-comment process for evaluation reports, modeled after the corresponding actuarial audit requirements. It would include:
  - Requiring a substantially complete draft of the report be submitted to the pension system's board prior to publication, providing an opportunity for discussion and clarification.
  - Allowing the board the opportunity to submit a written response to the firm acknowledging receipt and making comments or noting any anticipated changes in response to the report's findings.
  - Including the response from the board in the final published evaluation, giving stakeholders insight into the impact of the evaluation on the system's practices.

Legislative Recommendations

3) Review and consider the feasibility of whether an independent firm conducting the evaluation should be a different firm from the one that helped the system develop its existing investment policies, procedures and practices.

- **Goal.** Under existing law, evaluations are conducted by an "independent firm," which aims to provide a new perspective on the system's practices. Current law allows the firm selected to have an existing relationship with the pension system.
- **Issue.** More than half of the evaluations were conducted by the system's current investment consultant—the firm that likely helped the system develop its existing investment policies, procedures, and practices. Investment Committee members noted, and the data appear to suggest, existing consultants may be less likely to identify areas for improvement if they were directly involved in the development of the existing practice.
- **Recommendation.** A third-party consultant presents an opportunity for a full analysis of current investment processes, encompassing the work of the current investment consultant, which is not possible otherwise. The Legislature should consider the feasibility of precluding a firm that advised or advises the system on its investment policies, procedures, and practices from conducting the evaluation of those policies.

Legislative Recommendations

4) Amend statute to require evaluators to identify its qualifications and potential conflicts-of-interest; codifying existing PRB informal guidance.

- **Goal.** The current evaluation requirement was designed to allow for a fresh look at the investment practices and policies of pension systems to identify opportunities for improvement.
- **Issue.** While the PRB's informal guidance suggests that evaluations make specific disclosures, some evaluations did not clearly identify what firm performed the evaluation, the qualifications of the evaluator, or certain potential conflicts-of-interest. This makes it more difficult for members, taxpayers and other stakeholders to assess the evaluation's efficacy.
- **Recommendation.** IPPEs should be required to include certain disclosures about the evaluator, including:
  - The evaluator's qualifications.
  - The nature of any relationship between the evaluator and the plan, and an acknowledgement of potential conflicts of interest as a result of any existing relationship.
  - Identification of any remuneration received by the evaluator.
  - Acknowledgement the firm is not directly or indirectly managing investments.

Investment Performance Report

NOVEMBER 2020

Texas Pension Review Board

Executive Summary

[TBD]

Overview

The 86th Legislature enacted Senate Bill 322, which added Texas Government Code §802.109, concerning an investment practices and performance evaluation (IPPE). The statute requires public retirement systems with assets of at least $30 million to select an independent firm with substantial experience to evaluate the appropriateness, adequacy, and effectiveness of the system's investment practices and performance and to make recommendations for improving its investment policies, procedures, and practices. The law also requires the PRB to compile and summarize the evaluations and submit an *Investment Performance Report* to the Legislature and Governor in its biennial report.

Per statute, each evaluation must include:

- an analysis of any investment policy or strategic investment plan adopted by the retirement system and the retirement system's compliance with that policy or plan;
- a detailed review of the retirement system's investment asset allocation;
- a review of the appropriateness of investment fees and commissions paid by the retirement system;
- a review of the retirement system's governance processes related to investment activities;
- and a review of the retirement system's investment manager selection and monitoring process.

The first evaluation must be a comprehensive analysis of the retirement system's investment program that covers all asset classes, while subsequent evaluations may select particular asset classes on which to focus.

<u>Implementation</u>

Upon enactment of the bill, the PRB sent notification to the systems to inform them of the new requirement. The PRB also worked with stakeholders and held several Actuarial Committee and Board meetings to provide informal guidance to help systems identify the types of information an evaluation may include. The guidance featured questions that could be used by systems and their evaluators to ensure thorough review of the five components detailed in statute. The guidance was distributed to public retirement systems and made available on the PRB website. (Appendix Item 1)

<u>Compliance</u>

The first evaluations were to be completed by May 1, 2020 and were due to the PRB from systems by June 1, 2020.[1] Of the 100 public retirement systems in Texas, the PRB expected 55 evaluations covering 62 plans that met the $30 million threshold.[2] Fifty-one of the 55 expected evaluations were received and included in this report. Also included were two additional evaluations received from systems just under the $30 million threshold, bringing the total evaluations included in this report to 53.

[1] Systems subject to the evaluation were notified that the PRB would work with them on any pandemic-related delays.

[2] Several trusts serve multiple plans, in which case only one evaluation of the trust's investment practices is necessary.

The four systems that have not completed evaluations have reported the following to the PRB:

System	Communicated Issue
Corpus Christi Regional Transportation Authority	The System indicated it was experiencing a COVID-related delay but hopes to complete evaluation by the end of the year.
Harris County Hospital District Pension Plan	The System indicated it was experiencing a delay, but the report is expected soon.
Midland Firemen's Relief & Retirement Fund	The System indicated it was working on the evaluation but did not provide an expected completion date.
Nacogdoches County Hospital District Retirement Plan	The System indicated it was experiencing a COVID-related delay but did not provide an expected completion date.

PRB Analysis of Evaluations

S.B. 322 was enacted specifically to "increase transparency, strengthen oversight, and protect retirement systems from self-inflicted investment catastrophes that jeopardize their members' benefits."[3] The PRB believes the investment practices and performance evaluation (evaluation) provides an invaluable opportunity for a strategic-level review of the practices and policies of Texas pension systems. With public retirement systems managing net assets of approximately $282 billion and serving over 2.8 million members, this is something Texas needs to ensure is done right. Even systems employing leading investment practices can benefit from a new, expert perspective on their existing processes.

The comprehensive evaluation required in the initial evaluation, when done well, moves the needle on the transparency by offering a complete picture of a retirement system's investment operations in a digestible format accessible to stakeholders interested in learning more. The evaluations provide a window into a system's investment program that can be very difficult to obtain without wading through numerous documents and following a board's ongoing discussions.

An additional benefit is the PRB can identify and compile best practices, industry standards and benchmarks from about the evaluations to provide these resources to systems. Giving smaller systems, in particular, an opportunity to access resources they might not have known about.

Overall, both the breadth and depth of information resulting from the evaluations allow all stakeholders an opportunity to learn from the practices of others and ultimately raises the bar of existing practice in Texas. The initial comprehensive evaluations, and the more focused future evaluations, will help systems continue to refine their practices and represent a new tool for communicating those improvements and educating stakeholders. This can best be accomplished when systems embrace the process and treat it as an important educational resource for the benefit of all stakeholders, rather than another box to be checked.

<u>Overview of Evaluations Received</u>

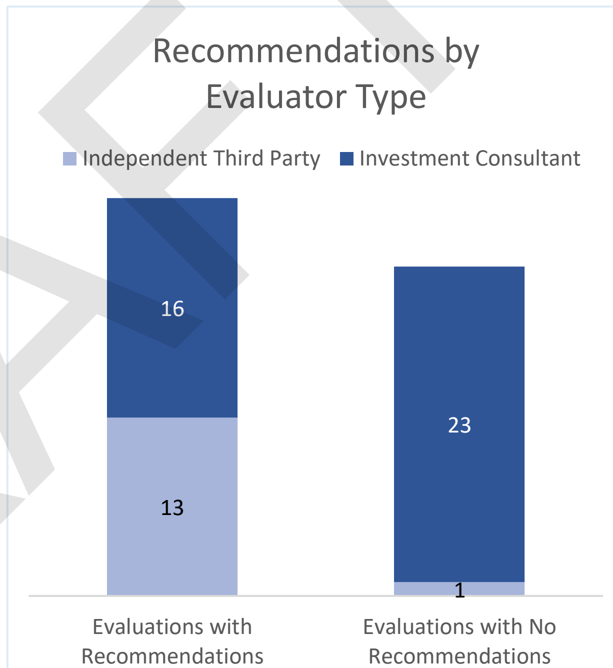
The PRB examined each of the 53 evaluations received from Texas pension systems. While the evaluations varied significantly in both format and level of detail, overall, they were informative and

[3] https://capitol.texas.gov/tlodocs/86R/analysis/pdf/SB00322F.pdf

provided insight into the practices currently employed by Texas systems, as well as the challenges they face. The evaluations indicated that systems generally follow industry best practices in most areas. None of the evaluations stated a critical concern for systems overall practices and their ability to continue operating.

Many evaluations included detailed discussions of critical investment practices such as asset and liability management, manager performance review, and expense analysis using net-of-fee metrics. The PRB believes these expanded explanations will be very helpful for trustees, stakeholders and other retirement systems to learn from best-in-class practices utilized by peer systems.

As noted above, Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the system, if the firm does not directly or indirectly manage investments. Of the 53 evaluations received, 39 were performed by the system’s current investment consultant, while 14 were conducted by an independent third party.[4] In total, 21 different firms completed one evaluation, 8 firms completed 2 or 3 evaluations, and 1 firm completed 12 evaluations.



Approximately half of the evaluations included recommendations for either policy enhancements or updates to become fully in line with leading practices. The remaining evaluations did not include any recommendations for improvement, but several provided supporting details explaining how existing policies are in line with best practices, and therefore, why no recommendations were made.

Almost all the independent third-party evaluations included at least one recommendation for improvement, which can be contrasted with less than half of evaluations conducted by the investment consultant. This does not necessarily indicate independent 3rd parties completed more thorough evaluations; several evaluations conducted by current investment consultants were extremely thorough, highly educational and provided clear justifications for the continuation of existing practices. However, the data clearly show independent evaluators were more likely to include recommendations for improvement.

With over half of the evaluations containing recommendations for improvement, it is evident that Texas investment programs will improve from these evaluations. Furthermore, several systems took an additional step and approved recommended changes during the evaluation process, while other systems are currently discussing changes to their policies.

[4] One of the independent third-party evaluations was completed by the system’s contracted plan administrator.

Recommendations Made by Evaluators

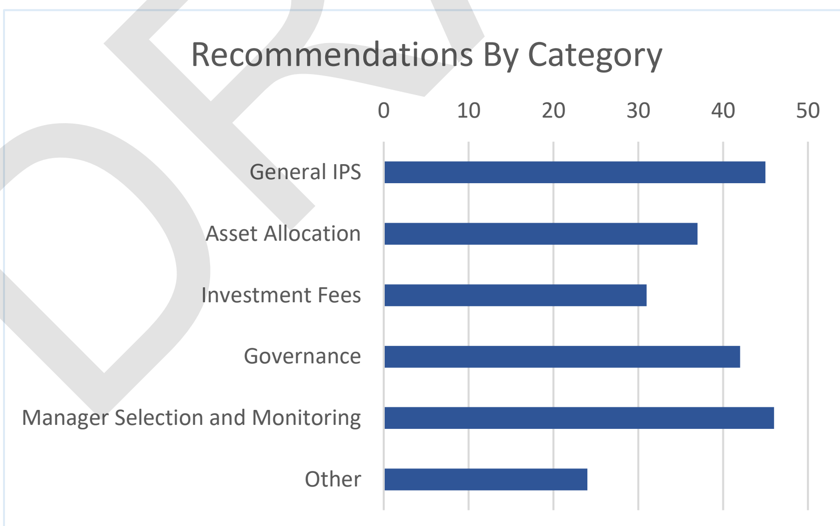
The PRB identified over 200 recommendations in 29 of the 53 evaluations. (Appendix Item 2) The recommendations covered a variety of practices across all sections of the statute. To summarize the information, the PRB examined the recommendations and grouped them into broad categories. While there are not necessarily clear lines delineating the categories, most evaluations were organized according to the 5 subsections of Texas Government Code §802.109(a), and therefore the recommendations could generally be grouped on that basis. A small subset of recommendations covered areas that did not fit as well within these 5 categories and are identified as "other" in the following graph.

§802.109(a) states each evaluation must include:

1) an analysis of any **investment policy** or strategic investment plan adopted by the retirement system and the retirement system's compliance with that policy or plan;
2) a detailed review of the retirement system's investment **asset allocation**;
3) a review of the appropriateness of **investment fees and commissions** paid by the retirement system;
4) a review of the retirement system's **governance processes** related to investment activities; and
5) a review of the retirement system's **investment manager selection and monitoring** process.

Key Practices Identified by Evaluators

The PRB identified the following policies from common recommendations made in the evaluations or discussed as important best practices. The following graph shows how many recommendations were made in each of the 5 categories.[5]



[5] Many recommendations were broad or could easily categorized in multiple ways. For example, recommendations regarding the IPS were included in General IPS unless they were specific to a practice in another category.

1. Investment Policy Statement (IPS)

Annual IPS Review

One the top five recommendations in the evaluations was to review the IPS annually. The IPS could be considered the most important guiding document of an investment program, and as such, must be kept up to date with current practice.

GFOA Guidelines

> "GFOA recommends that defined benefit plans establish and adhere to a formal investment policy to regulate and monitor the system's investment program. Such a policy should be viewed as a long-term governing document. The formal investment policy should be adopted by the governing board(s) and should be reviewed at least annually and updated as deemed appropriate."[6]

Comprehensive Investment Fee Review and Written Fee Policies

A common recommendation made by the evaluators was for systems to review all investment expenses regularly and document their investment fee policies within the IPS. For example, one evaluation pointed out that "the responsibility to periodically report, analyze and benchmark total Plan fees" is "separate from the duty to monitor individual managers' net-of-fee performance, as custodial and transaction fees and costs can be an important part of aggregate Plan fees."[7] In line with this recommendation, several evaluations conducted or referred to a Trade Cost Analysis that was done to ensure transaction costs were assessed as part of the system's fee review.[8] Net-of-fee performance metrics are discussed later in this report.

> *"The Board should review the IPS at least annually to ensure that all required actions are being implemented or make necessary change to the IPS to reflect the actual process."*
>
> *-City of El Paso Employees Retirement Trust IPPE*

Another evaluation recommended the system "include language in the IPS pertaining to monitoring and reporting of fees; the investment management fees in particular."[9]

According to GFOA and the CFA Institute's *Primer for Investment Trustees*, a written investment fee policy should "establish guidelines that identify the actions the defined benefits plan should take in negotiating investment fees." [10, 11] Fee policies should also specify how (using measurable criteria) and at what intervals investment management expenses will be reviewed to assess the competitiveness of fees for the services provided.

The following provides an example of a strong improvement made by a system as a result of a recommendation from their evaluation.

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[6] https://www.gfoa.org/materials/investment-policies-for-defined-benefit-plans
[7] San Angelo Firemen's Relief & Retirement Fund IPPE
[8] System evaluations that examined TCAs: COAERS, ERS, TMRS, TRS
[9] Guadalupe-Blanco River Authority IPPE Recommendation
[10] https://www.cfainstitute.org/-/media/documents/book/rf-publication/2017/rf-v2017-n3-1.ashx
[11] https://www.gfoa.org/materials/investment-fee-guidelines-for-external-management-of

Evaluation recommendation:

"CCR's recommendation is that The Plan adopt policies and processes by which it periodically, but no less frequently than annually, documents both direct and indirect fees and compensation paid to all managers, brokers, mutual funds, and consultant(s). At the renewal of any Investment Manager agreements, it would be prudent to require an annual accounting by each manager of all direct and indirect remuneration received during the calendar year."

System's actionable improvement:

"The Plan has rectified several opportunities for improvement relating to the monitoring of expenses by assigning the responsibility to monitor all fees to a Fiduciary Consultant, and independent consultant/vendor who will annually assess total Plan fees and benchmark for reasonableness."

- San Angelo Firemen's Relief & Retirement Fund IPPE

The following are industry standards that identify the importance of competitive investment fees and indicate investment fees are something that systems can actively work to improve that benefits fund performance and creates strategic advantages.

CFA Institute Primer for Investment Trustees

"You will exercise little influence over the outcome of most aspects of the Fund's investment program. Markets move in ways that are inherently unpredictable. A key element of the Fund's investment performance over which you actually do exert considerable control, however, is the issue of fees and expenses. As an investment trustee, you have the responsibility for seeing that the Fund's investments are managed in the most cost-effective manner possible."[12]

GFOA Investment Fee Guidelines

"Establish guidelines that identify the actions the defined benefits plan should take in negotiating investment fees. The importance of competitive fees should be ranked among the other factors being analyzed when selecting investment managers, including:

1. Demonstrated manager track records, proven investment talent, repeatable investment processes, competitive and strategic investment advantages, and other qualitative factors.
2. The fees, investment process, and historical performance of active managers, which can be expected to have higher fee structures than those of passive managers. This information will allow the fund to compare an active manager's net performance against an index return over an entire market cycle.
3. The appropriateness of the fees (for either an active or passive manager), given the expectation of future investment returns/performance. Future returns are uncertain, while fees often can be determined in advance. When one manager charges greater fees than another for a comparable investment strategy, analyze the manager's track record and additional services offered to determine whether the additional cost is justifiable and necessary."[13]

[12] https://www.cfainstitute.org/-/media/documents/book/rf-publication/2017/rf-v2017-n3-1.ashx

[13] https://www.gfoa.org/materials/investment-fee-guidelines-for-external-management-of

The evaluations also identified various fee benchmarking resources useful in creating policies for investment fees. The PRB compiled these resources for easy reference. (Appendix Item 3)

2. Asset Allocation Development and Risk Analysis

The evaluations shed light on several of the most important analyses systems should perform regularly to ensure their asset allocation is appropriate. Almost half of the evaluations discussed performing an Asset/Liability Study (A/L Study) and all but one evaluation discussed performing an Asset Allocation Study. Unfortunately, these terms are not well defined and therefore encompassed a wide range of analyses in actual practice. However, broadly speaking, an A/L Study considers both the assets and liabilities, while an Asset Allocation Study focuses on an asset-only approach. Stress tests were often mentioned as a critical tool that could be done as part of either the A/L Study or an Asset Allocation Study.

Asset-Liability Analysis

One issue that many of the evaluations were very clear about was the need to take a holistic approach to the asset allocation process that considers both the assets and the liabilities the trust is designed to support. Evaluators emphasized the importance of balancing the need for growth with maintaining an appropriate level of assets to meet plan liabilities. This discussion covered several factors, summarized as follows.

STRESS TESTING

Stress testing can be done as part of an asset-liability analysis or an asset-only analysis to show the potential outcomes if expected rates of return are not met.

One evaluation detailed how stress testing was performed in its Asset Allocation Study, which included "asset only stress tests that look at the impact to the Plan's investments, as well as stressed scenarios from an asset/liability perspective." Examples provided included the following:

Asset only: Max drawdown, worst quarter, scenario analysis (financial crisis, dot-com crash, sovereign debt crisis, bond crisis, etc.), distribution of forward- and backward-looking returns.

Asset/liability (30-year forward-looking analysis): projected funded ratio including worst-case scenario (95th percentile), annual liquidity needs including worst-case scenario, liquidity in a worst-case scenario.

Cash flows. The difference between expected inflows (contributions, dividends, interest, etc.) and outflows (distributions and expenses) are an important factor in the necessary allocation. For example, a plan with higher net outflows would need to maintain a higher amount devoted to investments that have lower price volatility and/or a stable income stream to meet liquidity requirements and to avoid selling assets in a down market. Conversely, higher net inflows provide a plan with flexibility to potentially have a higher allocation in less liquid growth-oriented investments.

Nature of liabilities. The underlying nature of the liabilities should be considered when determining the allocation. For example, the consultant and Board must consider the increase in distributions from year to year not only from new retirees, but also the impact of COLAs. The possibility of lump sum DROP and

PROP distributions also needs to be considered given the potential for large, unexpected withdrawals. The nature of these liabilities may warrant the need for shifting to more stable, income-oriented investments and sacrificing the potential for higher growth.

Funding levels. First, the funded status of a plan may have an impact on the overall asset allocation. It is reasonable to expect a severely underfunded plan to have a different asset allocation than a plan that is overfunded.

Asset allocation also impacts funding metrics, and evaluators discussed the need for the investment consultants, actuaries and trustees to work directly together to "review the potential impacts of varying investment asset allocation policies on the key actuarial and liability metrics. For public pension funds, asset/liability studies are a critical tool to examine how well alternative investment strategies (different asset allocations) impact the key long-term actuarial circumstances, including funded status and contribution requirements."[14]

One evaluator indicated that the system follows best practice by considering its liabilities when developing the asset allocation, stating that the "target allocation is ultimately driven by the liabilities of the System including expected cash flow and liquidity needs. The primary method for analyzing the projected liabilities in the context of asset allocation is through an Asset/Liability Study."[15]

Asset-liability studies "are the only standard analysis that evaluates several components of a plan's key financial drivers including the Investment Policy, Contribution Policy and Benefit Policy."[14] The objective is to determine the appropriate risk and return targets when selecting a target allocation by better understanding plan liabilities. This is done by modelling assets and liabilities against various changes to the three policy variables (investments, contributions and benefits) over time. Performing these studies every 3-5 years or after a material change to assumptions is recommended.

"It is prevailing practice among ERS' peers to conduct an asset liability study every 3-5 years, but asset allocation studies can be more frequent."

-Employees Retirement System IPPE

Asset-Only Analysis

While some systems and/or evaluators used the term Asset Allocation Study to include both asset-only and asset-liability analysis, the more common approach was to use the phrase Asset Allocation Study to mean an asset-only analysis. One evaluator specifically distinguished between the two, suggesting the "asset allocation study" should be clarified to mean an asset-only study and included in the IPS as such. As noted above,

"The IPS states that an asset-liability study should be conducted at least every five years (industry standard) to determine the long-term targets and that annually, the targets are to be reviewed for reasonableness in relation to significant economic and market changes or to changes in the Fund's long-term goals and objectives. For clarity, this annual review should be defined in the IPS as an asset allocation (or asset-only) study."

-San Antonio Fire & Police Pension Fund IPPE

[14] Austin Police Retirement System IPPE
[15] Texas Municipal Retirement System IPPE

the evaluations highlighted a wide range of asset-only analysis. When used in conjunction with asset-liability analysis, asset-only analysis is commonly incorporated as a simpler, more flexible analysis to be used more frequently (e.g., annual review of the reasonableness of current target ranges or as part of asset-only stress testing) but is also used when discussing how to select a single portfolio after asset-liability analysis "narrows the potential range of outcomes."[16]

Alternatively, even when an A/L study is mentioned, it is not necessarily used as the guiding tool for developing a system's asset allocation. Many evaluations indicated the primary method of asset allocation development and risk analysis was an asset-only risk assessment model focused on investment risk (such as standard deviation, Sharpe ratio, etc.), rather than a holistic analysis that considered both the assets and the liabilities the trust is designed to support. As noted in one evaluation, "The value of an asset-liability analysis is that it simultaneously considers the assets, liabilities, future funding, and their interaction with one another within a holistic framework. This is why we believe such analysis is so crucial for the long-term viability of a benefit program, so that the plan sponsors are aware of potential future risks and have considered them as part of the strategic asset allocation process."[17]

3. Investment Fees and Commissions

Several important themes were highlighted in the fees section of the evaluation, including issues related to evaluating and comparing fees as well as strategies for minimizing them. The evaluations also stressed the need for systems to review investment performance on a net-of-fee basis, which is discussed in the Investment Manager Selection and Monitoring section of this report.

Investment Fee Benchmarking

The evaluations consistently commented on the importance of utilizing quality benchmark comparisons. Industry and peer benchmarks were a common focus in many evaluations, which encouraged their use, as better data fosters better decisions. (Appendix Item 3)

> *"Monitoring gross and net of fee aggregate performance on a quarterly basis for all investments in the Plan's portfolio would improve opportunities for fiduciaries to assess the net value add for each manager, including privately traded strategies.* ***Including benchmarks and peer group analyses will enhance the Plan's monitoring processes. Monitoring net performance relative to peers is best practice****."*
>
> *-CPS Energy IPPE*

Investment Fee Transparency

In addition to creating the evaluation requirement, Senate Bill 322 (86R) also significantly enhanced fee transparency reporting in Texas. Over the past decade, public retirement systems have increased their allocation to alternative investments while at the same time raising concerns that expenses for alternative investments are opaque and greater fee transparency in this asset class is desired. The new law requires Texas public retirement systems to list, by asset class, all direct and indirect commissions and fees paid by the retirement system during the system's previous fiscal year for the sale, purchase or management of system assets.

[16] Texas Municipal Retirement System IPPE
[17] Teacher Retirement System IPPE

Just as the legislature acknowledged these improvements are necessary to help address the concerns, many evaluations identify the importance of clearly understanding investment fees. Recommendations were made to improve disclosures of both direct and indirect fees to better review and understand investment performance. The improved fee disclosures provide the additional benefit of improved transparency. Improved investment fee disclosures will also improve investment fee expense reporting for fund-of-fund type investments. The PRB believes this enhanced reporting requirement will materially improve systems investment fee reporting and provide a push to the investment industry for improving investment fee transparency.

"Fees netted from fund investments were not included in the reported investment expense. An analysis of investment management fees netted from returns, profit share/carried interest from alternative investments, expenses related to cash (if any) and expenses related to real estate, is needed and would enhance the System's monitoring and oversight of the System."

-CPS Energy IPPE

Use of Passive Investment Strategies

Passive investing is identified by both industry standards and multiple systems' investment beliefs as a strategy for improving performance net-of-fees. Passive investing aims to track or match the performance of a market index in a way that minimizes both tracking error and fees. Using passive investments allows a system to either reduce fees overall or offset the higher fees associated with active and alternative investments. Passive investments have the additional benefit of being less complex, allowing a System to focus its attention where it is most needed.

Several evaluations identify GFOA as an industry standard in multiple sections. Item 2 from the *Investment Fee Guidelines* identifies "pursuing low-cost passive index investment strategies" as one way to minimize fees.

GFOA Investment Fee Guidelines

"Defined benefit plans, such as pension and other post-employment benefits, seek to achieve the highest risk-adjusted net return, which includes the cost of investment management. Plans can use a combination of approaches to minimize fees for fixed income and public equity management, including:

1. Achieving economies of scale with a particular investment manager;

2. Pursuing low-cost passive index investment strategies; and

3. Using competitive selection processes that make fee negotiation an important factor in the procurement decision."[18]

Examples

Several evaluations provided either useful examples or detailed investment beliefs explaining why systems use passive investments. The examples selected below provide a look at IPS language, actions taken by systems and investment beliefs found in either the IPS or a supporting document.

[18] https://www.gfoa.org/materials/investment-fee-guidelines-for-external-management-of

City of Austin Employee Retirement System (COAERS)

According to the IPPE, COAERS uses passive investments as the default position and only uses active management where creating alpha is likely. This results in generally lower investment fees which can improve the likelihood of achieving their investment return objectives.

"COAERS has a clear set of investment beliefs which favor the use of passive management as a default, with active management only used wherever the expected likelihood of outperformance is high. These characteristics will inherently lead to lower fees in general, but even the fees paid to passive managers are below industry average; this translates to fee savings and a significant "head start" in return expectations for the System."[19]

Dallas Police & Fire Pension Combined Plan (DPFP) [20]

The DPFP's evaluation provided an example from its IPS that shows how a system can include passive investing language in its core investment beliefs.

Dallas Police & Fire Pension Combined Plan

IPS, Section 4 Core Beliefs and Long-term Acknowledgements, subsection c:

"1. The opportunity for active manager risk-adjusted outperformance (alpha) is not uniformly distributed across asset classes or investment managers' strategies

2. Active strategies are preferred when there is strong conviction that they can be expected to add alpha, net of fees

3. Passive strategies should be considered if alpha expectations are unattractive."

Houston Police Officers Pension System

HPOPS, based on their investment philosophy, has created a portfolio that is majority invested in passive investments. The portfolio is approximately 59% passive investments with 40% in actively managed investments and 1% in cash. Even with the use of higher fee alternative investments, the investment management fees incurred in 2019 totaled 14.6 basis points. The previous year's fees were higher at approximately 25 basis points primarily because of more expensive hedge fund strategies that have now been removed from the portfolio.

"Philosophically, HPOPS believes excess returns produced by active management to be fleeting and difficult to identify in advance. They further recognize the behavioral biases faced by most investors that often lead to hiring a manager at the peak of cyclical performance and terminating at the trough. For these reasons, the Plan utilizes predominantly passive exposure in its public markets investment portfolio, obtained through a combination of index funds, ETFs, and futures positions."[21]

Irving Firemen's Relief & Retirement Fund

Irving Fire provides an example of how effective passive investments can be at providing cost savings.

[19] City of Austin Employee Retirement System IPPE
[20] Dallas Police & Fire Pension Combined Plan IPPE
[21] Houston Police Officers Pension System IPPE

Based on a recommendation from the consultant prior to the evaluation, the system is significantly increasing its allocation to passive investments. The system is increasing its passive exposure from approximately 1% to a target of 45-50% in multiple investments areas that are commonly identified as efficient markets. The consultant estimates total fund investment fees will decrease from an effective fee of 0.98% to 0.61% once the transition is complete.

Date	% in Passive
June 30, 2019	1
December 31, 2019	13
March 31, 2020	30
Long term expected target[22]	45-50

4. Governance Processes

Roles and Responsibilities

> *The IPS should be updated to add roles and responsibilities of all parties involved in oversight of Plan investments, investment fee monitoring process, along with fund selection and monitoring criteria.*
>
> *-Galveston Employees Retirement Fund IPPE*

Clearly defined roles and responsibilities are an important aspect of managing an investment program and are identified by multiple sources as a key component of a well-constructed IPS. A thorough IPS that fully details the roles and responsibilities for all key positions that serve the system will be less prone to operational issues and will aid trustees in understanding the expectations of each role. Clearly articulated roles and responsibilities ensure continuity. For example, if the investment consultant was responsible for fee review in addition to assisting with investment manager selection but is replaced by a consultant that only offers investment manager selection services, then a system can easily see that fee review duties will need to be assigned to someone else.

CFA Institute

"Institutional investors often have boards of trustees (or similar structures) with oversight responsibility for asset management as well as having professional staff responsible for day-to-day management and execution of board-approved strategies. Their roles and responsibilities should be identified in the IPS."[23]

Almost 10% of all recommendations called for improving the clarity of roles and responsibilities in the IPS. These recommendations identified approximately 15 different roles or responsibilities that should be further documented in the IPS. Most of the recommendations suggested clarifying or adding a

[22] Not a formal target but a Meketa assumption based on the expectation that 100% of investment grade bonds, 100% of short-term investment grade bonds, 100% of TIPS, and 100% of Treasuries will be passive, along with anywhere from 25% to 33% of the public equity exposure.

[23] https://www.cfainstitute.org/-/media/documents/article/position-paper/investment-policy-statement-institutional-investors.ashx

definition for a specific role and the responsibilities associated with it. In addition to defining a role in the IPS, recommendations also called for establishing the frequency of tasks required under each role and clear metrics for performance review. Clearly identifying who is responsible for investment fee review was the most common recommendation representing approximately half of the recommendations regarding roles and responsibilities.

Clear roles and responsibilities also aid in a board's delegation process by clearly outlining who is authorized to perform which duties. It is important to remember that, "although the Board maintains oversight of the investment of Trust, the Board performs its fiduciary responsibility to invest the Trust through delegation of authority … for execution of the investment strategy according to this Policy."[24]

> *"We recommend that the 2021 IPS is updated to include: 1) the fiduciary duties and responsibilities of the investment related vendors"*
>
> *-Odessa Firefighters' Relief & Retirement Fund IPPE*
>
> *"We believe the IPS could be enhanced by adding a section articulating the duties of the investment consultant and actuary."*
>
> *-JPS Pension Plan - Tarrant County Hospital District IPPE*
>
> *"The role of Staff could be more clearly outlined in the IPS and/or Operating Procedures."*
>
> *-Austin Fire Fighters Relief & Retirement Fund IPPE*

5. Investment Manager Selection and Monitoring

Recommendations related to investment manager selection and monitoring focus on two main topics: improving performance benchmarking policies and strengthening the manager hiring and firing process, including related documentation.

Net-of-fee Performance Benchmarking

Evaluators emphasized the need for systems to review investment performance on a net-of-fee basis. The recommendations for including net-of-fee information generally identified that systems were either receiving only gross-of-fee performance metrics or were inconsistent in their use of net-of-fee information.

Tracking performance net-of-fees is an important part of assessing the benefit of active strategies in particular. Without proper data to justify an active investment, systems could be allocating capital to active investments that would be better suited for another active manager or a passive strategy. When choosing actively managed over passive investments, systems need to ensure that they are receiving performance net-of-fees that justifies that selection.

Monitoring performance net-of-fees is best practice but most importantly it provides a clear metric for understanding actual performance of an investment. Not understanding the impact of fees on the performance of an investment can be detrimental to an investment program. Properly managing fees is identified in many evaluations as one way to create advantages for a system in achieving their investment objectives. "The CFA Institute and GFOA do mandate monitoring and reporting procedures

[24] Employees Retirement System IPPE

be outlined somewhere in the IPS. The IPS should specify that performance reporting include net of investment management fee data."[25]

Investment Manager Hiring and Firing Policies

One of the most common recommendations is to improve the investment manager hiring and firing process. The recommendations focused on explicitly stating the selection and performance review criteria within the IPS and documenting all hiring and firing decisions with a clear rationale.

Most evaluations identify that systems use their expert investment consultants to assist in investment manager searches. Because systems rely on their investment consultants, specific practices were sometimes not included in the IPS and including more specifics in the IPS is one way for systems to improve.

Both the CFA Institute and GFOA provide guidelines, have best practices and recommend careful consideration of the procedures related to investment managers.

"We recommend the System formally documents the rationale for all hiring and firing decisions."
- Irving Firemen's Relief & Retirement Fund IPPE

"Add quantifiable criteria for measuring investment manager performance, to include appropriate metrics and time periods (e.g. investment returns in comparison to the managers relevant benchmark index as well as peer group universes over trailing time periods of 1-, 3- and 5-years), as well as specific criteria for putting an investment manager on 'Watch' and/or terminating an investment manager."
-Guadalupe-Blanco River Authority IPPE

CFA Institute Primer for Investment Trustees

"Once the rates of return for the managers' accounts, the asset classes, and the total Fund are determined, attention naturally turns to whether those returns are good or bad. To assess the "goodness" of a rate of return, we need a standard or benchmark with which to compare the result. Although there may be many candidates for a benchmark, we believe that the most informative assessment of investment performance occurs when the benchmark has certain basic properties. The benchmark should be the following:

- Unambiguous—the benchmark should be clearly understood by all parties involved in the investment program.
- Investable—the benchmark should represent an investable alternative; that is, the trustees could choose to hold the benchmark rather than hire the particular manager.
- Measurable—the benchmark's rate of return should be readily calculable.
- Appropriate—the benchmark should reflect the manager's typical risk characteristics and area of expertise.
- Specified in advance—the benchmark must be specified prior to the evaluation period and known to all interested parties.
- "Owned"—the benchmark should be acknowledged and accepted as an appropriate accountability standard by the party responsible for the performance.

[25] Employees Retirement System IPPE

Benchmarks that possess these properties provide the investment committee with a fair standard to use in assessing an account's performance."[26]

- (S)PECIFIED IN ADVANCE
- (A)PPROPRIATE
- (M)EASURABLE
- (U)NAMBIGUOUS
- (R)EFLECTIVE
- (A)CCOUNTABLE
- (I)NVESTABLE

One evaluation outlines a similar approach utilizing a helpful mnemonic. "Most traditional public markets investment strategies can typically find benchmarks that meet the SAMURAI criteria, but it becomes more difficult with alternative investment strategies."[27]

Without having clear unambiguous, measurable and specific goals it is difficult to effectively manage. Therefore, having clear objectives and criteria for investment managers is important. If the goals and criteria used to evaluate an investment manager are ambiguous it makes assessing the true value add to the system more difficult. Clear objectives can also help align investment managers to the same goals as systems.

Legislative Recommendations

After the first comprehensive evaluations were completed in 2020, the PRB identified opportunities where some modifications to the statute may prove beneficial. Broadly, the PRB identified areas to refine the evaluation process and clarify the material that is included in an evaluation. These changes will help enhance transparency and strengthen investment practices, benefitting plan members, taxpayers, and local governments.

The Investment Committee is recommending the following for Board approval:

1. **Require evaluations to detail how the evaluator determined the need, or lack thereof, for any recommendations.**

Goal. To evaluate the appropriateness, adequacy, and effectiveness of the retirement system's investment practices and performance and to make recommendations for improving the retirement system's investment policies, procedures, and practices.

Issue. It would be helpful to the systems if the existing law were clearer regarding which aspects of the evaluation should be communicated and how. In general, evaluations received included at least a high-level description of the existing "investment policies, procedures, and practices." When a recommendation was made, most evaluators justified the recommendation with an explanation where the existing approach fell short. However, when no recommendation was made, not all evaluators provided an explanation as to why existing practices are appropriate, adequate and/or effective.

Recommendation. Require evaluations to provide detail both when a recommendation is made and when no recommendation is deemed necessary, to enhance understanding of the investment decision-making process and help foster informed decision-making.

[26] https://www.cfainstitute.org/-/media/documents/book/rf-publication/2017/rf-v2017-n3-1.ashx
[27] Lower Colorado River Authority Retirement Plan IPPE

2. Require a formal review-and-comment process prior to publication of evaluation reports.

Goal. Evaluations are intended to offer an independent analysis of the pension system's practices and policies; ideally, they will prompt a thoughtful review of the system's practices and promote positive change, as appropriate.

Issue. In some cases, it is unclear whether systems have reviewed the evaluation and considered the recommended changes. In contrast, §802.1012(g) of the Texas Government Code requires a formal review-and-comment process for actuarial audits of certain retirement systems, making clear that the system has reviewed the results.

Recommendation. Statute should require a formal review-and-comment process for evaluation reports, modeled after the actuarial audit requirements outlined in Texas Government Code §802.1012(g). It would include:

- Requiring a substantially complete draft of the IPPE be submitted to the pension system's board prior to publication, providing an opportunity for discussion and clarification.
- Allowing the board, the opportunity to submit a written response to the firm acknowledging receipt and making comments or noting any anticipated changes in response to the report's findings.
- Including the response from the board in the final published evaluation, giving stakeholders insight into the impact of the evaluation on the system's practices.

3. Review and consider the feasibility of whether an independent firm conducting the evaluation should be a different firm from the one that helped the system develop its existing investment policies, procedures, and practices.

Goal. Under existing law, evaluations are to be conducted by an "independent firm," which aims to provide a new perspective on the system's practices. Current law allows the firm selected to have an existing relationship with the pension system.

Issue. More than half of the evaluations were conducted by the system's current investment consultant—the firm that likely helped the system develop its existing investment policies, procedures, and practices. Investment Committee members noted, and the data appear to suggest, existing consultants may be less likely to identify areas for improvement if they were directly involved in the development of the existing practice.

Recommendation. A third-party consultant presents an opportunity for a full analysis of current investment processes, encompassing the work of the current investment consultant, which is not possible otherwise. The Legislature should consider the feasibility of precluding a firm that advised or advises the system on its investment policies, procedures, and practices from conducting the evaluation of those policies.

4. Require evaluators to identify its qualifications and potential conflicts-of-interest; codifying existing PRB informal guidance.

Goal. The current evaluation requirement was designed to allow for a fresh look at the investment practices and policies of pension systems to identify opportunities for improvement.

Issue. While the PRB's informal guidance suggests that evaluations make specific disclosures, some evaluations did not clearly identify what firm performed the evaluation, the qualifications of the evaluator, or certain potential conflicts-of-interest. This makes it more difficult for members, taxpayers and other stakeholders to assess the evaluation's efficacy.

Recommendation. IPPEs should contain certain disclosures about the evaluator, including:

- The evaluator's qualifications;
- The nature of any relationship between the evaluator and the plan, and an acknowledgement of potential conflicts-of-interest due to any existing relationship;
- Identification of any remuneration received by the evaluator;
- Acknowledgement the firm is not directly or indirectly managing investments.

The following pages contain summaries of evaluations received by the Pension Review Board (PRB).

Under Section 802.109(i) of the Texas Government Code, the PRB's report must "compile and summarize" the information received. There is no mandate for the PRB to perform independent analyses of any data presented or to assess whether plan practices align with industry standards. The PRB has therefore focused on identifying and reproducing key excerpts from each report, along with significant recommendations, to provide a quick reference for policymakers. All material included in the excerpt tables is provided verbatim. The PRB Analysis section calls attention to certain highlights of an evaluation, noting unique aspects that may distinguish it from other evaluations received.

Investment Practices and Performance Evaluations performed by Independent Third Party

City of El Paso Employees Retirement Trust

PRB Analysis of Evaluation

Plan Assets:[1] $806,623,991

Evaluator: Asset Consulting Group (ACG)

Evaluator Disclosures:[2]

Relationship: Independent 3rd Party

Investment Discretion: None

The evaluation provides a summary report, along with detailed information and simplified "report cards" in several sections, which make it very easy to quickly view the evaluator's assessments and areas for potential improvement. The evaluation makes great use of infographics to present data in a digestible format, and in many cases, in comparison to peers or benchmarks. It should be noted that the evaluation was completed by a 3rd-party firm, which allowed for an enhanced independent review of the investment practices, including the investment consultant's role.

Particularly noteworthy is the evaluator's analysis of the Trust's strategic asset allocation, which provides a comparison of the current asset mix to three alternatives that could potentially improve returns, reduce risk, or both. This should provide value to the trustees as they consider future changes to the allocation.

The analysis of investment fees is also particularly useful. It compares the fees associated with the existing portfolio's funds to a universe of peer funds. This provides transparency to stakeholders regarding the Trust's fees both in total and for its individual investments in general, but also in comparison to the universe of investment options for each asset class.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The IPS is thoroughly written and all nine major key components are included. Overall, compliance with the IPS is adequate. We surveyed all the investment managers in the portfolio and found that not all managers with separate accounts were providing an annual trading cost analysis report as outlined in the IPS. **Recommendations:** - Consider including a process for the comparison of the total portfolio and investment managers' risk-adjusted returns to both peers and the benchmark index. - The Board should review the IPS at least annually to ensure that all required actions are being implemented or make necessary changes to the IPS to reflect the actual process. - Consider documenting the evaluation of risk adjusted returns for the total fund and investment managers relative to relevant peer groups and the benchmark index.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation
The Board of Trustees conducted an asset liability study in 2019 and selected target allocations for each asset class as a result of the study. The current portfolio is well-diversified with allocations to all major asset classes. Using ACG's capital markets assumptions, the strategic target has an estimated median expected return of 6.9% per year over the next ten years. This is in line with Callan's projections for the strategic target, a median expected return of 7.0% per year. Annual cash flow needs are estimated to be approximately 8% of the value of the portfolio based on the last two fiscal year end values. The portfolio appears to be in a reasonable position to provide for future cash flow needs. The portfolio is invested within the strategic allocation outlined in the IPS and all portfolio managers are adhering to their investment mandates.

Investment Fees
The estimated weighted average investment management fee of 63 basis points is slightly above median, but below the top quartile (highest fees) when compared to similarly structured institutional portfolios. The weighted average management fee is above the least expensive quartile, but below median when compared to similarly structured institutional portfolios. Most of the underlying investment managers' fees are in-line with or less expensive than the median manager in their respective universes. Excluding managers in liquidation, only three managers rank above median (most expensive) in management fees against their peer universe.

Governance
Overall, the current governance structure and review process in place appear to be in line with industry standards. The IPS clearly outlines the responsibilities and duties of the Trust as well as each party of interest. The Board of Trustees delegates to an Investment Committee which considers issues related to the investment of Fund assets and which makes recommendations to the Board. The investment decision making process and delegation of investment authority are appropriately documented within the IPS. Review of the November 14th meeting minutes and asset/liability study supports that the current documented process is being properly followed. The Board voted to adopt the State Pension Review Board's minimum educational training requirements for both Trustees and System Administrators. Trustees appear to have reasonable access to education resources through self-pace training as well as other resources circulated.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Appropriate documentation tracking the progress of the Trustees and the Administrator was also provided. Education requirements appear adequate for the Board and Administrators.

Performance and investment objectives are reviewed by an independent third party.

Investment Manager Selection and Monitoring

The investment mandates detailed for each manager and their asset class is properly detailed in the IPS. Managers are meeting their expectations and investing within the constraints outlined in the IPS. Managers with performance concerns are undergoing periodic reviews and the watch list is actively monitored.

The Private Equity benchmark on the performance report differs from what is documented in the IPS (the Russell 3000 Index vs Russell 3000 Index +3%). In addition, the Private Equity peer group comparison does not appear to be populating on the reports and is footnoted as of 9/30/2017.

For investment managers with separate accounts, an annual trading cost analysis report shall be provided. No investment managers are currently providing an annual trading cost analysis report.

[The IPS states] Investment managers with separate accounts shall forward to the Board annually a summarization of all proxy voting and rationale. Investment managers with separate accounts provide summarization of proxy voting to the Board, however, rationale is not provided.

Recommendations:

- There is one current asset class, Private Equity, with different performance benchmarking than what is instructed in the IPS. Consider reviewing the current direction.
- Trading cost analysis and proxy voting instructions detailed in the IPS should be reviewed each year to ensure compliance with the IPS.

Dallas Employees’ Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $3,658,088,000

Evaluator: Milliman

Evaluator Disclosures:[2]

Relationship: Independent 3rd Party

Investment Discretion: None

The evaluation offers a brief summary of the Fund's practices and performance, with some details in specific areas. It should be noted that the evaluation was completed by a 3rd-party firm, which allowed for an enhanced independent review of the investment practices, including the investment consultant's role.

The evaluation touches on the System's annual asset liability study and stress testing that are identified as best practices. The evaluation further notes the System's use of net-of-fees benchmarks for monitoring manager performance exceeds best practices. The evaluation in multiple areas compares practices implemented by the system to either peers or best practices but does not identify what is considered best practice.

The evaluation includes recommendations for the System to continue existing practice, or makes broad, general recommendations.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The IPS is written clearly so existing as well as newly appointed or elected Trustees will find it helpful as an ongoing tool for evaluating the Fund's investment program, consistent with best practices. "Discussion Sheets" in the Board materials provide an example of the Fund following its IPS. We found the ERF's IPS is consistent with other plans and best practices. **Recommendation:** - Maintain current rigorous reviews of the ERF's performance, providers and consultants.

Investment Asset Allocation
The ERF has a formal asset allocation policy defined within the IPS. An asset allocation study is conducted annually, incorporating current capital market assumptions and the Investment Consultant's current views on the market. We found these assumptions to be in-line with peers. The changes in the assumed rate of return are reflected in the Actuary's modeling each year when the actuarial valuation is updated. The ERF maintains a strategic asset allocation that is monitored and rebalanced as needed. The ERF's asset allocation is appropriate for a plan their size and is consistent with best practices. The inputs for the asset allocation modeling are reasonable and the approach used by the system to develop the expected returns and asset mix is disciplined and reviewed regularly. It is consistent with best practices, and results in a well-diversified portfolio appropriate for the plan's size.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- The ERF's frequent evaluation of expected returns is an example of a Fund procedure that exceeds best practices.
- The ERF's annual Asset Liability Study is an example of a Fund procedure that exceeds best practices.
- The ERF's Staff has extensive experience with alternative asset investing, both with ERF and prior to joining the ERF. The Staff is actively engaged in monitoring the alternatives and makes a concentrated effort to stay current with industry trends, products, and strategies.

Investment Fees

The ERF has a disciplined and detailed evaluation procedure to measure, reconcile, and benchmark fees. All fees are transparent and reconciled with service agreements. The ERF does not use commission recapture or directed trades. Manager fees as well as trading and commissions are reported monthly and evaluated formally each quarter. Fees deemed to be outside of acceptable variances are flagged, questioned, and reconciled.

The report compares ERF's practices in this area with the industry standard, as defined by peer practices.

Strengths:

- The ERF's discipline around fees is very thorough and we consider these Fund procedures to be beyond what we see with best practices.

Governance

The ERF's Code of Ethics (this "Code") covers the Board and Staff and addresses topics such as travel, gifts, prohibited transactions, and conflicts of interests. This Code also covers the ERF's consultants, advisors, vendors, employees, and other fiduciaries of the ERF. This Code is read and enforced together with the code of ethics found in Chapter 12A of the Dallas City Code and the travel policy adopted by the Board for itself and its Staff. Meeting agendas, minutes, and report materials are easily available to the Board and the public online. The ERF's governance policy and transparency of practices is adequate for a plan of its size and is consistent with best practices.

Recommendations:

- Adjust training and education requirements as needed to stay abreast of evolving investment strategies in a very dynamic global environment.
- Maintain a focus on transparency.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Manager Selection and Monitoring
Managers are selected by issuing an RFP for each asset class. Working with the Investment Consultant, Staff will recommend candidates for due diligence visits for Board approval. After conducting due diligence, Staff then recommends finalist candidates to present to the Board. Once hired, managers are required to meet with the Board as needed, typically once every two years. The ERF reviews performance monthly, examining both gross and net returns compared to index benchmarks and alpha-adjusted benchmarks. Quarterly, the ERF examines managers compared to peer groups, net of fees, attributing returns to sector, timing, and manager skill. The manager selection and monitoring process is consistent with the IPS and in-line with industry standards. **Strengths:** - The use of net-of-alpha benchmarks in the IPS and monitor reports are an example of the ERF's processes being above standard best practices.

Galveston Employee’s Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $57,497,906

Evaluator: Roland Criss

Evaluator Disclosures:[2]

Relationship: Independent 3rd Party

Investment Discretion: None

The evaluation clearly details the evaluation process as well as documents the sources used to determine what "constitutes generally accepted principles, standards, and best practices of fiduciary conduct as regards managing investment matters in a public setting." The findings are concise and recommendations for improvements easily understandable, with additional details provided as part of the appendix. It should be noted that the evaluation was completed by a 3rd-party firm, which allowed for an enhanced independent review of the investment practices, including the investment consultant's role.

The evaluation is unique in its reliance on the Uniform Management of Public Employee Retirement Systems Act ("UMPERS") as the basis for its evaluation. It notes that UMPERS "modernizes, clarifies, and standardizes the rules governing the investment and management of public retirement Systems' assets. It provides legal mandates that permit public employee retirement Systems to invest their funds in the most productive and secure manner. Public retirement Systems become trusts operated under rules of prudent investment subject to a fiduciary standard of care."

In general, the evaluation concludes the systems practices are largely in-line with best practices but identifies several areas for improvement as well as the urgency with which the improvements should be addressed. The System notified the PRB that all recommended changes/areas of improvement have been enacted during or subsequent to the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The prudent investment expert standard requires retirement Plan fiduciaries to make choices from a broad range of investment options in order to effectively diversify their Plan's assets accounts. Policy guidelines, therefore, are essential and must be adhered to by the fund managers and advisors to whom implementation of policy is delegated. During our work we examined the Plan's investment policy against fourteen internal control steps presented by the Evaluation methodology. One opportunity for improvement ("OFI") emerged that includes four steps. Step 1.2 Roles and responsibilities of those involved in governance, investing, consulting, monitoring and custody are clearly outlined. Step 1.3 The IPS is carefully designed to meet the real needs and objectives of the retirement Plan. It is integrated with any existing funding or benefit policies. Step 1.5 The structure of the IPS adheres to industry best practices. Step 1.8 The IPS contains measurable outcomes for managers and includes the time periods in which performance is to be considered.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Recommendation:

The IPS should be updated to add roles and responsibilities of all parties involved in oversight of Plan investments, investment fee monitoring process, along with fund selection and monitoring criteria.

Investment Asset Allocation
In order to provide a clear picture of the Plan's alignment with asset allocation best practices, we tested the Plan's approach against twenty-five activities. Those activities are grouped within five components of the asset allocation discipline and include the following: *Determine Target Allocations; Expected Risk and Expected Rate of Return; Selection & Valuation Methodologies of Alternative and Illiquid Assets; and Future Cash Flow and Liquidity Needs.* We concluded that no OFI's exist that if addressed would significantly enhance the process used to manage the Plan's investment asset allocation activities. The board should continue to monitor the assets on a quarterly basis.

Investment Fees
While investment fees are reviewed quarterly by the Plan's investment consultant against the Plan's peers, there is no defined method for determining if the Plan's investment related fees are reasonable. The Board also receives financial statements each meeting, which include all other plan-related fees, such as administrative, actuarial, and financial audit. SB322 includes fee benchmarking language, however, there is currently no available fee benchmark for Texas-based public pension funds. Considering the frequency of the Board's meetings and the substance of its reviews of service agreements and fees, it is our opinion that the Board is fulfilling its duty to monitor and control plan expenses. We concluded that five [of eleven] steps exist in the approach the Plan uses for monitoring and controlling investment related fees. **Recommendation:** - We recommend that the Board document the results of its provider service and fee review at least annually. Additionally, the results of the review should provide a determination that the fees are reasonable. - The IPS should be updated to add roles and responsibilities of all parties involved in … investment fee monitoring process.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Governance
Prior to the Evaluation, the Board did not possess an internal controls checklist from which to validate its practices with its policies. Subsequently, the Plan Administrator developed an internal controls checklist based on the Plan's current operations. **Recommendation:** - We recommend that the Board adopt the internal controls checklist and annually assess the Plan's operations.

Investment Manager Selection and Monitoring
Due diligence is the heart and soul of investment manager selection. A good due diligence process objectively whittles down the universe of available managers to just those who meet high standards for inclusion in a retirement Plan's portfolio. The objectives of investment manager due diligence are first examined using quantitative data to evaluate funds against set benchmarks and in relation to peers. In addition to quantitative analysis, fiduciaries should consider applying qualitative factors, which can help detect organizational instability. Any organizational instability, over time, usually leads to a manager's underperformance. We identified one step (individuals responsible for selecting investment managers are identified in the IPS) [that needed improvement] in the Plan's process for selecting Investment Managers. **Recommendation:** - The IPS should be updated to add roles and responsibilities of all parties involved … with fund selection and monitoring criteria.

Houston Firefighters’ Relief & Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $4,237,692,080
Evaluator: Global Sovereign Advisors
Evaluator Disclosures:[2]
Relationship: Independent 3rd Party
Investment Discretion: None

As allowed by Texas Government Code §802.109, the evaluation was prepared in accordance with the Houston Firefighters' Relief & Retirement Fund's governing statute.

The evaluation provides a general overview of each of the eight subject areas identified for review in the pertinent statute. It should be noted that the evaluation was completed by a 3rd-party firm, which allowed for an enhanced independent review of the investment practices.

The evaluation indicates the "structure of the portfolio exemplifies industry best practice," noting "HFRRF deploys a variety of investment strategies ranging from active to passive depending upon the investment's place along the market efficiency spectrum" to take advantage of lower fees at one end and less efficient markets at the other.

The evaluation concludes, "The procedures and documentation provided by HFRRF evidence a systematic approach to safeguarding and increasing the value of the portfolio."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The Fund has a dedicated Investment Compliance Officer who ensures that all relevant policies are complied with. The fund provided clear documentation regarding current investments, including the full agenda for the November 2019 Investment Committee Meeting of the whole Board of Trustees. The documentation described monthly investment actions and private equity and/or real estate commitments taken since the previous monthly meeting. Clear charts showing the relative risk/return characteristics of the Fund were provided to the Investment Committee and the agenda included an opportunity to hear comments from the public. The monthly Investment Committee meeting is somewhat more frequent than other funds, affording enhanced oversight and dialogue among the participants. The inclusion of time during the meeting to receive comments from the general public broadens the communications, transparency and oversight of the Fund. The breadth, frequency and detail of the reports was deemed to be in keeping with industry best practices. As for the ethics policies, including policies concerning insider trading, the policies appear to be appropriate and consistent with best practices.

Investment Asset Allocation
The Investment Compliance Officer monitors the Fund's asset allocation periodically to ensure that it remains in conformity with the Investment Policy Statement (IPS). From our discussions with the Investment Compliance Officer, custodian, and Chief Investment Officer, we believe the asset allocation is given close attention.

[1] As of 6/30/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

The Fund has a detailed process to project future cash flows and the CIO is actively engaged in making sure cash is replenished in time. In addition, for Private Investments, the Fund periodically conducts a pacing study to ensure future cash flow needs (capital calls and distributions) including in stressed scenarios are quantified. Long term risks and the Fund's risk appetite are reflected in IPS and the policy benchmark selection. The Fund reevaluates long term risks and risk appetite by conducting ALM studies periodically. Short term risks are managed by Tactical Asset Allocation within the risk tolerance, which is again reflected in IPS by tactical ranges and the risk budget.

HFRRF employs a prudent mix of investment approaches, with publicly traded stocks either in low cost index funds or in commingled funds with respected fund managers. The structure of the portfolio exemplifies industry best practice. HFRRF deploys a variety of investment strategies ranging from active to passive depending upon the investment's place along the market efficiency spectrum.

Strengths:

- Overall, the closely monitored portfolio, with allocations to a prudent blend of active and passive funds, provides adequate diversification for the long term.

Recommendation:

- Noting the material level of real estate funds and private equity investments, GSA would recommend an independent verification of asset values every two or three years rather than always accepting the valuations stated by the General Partners. It should be noted that GSA has been recommending the independent valuation approach to other significant pension funds, but this is not yet a widely accepted practice.

Investment Fees

Costs are carefully managed by HFRRF. As reported in the fiscal year 2015 - 2018 annual reports of the Houston Firefighters' Relief and Retirement Fund, there has been a significant reduction in the percentage of fees paid to outside fund managers and to the custodian bank. Management's success in negotiating such significant cost reductions will benefit the Fund regardless of market conditions and will strengthen HFRRF's negotiating position as a fair, yet cost-conscious investor.

The Fund has achieved significant cost savings in brokerage fees and management fees over the past several years, by shifting most publicly traded equity investments into index funds or commingled funds with sophisticated large-scale investment firms such as Blackrock, Schroders, KKR and Mellon Capital. To reduce the fees for private equity investments, HFRRF has made earlier and larger commitments to fewer managers, allowing the Fund to qualify for volume discounts.

Management of the fund emphasized that their strategy is to optimize management fees on a continuous basis, balancing risk, and performance with the nature of each investment.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- Higher fee arrangements are limited to classes of investments where more active management approaches can enhance returns.

Governance
Section Not Required Per Governing Statute The Fund has a dedicated Investment Compliance Officer who ensures that all relevant policies are complied with, including regular vetting of the asset allocation.

Investment Manager Selection and Monitoring
The Fund carefully vets managers and, on a quarterly basis, provides the Investment Committee with a report detailing each manager's investment performance and cash flow activity, including fees and expenses. Additionally, the Fund provides a report from the Trust Universe Comparisons Service, as prepared independently by Wilshire. This is in keeping with industry best practices. Industry standard benchmarks are used where appropriate to gauge the performance of investment managers. The benchmark data are licensed and maintained by the independent custodian that also produces the performance reports.

Houston Police Officers' Pension System

PRB Analysis of Evaluation

Plan Assets:[1] $5,674,647,000

Evaluator: Verus

Evaluator Disclosures:[2]

Relationship: Independent 3rd Party

Investment Discretion: None

As allowed by Texas Government Code §802.109, the evaluation was prepared in accordance with the Houston Police Officers' Pension System's governing statute.

The evaluation provides useful explanations and comparison to leading practices for important topics that ultimately improve the understanding of the system. It should be noted that the evaluation was completed by a 3rd-party firm, which allowed for an enhanced independent review of the investment practices.

The evaluator concludes that "HPOPS is a well-managed plan with a disciplined governance structure, a strong and ethical culture, clear decision-making processes, and a reasonable investment strategy."

The evaluation highlights the System was able to lower investment fees because of a relatively large exposure to passive investments compared to its peers. The evaluator also explains that the system is somewhat unique relative to many of its peers in that it does not utilize a general consultant to assist with program implementation, but comments that this aspect has not hindered long-term performance.

The report includes an explanation and analysis of the fund's liquidity using a liquidity coverage ratio (LCR), which can be a useful approach for other systems. The evaluation details that the system's "risk and return objectives are to achieve its actuarial investment rate, currently set at 7.0% net of fees and expenses."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
We found HPOPS takes compliance very seriously, and in most cases, we found that HPOPS closely follows the letter and spirit of its policies. Upon review, we found HPOPS's Ethics Policy to be thorough and comprehensive with sufficient requirements to effectively monitor compliance. We found no critical-path practices which we believe would imperil the health and solvency of the Plan. We found HPOPS to be somewhat unique relative to many of its peers in that they do not utilize a general consultant to assist with program implementation. However, this has not hindered their long-term performance, which places them in the top decile among their public fund peers over the long-term. **Strengths:** In our view, HPOPS is a well-managed plan with a disciplined governance structure, a strong and ethical culture, clear decision-making processes, and a reasonable investment strategy.

[1] As of 6/30/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Recommendations:

- Remove language related to avoidance of large losses, as this is an unrealistic expectation in the public markets equity portfolio.
- The use of the word “permanently” in this guideline [IPS Section 407.11.G – Currency hedging targets] implies a level of hedge ratio stability that has not existed in practice. To remedy this, change the verbiage to state the 50% hedge ratio is a “target” that Staff can adjust within the allowable range.
- Conduct a thorough review of Appendix G to confirm continued relevance of specific requirements and the design and implementation of supporting documentation to demonstrate compliance with updated version (e.g., interview guide, meeting notes template). Solution may be different for traditional and alternative managers.
- Change phrase “without assuming additional risk” to “without assuming excessive additional risk”.
- Conduct a thorough review of Appendix E to confirm continued relevance of specific requirements and the design and implementation of supporting documentation to demonstrate compliance with updated version (e.g., process checklist, RFI/RFP template, comparative assessment report template). Solution may be different for traditional and alternative managers.

Investment Asset Allocation

HPOPS’ risk and return objectives are to achieve its actuarial investment rate, currently set at 7.0% net of fees and expenses, within the risk parameters established by the Board. HPOPS follows a specific and disciplined process to determine the strategic asset allocation targets for the investment portfolio. Staff conducts scenario analysis on the policy portfolio against historical market conditions in addition to stress testing high and low capital market assumptions as additional lenses through which to judge the reasonableness of strategic asset allocation. The asset allocation is reviewed frequently in light of current and expected market conditions.

HPOPS’ current allocation is tilted toward heavier equity exposure and lower fixed income exposure than its peers, which has served it well as higher risk exposures have been steadily increasing since the Global Financial Crisis. Based on these performance metrics, HPOPS actual allocation as implemented has been highly effective in meeting its return objectives over most historical periods and showing strong performance relative to its peers.

Philosophically, HPOPS believes excess returns produced by active management to be fleeting and difficult to identify in advance. They further recognize the behavioral biases faced by most investors that often lead to hiring a manager at the peak of cyclical performance and terminating at the trough. For these reasons, the Plan utilizes predominantly passive exposure in its public markets investment portfolio, obtained through a combination of index funds, ETFs, and futures positions.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- Our analysis based on cash flow projections provided by HPOPS, shows that even under extreme market conditions, the Plan maintains sufficient liquidity to cover net cash outflows.

Investment Fees

Because of HPOPS' heavy usage of passively managed investment strategies, fees are low compared to peers. In our experience, we find a fee load of approximately 40 -60 basis points, not including private markets, to be reasonable for mid-sized plans with a typical mix of active and passive investments, and HPOPS' fees are well below this level. In 2017, HPOPS commissioned a study by CEM Benchmarking to conduct a thorough review of the Plan's investment management cost. available. The 2017 study conducted by CEM Benchmarking stated that HPOPS' all-in fee load was slightly higher than the average of similarly sized plans in its database. We believe this observation results from the impact of HPOPS' higher allocation to low-cost passive strategies being largely offset by its higher usage of high-cost alternative strategies.

- In aggregate, we find HPOPS' fee structure to be reasonable and appropriate given its investment strategy.

Governance

Section Not Required Per Governing Statute

In our view, HPOPS is a well-managed plan with a disciplined governance structure, a strong and ethical culture, clear decision-making processes, and a reasonable investment strategy. We found no critical-path practices which we believe would imperil the health and solvency of the Plan.

Investment Manager Selection and Monitoring

HPOPS has developed robust processes for assessing manager suitability for hire (Appendix E) and for conducting periodic on-site due diligence after a manager has been hired (Appendix G), which are described in detail in the Investment Policy Statement. In addition, HPOPS' Investment Staff monitors each manager on an ongoing basis, utilizing a performance report that is reviewed with the Investment Committee and the Board of Trustees on a monthly basis.

Because HPOPS utilizes mostly passive management for its public markets investments, the opportunities to follow the above-described process have been limited. One example occurred in 2013, when the Plan was seeking an "Alternative Beta" manager to help diversify portfolio risk. Based on our

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

review of search documents, this search was not conducted in strict compliance with Investment Policy. Further, in our view actively managed traditional investments, and alternatives each require different approaches to due diligence, including varying degrees of rigor. HPOPS' established search process does not explicitly address these differences.

HPOPS utilizes a combination of benchmarking approaches to help measure the ongoing effectiveness of its investment program. We believe these benchmarks are broadly appropriate. We further believe additional useful information could be obtained by comparing each fund to a relevant peer universe of actively managed strategies. Through discussions with Staff, we confirmed that annual meetings occur as mandated but that the reviews are unstructured and not well documented.

Recommendations:

- Specify separate requirements for active and passive traditional investments, as well as for alternative investments.
- Simplify the process description, providing high-level guidelines for flexibility with specificity on required rigor only where necessary. For example, it may not be necessary to have candidate managers complete an RFP for every search, but it may be necessary to obtain Investment Committee and Board approval every time.
- Prepare adequate documentation to ensure/demonstrate process has been followed.
- Include peer rankings in periodic performance reports, as appropriate.
- Clarify the level of due diligence required by type of investment.
- Reduce the specificity of the coverage topics in Appendix G to provide Staff with flexibility.
- Prepare adequate documentation to ensure/demonstrate process has been followed.

San Angelo Firemen's Relief and Retirement Fund

PRB Analysis of Evaluation

The evaluation provides helpful explanations and includes useful comparisons to industry practices to make specific recommendations for improvement to the System's policies. The evaluation clearly identified and discussed if a recommendation resulted in changes made by the System, which demonstrates the effectiveness of the evaluation. It should be noted that the evaluation was completed by a 3rd-party firm, which allowed for an enhanced independent review of the investment practices.

Plan Assets[1] $71,680,768

Evaluator: Champion Capital Research (CCR)

Evaluator Disclosures[2]

Relationship: Independent 3rd party

Investment Discretion: None

While the evaluation notes the System's investment policy statement (IPS) is a thoughtful document, multiple recommendations were made to enhance the IPS, including the recommendation to delineate the roles and responsibilities of the fiduciary consultant, actuary, custodian, and investment manager to align with best practices.

The system adopted a revised IPS in May 2020 as a result of this evaluation that addresses most, if not all, of the recommendations made by the evaluation. It is referred to as the "May 2020 IPS" throughout the excerpts below.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
CCR completed an analysis of San Angelo Firemen's Relief and Retirement Fund's (SAFRRF) investment governance policies that have been adopted and assessed the system's compliance with these policies. The Plan's Investment Policy Statement ("IPS") is a thoughtful document. During the process of this review, the Plan recognized its IPS would benefit from a review and update and swiftly agreed to implement policies that would conform to "best practices". The Plan's previous IPS described sufficiently the roles and responsibilities of the Board of Trustees ("The Board") but was silent regarding other fiduciaries and vendors. **Strengths:** - Because the Plan is currently vigilant in its compliance with both its investment policies, we believe The Plan will have no difficulty improving and implementing the new IPS resulting in fiduciary excellence. **Recommendation:** - The May 2020 IPS has been improved to include a description of the roles and responsibilities of the Fiduciary Consultant, the Actuary, and the Custodian, and to improve the description of those of the Investment Manager.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation
The Plan's methodology for determining its target allocations, while not elucidated in policies is the result of the Investment Managers investment advice. The process used by The Plan resulted in a sufficiently diverse asset allocation. The IPS is silent concerning capital market assumption, and the Plan's procedures silent concerning a periodic update of capital market assumptions. Cash flow and liquidity needs are addressed periodically by the Board. The Plan recognizes the opportunity to solicit asset allocation advice from experts in addition to their Investment Manager. While the Board and Investment Manager(s) do not stress test the portfolio, CCR completed a stress test of the Plan's broad asset allocation in order to address responses for this report. **Recommendation:** - The opportunity to engage a fiduciary consultant who can opine regarding asset allocation, active vs. passive management, as well as capital market assumptions and expectations are addressed the Plan's May 2020 IPS.

Investment Fees
CCR completed a thorough and complete analysis of The Plan's investment fees, expenses, and commissions paid during 2019. CCR found that the fees were high relative to its peers. CCR found that the Plan was not receiving sufficiently impartial governance and investment advice. The Plan recognized that its IPS was silent concerning the responsibility to periodically report, analyze, and benchmark total fees. **Recommendations:** - It is CCR's recommendation that the Plan adopt policies and processes by which it periodically, but no less frequently than annually, documents both direct and indirect fees and compensation paid to all managers, brokers, mutual funds, and consultant(s). - At the renewal of any Investment Manager agreements, it would be prudent to require an annual accounting by each manager of all direct and indirect remuneration received during the calendar year. This would make it easier for the Board to aggregate all fees and expenses, benchmark for reasonableness, as well as hold all managers to a fiduciary requirement to report accurately remuneration received.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Governance

CCR completed an analysis of The Plan's governance and investment processes, delegation of investment authority, and board investment expertise and education. It is best practice to evaluate the services and agreements with all service providers at least once every three years. CCR finds The Plan's decision-making processes, delegation of authority and investment education and expertise among the Board, to be robust, prudent, and consistent.

Strengths:

- CCR believe that the time spent on investment related issues is consistent with prudent practices.

Recommendation:

- Best practices require that vendor contracts be evaluated every three years.

Investment Manager Selection and Monitoring

While there are several opportunities for improvement in this part of the report, so many of them have been remedied as a result of the acceptance of the May 2020 IPS. The investment manager selection and monitoring process now include "best practice" criteria by which to evaluate the performance of a manager.

In summary, The Plan recognized that its "previous" IPS should be improved to satisfy best practices with respect to manager selection and monitoring. The Plan reviewed proposed monitoring criteria and language and agreed to implement into its May 2020 IPS.

Recommendations:

- The process for determining when an investment manager should be replaced was undefined until May 2020 IPS.
- Fiduciary best practices include monitoring both net and gross of fee relative to benchmark in each quarterly report.

Investment Practices and Performance Evaluations performed by Investment Consultant

Amarillo Firemen’s Relief & Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $193,539,560

Evaluator: Alpha Consulting Group of Wells Fargo Advisors

Evaluator Disclosures:[2]

Relationship: Investment consultant

Investment Discretion: None

The evaluation identifies the policies and practices the system follows and concludes they are largely in-line with best practices. The evaluation noted that the pension board engaged the investment consultant to perform a "Risk Posture Assessment" in February 2019 to evaluate the system's risk appetite. As a result of the assessment, additional asset classes were added to the portfolio, but the board chose not to add alternative investments.

In general, the statements describing the system policies and practices provide minimal commentary, explanation or comparison to peers. For example, the evaluation states that the asset allocation is reviewed every year to ensure the allocation is in line with the expected return but does not elaborate on the process used to review the asset allocation.

Other notable aspects identified in the evaluation are as follows:

- The asset allocation is crafted to achieve the expected return.
- The system primarily uses active vs. passive managers, which the evaluator notes "have been successful in beating their underlying indexes."
- The evaluation also notes that active manager performance is only compared to benchmarks gross-of-fees, not net-of-fees.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement

The Investment Policy is to be reviewed at least annually for its appropriateness. Roles and responsibilities are covered for the Board of Trustees (Board), Investment Managers, Custodian and Investment Consultant. In the Policy, Amarillo Fire is to meet three of their four investment goals over time (not less than three years).

The Policy does not take into consideration the current funded status, but it does include the contribution amounts for the City and the participants. The Policy follows industry best practices, but it does not include language about fees.

Recommendations:

- Language should be added to address that investments into mutual funds, exchange-traded funds or comingled investment trusts that may not follow the investment stipulations of the Statement of Investment Policy.
- It is recommended that language is added to the Statement of Investment Policy regarding the evaluation of Plan expenses.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation
The Board reviews the asset allocation every year or so and in February 2019 engaged the Investment Consultant to do a Risk Posture Assessment to ensure the System's appetite for risk matches their ability to take risk. The System's asset allocation is crafted to achieve the expected rate of return which is a product of the Investment Consultant and Actuary working together to make sure the expected return is reasonable given current market conditions. The System does use tactical allocations but currently does not use alternative investments which differs from other Plans of similar size. The System primarily uses active managers and has limited exposure to passive investments. **Strengths:** - Risk Posture Assessment, Asset Allocation Study conducted in 2019.

Investment Fees
The System currently does not have a written policy covering fees. The reasonableness of fees is determined by a 3rd party, Abel Noser, engaged by the Board to provide analysis of the commissions paid. The System has reviewed the cost of the investment managers and other service providers such as the Investment Consultant, Custodian and Legal Advisors.

Governance
The Board does not have a stand-alone governance policy, but the Board does follow the recommendations of the PRB and TLFFRA guidelines.

Investment Manager Selection and Monitoring
The Board in consultation with the Investment Consultant is responsible for selecting and retaining investment managers. The Investment Consultant will present to the Board investment managers that are recommended by the consultants Global Manager Research (GMR) analysts. GMR analyzes investment managers using qualitative and quantitative data. When the Board is comparing multiple managers, they will provide an emphasis on managers with attractive risk-adjusted returns, who protect assets in down-markets and have consistent returns. Conflicts of interest for both investment managers and Board members are considered when evaluating managers. - Performance is reviewed quarterly

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

- Overall Plan level and individual investment manager performance is covered
- Metrics such as standard deviation, beta and Sharpe ratio are used
- Performance is reviewed gross-of-fee (no net-of-fees since the benchmark indexes do not include investment cost).

Austin Fire Fighters Relief & Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $1,029,892,806

Evaluator: Meketa

Evaluator Disclosures:[2]

Relationship: Investment consultant

Investment Discretion: None

The evaluation offers a balanced approach to both summarizing key aspects of the System while also going into more detail where necessary. The evaluation provides helpful summary points for each section and recommendations are well-supported with details and comparison to leading practices.

The evaluation notes that the System's investment performance has benefitted from its approach to adopt and stick to a long-term strategic asset allocation. This is likely attributable, at least in part, to the uncommon requirement that IPS changes must be approved in three consecutive board meetings. The evaluation states that the System is "better funded than most public pension plans (and has minimal net annual cash outflows) which allows it to invest more in private equity than most peers."

The evaluation also highlights the System's use of passive investments. This focus on passive investments is seen across sections, emphasizing how this strategy impacts returns and reduces overall investment costs.

The evaluation's discussion on governance was also strong. It provided detailed descriptions of how the board operates, how it makes decisions, and how trustees improve their effectiveness in their roles.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
Changes to the IPS must be approved in three consecutive board meetings. It is our understanding this rule was adopted over 10 years ago to avoid making frequent changes to the policy document. In addition to the IPS, Austin Fire has "Operating Procedures" that provide direction and governance pertaining to the day-to-day investment of the portfolio. The Operating Procedures are not subject to the three consecutive meeting requirement. **Strengths:** - The IPS is well thought-out and in line with industry standards - The IPS covers Fund level items and is not overly prohibitive or prescriptive - It is consistent with guidance from the CFA Institute - Roles and responsibilities of all key parties involved are clearly outlined (Board of Trustees, Investment Consultant, Investment Managers, Custodian Bank) except for the role of Staff - The document is written in "plain-English" and is easy for a layperson to understand - It is our opinion that the Board of Trustees and Staff will be able to stay committed to the guidance detailed in the IPS during a stressed or prolonged market scenario.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Recommendation:

- The role of Staff could be more clearly outlined in the IPS and/or Operating Procedures

Investment Asset Allocation

According to the IPS, *"the Board will review its asset allocation targets and ranges at least annually or sooner if warranted by a material event in either the liability structure of the plan or the capital markets."* Minimal tactical decisions have been implemented over the past five years.

According to the IPS: *"The Board intends to monitor and control investment costs at every level of the fund through the following: Where appropriate, passive portfolios will be used to minimize management fees and portfolio turnover."* Austin Fire had approximately 82% in active strategies and 18% in passive strategies as of December 31, 2019. Excluding private market asset classes, 26% of the public market exposure is passive. This exposure has been rather steady over the last five years.

The current exposure to alternative investments is average to above average relative to industry averages for peer plans around the $1 billion asset size. Based on an average fund value of $1 billion the fund is expected to have average net cash outflow of approximately 1.4% per year for the next three years. ($13.6 mm⁄$1,000 mm = 1.4%)

Strengths:

- Austin fire has done a great job of adopting a long-term strategic asset allocation and sticking to it. We believe its long-term performance has benefited from the Board's restraint in not overly tinkering with allocation changes
- In our opinion, the approach Austin fire takes to formulate asset allocation is sound, consistent with best practices, and leads to a well-diversified portfolio.
- The analysis, thought, and conversation by the Board that accompanies each new private market investment is very robust and thorough, which we believe has led to good decision making
- The current asset allocation targets are consistent with peer systems of similar size. The fund is better funded than most public pension plans (and has minimal net annual cash flows) which allows it to invest more in private equity than most peers
- The target asset allocation is well diversified and built with a global perspective in mind given the globally investable universe
- Austin Fire's approach to passive management is consistent with industry best practices (e.g. passive is used in efficient asset classes)
- Austin Fire's minimal net cash outflows put the Fund in a much better position to withstand market corrections than other public pension with more significant net cash flows

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Recommendations:

- We recommend the Board continues to remain patient with its approach to asset allocation
- We recommend the Board and Staff closely monitor contribution levels and expected net out flows
- We recommend Austin fire consider adjusting actuarial valuation assumptions as necessary based on the outcomes and advice of the actuary upon conclusion of the experience study expected in 2020
- We recommend the Board continues to use future return projections (and the advice of the actuary and consultant) when evaluating and setting its actuarial return target

Investment Fees

According to the IPS, "The Board intends to monitor and control investment costs at every level of the fund through the following: professional fees will be negotiated whenever possible. Where appropriate, passive portfolios will be used to minimize management fees and portfolio turnover. The fund may enter into performance-based fees with specific managers. If possible, assets will be transferred in-kind during manager transitions and fund restructurings to eliminate unnecessary turnover expenses. Managers will be instructed to appropriately minimize brokerage and execution costs."

Based on our analysis, we estimate Austin fire paid a blended average fee of approximately 0.64% in calendar year 2019 to investment managers. This is above the industry average of 0.60% (according to the latest available NCPERS survey conducted). The biggest source of fees was in private real estate, private equity and international equity. For private markets managers [the] calculation does not take into consideration performance fees [or] the underlying fee each fund of funds pays to the underlying managers.

Strengths:

- Austin Fire has done a good job of identifying public market's managers with competitive fees.
- Austin Fire's use of passive index funds has helped reduce overall costs for the fund.
- The private markets related fees are expensive but not surprising, nor outside the norm for fund of funds.
- At approximately $1 billion in assets, Austin fire is large enough to build a diversified direct program of private equity investments (if it wished) or continue with fund of funds.
- The commissions paid appear reasonable and in-line with industry norms.

Recommendations:

- We recommend Austin fire maintains its passive exposure in efficient market classes
- We recommend that Staff, the Board, and the Consultant all remain diligent in monitoring fees.
- We recommend Austin fire staff document its internal process for fee reconciliation and payment in a formal procedure document or memo.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

- The Trustees may want to explore more direct investments in private markets to reduce overall costs relative to fund of funds. Doing so would result in additional advisory costs which would likely (but not guaranteed) be less than FOF fees.

Governance

The website is simple and easy to navigate.

The Board of Trustees has investment authority. Any action by the Board requires a majority vote. Rebalancing recommendations are approved by the Board upon recommendation from the Consultant. Staff is authorized to implement the rebalancing efforts after Board approval. Most investment decisions are based on the recommendation of the Consultant, with extensive conversation among Board members prior to approval.

The Board of Trustees frequently debates the pros-and-cons of each investment decision in open public meetings. All investments are managed by external investment managers.

Most investment related decisions are accompanied by thoughtful conversation among the Board members and Consultant. There is very little (to no) “rubber stamping.” The agenda for each investment meeting is set by the pension Administrator in consultation with the Consultant. The Consultant keeps a running “roadmap” that is shared with the Board. It sets the stage for the direction of the fund over the coming 2-3 meetings.

Some of the Board members have significant investment expertise across asset classes from their time on the Board, attendance at industry conferences and active commitment to learning. The Board members routinely participate in the TEXPERs conferences as well as other national pension conferences (e.g. NCPERS).

Strengths:

- The website is in a state of evolution. We are pleased to see progress.
- The separation of board meeting vs. investment meeting is very productive for sound decision making and allocation of time and resources.
- Flexibility exists for investment matters to be discussed at the monthly board (non-investment meetings) as needed. This has been helpful a number of times of the past few years.
- Board discretion on all investment actions (i.e. not granting investment authority to staff) is common for a $1 billion pension with limited staff that mostly focuses on administering the plan (i.e. not dedicated to investments).
- Austin Fire’s Board members work extremely well together. The small size of the board (and continuity) has helped with sound decision making and ultimately greatly benefited the participants in our opinion.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Manager Selection and Monitoring
The consultant leads the evaluation process on manager selection. Meketa has a process where it continuously monitors and reviews investment managers in the industry. From this work, Meketa creates a "bullpen" of high conviction products that have been thoroughly vetted through Meketa's multi-phase process. Policy benchmarks for each asset class and the total fund are included in the operating procedures and quarterly performance reports. The Consultant makes recommendations on which benchmarks are appropriate. Individual manager benchmarks are determined based on each investment strategy's mandate and will generally, but not always, match the recommended benchmark identified by the investment manager. The Consultant is primarily responsible for monitoring the performance of the investment managers and reporting to the Board. The Consultant conducts periodic meetings, conference calls, and constant oversight of the investment managers. The Consultant and the Board discuss individual strategies in more depth, as warranted. **Strengths:** - Performance monitoring and benchmarking is in-line with industry best practices. - Manager selection and evaluation is in-line with industry best practices. **Recommendation:** - We recommend Austin Fire formally documents the rationale for all hiring and firing decisions.

Austin Police Retirement System

PRB Analysis of Evaluation

Plan Assets:[1] $857,839,229

Evaluator: AndCo

Evaluator Disclosures:[2]

Relationship: Investment Consultant

Investment Discretion: None

The evaluation provides both a review of policy practices and clearly documents the sources used as comparative best practices, while also providing detailed explanations where appropriate, specifically the helpful explanations outlining the asset allocation process and the general governance decision-making process.

The evaluator notes that the existing investment consultant makes recommendations for improvement proactively and are already incorporated in the existing practices, therefore only general recommendations for "APRS to maintain its robust processes to both review the current investment portfolio while also seeking to identify new investments that can improve the System's long term expected risk and return while maintaining liquidity to meet its benefit obligations" are made in this evaluation.

The evaluation identifies the benefits to conducting asset liability studies noting that "through a comprehensive discussion over the asset/liability study results clients can have a clearer understanding of practical plan investment expectations." The evaluator highlights the collaborative effort between the investment consultant, actuary and trustees when performing these studies stating "Asset/liability studies are the only standard analysis that evaluate several components of a Plan's key financial drivers including the Investment Policy, Contribution Policy and Benefit Policy."

The evaluation also expands on the investment manager best practices including both selection and monitoring. It details the qualitative and quantitative aspects the System considers when assessing manager performance and how these factors match industry standards.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
AndCo analyzed the System's IPS and the Board's compliance with the IPS. AndCo, as an independent, professional investment consulting firm, has determined that the System's IPS, and the Board's compliance with the IPS, is appropriate and comparable the structure of an effective investment policy statement as laid out by the CFA Institute (ELEMENTS OF AN INVESTMENT POLICY STATEMENT FOR INSTITUTIONAL INVESTORS, Copyright 2010 by the CFA Institute). **Strengths:** – Maintain its ongoing annual review of the investment policy statement and continue to work with the investment consultant in an ongoing effort to improve the investment policy to maintain alignment with industry best practices.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation

The System's process for determining asset allocation targets is executed and implemented through strategic asset allocation studies that contain a variety of potential asset allocation targets for the Board's consideration. The specific asset classes included in each strategic asset allocation study, as well as the potential mixes under the Board's consideration will include both asset classes currently in the System's portfolio as well as other asset classes that may be suitable for inclusion. In addition to return objectives and risk-tolerance contained in the strategic asset allocation study, the System also considers its ongoing liquidity needs and the maintenance of an appropriate level of diversification in the portfolio when determining the appropriate asset allocation targets for the System. The System's cash flow and liquidity needs are reviewed by the Board each quarter as part of the investment consultant's quarterly performance review.

We believe a robust asset/liability study helps the consultant and Board review asset allocation mixes to determine those allocation strategies which could potentially best serve to protect or increase funding levels, while providing adequate liquidity for benefit payments and minimizing associated risks. AndCo believes that through a comprehensive discussion over the asset/liability study results clients can have a clearer understanding of practical plan investment expectations.

AndCo reviewed the System's processes for asset allocation including target determination, expected risk and return, selection and valuation methodologies for alternative and illiquid assets, as well as cash flow and liquidity needs. While different approaches exist, AndCo, as an independent, professional investment consulting firm, has determined that the System's processes are appropriate and comparable with what AndCo considers best practice, industry standards.

Strengths:

- AndCo anticipates that System asset allocation studies and asset liability studies will be developed and reviewed every three to five years which is in accordance with what AndCo views as best practice in the industry and across its client base.
- AndCo recommends that the System
  - Maintain its long-term asset allocation structure and tolerance ranges.
  - Maintain its existing asset class diversification and its willingness to explore and implement new asset classes as opportunities arise.
  - Continue to pursue institutional quality, diversified options within its alternative asset allocations with reasonable fee structures.
  - Continue to work with the Consultant to rebalance the portfolio actively to provide any needed cash flow and maintain its long-term target allocations.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Fees
The fees for the System's portfolio contained in the most recent quarterly investment review reflect a cost of 0.49%. Based on the 2019 NCPERS Public Retirement Systems Study, published on January 22, 2020, the average fee for the survey's 155 state and local government pension respondents was 0.55%. It is important to note the System also considers fees an important part of the decision-making process and evaluates the potential fee impact for each new investment manager and strategy considered for inclusion in the System's portfolio. The System considers the current fee of 0.49% reasonable and appropriate for its portfolio. AndCo reviewed the fees paid to administer the System's portfolio and the underlying investment manager fees. While high or low fees do not guarantee failure or success for an investment portfolio, AndCo, as an independent, professional investment consulting firm, has determined that the System's fees are appropriate as evidenced to the comparison of national plans in the 2019 NCPERS public Retirement Systems Study. No changes are recommended at this time.

Governance
The System's IPS contains clear definitions of the Board's responsibilities as well as the role of the Board's professional advisors in assisting the Board in fulfilling its fiduciary duties to the System with respect to the investment of assets. Direct investment authority for the System's assets lies with the Board. As such, all decisions regarding the System's portfolio including return objectives, risk tolerance, investment guidelines, asset allocation targets and manager selection and retention reside with the Board. AndCo reviewed the System's governance processes related to investment activities, investment decision-making, delegation of investment authority, and education. While different governance structures exist around investment decision-making, delegation of investment authority, and education, AndCo, as an independent, professional investment consulting firm, has determined that the System's processes are appropriate. No changes are recommended at this time.

Investment Manager Selection and Monitoring
The investment manager selection process for the System is conducted in collaboration with the System's investment consultant. While the investment consultant may make recommendations regarding investment strategies, the ultimate decision to select a specific strategy for inclusion in the System's portfolio resides with the Board. AndCo works with the System to make ongoing quantitative and qualitative assessments of managers to gauge their success and failure. Putting a manager on watch or recommending termination is determined by the severity of the quantitative and/or qualitative issues.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- AndCo believes that the System is in accordance with the process best practices laid out by the GFOA for selecting third party investment professionals for pension fund assets.
- All performance calculations supplied by the consultant to the Board meet the guidelines of the CFA institute
- Performance reports present time weighted rates of return as well as dollar weighted returns for private investments as directed by the CFA Institute.
- AndCo believes that the manager selection process in place at the Austin Police Retirement System is robust and is in accordance with industry best practices. AndCo employs a similar search and selection across its national public fund client base.
- AndCo recommends that the System maintain its investment process for investment manager search and selection which relies on its investment consultant, investment committee, and board in selecting new investment managers for use within the pension fund's investment portfolio.

Beaumont Firemen’s Relief & Retirement Fund

PRB Analysis of Evaluation

The evaluation provides both a review of policy practices and clearly documents the sources used as comparative best practices, while also providing detailed explanations where appropriate.

The evaluator notes that the existing investment consultant makes recommendations for improvement proactively and are already incorporated in the existing practices, therefore only general recommendations for the System "to maintain its robust processes to both review the current investment portfolio while also seeking to identify new investments that can improve the Fund's long term expected risk and return while maintaining liquidity to meet its benefit obligations" are made in this evaluation.

Plan Assets:[1] $105,769,426
Evaluator: AndCo
Evaluator Disclosures:[2]
Relationship: Investment Consultant
Investment Discretion: None

The evaluation notes the cashflow will be negative for the foreseeable future and "a meaningful portion of the Fund's investable assets are PROP balances that may leave the Fund unexpectedly," so there is a need for higher allocations to "public, liquid assets"

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement

We analyzed the System's IPS and the Board's compliance with the IPS. While different IPS structures exist, AndCo, as an independent, professional investment consulting firm, has determined that the System's IPS, and the Board's compliance with the IPS, is appropriate and comparable with what AndCo considers best practice, industry standards, and comparable to the structure of an effective investment policy statement as laid out by the CFA Institute (ELEMENTS OF AN INVESTMENT POLICY STATEMENT FOR INSTITUTIONAL INVESTORS, Copyright 2010 by the CFA Institute).
Strengths:
– AndCo recommends the Fund
    – Maintain its ongoing review of the IPS. We feel that reviewing the policy statement annually is a strong practice and should be continued.
    – Continue to track the changes to the investment policy and report them in a clear and transparent manner.

Investment Asset Allocation
The Fund's process for determining asset allocation targets is executed and implemented through frequent and thorough discussions between the Board and the investment consultant. Each year, the Board's investment consultant uses a combination of 10- to 15-year forward-looking asset class return assumptions, risk and correlation assumptions, historical asset class return and risk data, and a long-term (50+ years) building block return methodology to determine a target allocation that the investment consultant believes will have the highest probability of achieving the Fund's return objectives. Any changes to the Fund's strategic asset allocation targets and ranges are then recommended to the Board for consideration.

[1] As of 12/31/2019
[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

The Fund's cash flow and liquidity needs are reviewed by the Board each quarter as part of the investment consultant's quarterly performance review. This review includes discussions regarding the current, expected, and known timing variances of future contributions to, and withdrawals from, the Fund. Based on the Fund's current expectation that cash flow (net contributions less withdrawals) will be negative for the foreseeable future without a change in the contribution rate and the fact that a meaningful portion of the Fund's investable assets are PROP balances that may leave the Fund unexpectedly, the portfolio has been positioned to include higher allocations to public, liquid assets.

Strengths:

- AndCo recommends that the Board
  - Continue regular asset allocation reviews with its investment consultant.
  - Maintain its policy of educating themselves on new asset classes that could be beneficial to the investment portfolio.
  - Continue to work with the Consultant to actively rebalance the portfolio to provide the required liquidity levels and maintain its long-term target allocations.

Investment Fees

The fees for the Fund’s portfolio contained in the most recent quarterly investment review reflect a cost of 0.42%. Based on the 2019 NCPERS Public Retirement Systems Study, published on January 22, 2020, the average fee for the survey's 155 state and local government pension respondents was 0.55%. It is important to note the Fund also considers fees an important part of the decision-making process and evaluates the potential fee impact for each new investment manager and strategy considered for inclusion in the Fund's portfolio. The Fund considers the current fee of 0.42% reasonable and appropriate for its portfolio.

We reviewed the fees paid to administer the Fund's portfolio and the underlying investment manager fees. While high or low fees do not guarantee failure or success for an investment portfolio, AndCo, as an independent, professional investment consulting firm, has determined that the Fund's fees are appropriate and comparable with what AndCo considers best practice, industry standards. No changes are recommended at this time.

Governance

The Fund's IPS contains clear definitions of the Board's responsibilities as well as the role of the Board's professional advisors in assisting the Board in fulfilling its fiduciary duties to the Fund with respect to the investment of assets. Direct investment authority for the Fund's assets lies with the Board. As such, all decisions regarding the Fund's portfolio including return objectives, risk tolerance, investment guidelines, asset allocation targets and manager selection and retention reside with the Board.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

We reviewed the Fund's governance processes related to investment activities, investment decision-making, delegation of investment authority, and education. While different governance structures exist around investment decision-making, delegation of investment authority, and education, AndCo, as an independent, professional investment consulting firm, has determined that the Fund's processes are appropriate and comparable with what AndCo considers best practice, industry standards. No changes are recommended at this time.

Investment Manager Selection and Monitoring
The investment manager selection process for the System is conducted in collaboration with the Fund’s investment consultant. While the investment consultant may make recommendations regarding investment strategies, the ultimate decision to select a specific strategy for inclusion in the Fund’s portfolio resides with the Board. The investment consultant's reports highlight portfolio and investment manager performance and risk relative to the various performance measurement standards established in the IPS. The criteria established in the IPS tracks managers on both a qualitative and quantitative basis. Strategies that repeatedly fail to meet these standards will be placed on a watch list or terminated. The criteria are not designed to remove the decision process from the Board, but rather are intended to add objectivity and enhanced scrutiny on managers who are underperforming the criteria contained in the IPS. While the investment consultant may make recommendations regarding the continued retention or termination of an investment strategy in the Fund's portfolio, the ultimate decision to retain or terminate an investment strategy (within the bindings of the strategy's agreement) resides with the Board. **Strengths:** – AndCo recommends that the Fund maintain its investment process for investment manager search and selection which relies on its investment consultant and Board in selecting new investment managers for use within the Fund's investment portfolio.

City of Austin Employees' Retirement System

PRB Analysis of Evaluation

Plan Assets:[1] $2,928,033,076
Evaluator: RVK
Evaluator Disclosures:[2]
Relationship: Investment consultant
Investment Discretion: None

The evaluation is well-balanced in its summarizing of information in easily understandable graphics, while also providing detailed explanations where appropriate, specifically, the helpful explanations of the asset allocation and investment manager selection processes. The evaluation models transparency by clearly identifying the internal documentation, third-party analyses and benchmarking sources used in the thorough review.

The evaluation provides details from the System's 2018 Asset Liability (A/L) Study, including the expected impact under different assumptions resulting from the funding gap. Specifically, the evaluation notes the A/L study illustrated the **"large gap between System assets and liabilities cannot be closed without significant changes to contribution policy due to increasing System liabilities."**

The evaluation highlights that "COAERS' investment decision making process and governance structure have been carefully constructed to reflect stated investment beliefs" and "broadly reflects comprehensive implementation of best practices." It emphasizes "the separation of policy from implementation is an important and attractive characteristic of the COAERS investment program."

The evaluation identifies COAERS' investment manager selection process as "unique and differentiated" and one that "provides tangible and intangible benefits that a more common process followed by many peers may not afford, such as the demonstrated ability to negotiate lower fees and the avoidance of performance chasing behavior." It continues to note that while there are areas for potential improvement, "the current process and documentation thereof is best-in-class within the public pension universe."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
COAERS' investment program is governed by two distinct policies—the Investment Policy Statement ("IPS") and Investment Implementation Policy ("IIP")—which together serve as overarching program documents detailing the objectives and guidelines used for the management of System assets. The Board of Trustees (the "Board") review both of these documents at least annually, with more frequent approvals conducted as necessary after first passing through the Investment Committee when Investment Staff and/or Investment Consultant introduce proposed language updates. Within the past year these documents have been updated, reviewed in detail, and approved twice to reflect improvements in clarity with respect to oversight responsibility of the System's assets by way of increased transparency into processes relating to such items as strategic long-term goals, rebalancing ranges, etc. "It is in our opinion that both documents reflect best in class industry standards related to both policy language and governance related to implementing said policies." The language contained within the IIP allows for the Board to establish a set of overarching governance with respect to manager interaction, while simultaneously ensuring that the Investment Staff has authority to act on the Board's behalf in a manner that is mutually agreed upon.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- RVK believes the COAERS IPS is consistent with industry best practices, representing clearly defined language aimed at providing the Board governance standards when instituting their investment program.
- RVK believes the COAERS IIP is consistent with industry best practices, representing a clear extension of the IPS, aimed at providing the Board further implementation details when instituting their investment program.

Investment Asset Allocation

The efforts from the Board, Investment Committee, and Investment Staff show a thoughtful approach to the selection of the Strategic Target Allocation, with particular emphasis on the 2018 Asset/Liability study. From this analysis, COAERS was able to narrow the potential range of outcomes and create a set of target allocations applying reasonable judgement and its own investment beliefs throughout the process. The current COAERS target portfolio represents one that is liquid, transparent, and flexible, with a slightly above average risk tolerance compared to public pension peers. The process to reach the current target allocation took place over multiple meetings and continues to be refined as appropriate with each new analysis performed.

COAERS' target allocation is ultimately driven by the liabilities of the System including expected cash flow and liquidity needs. The primary method for analyzing the projected liabilities in the context of asset allocation is through an Asset/Liability ("A/L") Study. These studies are the primary basis for informing appropriate risk levels and any large shifts in target allocation, though smaller changes can occur in between A/L studies based on changes to market environment, capital markets assumptions, and the needs of the System.

Using the A/L Study as a guide, Investment Staff and the Investment Consultant perform detailed analyses on current allocations and potential target allocations. Analyses regularly performed include, but are not limited to, long-term risk and return characteristics, correlation and diversification relationships between asset classes, Monte Carlo simulations over the short and long-term, stress testing, and liquidity analysis.

Based on the results from the A/L study conducted in May 2018, COAERS elected to adopt a predominantly liquid portfolio with an above average risk and return profile. However, the results of the study did not support taking on large amounts of risk in an attempt to close the funding gap due to limitations of the contribution policy. The large gap between System assets and liabilities cannot be closed without significant changes to contribution policy due to increasing System liabilities. In order to bring the System to full funding, an increase of 30%, the System assets would need to return over 8% each year across a 20-year period.

Recommendation:

- Consider policy language defining a reporting and/or valuation process for less liquid and illiquid investments. As of December 31, 2019, COAERS does not have exposure to investment vehicles which would be considered less liquid or illiquid. However, with the future addition of private

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

infrastructure and potentially other private real estate, it may be beneficial to have a stated policy in place surrounding securities or vehicles with liquidity provisions. The policy language may include verbiage to detail the process by which these assets will be reported by the custodian bank, Investment Consultant, and investment managers. Additionally, it is important to consider how these assets may be accounted for with "stale" or "lagged" valuations.

Investment Fees

The overall aggregate level of investment fees and commissions paid by COAERS is lower than many retirement system peers. Additionally, there is a strong emphasis on transparency which accurately represents the philosophy and overall set of investment beliefs adopted by the Board. With very few exceptions, fees paid to individual managers are among the lowest in the industry for each mandate and are a testament to the diligence and contracting processes currently in place. While there are a select few mandates within the portfolio where fees or commissions appear modestly above industry median, it is important to note that these are also areas in which COAERS is receiving a differentiated level of active performance in a manner consistent with the Board's adopted investment beliefs. As such, higher fees in these areas may be warranted as overall net of fees performance remains attractive.

RVK spent considerable time analyzing the fees paid to individual investment managers currently in the COAERS portfolio. This analysis included confirmation of fee schedules through interactions with each investment manager, careful review of relevant terms found in investment management agreements ("IMA"), comparison to similar mandates, as well as a comprehensive peer group fee analysis. Each investment manager was ranked against an appropriate eVestment peer group based on mandate type and overall asset size. The overwhelming majority of effective fees paid by COAERS to investment managers fall well below the industry median for each respective mandate.

COAERS, like many of their public peers, periodically engages a third-party to evaluate the System's total fee structure which is presented and discussed with the Board. The peer rankings and results of this benchmarking report are largely a function of asset allocation, use of alternatives and active management, and manager fee negotiations. COAERS has taken a thoughtful approach within all of these areas and continues to be an industry leader in controlling and managing investment fees, effectively deploying a small overall fee budget and thus ranking favorably among peers.

Strengths:

- COAERS has been highly successful in negotiating attractive fees with its managers, and that its investment beliefs favor the use of passive management as a default, with active management only used wherever the expected likelihood of outperformance is high.
- While not critical to the analysis, it is notable than a small number of agreements between COAERS and its managers contain performance-based or incentive-based fees. As these fees are generally predicated on some form of outperformance over a specified benchmark, we believe this can help align interests between parties and ultimately provide more attractive outcomes for COAERS.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Governance
Through a review of past and current policies, charters, and meeting materials, it is clear the COAERS investment decision making process and governance structure have been carefully constructed to reflect stated investment beliefs and are in line with industry best practices. Notably, the separation of policy from implementation is an important and attractive characteristic of the COAERS investment program. Additionally, the ongoing education through formal training and meeting materials appear to satisfy certain requirements within Texas, while also providing Trustees with meaningful and important information critical to the management of System assets. Delegation of authority among Board, Committees, Executive and Investment Staff, and Investment Consultant are also clearly defined, with sound reasoning and a structure which allows for some degree of flexibility necessary to manage a successful investment program. **Strengths:** - The COAERS Implementation Policy is a sound and appropriately detailed manual expressing how the Board wishes the implementation of the investment program to be accomplished. Not all boards of trustees in the US have adopted the simultaneous development and use of an Investment Policy as well as a more granular, process-oriented Implementation Policy. - Our review of the governance structure under which COAERS operates indicates a substantial degree of clarity regarding the delegation of authority to make and provide advice on investment decisions. - We would further observe that it is likely the education provided to the Board and IC exceeds the educational efforts of many public pension plans in the US, in addition to meeting PRB requirements.

Investment Manager Selection and Monitoring
The COAERS investment manager selection and monitoring process is well-defined and thoughtful in its approach. The COAERS Investment Staff diligently follows the policies and procedures as described and has made notable efforts in the improvement of their own due diligence efforts. Their unique and differentiated approach to manager selection, termed the "Premier List", provides tangible and intangible benefits that a more common process followed by many peers may not afford, such as the demonstrated ability to negotiate lower fees and the avoidance of performance chasing behavior. While we do note areas for potential improvement, we believe the current process and documentation thereof is best-in-class within the public pension universe and commend the COAERS Board, Investment Committee, and Investment Staff on their efforts in the creation of a successful manager selection and monitoring program.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

It is also important to note that the IIP clearly mentions the requirement to review components of the managers' performance that are less apparent and often operational in nature. These include proxy voting, commissions, and indirect exposure to brokerage firms. Importantly, the current language relating to the Watch List does not require termination of a manager over a given time period, but is taken on a "case-by-case" basis.

Strengths:

- COAERS takes a unique and differentiated approach to manager selection, opting for a less regimented search process for each mandate under consideration. In contrast to the more traditional approach to screening the existing universe of candidates within a particular asset class only when a need is identified, the "Premier List" is an ongoing process. While such an approach to manager selection is not common among its peers, RVK believes it does provide COAERS with many advantages, including:
    - Less reliance on backward-looking performance metrics, as typical search documents rely heavily on point-in-time analyses that tend to lead to performance chasing.
    - Better relationships with potential managers over longer time horizons, allowing Investment Staff to leverage knowledge and other resources available to them.
    - Reduced implementation lag; if a manager is already on the Premier List, the time from decision making to implementation is significantly reduced as contracts and mandates are pre-negotiated.
    - More downward pressure on fees and service from existing and potential managers; as managers know they can quickly be replaced – or not ever receive an active mandate – it is more likely to receive lower fees and better service in order to entice COAERS.

Recommendations:

- Consider the addition of a formal manager review policy with a more specific timeframe.
- Suggests clarifying language in two areas: 1) The Watch List section; some of the current language surrounding the monitoring of performance could be perceived as an "if, then" scenario; and 2) The Reporting Requirements section, which should specify that the requirements only apply to managers with a live mandate (or, reporting on all managers on the Premier List should be provided to the Board).
- Consider the addition of performance metrics for non-public securities and/or vehicles, as the data and metrics can be substantially different from those of public markets.

Dallas Police & Fire Combined Plan

PRB Analysis of Evaluation

Plan Assets:[1] $2,041,914,130
Evaluator: Meketa
Evaluator Disclosures:[2]
Relationship: Investment consultant
Investment Discretion: None

The evaluation offers a balanced approach to both summarizing key aspects of the System while also going into more detail where necessary. The evaluation provides helpful summary points for each section and recommendations are well-supported with details and comparison to leading practices.

The evaluation provides and explains a recent 2018 stress test that influenced the actions of the Board. In response to the analysis, the Board adopted a Safety Reserve portfolio and is following a risk-based implementation plan designed to minimize the potential impact of a severe near-term market correction.

The evaluation also addresses the unique situation that the System has with its rebalancing effort for its illiquid and alternative investments and recommends increasing passive exposure.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement

The Investment Policy Statement (IPS) was reviewed by Dallas Police & Fire Pension (DPFP) Staff, the Investment Advisory Committee (IAC), investment consultant, and the Board.

Strengths:

- The IPS is well-thought-out and in-line (or better) than industry standards
- It is consistent with guidance from the CFA Institute
- Roles and responsibilities of all key parties involved are clearly outlined (Board of Trustees, Investment Advisory Committee, Executive Director, Investment Staff, Consultants, Investment Managers, Custodian)
- The document is written in "plain-English" and easy for a layperson to understand
- There is no evidence of any known compliance violations with the IPS at this time

Recommendations:

- The "Core Beliefs and Long-Term Acknowledgments" is thoughtful and should be reviewed at any time significant investment changes are considered. It offers good guidance without being overly prescriptive or prohibitive.
- DPFP Staff and the Consultant should continue to conduct an annual review of the IPS.

[1] As of 12/31/2018

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation

According to the IPS, "a formal asset allocation study will be conducted as directed by the Board, but at least every three years. Asset allocation targets will be reviewed annually for reasonableness in relation to significant economic and market changes or to changes in the investment objectives. Minimal tactical decisions have been implemented in the past two years. According to the IPS "the Strategic asset allocation determines the risk reward profile of the portfolio and thus drives overall portfolio performance and volatility."

DPFP has been 100% active over the recent history. DPFP recently funded its first passive mandate (on a temporary basis). DPFP requires a 2/3 approval of the Board for any new investments in alternative assets. DPFP does not plan to make any illiquid or alternative investments for the foreseeable future as it works to rebalance its portfolio to the new policy asset allocation. DPFP has a significantly lower target weight to illiquid investments (relative to current exposure) and has been working hard over the past few years to reduce its exposure.

To be proactive DPFP has been tracking the computation pay relative to the city's hiring plan because if hiring and pensionable compensation do not keep pace with projections less contributions will go into DPFP starting in 2025 after the contribution floor is lifted. Meketa (with data from DPFP's actuary) modeled different asset-liability scenarios in 2018 based on different contribution rates.

Strengths:

- DPFP staff and Board recognize their current exposure is very different from policy weights and have been working very hard to shift the portfolio (out of illiquid investments).
- DPFP's current approach to asset allocation (2018) is thorough and robust.
- It is on par (or better) than industry standards.
- In our opinion, the approach DPFP takes to formulate asset allocation is sound, consistent with best practices, and leads to a well-diversified portfolio.
- Current DPFP Staff is doing a commendable job with a very challenging situation, as it works to liquidate private market investments at the best possible price.
- DPFP's Board of Trustees' acknowledgment and understanding of the plan's funded status and cash flow situation were crucial data points that helped guide the overriding theme of the most recent asset allocation decision-making process.
- As noted previously, the Consultant conducted significant stress testing surrounding the anticipated liabilities of DPFP and the impact of not earning the plan's actuarial return.
- In response to the analysis, the Board adopted a Safety Reserve portfolio and is following a risk-based implementation plan designed to minimize the potential impact of a severe near-term market correction.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Recommendations:

- The Board consider increasing passive exposure in efficient asset classes where the likelihood of risk-adjusted outperformance, net of fees, is lowest. A recent survey of similar-sized public pension plans showed that the average passive exposure is 18% of total plan assets.
- DPFP Staff should continue its process of working with the Board and external advisors to prudently exit illiquid investments to the extent possible.
- The Board should remain patient with asset allocation as the portfolio is transitioned and doesn't feel obligated to conduct comprehensive asset allocation overhaul every year. (Surveys have shown many large state plans are moving towards once every three - five years).
- The Board and Staff should closely monitor contribution levels and maintain a constructive and open dialogue with the City.
- If (based on the actuary's advice) it becomes likely that DPFP is not on track to meet targets by 2024, we encourage the Board to act as soon as reasonably possible to discuss and implement additional plan design changes to avoid delaying and compounding any known shortfalls.
- DPFP consider adjusting actuarial valuation assumptions as necessary based on the outcomes and advice of the actuary upon the conclusion of the experience study expected in 2020.

Investment Fees

Fees that are paid via invoice are reviewed by the appropriate DPFP analyst based on the assigned asset class coverage. According to conversations with Staff, the analyst will typically calculate the expected quarterly fee via an excel spreadsheet and reconcile with what is billed by the investment manager. DPFP Staff keeps an excel sheet with all investment related fees paid (direct investment management fees, incentive fees, commissions, custodian fees, investment consultant fees, legal related investment fees). DPFP Staff and Consultant monitor investment manager fees and appropriateness relative to similar investment strategies.

In total, nine of the eleven public markets managers charge less than the median manager for their respective peer groups. Of the two that were more expensive than median, DPFP restructured one of those fee arrangements to a performance-based fee within the past year. DPFP paid a blended average fee of 0.74% bps in calendar year 2018. This is above the industry average of 0.60% (according to the latest available NCPERS survey conducted).

Strengths:

- DPFP has done a good job of identifying public market managers with competitive fees.
- DPFP's process for reconciling and paying fees appears in-line with industry standards.
- DPFP's tracking and monitoring of fees appear in-line with industry standards.
- The transparency and disclosure of fees in the annual CAFR are clear and unambiguous.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Recommendations:

- Passive strategies could reduce overall investment-related fees for DPFP fees.
- We recommend continued efforts on seeking no fee or discounted fee arrangements on private market investments that enter extension periods.
- We recommend DPFP staff document its internal process for fee reconciliation and payment in a formal procedure document or memo.

Governance

Most investment related decisions are accompanied by spirited debate between Trustees, Staff and Consultant. The IAC meetings are still in a development phase. All positions on the IAC were recently filled in 4Q19. Its roles and responsibilities are detailed in the IPS but its interplay with the broader Board of Trustees is still yet to be applied in practice. There is very little (to no) “rubber stamping.” Monthly meetings are required. DPFP’s meeting frequency is standard for public pension meetings. We have conducted surveys of large public pension plans and found that many are moving towards less frequent meetings but more in depth (lengthy) meetings.

Strengths:

- DPFP’s website and transparency are better than most similar-sized public pension plans.
- DPFP’s Staff is appropriately following the rebalancing protocol and does a great job of conveying all rebalance recommendations with appropriate supporting data and rationale.
- DPFP’s board members are more sophisticated and knowledgeable than most similar-sized public pension plans.
- The Board composition appears sufficiently diversified in terms of subject matter expertise.
- The meeting minutes (posted to the website) are sufficiently detailed to get a good sense of the discussion and decisions conducted at a meeting.
- They are also published in a reasonable amount of time following each meeting (typically within 30 days).

Recommendations:

- To the extent possible, we would like to see increased continuity of Trustees on the Board.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Manager Selection and Monitoring

Meketa has a process where it continuously monitors and reviews investment managers in the industry. From this work, Meketa creates a "bullpen" of high conviction products that have been thoroughly vetted through Meketa's multi-phase process. According to the IPS, each hiring recommendation will include information on Investment Manager's organization, key people, investment process, philosophy, past performance, future expectations, risks, proper time horizon for evaluation, comparative measures such as benchmarks and peer groups, role within the relevant asset class and expected costs. While no active managers have been hired during Meketa's tenure as DPFP's current consultant, the Consultant typically produces a "search document" that compares and contrasts eligible strategies on the basis of firm ownership/structure, investment teams, investment philosophies, processes/risk management, performance, fees, and strengths & weaknesses.

The Consultant produces a quarterly performance report that is shared with Staff, Board of Trustees, and IAC. DPFP Staff and investment consultant are primarily responsible for monitoring the performance of the investment managers and reporting to the Board of Trustees and IAC.

Strengths:

- The evaluation process for new investment manager hires is untested in its current form but appears adequate (as written on paper) and in-line with industry best practices.
- DPFP Staff is very knowledgeable and informed on the investment activities of its individual investments and investment managers
- Performance monitoring and benchmarking are in-line with industry best practices.
- Evaluation (and thoughtful discussion) by DPFP Staff on performance drivers and considerations for the need for any portfolio adjustments are measured, well thought out, and more complete than typical for similar-sized pension plans.

Recommendations:

- We recommend Staff continue to prepare deep-dive reviews into each asset class to cover the entire portfolio in each calendar year.
- We recommend DPFP formally documents the rationale for all hiring and firing decisions.

El Paso Firemen & Policemen's Pension Fund

PRB Analysis of Evaluation

Plan Assets:[1]

Fire: $645,011,835
Police: $935,185,893

Evaluator: AndCo

Evaluator Disclosures:[2]

Relationship: Investment Consultant

Investment Discretion: None

The evaluation provides both a review of policy practices and clearly documents the sources used as comparative best practices, while also providing detailed explanations where appropriate, specifically the asset allocation and investment manager selection and monitoring practices that are critical to the success of the Fund.

The evaluator notes that the existing investment consultant makes recommendations for improvement proactively and are already incorporated in the existing practices, therefore only general recommendations for the System "to maintain its robust processes to both review the current investment portfolio while also seeking to identify new investments that can improve the System's long term expected risk and return while maintaining liquidity to meet its benefit obligations" are made in this evaluation.

The evaluation notes that System recently underwent a comprehensive asset allocation review beginning in 2019 when the current investment consultant was hired, resulting in "revisions to the Fund's investment policy statement, investment manager changes, and the addition of new asset classes. The changes implemented by the Fund have improved the risk/return profile of the Fund while also increasing portfolio diversification."

The evaluation identifies the benefits to conducting asset liability studies noting that "through a comprehensive discussion over the asset/liability study results clients can have a clearer understanding of practical plan investment expectations." The evaluator highlights the collaborative effort between the investment consultant, actuary and trustees when performing these studies stating "Asset/liability studies are the only standard analysis that evaluate several components of a Plan's key financial drivers including the Investment Policy, Contribution Policy and Benefit Policy."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
While different IPS structures exist, AndCo, as an independent, professional investment consulting firm, has determined that the System's IPS, and the Board's compliance with the I PS, is appropriate and comparable with what AndCo considers best practice, industry standards, and comparable to the structure of an effective investment policy statement as laid out by the CFA Institute *(ELEMENTS OF AN INVESTMENT POLICY STA TEMENT FOR INSTITUTIONAL INVESTORS, Copyright 2010 by the CFA Institute).* **Strengths:** – Maintain its ongoing annual review of the IPS. We believe that a periodic review of the investment policy statement is a strong practice for the Fund and should be continued. – AndCo recommends that the Fund continue to track the changes to the investment policy and report them in a clear and transparent manner.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation

The Fund's process for determining asset allocation targets is executed and implemented through strategic asset allocation studies that contain a variety of potential asset allocation targets for the Board's consideration. AndCo works directly with the System's Actuary and Trustees to incorporate the System's specific liability circumstances and projections to review the potential impacts of varying investment asset allocation policies on the key actuarial and liability metrics. For public pension funds, asset/liability studies are a critical tool to examine how well alternative investment strategies (differing asset allocations) impact the key long-term actuarial circumstances, including funded status and contribution requirements. As public pension funds value their liabilities using a static discount rate that represents an expectation of the System's long-term investment return, this assumed rate of return, along with specific cash flow, and liquidity circumstances drives the formulation of an appropriate asset allocation policy.

We believe a robust asset/liability study helps the consultant and Board review asset allocation mixes to determine those allocation strategies which could potentially best serve to protect or increase funding levels, while providing adequate liquidity for benefit payments and minimizing associated risks. AndCo believes that through a comprehensive discussion over the asset/liability study results clients can have a clearer understanding of practical plan investment expectations.

The Fund's cash flow and liquidity needs are reviewed by the Board each quarter as part of the investment consultant's quarterly performance review. This review includes discussions regarding the current, expected, and known timing variances of future contributions to, and withdrawals from, the Fund. The traditional portfolio has adequate liquidity to meet current cash flow needs. The Fund's pacing models are also reviewed regularly by staff, the Investment Committee, the Board, and the investment consultant to ensure liquidity needs are appropriately addressed.

Strengths:

- AndCo recommends that the Fund
  - Maintain its long-term asset allocation structure and tolerance ranges.
  - Continue the process of active review. Asset allocation studies and asset liability studies are being developed and reviewed every three to five years which is in line with what AndCo views as best practice in the industry and across its client base.
  - Continue regular asset allocation reviews with its investment consultant.
  - Maintain its policy of continuing education on new asset classes that could be beneficial to the investment portfolio
  - Continue to work with the Consultant to actively rebalance the portfolio to provide the required liquidity levels and maintain its long-term target allocations

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Fees

We reviewed the fees paid to administer the Fund's portfolio and the underlying investment manager fees. While high or low fees do not guarantee failure or success for an investment portfolio, AndCo, as an independent, professional investment consulting firm, has determined that the Fund's fees are appropriate and comparable with what AndCo considers best practice industry standards. No changes are recommended at this time.

Governance

The Fund's IPS contains clear definitions of the Board's responsibilities as well as the role of the Board's professional advisors and investment staff in assisting the Board in fulfilling its fiduciary duties to the Fund with respect to the investment of assets. Direct investment authority for the Fund's assets lies with the Board. As such, all decisions regarding the Fund's portfolio including return objectives, risk tolerance, investment guidelines, asset allocation targets and manager selection and retention reside with the Board.

We reviewed the Fund's governance processes related to investment activities, investment decision-making, delegation of investment authority, and education. While different governance structures exist around investment decision-making, delegation of investment authority, and education, AndCo, as an independent, professional investment consulting firm, has determined that the Fund's processes are appropriate and comparable with what AndCo considers best practice, industry standards.

Strengths:

- AndCo recommends the Fund continue to follow the IPS, engage investment experts as appropriate, and continue to seek ongoing educational opportunities consistent with Texas Administrative Code, Chapter 607

Investment Manager Selection and Monitoring

The investment manager selection process for the Fund is conducted in collaboration with the Fund's investment consultant and Investment Committee. Whether a specific investment strategy review is directed by the Board, staff, or the strategy idea comes from the investment consultant's research group, all potential investment strategies must go through the consulting firm's due diligence process and subsequently be presented and approved by the investment consultant's Investment Policy Committee before being shown as potential strategies for the Board to consider for the Fund's portfolio. Candidates are vetted by the consultant's research group to identify the best and most appropriate managers for the System in each investable asset class.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths: – AndCo feels that the manager selection process in place at the Fund is robust and is in line with industry best practices. AndCo employs a similar search and selection across its national public fund client base. – AndCo feels that the Fund is in line with the best practices laid out by the GFOA for selecting third party investment professionals for pension fund assets. – All performance calculations supplied by the consultant to the Board meet the guidelines of the CFA institute – AndCo recommends that the Fund maintain its investment process for investment manager search and selection which relies on its investment consultant, staff, and Board in selecting new investment managers for use within the Fund's investment portfolio.

Employees Retirement System of Texas

PRB Analysis of Evaluation

Plan Assets[1]
ERS: $27,351,224,157 JRS II: $456,192,249 LECOSRF: $943,662,645
Evaluator: NEPC
Evaluator Disclosures[2]
Relationship: Investment consultant
Investment Discretion: None

The evaluation covers the Employee Retirement System of Texas (ERS), the Judicial Retirement System of Texas Plan Two (JRS II) and the Law Enforcement & Custodial Officer Supplemental Retirement Plan (LECOSRF) (collectively referred to as "ERS" or "the System".) It includes detailed and useful explanations that help stakeholders understand how ERS operates as well as provide insight into effective best practices. This evaluation is an example of what a highly useful evaluation can look like.

The evaluation also provides a meaningful look into the potential impact of continued underfunding by reviewing both a cash flow analysis and an Asset Liability Management (ALM) study. The combination of these two forms of analysis led the evaluator to make a critical recommendation, **"The Plan and its stakeholders must find a sustainable way to address the overriding issue and biggest risk to the System becoming insolvent: a $1.2 billion annual cash flow shortfall."**

Additionally, the evaluation engaged a third-party expert to conduct a Trade Cost Analysis (TCA). While such an analysis is not necessary for most systems, it demonstrates the thoroughness of the evaluation conducted. The TCA, along with a review of its findings, helps to better understand the commissions paid by the System.

The evaluation also included a unique recommendation for staff to review the impact of the statutorily required RFP process for public equity investment managers. More specifically, the evaluator suggested reviewing if this formal RFP process has resulted in missed investment opportunities. However, it was noted that any potential changes to this process would likely require legislative approval.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The most recent version of the IPS was approved by the ERS Board on May 22nd, 2019. The IPS was heavily revised during calendar year 2018 to streamline the document, clarify accountability, and sharpen the focus on higher level policy, organizational structure and investment beliefs. The goal was to mold the IPS into a document that clarifies the strategic purpose and provides flexibility for tactical implementation. The ERS IPS is generally consistent with elements recommended by GFOA, the CFA Institute and the NEPC IPS template. One important difference between the ERS IPS and those of its peers is that ERS' performance objectives do not refer to achieving or exceeding the actuarial assumed rate of return in the stated performance objectives. The IPS rather states the Trust's performance objective "is to obtain overall investment returns over rolling five-year periods in excess of the adopted benchmark, and to achieve investment results commensurate to the amount of active risk (tracking error or other appropriate risk measurement metric) assumed."

[1] As of 8/31/2019
[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- The ERS IPS compares favorably with the investment policy statements examined from the peer group of similar investors. ERS' IPS is ahead of many of its peers in the thorough and detailed treatment of governance. In addition to clarity in definition of roles and responsibilities, the Plan's IPS also provides additional detail on processes such as proxy voting, scrutinized investments, and securities litigation.

Recommendations:

- ERS should pursue a comprehensive review of funding policy to help ensure the retirement security of Plan participants and beneficiaries. We do note that funding for the plan is outside of the direct control of ERS.
- Adding language that includes meeting or exceeding the Fund's actuarial assumed rate of return over the long term.
- The definition of an asset allocation study be more precise and that the timing of such studies be more flexible.
- Regarding the Plan's rebalancing process and policy, NEPC advises ERS to document the frequency of rebalancing, transaction cost considerations, and whether asset classes are to be rebalanced to mid-range or target. This documentation may either reside in the IPS or in the operating procedures for relevant asset classes.
- NEPC suggests to move the current Table 3 of Chapter IV (Asset Class Allocations and Ranges) into the IPS appendix.
- NEPC has several suggestions regarding items to be reported to the Board. The CFA Institute and GFOA do mandate monitoring and reporting procedures be outlined somewhere in the IPS.
  - The IPS should specify that performance reporting include net of investment management fee data. At least once every three years, NEPC recommends a trade cost analysis report to the Board that summarizes explicit commissions as well as implicit costs of trade execution.
  - NEPC also recommends a comprehensive annual report on liquidity risk. This goes beyond the current language on page 22 that states "Staff prudently and actively manages liquidity within the other asset classes and specifically reports back to the Board in the case of private market asset classes in quarterly asset class reporting".
- Additionally, as part of prevailing practice for this section, the evaluation suggests the Plan consider inclusion of a "Watch" list policy and process.

Investment Asset Allocation
ERS has developed a clear process that allows for routine setting, monitoring, and review of both the asset allocation of the portfolio and the assets and liabilities of ERS. This process is consistent with prevailing practice among peer public pension funds. The IPS states that the "single most important decision the Board makes is the long-term asset allocation decision. Staff is tasked with implementation though prudent and sound strategic decision." As with most other public pension funds, ERS relies on its General Consultant to provide capital market forecasts for expected returns, volatilities and correlations among the asset classes. The asset class assumptions are formally prepared annually but may be revised during the year should significant shifts occur within the capital markets. The IPS outlines the asset classes that ERS can invest in, including the benchmarks for each asset class and the

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

role that each asset class plays in the Trust's portfolio. This makes it clear to the reader how to measure the performance of the asset classes according to the benchmarks and according to the role that the asset classes play in the portfolio.

Based on current expectations and assumptions, ERS is expected to remain solvent until the year 2075, after which the funding would revert to a pay as you go status.

Strengths:

- ERS has developed a detailed asset allocation and asset liability review process. The approach is robust and sufficiently detailed to maximize effectiveness.

Recommendations:

- As expected returns for capital market assumptions are trending downward, ERS and its stakeholders should devise a comprehensive plan to address the persistent contribution shortfall.
- The Plan and its stakeholders must find a sustainable way to address the overriding issue and biggest risk to the System becoming insolvent: a $1.2 billion annual cash flow shortfall.
- The purpose, functions, membership, and possible actions of [the Valuation Committee] should be formalized.
- Consider a central resource to manage liquidity risk. We suggest this process be managed by a collaboration of the Director of Fixed Income and the Risk Committee. The process should monitor liquidity risk in light of scenario stress tests and regular reports to the IAC and Board on at least an annual basis.
- We recommend … adding language for an informal review of capital market outlook on an annual basis to improve flexibility for ERS to respond on the margins to rapidly changing market environment.

Investment Fees

The direct and indirect fees and commissions paid by the System include fees that are paid by the System and fees that are netted against returns. The System pays management fees, performance/carried interest, and brokerage fees. Additionally, the System pays custodian fees, security lending agent fees, investment consultant fees, internal staff salaries and investment banking fees. Fees charged to the System are reported annually in the CAFR and should encompass all forms of manager compensation. According to the policies and procedures provided, fees are checked for reasonableness monthly for external advisors for public equity, and on a quarterly basis for private markets.

NEPC engaged a third-party expert, Elkins/McSherry (a unit of State Street Corp.) to produce an independent Trade Cost Analysis. ERS Internal Management compares favorably to the total cost of the universe[, which is a compilation of actual trade data from Elkins/McSherry customers]. Of note, when principal traded is significant in size the cost savings is high. Only three of eleven portfolios are more expensive versus the universe. Within these

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

portfolios the market impact costs are driving the performance while commissions are notably lower than the universe. Portfolio savings is being driven by lower commissions ranging from approximately 3 basis points (0.03%) to 8 basis points (0.08%) in savings.

Strengths:

- As compared to plans of similar size and investment programs the expenses are reasonable and represent a significant cost savings when considering asset size and prevailing investment management fees that external investment managers may charge. Given that ERS currently manages approximately 54% of assets internally (greater than $15 billion), we believe that significant savings are being accrued as compared to attainable investment management fee structures externally.

Recommendations:

- The management and monitoring of direct and indirect compensation paid to investment managers and other service providers should be more clearly defined in the IPS or other policies that state what should be presented to the Board on an at least annual basis.
- An annual review of investment fees should include a fee analysis based on peer group or industry averages for the relevant asset classes in aggregate as well as by investment strategy type. A strategy level fee analysis will allow for a deeper look into terms and scale- based savings of the investment program. We also recommend a fee analysis that incorporates performance outcomes. We recommend that the analysis include an evaluation of internal investment management cost versus similar external investment manager costs.
- Consider adding an evaluation metric for securities brokerage vendors based on execution skill. Execution skill should be measured using a appropriate benchmark for each broker that incorporating metric on trading efficiency and impact on performance.
- Consider disaggregating research and securities brokerage costs as it may be difficult to measure the value of research and ensure best execution.
- Consider memorializing through policy or guidelines the business model of securities brokerage, how performance is measured ensuring incorporation of broker quantitative analysis and performance outcomes.
- ERS should consider formalizing [the responsibility for monitoring and reporting fees to the Board of Trustees] as doing so may provide additional incentive for staff to negotiate better fees with their investment managers.
- The Fixed Income Program Guidelines should define broker/dealer relationships and the governance of those relationships.
- An additional aspect to consider is that given ERS' size, it has the potential to negotiate better rates than the "headline" rates charged to smaller (in AUM) investors. The difference between ERS' rates and headline rates can be considered fee savings and this should be tracked systematically. This is currently tracked by the private equity team and reported to the Board and IAC, however this can likely be done across the private markets and public markets asset classes.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Governance

ERS has established a governance structure that includes a Board of Trustees, which delegates authority to the Executive Director, Investment Advisory Committee, Asset Class Investment Committees, Investment Staff, Compliance Staff, and to external vendors hired by the Board including Investment Consultants, a Retirement Actuary, a Custodian, External Advisors and Emerging Managers. As stated in ERS' IPS, the ERS Board is responsible for formulating, adopting, and overseeing the investment policies of the Trust.

Although the Board maintains oversight of the investment of Trust, the Board performs its fiduciary responsibility to invest the Trust through delegation of authority to the ERS Investment Staff for execution of the investment strategy according to this Policy. The Board views adherence to the Investment Policy and the Investment Compliance function as important components of the investment process and to achieving the overall objectives of the Trust. Staff are responsible for ensuring that investment activities comply with this Policy.

Strengths:

- The presence of an Investment Advisory Committee (IAC) is a governance component that NEPC believes is above the level of prevailing practice among U.S. public pension plans. The IAC assists the Board in carrying out its fiduciary duties about the investment of the Trust and related duties.
- ERS does an excellent job of illustrating a roadmap of how decisions are made at ERS.

Recommendation:

- It may be useful for ERS Texas to explicitly define the role of the Chief Investment Officer in the Governance section of the IPS. Currently, the CIO is referenced in terms of supervisory authority over the Investment Staff.

Investment Manager Selection and Monitoring

ERS' IPS states that the Board is responsible for making long-term asset allocation decisions and that ERS Staff is tasked with implementation through prudent and sound strategic decisions. Staff is responsible for selecting investment managers with the Board providing an oversight role, supported by recommendations from Staff, independent external advisors that are appointed by the Board (Investment Advisory Committee) and consultants hired by the Board. The IPS describes the Board's investment philosophy. This guides the Board's asset allocation decisions as well as informs Staff as to the Board's priorities when making investment recommendations. These philosophy statements are taken into consideration in the asset class program guidelines and asset class standard operating procedure ("SOP") documents that were reviewed.

The IPS states that Staff and the General Plan Investment Consultant will "monitor the performance of each investment strategy quarterly, while retaining a long-term focus." The IPS lists several factors that Staff should look out for as being possible triggers for recommending termination.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Performance is monitored on an ongoing basis at the asset class level and at the Trust level. It is reviewed through regularly scheduled meetings of Investment Staff, Investment Directors and the Risk Committee. It is reported to the Board monthly and quarterly through reporting and Board Meeting presentations. Gross and Net of fee performance is provided monthly in the monthly Investment Summary reports provided to the Board.

Recommendations:

- Reviewing the Investment Monitoring Processes in the SOP documents and formulating a standard that can apply to all asset classes should be considered.
- Reviewing whether the current RFP process for public equity investment managers has caused ERS to miss investment opportunities and to measure missed investment returns. This recommendation is tied to the observation in Section 1 that Procurement constraints may hamper ERS' operational flexibility.

Fort Worth Employees' Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $2,312,863,285	
Evaluator: RVK	
Evaluator Disclosures:[2]	
Relationship: Investment consultant	
Investment Discretion: None	

The evaluation is well-balanced in its summarizing of information in easily understandable graphics, while also providing detailed explanations where appropriate, specifically, the helpful explanations of the asset allocation and investment manager selection processes. The evaluation models transparency by clearly identifying the internal documentation, third-party analyses and benchmarking sources used in the thorough review.

The evaluation provides helpful details from the Fund's September 2015 Asset Liability Study and recommends a new study, which the Fund plans to complete in 2021. The details and explanations provided are extremely useful in understanding the key factors influencing the Fund. One item of particular note is a caution against using an even more aggressive asset allocation to close the funding gap, as high expected return and high expected risk approaches bring with them increased risk of large declines in the value of the Plan."

There is also a thorough review of investment fees, which reveals that the Fund pays somewhat more than its peers. The evaluation identifies the use of alternative investments "designed to create a smoother return pattern … rather than a lack of effort to control fees" as the primary cause for the difference. It also notes, "FWERF has been successful in negotiating attractive fees with its public investment managers. The process for investment manager selection … has likely created significant efficiencies in this area."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The FWERF's investment program is governed by the Investment Policy Statement, which serves as the overarching program document detailing the guidelines for overall management of Fund assets. The IPS clearly articulates the delegation of authority, expectations for each party involved, as well as applicable guidelines and performance benchmarks for the investment portfolio. The Board reviews this document at least annually, making updates based on recommendations from the Investment Consultant(s), Investment Staff, as well as feedback from the Investment Committee. The current IPS follows industry standards and is well articulated in its purpose, structure, and overall mission. We do believe there may be room for incremental improvement through the creation of an implementation policy, but would not classify this as a shortfall of the current structure. **Recommendation:** - RVK does recommend the Board consider developing an Investment Implementation Policy ("IIP") document as a complement to the IPS. The IIP is meant to expand on the IPS, providing more details on specifics relating to operational components of the Fund, contracting terms, individual mandates, etc., all of which are crucial to the success of the overall program.

[1] As of 9/30/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation

The efforts from the Board, Investment Committee, Investment Staff, and Investment Consultant are evident throughout the asset allocation process, with a particular focus on creating a blend of assets which attempts to best match the Fund's unique liability structure. The last asset/liability study was performed in 2014; since that time, contribution and benefit policies – as well as capital market expectations – have changed materially, warranting a new asset/liability study. Based on our understanding, the Board has agreed to begin this process later in 2020 to ensure the updated actuarial valuation is included in the analysis.

Recommendation:

- Consider Performing Updated Asset Liability Study. It is RVK's understanding the Board is planning to complete this study later in 2020, once an updated valuation has been performed by the Fund's actuary and approved by the Board.

Investment Fees

The reasonableness of fees can be demonstrated by the comparison to similar sized mandates in the public markets, plus the emphasis on performance-based fees in alternatives. While the overall level of fees may be higher than some public pension peers, that is due to the asset allocation decision made in attempt to create a smoother return pattern through the use of alternatives, rather than a lack of effort to control fees for each manager. We also note that the use of trade cost analysis providers has become less common in the public pension universe, meaning the FWERF is likely part of the majority in its choice not to undertake this effort consistently. However, should a more thorough analysis of commissions paid be required by future reports relating to Code 802.109, it is likely the FWERF should consider hiring a third party trade cost analysis vendor.

Strengths:

- FWERF's use of specialty consultants has likely led to better pricing power than would be otherwise possible.

Governance

Through our review of approved policies and charters, along with meeting materials and Board education, it is clear the FWERF's investment decision making process and governance structure is in line with other public pensions of similar size. We also understand the Board underwent a more detailed governance review with a third-party consultant, which may result in material changes to a variety of processes, policies, and responsibilities. For the purpose of this report, we focused on the current structure, noting our belief that it is well documented and articulated, with clear delegation and reporting lines.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- The Investment Policy is quite specific – more than some public funds in our experience – in setting for both general and quantitative objectives for fund performance.
- The Board's processes and requirements for monitoring both fund performance and that of all entities involved in investment decision-making is thorough.
- The Board's policy is unusually clear in the delineation of investments that are either prohibited (e.g., crypto-currencies) or limited (derivatives). This level of clarity provides both guidance to investment managers and protection to the Fund.

Investment Manager Selection and Monitoring

The FWERF's investment manager selection and monitoring process varies depending on the asset class in question, but is well defined for each. The IPS outlines expectations and guidelines for both public and private asset classes, but allows for ample flexibility in sourcing and monitoring managers. The ongoing due diligence process of the Investment Staff is notable, further strengthened by the use of outside Investment Consultants, some of which are tasked with a single asset class. We do note that other forms of investment manager selection processes are available and worth consideration, specifically the idea of a "premier list" or manager "bench," but believe those could be long-term changes to governance structure and would require additional education to the Board before adoption.

Recommendations:

- Consider the addition of details surrounding a formal review process for managers. The current practice has been in place and functioning well for many years, but could be documented either in the IPS or a new "implementation policy" as previously recommended.
- Consider the separation of reporting requirements by asset class, rather than by consultant. Different asset classes require different forms of reporting and level of detail. The current language indirectly implies that asset classes will line up directly with General and Specialized Consultants, which may not always be the case.
- Revisit Watch List language for alternative asset classes. Many alternatives – namely anything with a capital call structure – should have a different form of performance measurement, which would also require unique language for inclusion or removal from the Watch List.

Irving Firemen’s Relief and Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $195,301,301
Evaluator: Meketa
Evaluator Disclosures:[2]
Relationship: Investment consultant
Investment Discretion: None

The evaluation offers a balanced approach, summarizing key aspects of the Fund while also going into more detail where appropriate. Each section contains summarized analysis that describes what the Fund is doing well and supports recommendations made in the evaluation.

The evaluation included a detailed timeline of the most recent allocation review and adoption process, which was very helpful. It also noted that Irving Fire has been increasing passive investments based on investment consultant recommendations and provides details showing the changes in passive allocation. This contributed to fee savings, which are detailed in the investment fee section. The evaluator recommended formalizing the fee monitoring processes.

Irving Fire has also faced cash flow issues as a result of its DROP program; the evaluator recommended, and the System has made, changes to the program to better align it with the Plan's long-term financial needs.

The System notified the PRB the recommended switch away from the City's website to the System's website has been completed.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The IPS covers Fund level items but also manager guidelines (e.g. concentration limitations, sector constraints, etc). The most recent review occurred in February 2020. The Consultant presented a red-lined version to the Board for review and discussion. The Board approved the recommended changes at the next Board meeting in March 2020. **Strengths:** – The IPS is well thought-out and in line with industry standards. – It is consistent with guidance from the CFA Institute. – Roles and responsibilities of all key parties involved are clearly outlined (Board of Trustees, Staff, Investment Consultant, Investment Managers, Custodian Bank). – The document is written in "plain-English" and easy for a layperson to understand. – There is no evidence of any known compliance violations with the IPS at this time. – It is our opinion that the Board of Trustees and Staff will be able to stay committed to the guidance detailed in the IPS during a stressed or prolonged market scenario. – Overall: The existing Investment Policy Statement appears appropriate, adequate, and effective in our opinion.

[1] As of 12/31/2018

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Recommendation:

- In the most recent annual review, the Consultant and Board streamlined and simplified the IPS in many sections. The Consultant would like to see continued simplification, as the document is intended to be high-level and not overly prescriptive.

Investment Asset Allocation

The most recent significant asset allocation review was conducted over most of 2019. The [asset allocation review] included a DROP analysis with a number of assumptions and modeled scenarios to assist the Trustees in re-designing the DROP program. The analysis showed that a decrease in the DROP rate, or conversion to a variable rate structure tied to the performance of the overall Fund, would likely be beneficial to the stability of the Fund. The Consultant (and the majority of investment research) advocates the importance of a long term strategic asset allocation approach. According to the Actuary: “accumulated DROP balances are a significant portion of the Fund assets. Due to the nature of the DROP provisions, it is extremely difficult to estimate the total benefit payments in any given year.”

Irving Fire has been actively increasing its use of passive exposure based on the recommendation of the Consultant. Exposure to alternate investments has decreased and we expect that trend to continue based on the new asset allocation policy target.

Over the course of the past year, Foster and Foster [Actuary] has prepared a number of special projection actuarial analysis to identify plan design changes.

Strengths:

- In our opinion, the approach Irving Fire takes to formulate asset allocation is sound, consistent with best practices, and will lead to a well-diversified portfolio. At the time of this report production, Irving Fire was still in a transition phase as it rebalanced to the new target asset allocation in accordance with the rebalance plan created by its Consultant.
- Given the size of the Fund, the negative net cash outflows for benefit payments and DROP payments, and the uncertainty surrounding plan design changes, we are pleased the Board has adopted a more conservative asset allocation policy with significantly less illiquid alternative investments.
- Irving Fire’s approach to passive management is consistent with industry best practices (e.g. passive is used in efficient asset classes).
- We are pleased with the Board’s decision to reduce the actuarial assumed rate of return over the past few years. The current rate is in line with industry medians.

Recommendations:

- We recommend the Board continues to follow its rebalance plan to the new asset allocation policy.
- We recommend the Board and Staff closely monitor contribution levels, DROP withdrawals and expected net out flows.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

- We recommend Irving Fire consider adjusting actuarial valuation assumptions as necessary based on the outcomes and advice of the actuary. The Fund will likely need to increase contributions, cut benefits, change the DROP program, or all of the above.
- We recommend the Fund conducts an Actuarial Valuation Report every year (rather than every two years).
- We recommend making changes to the DROP program to better align it with the long-term solvency of the Fund. Options to consider include (non-exhaustive list): reduce the DROP crediting rate, adopt a variable rate that is tied to the returns of the Fund, place limitations on the amount of DROP assets that can be redeemed from the Fund in any given month.

Investment Fees

The overall process is not documented in any written formal policy.

In October 2019, the Consultant prepared a portfolio Transition Plan with recommendations to eliminate many high fee strategies and increase the use of low cost passive index funds. The Consultant predicts the total Fund level investment fees (inclusive of investment management fees, custodian fees and consultant fees) for Irving Fire will decrease from 0.98% effective fee to 0.61% effective fee once the transition is complete.

The private markets related fees are expensive but not surprising, nor outside the norm for fund of funds. The use of fund of funds adds a double layer of cost to Irving Fire. Based on our analysis, we estimate Irving Fire paid a blended average fee of approximately 0.78% of Fund assets in calendar year 2019 to investment managers. This is above the industry average of 0.60% (according to recent NCPERS survey conducted).

Strengths:

- Irving Fire's increased use of passive index funds will help reduce overall costs for the Fund.
- The commissions paid appear reasonable and in-line with industry norms.
- When hired in June 2019, the Consultant and the Board made a conscious effort to reduce investment management fees going forward.

Recommendations:

- We recommend Irving Fire continues to increase its passive exposure in efficient market classes.
- We recommend that Staff, the Board, and the Consultant all remain diligent in monitoring fees.
- We recommend Irving Fire staff document its internal process for fee reconciliation and payment in a formal policy document.
- We recommend Fund counsel reviews all legal contracts when the Fund hires a new vendor or investment strategy.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Governance
Irving Fire's board meeting frequency is standard for public pension meetings. We have conducted surveys of large public pension plans and found that many are moving towards less frequent meetings but more in depth (lengthy) meetings. The number of items on each Agenda is frequently longer than we see from other public pension clients. The information on the City website is very out of date. The list of Trustees is not accurate and there are reports dating back to 2015 that are inferred to be current or up-to-date.The Irving Firemen's Relief & Retirement Fund is currently (April 2020) in the process of building its own website. Historically, and currently, the Fund has a web page on the City of Irving website. **Strengths:** – Irving Fire's board members appear to work well together. The size of the board is average (to small) relative to other pension plans. Generally we have observed better decision making, and less infighting, with small boards. **Recommendations:** – Recommend switching to the new website soon or updating the out of date City website. – Recommend posting all policies on the website.

Investment Manager Selection and Monitoring
[The] Board of Trustees, with the advice and recommendation of the Consultant[, selects the investment managers]. A number of minimum criteria is listed in the IPS for consideration when the Board is considering hiring an investment manager. The criteria is rules based in nature (e.g. must be registered investment advisor, must be registered to do business in Texas, must provide ADV, etc.). Broadly, Meketa has a process where it continuously monitors and reviews investment managers in the industry. From this work, Meketa creates a "bullpen" of high conviction products that have been thoroughly vetted through Meketa's multi-phase process. Meketa has a process where it continuously monitors and reviews investment managers in the industry. From this work, Meketa creates a "bullpen" of high conviction products that have been thoroughly vetted through Meketa's multi-phase process. The Consultant produces a quarterly performance report that is shared with Staff and the Board of Trustees. The Consultant is primarily responsible for monitoring the performance of the investment managers and reporting to the Board. **Strengths:** – Performance monitoring and benchmarking is in-line with industry best practices. **Recommendation:** – We recommend Irving Fire formally documents the rationale for all hiring and firing decisions.

McAllen Firemen’s Relief & Retirement Fund

Plan Assets:[1] $53,972,127

Evaluator: CBIZ

Evaluator Disclosures:[2]

Relationship: Investment consultant

Investment Discretion: None

PRB Analysis of Evaluation

The evaluation provides brief explanations outlining the System's processes and supporting arguments for the conclusions drawn, with detailed explanations of several topics related to managing the System's assets. The explanation provides insight into the System's practices, but it offers little descriptive commentary on how they compare to best practices.

The evaluation concludes, "McAllen's investment processes, governance, investment actions, and investment procedures are reasonable and aligned with industry best practices in comparison to other public pension plans."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement

McAllen does have an IPS that has been constructed to suit the requirements and objectives of the Plan. It includes the necessary processes and procedures needed in order to address investment related issues. It is written in a plain and straightforward manner so that each affiliated party's responsibilities are easily understood and the administration, requirements, and objectives of the Plan can be more efficiently achieved.

It has been the standard practice of the Board and the investment consultant to review the IPS every two to three years to ensure its ongoing efficacy. Although the IPS is referred to regularly for questions pertaining to the oversight and management of the Plan, it was observed that the last formal review of the IPS took place during 2017. The IPS was last amended and restated as of August 25, 2017.

Recommendations:

- It is CBIZ's recommendation to review the IPS formally on a more consistent basis. CBIZ recommends reviewing the IPS biennially, going forward.

Investment Asset Allocation

CBIZ RPS is responsible for and performs analysis of the Plan's strategic asset allocation on a continual basis. This is accomplished through the preparation and review of monthly and quarterly performance reporting. In general, the Plan's assets remain allocated according to the approved ranges and targets. However, when opportunities are created within the markets, for example, an extreme widening of credit spreads in high yield fixed income, the investment consultant advises the Board of the market conditions and presents options for how to tactically adjust the asset allocation of the Plan in order to take advantage of the opportunity. Historically, the Board has been both nimble and judicious in its approach to taking these actions. Over time, it has resulted in good performance for the Plan. Since the inception of the relationship with the investment consultant), the Plan has exceeded its actuarial assumed rate of return of 7.5%.

[1] As of 9/30/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Specifically pertaining to formal asset allocation studies, CBIZ RPS, as the investment consultant, has the responsibility for preparing and presenting them. Although the Plan has achieved returns in excess of its actuarial assumed rate of return, it was observed that the last formal asset allocation study was performed more than five years ago.

Recommendations:

- It is CBIZ RPS recommendation to prepare formal asset allocation studies for presentation to the Board on an interval of three to five years, or if substantial changes to the Plan or actuarial changes occur.

Investment Fees

The CBIZ RPS investment consultant for McAllen negotiates fees for traditional, long-only separate account strategies and alternatives managers. The goal is to reduce the fees paid by the Plan by as much as possible. Additionally, when recommending a mutual fund, the consultant recommends the share class with the lowest expense ratio available, at the time of investment. At times, because of CBIZ RPS' relationships with investment managers, it is able to get minimum investment amounts waived so that McAllen can invest in a share class with a lower expense ratio. Because of the overall size of CBIZ RPS' assets under advisement, oftentimes when allocating to different managers/strategies, the team is able to negotiate and secure lower fees and better terms for its clients than the standard, published fee schedules and terms. McAllen has benefitted from this in the past. The consultant monitors fees on an ongoing basis via quarterly reporting.

Within the quarterly report, an Expense Summary page is included. This is for the Board's and investment consultant's use in monitoring the fees being paid to the investment managers entrusted with the Plan's assets.

Recommendations:

- It is CBIZ RPS' recommendation to include the peer universe median fees/expense ratios for the asset classes in which they are available, for comparative purposes, in the quarterly reports going forward.

Governance

McAllen's present governance framework is well-established and well-defined in the IPS. Each party's roles and responsibilities are clearly and concisely defined.

In addition to the three firefighters who are Board members, the City's Director of Finance, the City Manager, the City's former Deputy Finance Director

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

(now retired), and the at-large citizen, who is a financial advisor for Edward Jones, are Board members. In addition to their own personal experiences in providing oversight to the Plan, the Board members attend the TEXPERS and TLFFRA conferences on a regular basis, keeping themselves informed and educated on all issues and best practices pertaining to public pension plans, including governance. CBIZ RPS confirmed with the Board chairman that McAllen submitted two filings in 2019, with details on the Board members meeting their continuing education requirements.

Upon reviewing the information available to it and through participating in the monitoring and management of the Plan with the Board, it is the opinion of CBIZ RPS that the Board is engaged in a reasonable governance approach for the Plan.

Investment Manager Selection and Monitoring

As delegated in the IPS, the Board has the responsibility of evaluating and selecting investment managers and the investment consultant has the responsibility of screening and recommending investment managers. Monitoring of the investment managers is an ongoing process that is carried out as [described in detail in the evaluation]. As required in the IPS, managers do attend quarterly meetings, as requested.

Recommendations:

- It is the recommendation of CBIZ RPS to have a different manager in attendance at least semiannually to provide an update to the Board.

Odessa Firefighters’ Relief & Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $44,811,154

Evaluator: Southeastern Advisory Services (SEAS)

Evaluator Disclosures:[2]

Relationship: Investment consultant

Investment Discretion: None

The evaluation provides a helpful summary of the findings and recommendations for each section, as well as specific answers to each of the questions included in the PRB's guidance.

The evaluation also includes a discussion of the System's recent transition from a single asset manager who also served as the investment consultant and custodian to an independent investment consultant. This process began in 2019, prior to the passage of SB 322, and resulted in a number of changes to existing processes that were completed prior to the evaluation. The evaluator notes, "During this two-year process the OFRRF Board made tremendous progress towards improving its fiduciary oversight." The result is only a few additional recommendations within the evaluation, which relate mostly to formalizing existing practice by including it in the Plan's Investment Policy Statement (IPS), which is expected to occur in 2021.

For example, the evaluation notes the Fund's robust policy and practice of measuring all fees/compensation, consistent with PRB guidance, but recommends that policy be formalized by adding it to the IPS. The evaluation also notes that the Fund does not have a formal policy in place for evaluating potential investment manager candidates, including minimum requirements or formal selection criteria; the evaluation recommends identifying formal criteria for consideration and adopting a formal policy.

The evaluation highlights that the plan is severely underfunded and will experience consistent liquidity needs/outflows at least over the next decade and that the System's board is working hard to identify funding solutions. It further states that cashflow and liquidity needs are considered when asset allocation is stress tested for best and worst outcomes.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The Plan's IPS is clear in describing the purpose and investment objectives, how asset managers are to be benchmarked and evaluated, and how rebalancing is to be accomplished. The IPS thoughtfully explains the investment managers' responsibilities, however it is silent regarding the roles and responsibilities of other investment related fiduciaries and vendors. The IPS is also silent on identification of the criteria used to evaluate future target investment managers. The current IPS does not consider the funded status, cash flows and liabilities. While the Board has a stringent process in place to track fees that is consistent with SB 322, this practice is not articulated in the IPS. **Recommendation:** - We recommend that the 2021 IPS is updated to include: 1) the fiduciary duties and responsibilities of the investment related vendors 2) consideration of the funded status, liabilities, and cash flows 3) the criteria to be utilized in manager selection 4) the existing practice for the measurement and disclosure of plan fees.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Asset Allocation

OFRRF has a practice of reviewing capital market assumptions annually and conducting strategic asset allocation studies periodically. The analyses include, portfolio optimization, stress testing and loss evaluation (Value at Risk). Formal allocation studies have also considered the inclusion of outside asset classes not currently utilized by the plan. Also considered are the cash flows of the plan and its tolerance for illiquid investments. The process used by the plan has resulted in fully diversified asset mix, including active management, passive strategies and alternative investments. The plan's policies for asset allocation studies are deemed prudent and consistent with best practices.

Recommendation:

- The plan's policies for asset allocation studies are deemed prudent and consistent with best practices [identified by the CFA institutes codes, guidelines, and standards or those defined by the Center for Fiduciary Studies.] While there is a constructive practice in place, there is no formal policy stating the frequency for these reviews. We recommend that the 202I IPS include the current practice and frequency for reviewing the investment asset allocation.

Investment Fees

OFRRF maintains a comprehensive fee disclosure in its quarterly performance reporting. This reporting evaluates direct fees, indirect fees and the fees paid to outside investment related vendors including the custodian and investment consultant. The Plan's reporting also captures any commissions and other fees. Investment performance is measured both gross and net of fees. We also found the total investment expenses percentage to be acceptable based peer group expense comparison.

Strengths:

- The reporting of fees is comprehensive, updated quarterly and, in our opinion, consistent with PRB guidance and SB322. We found the plan's fees to be reasonable and competitive relative to peers.

Governance

SEAS evaluated the Plan's governance and investment processes, delegation of investment authority, Board investment expertise, and trustee education. The Board complies with Texas Chapter 607 for Minimum Educational Training (MET) requirements for trustees.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- We found the Plan's governance practices robust and evidence of diligence in fulfilling its role of fiduciary.

Recommendations:

- We recommend that the Plan review vendor contracts regularly to ensure cost savings and possible improvements over time.
- We also recommend formalizing current practice for trustee education and periodic vendor review into a written Plan policy.

Investment Manager Selection and Monitoring
There is not a formal Board policy in place for evaluating potential investment manager candidates, including minimum requirements or formal selection criteria. The Plan has a robust process for monitoring manager performances including benchmarking and peer groups; as well as clearly defined criteria for reviewing and replacing investment managers. The performance reporting is "digestible" with clear lines of performance accountability. We found the practice of quarterly investment review to be rigorous. **Recommendation:** - Identify formal criteria for consideration of future asset managers with minimum standards for potential candidates including GIPS, ethical considerations, and potential conflicts of interest.

San Antonio Fire & Police Pension Fund

DRAFT

PRB Analysis of Evaluation

Plan Assets:[1] $3,408,689,000
Evaluator: NEPC
Evaluator Disclosures:[2]
Relationship: Investment consultant
Investment Discretion: None

The evaluation provides a thorough review of the Fund's practices. In each subject area, it describes the review process and standard of comparison (i.e. industry standards or best practices) followed by the findings and enhancement recommendations. This structure allows the reader to follow-along with the evaluator's work as they build to findings and recommendations, providing clear explanations for the conclusions.

The review of cash flow and liquidity needs was particularly helpful. The evaluator reviews the 2020 Asset-Liability Study (ALM), noting its use of scenario analysis to highlight the potential impact of shifting economic and market regimes on the Fund. It notes that while the Fund's funded ratio was expected to remain constant for the next decade, it was expected to experience negative cash flow of -2% over that period, which is not uncommon for mature pension plans.

The evaluation notes the System's Funding Policy is separate from the IPS suggesting, at a minimum, it should be incorporated by reference, which can be followed by other pension plans as a good practice.

It is also noteworthy that while NEPS finds "SAFPPF's policies, procedures and practices to be appropriate, adequate and effective when compared to industry prevailing practice," the evaluator offers additional areas for enhancing existing practice, which demonstrates the strength of the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The IPS is generally consistent with the following elements recommended by GFOA, the CFA Institute and the NEPC IPS template outlined in the evaluation. Going back through SAFPPF Board Meeting minutes, we can see that the Plan is following the IPS in terms of pursuit of objectives, delegation of authority, decision making process, as well as the frequency and detail of monthly, quarterly, annual and other periodic reporting to the Board. As SAFPPF's General Investment Consultant, NEPC has directly observed, that the Board is adhering to the governance and compliance guidelines set forth in the IPS. SAFPPF has a thorough and thoughtful IPS. However, improvements should be considered in the next IPS review cycle for the sake of additional clarity, accountability and efficiency. **Recommendations:** - The IPS states that an asset-liability study should be conducted at least every five years (industry standard) to determine the long-term targets and that annually, the targets are to be reviewed for reasonableness in relation to significant economic and market changes or to changes in the Fund's long-term goals and objectives. For clarity, this annual review should be defined in the IPS as an asset allocation (or asset-only) study. - NEPC recommends adding language to the Roles and Responsibilities section of the IPS, to explicitly define the role of the Executive Director.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

- SAFPPF utilizes a General Consultant, as well as one or more Specialty Consultants across alternative asset classes and the emerging manager program. NEPC recommends language be added to the Roles and Responsibilities section of the IPS to clarify the use of Specialty Consultants.
- SAFPPF has developed an Emerging Manager program with a dedicated level of assets and policy statement. For clarity, NEPC recommends language be added to the IPS that provides a broad definition and scope of the program.
- The Funding Policy is not directly articulated within the IPS. Instead SAFPPF has a separate Funding Policy document that is currently being revised. In our review we’ve found that it is not uncommon for public funds to have a separate Funding Policy and as such, recommend that this document be incorporated by reference into the IPS.

Investment Asset Allocation

SAFPPF has developed a clear process that allows for routine setting, monitoring, and review of both the asset allocation of the portfolio and the assets and liabilities of the SAFPPF. This process is consistent with prevailing practice among peer public pension funds. SAFPPF has developed a detailed asset allocation and asset liability review process. The approach is robust and sufficiently detailed to maximize effectiveness.

Having reviewed SAFPPF’s most recent IPS, asset allocation study, and strategic plans for alternative asset classes, we find that the methodology for concluding that alternative investments were appropriate was sound given the Plan’s size and expertise of staff and specialty consultants.

The Asset-Liability Study (ALM) done in March 2020, used scenario analysis to highlight the impact of shifting economic and market regimes on the Plan and its target asset allocation. Key findings from the study showed the fund had a projected funded status of 87.2%, as of January 1, 2020 and is projected to maintain this funded ratio over the next 10 years, despite potential investment return headwinds and level contribution rates creating an uneven path as both assets and liabilities are projected to grow at an average rate of 4.1% over the next 10 years.

Recommendations:

- We recommend, as noted in Section 1, adding language for an informal review of capital market outlook on an annual basis to improve flexibility for SAFPPF to respond on the margins to rapidly changing market environments. This annual review may find cause for the Fund to consider minor changes to its asset mix more frequently than every five years. Frequent asset allocation changes, however, are not meant to be a tactical tool. Significant changes to the strategic asset allocation should not be made without careful consideration and are not expected to occur every year.
- The IPS does not specify a process around the valuation or confirmation of alternative assets valuations. NEPC recommends that language be added to the IPS that codifies the above process for valuing alternative assets.
- As SAFPPF continues to build out its alternative asset programs, NEPC recommends that the Plan add language to the IPS that addresses liquidity risk, and that periodically (every three years) requires a comprehensive report on the liquidity of the Fund.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Fees

The direct and indirect fees and commissions paid by the Fund include fees that are paid by the Fund and fees that are netted against returns. The Board, Staff and Investment Consultants place an emphasis on fee savings in a variety of ways, including negotiations with managers during the selection process, leveraging existing relationships (e.g., fee break for certain asset levels), as well as leveraging their size and standing in the industry (both the Consultants and the Fund). Analysis shows that fees across equities are below the median, while fixed income fees are slightly above the median, for the respective broad universes being used for comparison.

Strength:

- It should be noted that differences between SAFPPF's investment structure and that of the broad universes don't allow for an exact comparison, but in general we find SAFPPF's fees to be appropriate and within industry standards.

Recommendations:

- The IPS states that the Investment Committee is to monitor and control investment expenses. This language should be expanded to clearly define what type of report or analysis should be presented to the Board on at least an annual basis.
- The annual review of investment fees should include a fee analysis based on peer group or industry averages for the relevant asset classes in aggregate as well as by investment strategy type.

Governance

NEPC compared the governance structure of SAFPPF against governance information publicly available on the websites of the Texas Public Fund Pension peers with a focus on some key elements of governance such as:

- Roles – clearly defined, separation of duties, authority and responsibility (Evaluation confirms and provides details on the roles)
- Policy – investment policy statement, funding policy, standards of conduct, etc. (Evaluation describes the key aspects of the fund IPS)
- Education – experience, expertise, continuing education (Education and Training is sufficient)
- Operations – Board operations, committee structures, meeting frequency
- Reporting – frequency of reports (e.g., monthly/quarterly), monitoring of investments, etc.

Recommendation:

- SAFPPF Investment Committee members are tasked with on-site due diligence trips and evaluations to provide review and oversight of any potential new investments for the Plan. NEPC recommends that this process be codified under the Roles and Responsibilities section of the IPS.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Manager Selection and Monitoring
When reviewing SAFPPF's investment manager selection and monitoring process, NEPC was looking for processes that exhibited the following: - A consistent and comprehensive process which describes the steps for investment selection and monitoring - Addresses ethics and conflicts of interest that may present themselves - And a monitoring process that strives to hold investment managers accountable to the agreements they made with the Fund NEPC also reviewed the recommended resource provided by the Government Finance Officers' Association regarding "Selecting Third-Party Investment Professionals for Pension Fund Assets". While this resource was useful and comprehensive, NEPC recognizes that there is some understandable variability in investment manager selection and monitoring process between asset classes. **Strength:** - In general, SAFPPF has thorough policies and processes in place with regards to investment manager selection and monitoring.

Teacher Retirement System of Texas

PRB Analysis of Evaluation

Plan Assets:[1] $157,978,199,075	
Evaluator: Aon Hewitt Investment Consulting (AHIC)	
Evaluator Disclosures:[2]	
Relationship: Investment consultant[3]	
Investment Discretion: None	

The evaluation provides a detailed review of both policies and practices used in TRS's investment program. The evaluation enhances transparency by clearly identifying the policies, summarizing information in an easily digestible format, explaining the conclusions and often providing additional context from key decision-makers.

The evaluation provides helpful discussion regarding the System's governance processes, including highlighting the TRS board includes appointed members with financial expertise, and the System incorporates robust trustee training. The evaluation further notes the "trustees cannot be expected to perform all of the duties required to properly manage the massive size of public pension fund assets. What they can do, as TRS has done, is appropriately delegate those responsibilities to those who have the required expertise, clearly delineate the scope and parameters of those delegations, and monitor and demand accountability."

The evaluation identifies the asset allocation and risk management processes as "leading-edge." The asset-liability analysis and stress testing "simultaneously considers the assets, liabilities, future funding, and their interaction with one another within a holistic framework," including under a variety of worst-case scenarios.

Finally, the evaluator also states noteworthy actions taken by TRS include "the concerted effort to drive the investment industry towards increased transparency and reduced investment management fees." TRS's efforts to improve industry best practices are not only a benefit to TRS stakeholders but to all Texas plans.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The Plan has an IPS document that was last reviewed in September of 2019 and is reviewed on a biennial basis. The document provides a thorough, yet succinct overview of the roles and responsibilities for each applicable group associated with investment decisions and oversight. The TRS IPS document is quite comprehensive. Overall, we think the level of detail and the readability of the document is appropriate given the context of TRS – that of a large and sophisticated institutional investor. Additionally, based on our review we believe the IPS follows best practice. Based on our review of the meeting minutes, board reports, and interviews, we believe the IPS and other policies are being followed. Additionally, TRS has an independent compliance team which performs ongoing oversight to ensure that the IPS is being followed. The IPS contains measurable outcomes for the Plan as well as the underlying asset classes. The document contains measurable risk/return outcomes for investment managers. As detailed in the report, the Plan has been successful in meeting its stated objectives over the trailing 10-year period.

[1] As of 8/31/2019
[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.
[3] A separate group within AHIC ("Fiduciary Services Practice") is providing this Evaluation at TRS' request

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Additionally, the current policy would have provided desirable returns relative to the stated performance objectives if it were implemented 20 years ago.

Strengths:

- Two noteworthy practices include the ongoing review of investment related policies and the concerted effort to drive the investment industry towards increased transparency and reduced investment management fees.

Investment Asset Allocation

The Board articulates a process for how they will determine and evaluate the asset allocation of the Plan within the IPS (occurring every 5 years). Based on our review of the most recent evaluation they are following this process. The strategic asset allocation development process (which includes asset liability analysis and stress testing) occurring in practice is robust, and we believe represents a leading-edge practice. The system's overall risk tolerance is expressed and measured in many ways. The Board has determined that its asset allocation represents the appropriate risk positioning to achieve the objectives of the Plan over time. That risk positioning is managed through the Plan's tracking error targets and asset allocation ranges, which have been adopted within the Plan's IPS.

The Board's investment consultant and actuary communicate regarding their respective future return expectations. The process for deriving the strategic asset allocation of the Plan considers the actuarial discount rate, and the ability to achieve that assumption through the returns offered in the capital markets. The actuarial discount rate is a part of the mosaic of information considered by the Board when selecting the strategic allocation that will most efficiently allow the Plan to meet its obligations. The assets of the Plan are well diversified with modest use of passive management.

We believe the process to determine the asset allocation of the Plan is robust, and there is nothing in our analysis that would position us to say that a different asset allocation would be better positioned to meet the investment return and risk objectives of the Plan.

Strengths:

- We believe the size of TRS, the duration of its liabilities, the depth of the Investment Management Division ("IMD"), and the support of the Board give it a competitive advantage in achieving alpha in the alternative investment space.
- We believe IMD is well positioned relative to other similarly sized institutional investors to capture the benefits of alternative investing.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Fees
The Plan dedicates the appropriate amount of review and reporting on investment fees and commissions. The Plan does not have a written policy with regards to rules for fee negotiations. Based on our conversations with the system's Investment Management Division (IMD), this is due to the unique nature of each investment and how fees are structured and negotiated. IMD stressed during our interactions that they strive for the lowest fees possible with each investment opportunity. A written policy on rules for fee negotiations is uncommon across peer institutional investors. IMD maintains procedures for the payment of management and incentive fees. The procedure document outlines the process for receiving, reconciling, paying, and documenting the payment of management and incentive fees. Fees are reported to the Board in multiple ways, including its Annual Budget Exercise, Investment Cost Effectiveness Analysis survey ("CEM Benchmarking Report"), monthly Transparency reports, the annual CAFR, and as part of the annual audit. The CEM Benchmarking Report is the industry standard for objective fee benchmarking relative to peer institutions. The December 31, 2018 report found that the investment costs of the Plan were slightly higher (0.038%) than the CEM benchmarked costs.

Governance
Overall, we found TRS to have extensive and detailed documentation of its governance related to the investment-decision making process. The IPS and Board Bylaws are detailed and follow best practices by clearly articulating roles and responsibilities and clarity regarding what authority has been retained by the Board and what has been delegated. The makeup of the Board includes a requirement that certain appointed members have demonstrated financial expertise, who have worked in private business or industry, and who have broad investment experience, preferably in the investment of funds. The onboarding training provided to new Trustee is in line with best practices and covers a multitude of topics. The Trustees have continual training and education provided by a variety of sources, including annual fiduciary training and ongoing investment education. We found that Trustees clearly understand and embrace their fiduciary responsibilities and have properly engaged outside Advisors to assist them in their decision-making process. We believe the degree of delegation exercised by the TRS Board is appropriate and in line with comparable peers and best practices given the size and complexity of TRS. We believe the governance structure is in line with best practices of a fund the size and complexity of TRS. **Strengths:** - We found TRS to be leading-edge in terms of its transparency, exceeding that of many public retirement systems [as it broadcasts open portions of its Board and committee meetings online and maintains past broadcastings of the meetings on TRS site. In addition to posting board agendas and minutes, TRS posts Board Meeting Packets (going back to 2013) with all supporting materials. TRS also posts Trustee biographies, a listing of Board Committees and Officers, Board of Trustee Ethics Policy, Board of Trustees External Communication Policy, and the Board Meeting Calendar.]

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

- We found TRS to have extensive and detailed documentation of its governance related to the investment-decision making process. The IPS and Board Bylaws are detailed and follow best practices by clearly articulating roles and responsibilities and clarity regarding what authority has been retained by the Board and what has been delegated.
- New Board members go through rigorous orientation provided by TRS staff, which is typically a two-day orientation with tours of TRS divisions and follow up by TRS staff. The Board orientation booklet is robust and follows best practices, with clear, unambiguous language and guidance.
- The Board establishes policy and ensures appropriate monitoring, reporting, and accountability of its policies. Staff is able to appropriately implement the Board's directives within the parameters set by the Board. The policies, procedures, practices, and interviewees' commentaries all support a strong, stable governance framework for TRS to fulfill its mission and purpose.

Investment Manager Selection and Monitoring

It is ultimately the responsibility of IMD to review, consider, and authorize proposed investments and external manager selection (within the guidelines set forth in the Plan's IPS). For public market, private market, and risk parity candidates, teams will utilize all their available resources to come up with a list of potentials managers that warrant further due diligence; the process for further screening the list of potential managers is robust. TRS General Counsel works diligently with the Attorney General's Office to ensure the System retains firms with the required expertise with respect to investment-related transactional reviews.

Investment management fees are considered when reviewing investment performance. All investment results reported to the Board by the investment consultant and IMD are net of external investment management fees and gross of the IMD Operating Budget (this is consistent with peers). The CEM Benchmarking Report provides a thorough review of the investment expenses of the Plan as well as the net of fee investment results of the Plan relative to peers.

As part of the IPS, the Board has established tracking error targets and maximums. In implementing the strategic asset allocation IMD monitors forward looking and historical tracking error of the underlying investment managers as well as compliance with the Plan's risk targets. To the extent that an investment mandate contributes active risk levels inconsistent with its historic trend or expectation, the strategy is flagged for further review and consideration. The risk team works to manage and monitor forward looking risk positions based on trend history and the interaction between the different investment mandates and asset classes.

Strengths:

- To help ensure all investment decisions and recommendations are free of potential conflicts of interest, external investment managers must complete an Investment Integrity Disclosure (form included in the IPS). The disclosure reports whether a Placement Agent has been involved and any political contribution or Placement Fee. The disclosure also reports the relationship of the recipients to the Placement Agent, Texas Elected Official, or Candidate.

Temple Firemen’s Relief & Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $43,569,953
Evaluator: CAPTRUST
Evaluator Disclosures:[2]
Relationship: Investment Consultant
Investment Discretion: None

The evaluation provides an overall review of the system and its practices while detailing specifics of the asset allocation and investment manager selection and monitoring processes.

The evaluation notes the determination of the asset allocation is "the result of an iterative exchange between the Board, the consultant, and the actuaries. Allocations are the result of a combination of quantitative modeling (portfolio optimization) and qualitative overlays (appropriate asset classes differ by plan)." Risk management is also identified as a "Key" part of the process. However, the evaluation cautions the "actuarial assumed rate of return is 7.75% which may be difficult to achieve regardless of asset allocation strategy."

The evaluation also provides a thorough review of the investment manager selection and monitoring process, outlining both the investment consultant's process and the System's philosophy. Overall, the evaluation includes explanations that provide insight into the System's practices, but it offers little descriptive commentary on how they compare to best practices.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The IPS clearly indicates the processes necessary for anyone to manage the portfolio. The investment policy follows industry best practices. The roles and responsibilities are clearly defined, the risk and return objectives are identified, and the investment philosophy and asset allocation policy are clearly stated. There is clear evidence that the system is following its IPS. As of 12/31/2019, the portfolio has outperformed the benchmark by 10 basis points since the inception of the CAPTRUST relationship (6.27% vs. 6.17%) and by 38 basis points over the last three years (9.35% vs. 8.97%). The actuarial assumed rate of return is 7.75% which may be difficult to achieve regardless of asset allocation strategy. Overall, it appears the portfolio has performed well over the long-term and investment goals are being met. As part of each asset allocation study, CAPTRUST conducts a historical simulation using benchmark indexes to examine how the proposed portfolios would have actually performed across time. This analysis is utilized when constructing the permissible ranges with respect to the strategic asset allocation chosen by the Board. As such, the policy has been constructed with enough flexibility to weather severe market downturns.

Investment Asset Allocation
When determining and evaluating the strategic asset allocation, a proactive and regimented process is conducted. The asset allocation is the result of an iterative exchange between the Board, the consultant, and the actuaries. Allocations are the result of a combination of quantitative modeling (portfolio optimization) and qualitative overlays (appropriate asset classes differ by plan).

[1] As of 9/30/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

When constructing defined benefit plan allocations, a considerable amount of time is spent evaluating the liabilities of the plan and importance is placed on ways to de-risk plan allocations - from reducing portfolio volatility to reducing contribution volatility. Several optimizers are utilized, and philosophical views are expressed when constraining portfolio optimizations. Risk management is a key part of this process. Plan-specifics are considered including cash flow and other accounting / financial considerations surrounding the plan as well as a macro view on the role the plan plays now and the Board’s intention going forward.

In conjunction with the consultant, the Board models, and ultimately develops, an acceptable asset allocation strategy that will control risk to the funded ratio while achieving a reasonable return. The Board remains cognizant of the expected return on assets utilized for accounting purposes but the long-term benefit to participants takes precedence in terms of setting the asset allocation.

Strengths:

- The system utilizes an investment consultant to formulate asset allocation strategies which is common throughout the industry. CAPTRUST (as consultant) utilizes best practices in the determination of suitable asset allocation recommendations. The methodologies implemented by CAPTRUST and the resulting asset allocation in place have resulted in a well-diversified portfolio across several different asset classes and investment managers.

Recommendation:

The IPS identifies the maximum allowable allocation to Alternatives and the investment types permitted for alternatives. Although, the IPS could be improved in that area by furthering clarifying which Alternatives are permitted and prohibited.

Investment Fees
The IPS does not directly address the system’s policies and procedures with respect to direct and indirect compensation paid to managers. The investment consultant monitors and reports investment fees to the board. This is clearly stated in the IPS. The net expense ratio includes all forms of manager compensation. The system has appropriate policies in place to account for and control fees. The Board selects managers after their own evaluation and the investment consultant is responsible for monitoring and further evaluation of the managers selected. Investment fees are monitored on an ongoing basis by the investment consultant. Administrative and custody fees are monitored on a quarterly basis and reviewed and assessed every 5 years per contract.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Governance
The governance policy is outlined in Vernon's Civil Statutes in accordance with the Texas Constitution. all investment-related policy statements are accessible to the plan members via the system website. However, the documents are accessible only to the plan members and not the general public. Meetings are held monthly, and the agendas and minutes are available to the public. The IPS clearly defines the responsibilities of all parties involved. The Board is responsible for clearly identifying specific responsibilities between members. As it relates to risk, the roles and responsibilities of each party involved in the management of the plan is clearly defined in the IPS. In short, the Board is responsible for developing the investment objectives of the plan, hiring of all parties, allocating assets, review of investment results and investment policy. The consultant assists the Board with these responsibilities, but ultimate approval resides with the Board. Lastly, the investment managers are directly responsible for the management of the plan's assets. This structure is very common throughout the industry and serves as a good system of checks and balances.

Investment Manager Selection and Monitoring
The investment consultant serves as a co-fiduciary to the plan and recommends investment managers to the board. Ultimately, the board is responsible for approval of the investment managers. Since manager selection is foremost about forward-looking views and investment recommendations, CAPTRUST is committed to the qualitative assessment of investment managers. CAPTRUST believes that understanding a manager's firm and its people is critical to the assessment of investment capabilities. CAPTRUST presents to the Board each quarter the performance of the plan relative to the pre-specified benchmarks and peer groups but it is the Board's responsibility to interpret the performance. Performance is always evaluated on a net-of-fee basis. Every quarter, CAPTRUST's (as consultant) investment research team issues an opinion – in Good Standing, Marked for Review, or consider for termination - on all managers. In addition to their standard quarterly process, when circumstances require a more immediate response, CAPTRUST does not wait for the end of a quarter to relay their views and potential actions. Intra-quarter recommendations may be based upon due diligence findings, manager departures, strategy shifts, or other material events.

Texas Emergency Services Retirement System

PRB Analysis of Evaluation

Plan Assets:[1] $115,155,476
Evaluator: AndCo
Evaluator Disclosures:[2]
Relationship: Investment Consultant
Investment Discretion: None

The evaluation provides both a review of policy practices and clearly documents the sources used as comparative best practices, while also providing detailed explanations where appropriate, specifically the asset allocation and the general governance decision-making process.

The evaluator notes that the existing investment consultant makes recommendations for improvement proactively and are already incorporated in the existing practices, therefore only general recommendations for the System "to maintain its robust processes to both review the current investment portfolio while also seeking to identify new investments that can improve the System's long term expected risk and return while maintaining liquidity to meet its benefit obligations" are made in this evaluation.

The evaluation indicates the System has made numerous changes since engaging the current investment consultant in 2017, including investment policy statement revisions, investment manager changes and asset class additions which have "resulted in improved overall investment performance."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
We analyzed the System's IPS and the Board's compliance with the IPS. AndCo, as an independent, professional investment consulting firm, has determined that the System's IPS, and the Board's compliance with the IPS, is appropriate and comparable the structure of an effective investment policy statement as laid out by the CFA Institute (ELEMENTS OF AN INVESTMENT POLICY STATEMENT FOR INSTITUTIONAL INVESTORS, Copyright 2010 by the CFA Institute). **Strengths:** – AndCo recommends the System maintain its ongoing review of the investment policy statement. We feel that including the policy statement in each quarter's board packet for review is a strong practice and should be continued. – AndCo recommends that the System continue to track the changes to the investment policy and report them in a clear and transparent manner.

Investment Asset Allocation
The System's process for determining asset allocation targets is executed and implemented through strategic asset allocation studies conducted by the System's investment consultant. The specific asset classes included in each strategic asset allocation study will include both asset classes currently in the System's portfolio as well as other asset classes that may be suitable for inclusion. AndCo works directly with the System's Actuary and Trustees to incorporate the System's specific liability circumstances and projections to review the potential impacts of varying investment asset allocation policies

[1] As of 8/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

on the key actuarial and liability metrics. For public pension funds, asset/liability studies are a critical tool to examine how well alternative investment strategies (differing asset allocations) impact the key long-term actuarial circumstances, including funded status and contribution requirements.

We believe a robust asset/liability study helps the consultant and Board review asset allocation mixes to determine those allocation strategies which could potentially best serve to protect or increase funding levels, while providing adequate liquidity for benefit payments and minimizing associated risks. AndCo believes that through a comprehensive discussion over the asset/liability study results clients can have a clearer understanding of practical plan investment expectations.

A comparison of the System's asset allocation vs public fund peers … reflects that the System's overall asset allocations are in line with public fund peers. The only area that was not represented in the asset allocation at 8/31/19 was international fixed income. Exposure to this area was added in 2020.

Strengths:

- AndCo recommends that the System
  - Maintain its long-term asset allocation structure and tolerance ranges. To this point the System has been responsive when presented with recommendations for expanding the asset classes in use within the portfolio.
  - Continue the process of active review. Asset allocation studies and asset liability studies are being developed and reviewed every three to five years which is in line with what AndCo views as best practice in the industry and across its client base.
  - Maintain its investment process for investment manager search and selection which relies on its investment consultant, investment committee, and board in selecting new investment managers for use within the pension fund's investment portfolio.
  - Continue to work with the Consultant to actively rebalance the portfolio to provided needed cash flow and maintain its long term target allocations.
- AndCo recommends that the board and its investment committee
  - Continue regular asset allocation reviews with its investment consultant.
  - Maintain its policy of educating themselves on new asset classes that could be beneficial to the investment portfolio.

Recommendation:

- It has been recommended that the board eliminate the allocation to MLPs going forward, this was completed in 2020.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Fees
The fees for the System's portfolio contained in the most recent quarterly investment review reflect a cost of 0.62%. Based on the 2019 NCPERS Public Retirement Systems Study, published on January 22, 2020, the average fee for the survey's 155 state and local government pension respondents was 0.55%. It is important to note the System also considers fees an important part of the decision-making process and evaluates the potential fee impact for each new investment manager and strategy considered for inclusion in the System's portfolio. The System considers the current fee of 0.62% reasonable and appropriate for its portfolio. We reviewed the fees paid to administer the System's portfolio and the underlying investment manager fees. AndCo, as an independent, professional investment consulting firm, has determined that the System's fees are appropriate as evidenced to the comparison of national plans in the 2019 NCPERS public Retirement Systems Study. No changes are recommended at this time.

Governance
The System's IPS contains clear definitions of the Board's responsibilities as well as the role of the Board's professional advisors in assisting the Board in fulfilling its fiduciary duties to the System with respect to the investment of assets. Direct investment authority for the System's assets lies with the Board. As such, all decisions regarding the System's portfolio including return objectives, risk tolerance, investment guidelines, asset allocation targets and manager selection and retention reside with the Board. In working with the System AndCo has found the staff and the trustees to be actively engaged in oversight of the investment portfolio. All investment decisions and allocation decisions have been made in the best interest of the System. We reviewed the System's governance processes related to investment activities, investment decision-making, delegation of investment authority, and education. AndCo, as an independent, professional investment consulting firm, has determined that the System's processes are appropriate. No changes are recommended at this time.

Investment Manager Selection and Monitoring
The investment manager selection process for the Fund is conducted in collaboration with the Fund's investment consultant and Investment Committee. Whether a specific investment strategy review is directed by the Board, staff, or the strategy idea comes from the investment consultant's research group, all potential investment strategies must go through the consulting firm's due diligence process and subsequently be presented and approved by the investment consultant's Investment Policy Committee before being shown as potential strategies for the Board to consider for the Fund's portfolio. Candidates are vetted by the consultant's research group to identify the best and most appropriate managers for the System in each investable asset class.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Strengths:

- All performance calculations supplied by the consultant to the board meet the guidelines of the CFA institute.
- AndCo feels that the manager selection process in place at TESRS isrobust and is in line with industry best practices. AndCo employs a similar search and selection across its national public fund client base. In addition, AndCo feels that the System is in line with the process best practices laid out by the GFOA for selecting third party investment professionals for pension fund assets.
- AndCo recommends that the System maintain its investment process for investment manager search and selection which relies on its investment consultant, investment committee, and board in selecting new investment managers for use within the pension fund's investment portfolio.

Texarkana Firemen’s Relief & Retirement Fund

PRB Analysis of Evaluation

Plan Assets:[1] $36,402,489

Evaluator: Champion Capital Research, Inc.

Evaluator Disclosures:[2]

Relationship: Investment Consultant

Investment Discretion: None

The evaluation identifies the policies and practices the system follows and concludes they are largely in-line with best practices. Best practices and benchmarks considered are clearly identified and helpful justifications are provided. Further, the primary findings and recommendations were summarized in a clear and concise manner.

The evaluation found the System's policies to be "thorough and complete" but did identify several opportunities for improvement. All opportunities for improvement identified during the evaluation were incorporated in a revised Investment Policy Statement adopted during the evaluation process in April 2020.

The evaluation also notes that several policies included in the IPS were not being consistently followed. However, according to the evaluator, these policies exceed best practice therefore the evaluator recommends removal to "improve upon its adherence to policies."

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

Investment Policy Statement
The CCR Team found the Plan's policies to be thorough and complete. In other words, CCR Team found no nonconformities ("NC") with the Plan's IPS. However, CCR determined there existed several opportunities for improvement ("OFI"). These were identified and communicated to Board. All OFIs were remedied during the consulting engagement with CCR and thus there are no further recommendations. The only IPS objective that is not consistently met is meeting the 7.75% actuarial rate of return. Given expectations for capital market returns, this is to be expected. **Strengths:** – With respect to the analysis of investment policies, Texarkana's current investment policies are broadly consistent with "best practices". These best practices are defined and practiced by the Center for Fiduciary Studies. **Recommendations:** – Texarkana added a fund administrator whose roles and responsibilities were not defined in current policies. Texarkana added language to its IPS to improve their policies. – Because the Fund Administrator has money movement and Board meeting roles and responsibilities, the absence of the explicit language left gaps in the Fund's policies. CCR and Texarkana discussed this opportunity for improvement ("OFI") and added language to its IPS to improve their policies.

[1] As of 12/31/2019

[2] Texas Government Code §802.109 authorizes the selection of a firm that has an existing relationship with the System, as long as the firm does not directly or indirectly manage investments. PRB's informal *Guidance for Investment Practices and Performance Evaluation* recommends this information be disclosed in the evaluation.

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

- With respect to the adherence to existing policies, we found that Texarkana could improve upon its adherence to policies and should remove policies that were above and beyond best practices. The demands of the former IPS that were in excess of best practices were [discussed in detail with the System] and thus removed from the April 2020 IPS.
  - For example, the former IPS indicated a fixed income monitoring procedure that was periodically being implemented. The IPS was more stringent than "best practice" in this regard. Thus, the IPS was modified to concur with regular procedures.
  - The IPS states that the "Consultant work directly with the Actuary to assist the Board in assessing an asset allocation and asset-liability study no less than once every five years to review asset classes, risk-return assumptions, and correlations of returns." This is not done, nor is it expected to be a regular process for Texarkana. Thus, the language was removed.
  - The Purpose of the IPS included 1.) monitor quarterly in detail the contribution of decisions made by managers, vendors, and all fiduciaries. This "attribution" analysis is above "best practices" and was not being implemented. Given the Board's quantifiable criteria used for monitoring investment manager performance, the "attribution" policy was removed.

Investment Asset Allocation
Individual fund managers risk metrics are reviewed monthly and quarterly and measured by Sharpe ratio. However, the Plan's aggregate risk tolerance was not expressed in its policies. In the Plan's May 2020 IPS, portfolio risk is referenced by a standard deviation statistic and the resultant expected range of returns is stated, so that the Board recognizes the "large loss" potential of the portfolio. In practice the asset allocation has no bearing on the assumed rate of return used for discounting plan liabilities. The Plan's asset allocation is not a derivation of a mean variance optimized portfolio nor simulated Monte Carlo portfolio. However, the Plan's asset allocation is sufficiently diverse, and annual adjustments to the Plan's asset allocation is thoughtful of the expected cash flow needs of the Plan. Given the expected capital market assumptions it is unreasonable to expect to achieve the actuarial rate of return of 7.75% using a broadly diverse asset allocation and today's capital market assumptions.

Investment Fees
The CCR team found that the system's IPS does not describe the monitoring of direct and indirect compensation paid to investment managers and other service providers. The Plan's IPS implemented in May 2020 requires the Board to direct the Consultant to assess and report annually the aggregate direct and indirect investment fees and commissions paid by [the System].

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

As part of the Plan's monthly monitoring, mutual fund investment fees are assessed and reviewed for reasonableness, in that the MF managers fees will not fall withing the most expensive quartile relative to peers. Quarterly, the MF and SMA management fees are assessed for reasonableness in the same way.

Recommendations:

- It is recommended for Texarkana to ensure its Investment Consultant monitor all explicit and implicit fees and expenses for all vendors, by requiring an annual report from each manager regarding any and all remuneration received as a result of doing business with Texarkana.
- Additionally, the Consultant is responsible to report to the Board annually its assessment of the reasonableness of these fees.

Governance

CCR finds Texarkana's decision-making processes, delegation of authority and investment education and expertise among the Board to be robust, prudent, and consistent. Best practices require Texarkana evaluate all vendor contracts every three years. With respect to monitoring, any outstanding OFIs in this section have been addressed and rectified in the previous section.

The Plan's investment related education requirements have historically and are currently in compliance with TLFFRA/statue requirements as well as the Texas Pension Review Board recommendations and requirements.

Strengths:

- The annual review of the Plan's IPS helps to ensure policies are being followed.

Recommendation:

- It is best practice to evaluate the services and agreements with all service providers at least once every three years.

Investment Manager Selection and Monitoring

Texarkana uses specific quantifiable criteria in the monthly and quarterly monitoring of its investment managers. Texarkana's Board relied on the quarterly gross of fee and net of fee performance relative to benchmarks to assess the performance of its investment managers.

The overall performance of the portfolio is monitored by three independent entities. One the Fund Administrator follows a TEXPERs actuary's recommendation regarding the computation of aggregate fund performance. Second, the Consultant monitors aggregate fund performance. Finally,

The following table presents excerpts from each section of the evaluation including any recommendations for improvement made by the evaluator.

the Investment Manager, Westwood, monitors its aggregate fund performance in addition to Consultant and Fund Administrator.

Strengths:

- Texarkana's Board relies on the monthly net of fee and gross of fee relative to peers and benchmarks.

Appendix Item 1 – Guidance for Investment Practices and Performance Evaluations

DRAFT

Texas Pension Review Board

Guidance for Investment Practices and Performance Evaluations

As required by Senate Bill 322 (86R)

(Adopted October 17, 2019)

Texas Government Code §802.109 requires Texas public retirement systems with at least $30 million in assets to complete an Investment Practices and Performance Evaluation. The Pension Review Board (PRB) is providing this informal guidance to assist systems in defining the scope and content of the evaluation.

The following provides guidance on the different areas required by statute to be reviewed by the independent firm performing the evaluation. The PRB recognizes that evaluations should and will vary significantly based on the specific characteristics of each system's size, governance structure, and investment program. Therefore, this guidance is intended to inform systems and their stakeholders on the basic aspects of the evaluations and associated reports and is not an exhaustive list of all items that should be reviewed.

A thorough evaluation would include the following elements:

1) Identify and review existing investment policies, procedures, and practices. This should include any formally established policies (e.g. Investment Policy Statement) as well any informal procedures and practices used to carry out the investment activities of the system. It is not necessary to review past policies, procedures, and practices that are no longer applicable unless they are deemed helpful to understand current policy or practice.
2) Compare the existing policies and procedures to industry best practices.
3) Generally, assess whether the board, internal staff, and external consultants are adhering to the established policies.
4) Identify the strengths and weaknesses of the current policies, procedures, and practices and make recommendations for improvement.
5) Include a detailed description of the criteria considered and methodology used to perform the evaluation, including an explanation of any metrics used and associated calculations.

Applicability

Systems with assets of **at least $100 million** must complete an evaluation **once every 3 years**.[i] Systems with assets of **at least $30 million but less than $100 million** must complete an evaluation **once every 6 years**. Systems with assets **less than $30 million** are **not required**, but are encouraged, to conduct an evaluation.

Deadlines

A report of the first evaluation must be filed with the governing body of the system **not later than May 1, 2020**.

Reports of subsequent evaluations must be filed with the governing body of the system not later than May 1 of the applicable year. Each report is **due to the PRB not later than 31 days after** the date the governing body of a public retirement system receives it.

Independent Firm

*(a) … A public retirement system shall select an **independent firm** with substantial experience in evaluating institutional investment practices and performance…*

*(c) Provides that a public retirement system, in selecting an **independent firm** to conduct the evaluation described by Subsection (a):*

> *(1) subject to Subdivision (2), is authorized to select a firm regardless of whether the firm has an existing relationship with the retirement system; and*
>
> *(2) is **prohibited** from selecting a firm that **directly or indirectly manages investments** of the retirement system.*

Directly or Indirectly Managing Investments

A firm is considered to be directly or indirectly managing investments if the firm, a subsidiary, or its parent company, has assets of the system under management, or is solely responsible for selecting or terminating investment managers.

Restriction on Performing the Evaluation

If a firm is identified as directly or indirectly managing investments of the system, the firm is not considered an independent firm and is not eligible to perform the evaluation.

Disclosure by Independent Firm

The evaluation should include the following disclosures by the independent firm:

1) a summary outlining the qualifications of the firm;
2) a statement indicating the nature of any existing relationship between the firm and the system being evaluated;
3) a list of the types of remuneration received by the firm from sources other than the retirement system for services provided to the system; and
4) a statement acknowledging that the firm, or its related entities, is not involved in directly or indirectly managing investments of the system.

Components of Evaluation

This section provides suggested questions and topics for consideration under each of the five areas required to be covered in each evaluation.[ii] The questions below are intended to help systems identify the types of information an evaluation may include. Additionally, these questions may be helpful to systems that will use a request for proposal (RFP) to select a firm to perform the evaluation.

> *Each evaluation must include:*
> *(1) an analysis of any* ***investment policy or strategic investment plan*** *adopted by the retirement system and the retirement system 's compliance with that policy or plan;*

- Does the system have a written investment policy statement (IPS)?
- Are the roles and responsibilities of those involved in governance, investing, consulting, monitoring and custody clearly outlined?
- Is the policy carefully designed to meet the real needs and objectives of the retirement plan? Is it integrated with any existing funding or benefit policies? (i.e. does the policy take into account the current funded status of the plan, the specific liquidity needs associated with the difference between expected short-term inflows and outflows, the underlying nature of the liabilities being supported [e.g. pay-based vs. flat $ benefit, automatic COLAs, DROP, etc.])
- Is the policy written so clearly and explicitly that anyone could manage a portfolio and conform to the desired intentions?
- Does the policy follow industry best practices? If not, what are the differences?
- Does the IPS contain measurable outcomes for managers? Does the IPS outline over what time periods performance is to be considered?
- Is there evidence that the system is following its IPS? Is there evidence that the system is not following its IPS?
- What practices are being followed that are not in, or are counter to, written investment policies and procedures?
- Are stated investment objectives being met?
- Will the retirement fund be able to sustain a commitment to the policies under stress test scenarios, including those based on the capital markets that have actually been experienced over the past ten, twenty, or thirty years?
- Will the investment managers be able to maintain fidelity to the policy under the same scenarios?
- Will the policy achieve the stated investment objectives under the same scenarios?
- How often is the policy reviewed and/or updated? When was the most recent substantial change to the policy and why was this change made?

Resources

PRB - Developing an Investment Policy

GFOA - A Guide for Establishing A Pension Investment Policy

CFA - A Primer for Investment Trustees

(2) a detailed review of the retirement system 's ***investment asset allocation****, including:*
(A) the process for determining target allocations;

- Does the system have a formal and/or written policy for determining and evaluating its asset allocation? Is the system following this policy?
- If no formal policy exists, what is occurring in practice?
- Who is responsible for making the decisions regarding strategic asset allocation?
- How is the system's overall risk tolerance expressed and measured? What methodology is used to determine and evaluate the strategic asset allocation?
- How often is the strategic asset allocation reviewed?
- Do the system's investment consultants and actuaries communicate regarding their respective future expectations?
- How does the current assumed rate of return used for discounting plan liabilities factor into the discussion and decision-making associated with setting the asset allocation? Is the actuarial expected return on assets a function of the asset allocation or has the asset allocation been chosen to meet the desired actuarial expected return on assets?
- Is the asset allocation approach used by the system based on a specific methodology? Is this methodology prudent, recognized as best practice, and consistently applied?
- Does the system implement a tactical asset allocation? If so, what methodology is used to determine the tactical asset allocation? Who is responsible for making decisions regarding the tactical asset allocation?
- How does the asset allocation compare to peer systems?

(B) the expected risk and expected rate of return, categorized by asset class;

- What are the strategic and tactical allocations?
- What is the expected risk and expected rate of return of each asset class?
- How is this risk measured and how are the expected rates of return determined? What is the time horizon?
- What mix of assets is necessary to achieve the plan's investment return and risk objectives?
- What consideration is given to active vs. passive management?
- Is the approach used by the system to formulate asset allocation strategies sound, consistent with best practices, and does it result in a well-diversified portfolio?
- How often are the strategic and tactical allocations reviewed?

(C) the appropriateness of selection and valuation methodologies of alternative and illiquid assets; and

- How are alternative and illiquid assets selected, measured and evaluated?

- Are the system's alternative investments appropriate given its size and level of investment expertise? Does the IPS outline the specific types of alternative and illiquid investments allowed, as well as the maximum allocation allowable?
- What valuation methodologies are used to measure alternative and illiquid assets? What alternative valuation methodologies exist and what makes the chosen method most appropriate?

(D) future cash flow and liquidity needs;

- What are the plan's anticipated future cash flow and liquidity needs? Is this based on an open or closed group projection?
- When was the last time an asset-liability study was performed?
- How are system-specific issues incorporated in the asset allocation process? What is the current funded status of the plan and what impact does it have? What changes should be considered when the plan is severely underfunded, approaching full funding, or in a surplus? How does the difference between expected short-term inflows (contributions, dividends, interest, etc.) and outflows (distributions and expenses) impact the allocation? How does the underlying nature of the liabilities impact the allocation (e.g. pay-based vs. flat $ benefit, automatic COLAs, DROP, etc.)?
- What types of stress testing are incorporated in the process?

Resources
GFOA – Asset Allocation for Defined Benefit Plans

CFA – A Primer for Investment Trustees

*(3) a review of the **appropriateness of investment fees and commissions paid** by the retirement system;*

- Do the system's policies describe the management and monitoring of direct and indirect compensation paid to investment managers and other service providers? What direct and indirect investment fees and commissions are paid by the system?
- Who is responsible for monitoring and reporting fees to the board? Is this responsibility clearly defined in the system's investment policies?
- Are all forms of manager compensation included in reported fees?
- How do these fees compare to peer group and industry averages for similar services? How are the fee benchmarks determined?
- Does the system have appropriate policies and procedures in place to account for and control investment expenses and other asset management fees?
- What other fees are incurred by the system that are not directly related to the management of the portfolio?
- How often are the fees reviewed for reasonableness?
- Is an attorney reviewing any investment fee arrangements for alternative investments?

Resources
GFOA - Investment Fee Guidelines for External Management of Defined Benefit Plans

CFA - A Primer for Investment Trustees

> (4) *a review of the retirement system 's* ***governance processes related to investment activities****, including investment decision-making processes, delegation of investment authority, and board investment expertise and education;*

Transparency

- Does the system have a written governance policy statement outlining the governance structure? Is it a stand-alone document or part of the IPS?
- Are all investment-related policy statements easily accessible by the plan members and the public (e.g. posted to system website)?
- How often are board meetings? What are the primary topics of discussion? How much time, detail, and discussion are devoted to investment issues?
- Are meeting agendas and minutes available to the public? How detailed are the minutes?

Investment Knowledge/Expertise

- What are the backgrounds of the board members? Are there any investment-related educational requirements for board members?
- What training is provided and/or required of new board members? How frequently are board members provided investment-related education?
- What are the minimum ethics, governance, and investment education requirements? Have all board members satisfied these minimum requirements?
- Does the system apply adequate policies and/or procedures to help ensure that all board members understand their fiduciary responsibilities?
- What is the investment management model (i.e. internal vs. external investment managers)?
- Does the board receive impartial investment advice and guidance?
- How frequently is an RFP issued for investment consultant services?

Accountability

- How is the leadership of the board and committee(s), if any, selected?
- Who is responsible for making decisions regarding investments, including manager selection and asset allocation? How is authority allocated between the full board, a portion of the board (e.g. an investment committee), and internal staff members and/or outside consultants? Does the IPS clearly outline this information? Is the board consistent in its use of this structure/delegation of authority?
- Does the system have policies in place to review the effectiveness of its investment program, including the roles of the board, internal staff and outside consultants?
- Is the current governance structure striking a good balance between risk and efficiency?
- What controls are in place to ensure policies are being followed?
- How is overall portfolio performance monitored by the board?
- How often are the investment governance processes reviewed for continued appropriateness?

Resources

NASRA - Public Pension Governance

PEW - Making State Pension Investments More Transparent

CFA - Investment Governance for Fiduciaries

CFA - A Primer for Investment Trustees

(5) a review of the retirement system 's ***investment manager selection and monitoring process****.*

- Who is responsible for selecting investment managers?
- How are the managers identified as potential candidates?
- What are the selection criteria for including potential candidates?
- What are the selection criteria when deciding between multiple candidates?
- How does the selection process address ethical considerations and potential conflicts of interest for both investment managers and board members?
- Who is responsible for developing and/or reviewing investment consultant and/or manager contracts?
- What is the process for monitoring individual and overall fund performance?
- Who is responsible for measuring the performance?
- What benchmarks are used to evaluate performance?
- What types of performance evaluation reports are provided to the board? Are they provided in a digestible format accessible to trustees with differing levels of investment knowledge/expertise?
- How frequently is net-of-fee and gross-of-fee investment manager performance reviewed? Is net-of-fee and gross-of-fee manager performance compared against benchmarks and/or peers?
- What is the process for determining when an investment manager should be replaced?
- How is individual performance evaluation integrated with other investment decisions such as asset allocation and investment risk decisions?

Resources

GFOA - Investment Fee Guidelines for External Management of Defined Benefit Plans

GFOA - Selecting Third-Party Investment Professionals for Pension Fund Assets

CFA - A Primer for Investment Trustees

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[i] The Houston Firefighters Relief & Retirement Fund, the Houston Municipal Employees Pension System, and the Houston Police Officers' Pension System may submit the investment evaluation reports in Vernon's Civil Statutes to satisfy the requirements of §802.109.

[ii] The first evaluation "must be a comprehensive analysis of the retirement system's investment program that covers all asset classes" while subsequent evaluations "may select particular asset classes on which to focus."

Appendix Item 2 – Summary of Investment Practices and Performance Evaluation Recommendations

DRAFT

Summary of Investment Practices and Performance Evaluation Recommendations

Number of Recommendations	Governance Recommendations	Total
OPERATIONAL PRACTICE		
8	Annual IPS and/or system review	**18**
2	Issue RFP at least once every 3-5 years for Investment Consultant	
1	Review RFP process and its potential impact on delays/missing investment opportunities	
1	Conduct more frequent AVs	
1	Quarterly board meetings should formally review underperforming investment managers	
1	Increase board continuity	
1	Limit and stagger committee member terms	
1	Fund counsel reviews all legal contracts	
1	Review investing core beliefs anytime significant investment changes occur	
1	Create an implementation policy to assist in documentation of policies/procedures	
DOCUMENTATION		
2	Develop a written governance policy	**7**
2	Improve descriptions of existing policies and responsibilities	
1	Document existing governance practice	
1	Document purpose, function, membership, and possible actions of all committees	
1	Include ESG-related and internal management considerations in the IPS	
TRANSPARENCY		
3	Post additional documents to the website	**6**
2	Maintain a focus on transparency	
1	Modernize website	
TRAINING		
3	Ensure training stays up to date	**6**
2	Develop materials specifically for new board members	
1	Document training requirements	
OTHER		
1	Improve plan adherence by adjusting policies exceeding best practice to align more with best practices	**1**
Total Governance Recommendations		**38**

Number of Recommendations	Manager Selection and Monitoring Recommendations	Total
	INVESTMENT MANAGER HIRING AND FIRING PROCESS	
9	Include the selection criteria in the IPS as well as document rationale for all hiring and firing decisions	**12**
1	Refine the manager selection criteria so that it places less emphasis on past performance	
1	Simplify the process description, providing high-level guidelines for flexibility with specificity where necessary	
1	Add a conflict-of-interest policy when selecting investment managers	
	BENCHMARKING OR PERFORMANCE MEASURES	
6	Include net- and gross-of-fee returns relative to benchmark and peers in each quarterly report	**12**
3	Add specific measurable criteria for monitoring performance to the IPS	
1	Create a performance metric and reporting requirement for non-public securities	
1	Additional qualitative information should be included in the manager performance review summary	
1	Add a process for comparing total portfolio and investment managers' risk adjusted returns to peers and benchmark	
	ADD POLICIES OR PROCEDURE	
2	Add formal investment manager review process, criteria, and procedures	**6**
1	Document existing policy on how performance is measured	
1	Prepare adequate documentation to ensure/demonstrate process has been followed	
1	Add a watch list policy	
1	Add a policy documenting proxy voting rationale	
	OTHER	
3	Update policy language regarding reporting/reviewing for investment managers	**11**
1	IPS should specify that performance reporting include net of investment management fee	
1	Investment performance reports should be quarterly with monthly flash reports	
1	Separate reporting requirement by asset class instead of consultant or investment manager	
1	Add policy language defining a reporting or valuation process for less liquid or illiquid securities	
1	Revisit the watch list for alternative	
1	Review Private Equity performance benchmarking to IPS policy	
1	Standardize investment monitoring processes across all asset classes	
1	Generalize watch list language to avoid being overly prescriptive	
	Total Manager Selection and Monitoring Recommendations	**41**

Number of Recommendations	Investment Fee Recommendations	Total
	IPS GUIDELINES	
6	Add language to document various processes regarding the reconciliation and payment of fees or the level of detail recorded for direct and indirect compensation	**8**
2	Adhere to existing policies	
	REPORTING	
1	Management fees netted from returns	**9**
1	Profit share/carried interest from alternative investments	
1	Expenses related to cash (if any)	
1	Expenses related to real estate	
1	Reconciling actual payments with negotiated rates	
1	Disaggregating research and securities brokerage costs	
1	Document the results of its provider service and fee review at least annually	
1	Tracking the difference between negotiated rates and "headline rates" charged to smaller investors as fee savings	
1	Trade cost analysis summarizing explicit and implicit trading expenses	
	FEE REDUCTIONS	
4	Include (more) passive investment, where appropriate	**5**
1	Seek no fee or discounted fee arrangements	
	OTHER	
4	"Remaining diligent" comments	**8**
2	Benchmark fees against peer group or industry averages	
1	Understand that overall portfolio fees are influenced by size and asset allocation	
1	Consider an evaluation metric for securities brokerage vendors based on execution skill	
	Total Investment Fee Recommendations	**30**

Number of Recommendations	General IPS Recommendations	Total
	ROLES AND RESPONSIBILITIES	
5	Define who conducts fee review and reporting	**23**
2	All parties involved in oversight of Plan investments, investment fee monitoring process, along with fund selection and monitoring criteria	
2	Define Actuary responsibilities	
2	Define Investment Consultant responsibilities	
2	Define CIO/Executive Director role	
1	Define Broker/Dealer	
1	Define custodian responsibilities	
1	Define Fiduciary Duty	
1	Define Specialty Consultants role	
1	Define Fund Administrator responsibilities	
1	Define Legal's responsibilities	
1	Define reporting requirements for Investment Managers	
1	Define who selects Investment Managers	
1	Define who sets benchmarks	
1	Define Staffs role	
1	Update Investment Committees responsibilities to include assigned tasks	
	IPS LANGUAGE	
2	Add language to better reflect alternative investments and their unique aspects	**11**
1	Language to meet or exceed the Fund's actuarial assumed rate of return over the long term	
1	Include a discussion of risk in the IPS	
1	Language explaining investment beliefs	
1	Language explaining Emerging Manager program definition and scope	
1	Language discussing funding and liquidity needs in reference to systems liabilities	
1	Update IPS target allocation to match current allocation in practice	
1	Define mandatory reporting expectations to the board	
1	Language around plan expenses	

1	Language should also be added to address that investments into mutual funds, exchange-traded funds or comingled investment trusts that may not follow the investment stipulations of the Statement of Investment Policy	
OTHER		
2	Cleanup IPS recommendations	**5**
1	Continue simplifying the IPS	
1	Finalize the update to Investment Beliefs and Fee Policy	
1	Improve the IPS with more explicit and measurable details	
Total General IPS Recommendations		**39**

Number of Recommendations	Asset Allocation Recommendations	Total
UPDATE IPS ALLOCATION SECTION		
7	Document existing practice or recommend potential changes for determining and evaluating the asset allocation	**14**
3	Provides specific language changes to be more specific regarding rebalancing ranges and guidelines	
2	Define a more precise definition but more flexible with the timing of asset allocation studies	
1	Include general language regarding diversification	
1	Add language for informal annual reviews of capital markets to improve flexibility of investments	
OTHER TOPICS		
4	Recommending specific changes to investments	**9**
1	Clearly define a risk tolerance and better use risk parameters in developing an asset allocation	
1	Continue deep dive reviews of all asset classes annually	
1	Update the asset allocation study	
1	Review the strategic asset allocation annually	
1	Avoid large changes in the strategic asset allocation too frequently	
Total Asset Allocation Recommendations		**23**

Number of Recommendations	Other Topics	Total
LIQUIDITY OR CASHFLOW CONCERNS		
5	Contribution levels and/or negative non-investment cash flow concerns	**9**
3	Make enhancements to liquidity reporting or management	
1	Add language discussing plan liquidity risk and every three years provide a comprehensive report	
OTHER TOPICS		
3	Complete an asset/liability study	**11**
3	Consider potential plan design changes	
1	Different investment managers should attend board meetings semi-annually to provide updates	
1	Develop capital market assumptions with the investment consultant and actuary working closely	
1	Perform an experience study	
1	Utilize the expertise of investment consultants to ensure alternative assets are properly valued and managed	
1	Generalize policy language to avoid being overly prescriptive	
Total Other Topics		**20**

Appendix Item 3 – Investment Practices and Performance Evaluation – Standards, Resources and Benchmarks

Investment Practices and Performance Evaluation
Standards, Resources and Benchmarks

Component of Evaluation	Standards/Resources/Benchmarks
Investment Policy Statement	Chartered Financial Analyst Institute (CFAI) Government Finance Officers Association (GFOA) Center for Fiduciary Studies Uniform Management of Public Employee Retirement Systems Act, 1997 (UMPERS) Industry Peers
Investment Asset Allocation	CFAI GFOA UMPERS National Association of State Retirement Administrators (NASRA) Association of Public Pension Fund Auditors Industry Peers
Investment Fees	CFAI GFOA UMPERS National Conference of Public Employee Retirement Systems (NCPERS) Pew Trusts Greenwich Associates Center for Retirement Research Public Plan Data CEM Benchmarking (CEM) eVestment Alliance Universe Morningstar Independent Trade Cost Analysis (If applicable)
Governance	CFAI GFOA Center for Fiduciary Studies CEM UMPERS Industry Peers
Manager Selection and Monitoring	CFAI GFOA UMPERS CFA Institute Global Investment Performance Standards (GIPS®) Industry Peers

7. Education and Research committee matters

7a. MET compliance reporting

7b. MET sponsor update

TEXAS PENSION REVIEW BOARD

MET Program
Accredited Sponsors & Individual Courses

The Texas Pension Review Board (PRB) has accredited 22 sponsors and one individual course to offer MET credit hours for Texas trustees and administrators. Credit hours may also be earned from other sources not listed below by submitting an *Individual Course Approval Application*.

Accredited Sponsors

New Sponsors in 2020

*Board Smart (CE Only) *Online*
https://www.boardsmart.com

*Fi360 – Fiduciary Essentials (Core & CE) *Online & in-person*
www.championcr.com/education/

*International Foundation of Employee Benefit Plans (IFEBP) (CE Only) *Online & in-person*
www.ifebp.org/retirement-pensions/Pages/default

Alternative Investments Forum (AIF) (CE Only)
www.aifglobal.org

CFA Societies of Texas (CE Only)
www.cfasociety.org/texas/Pages/default.aspx

Chartered Alternative Investment Analyst (CAIA) Association (CE Only)
https://fundamentals.caia.org/#/login

National Conference of Public Employee Retirement Systems (NCPERS) (CE Only) *Online & in-person*
www.ncpers.org

Pension Review Board (Core & CE) *Online*
www.softchalkcloud.com/lesson/serve/Ud8eHX7nOQpv5Y/html

Robbins Geller Rudman & Dowd LLP (CE Only)
www.rgrdlaw.com

Texas Association of Public Employees Retirement Systems (Texpers) (Core & CE) *Online & in-person*
www.texpers.org

Texas Local Fire Fighters Retirement Act (TLFFRA) Educational Foundation (Core & CE)
www.tlffra.org

Accredited Sponsors: Public Retirement Systems

City of Austin Employees' Retirement System (Core & CE)
www.coaers.org

Dallas Police & Fire Pension System (Core & CE)
www.dpfp.org

El Paso City Employees' Pension Fund (Core & CE)
www.eppension.org

Employees Retirement System of Texas (Core & CE)
www.ers.state.tx.us

Fort Worth Employees' Retirement Fund (CE Only)
www.fwretirement.org

HealthSHARE (Core & CE)
www.healthshare-tha.com

Houston Police Officers' Pension System (CE Only)
https://www.hpops.org/

Teacher Retirement System of Texas (CE Only)
www.trs.state.tx.us

Texas County and District Retirement System (Core & CE)
www.tcdrs.org

Texas Municipal Retirement System (Core & CE)
www.tmrs.org

Approved Individual Courses

Investment Foundations – CFA Institute (CE Only) *Online*
www.cfainstitute.org/programs/investmentfoundations/Pages/index.aspx

8. Possible Texas public pension governance study

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Retirement System	Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Statewide						
Employees Retirement System of Texas	Government Code Title 8, Subtitle B Chapters 811-815	Determined by Legislature, with a constitutional minimum of six percent and a maximum of 10 percent of the aggregate compensation paid to members. In an emergency, as determined by the Governor, the Legislature may appropriate such additional sums as are actuarially determined to be required to fund benefits authorized by law.	Determined by Legislature, but may not be less than six percent of current compensation, per the Texas Constitution.	Determined by Legislature.	Determined by Legislature.	No
Judicial Retirement System of Texas Plan Two	Government Code Title 8, Subtitle B Chapters 836-840	Determined by Legislature.	Determined by Legislature.	Determined by Legislature.	Determined by Legislature.	No
Law Enforcement & Custodial Officer Supplemental Retirement Fund	Government Code Title 8, Subtitle B Chapters 811-815	Determined by Legislature.	Determined by Legislature.	Determined by Legislature.	Determined by Legislature.	No
Teacher Retirement System of Texas	Government Code Title 8, Subtitle C Chapters 821-825	Determined by Legislature, with a constitutional minimum of six percent and a maximum of 10 percent of the aggregate compensation paid to members. In an emergency, as determined by the Governor, the Legislature may appropriate such additional sums as are actuarially determined to be required to fund benefits authorized by law.	Determined by Legislature, but may not be less than six percent of current compensation, per the Texas Constitution.	Determined by Legislature.	Determined by Legislature.	No
Texas County & District Retirement System	Government Code Title 8, Subtitle F Chapters 841-845	Determined annually by the actuary and approved by the TCDRS board of trustees.	Determined by employer (participating counties and districts), within statutory guidelines based on plan options selected.	Determined by employer (participating counties and districts), within statutory guidelines.	Determined by employer (participating counties and districts), within statutory guidelines.	No

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Retirement System	Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Statewide						
Texas Emergency Services Retirement System	Government Code Title 8, Subtitle H Chapters 861-865	TESRS board of trustees, by rule, determines minimum, and may determine maximum, contribution rate per member to be contributed by local governments of participating departments (after consultation with the actuary to make the system actuarially sound). State contributes amount necessary for actuarial soundness, not to exceed maximum set in governing	No employee contribution.	Determined by board of trustees.	Determined by board of trustees; however, changes to benefit formula not allowed for pension system annuitants.	No
Texas Municipal Retirement System	Government Code Title 8, Subtitle G Chapters 851-855	Determined annually by the actuary and approved by the TMRS board of trustees.	Determined by employer (participating cities), within statutory guidelines based on plan options selected.	Determined by employer (participating cities), within statutory guidelines.	Determined by employer (participating cities), within statutory guidelines.	No

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Retirement System	Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Municipal						
Austin Employees' Retirement System	V.T.C.S., Article 6243n	Determined by governing statute. City council may authorize additional contributions to the system.	Determined by governing statute. Active members may increase their contributions by a majority vote of all such members.	Determined by governing statute; any modifications require legislative action. COLAs must be recommended by actuary, city manager, authorized by retirement board, and approved by city council.	Retirement allowance and benefit payable are subject to adjustments to ensure actuarial soundness as approved by the actuary and adopted by board of trustees. Annuities already accrued may not be reduced.	Yes
Austin Fire Fighters Relief and Retirement Fund	V.T.C.S., Article 6243e.1	Determined by governing statute. City council may authorize additional contributions to the system.	Determined by governing statute. Active members may increase their contributions by a majority vote of all such members.	Determined by governing statute, but the board of trustees with approval of the board's actuary may change the service retirement benefit multiplier for certain member groups.	Determined by governing statute, but the board of trustees with approval of the board's actuary may change service retirement benefit multiplier for certain member groups. Board also allowed to make DROP-related changes and prorated reduction in benefit payments if funds become insufficient.	Yes. Also, system's governing statute does not allow for a change in service retirement benefit multiplier if it reduces a member's benefit accrued before the date of the change.
Austin Police Retirement System	V.T.C.S., Article 6243n-1	Determined by governing statute. City council may authorize additional contributions to the system.	Determined by governing statute. Members by majority vote may increase or decrease contributions with a minimum set in statute.	Increase in retirement benefit multiplier allowed by the governing statute if approved by the board's actuary and adopted by the board of trustees as a board rule for all present, retired and new members.	Decrease in retirement benefit multiplier allowed by the governing statute if approved by the board's actuary, adopted by the board of trustees as a board rule, present members' vested interest before the effective date of the change is not reduced, and annuity payments are not reduced. The governing statute also allows the board of trustees to eliminate Retro DROP.	Yes
Dallas Employees' Retirement Fund	Dallas City Code, Chapter 40A	Determined by City Ordinance	Determined by City Ordinance	Determined by City Ordinance	Determined by City Ordinance	Yes

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Retirement System	Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Municipal						
Dallas Police & Fire Pension System-Combined Plan	V.T.C.S., Article 6243a-1	Determined by the legislature, or by a majority vote of city voters, or by written agreement between the City and the Plan with at least a 2/3 vote of all trustees, provided that a change may not increase the amortization period. Any reduction requires approval of at least 2/3 vote of all trustees.	Determined by the legislature. Any increase requires approval of at least 2/3 vote of all trustees.	Plan can be amended by the legislature or by a 2/3 vote of all trustees with certain amortization period-related restrictions. Any change requires a review by the Pension Review Board.	Plan can be amended by the legislature or by 2/3 vote of all trustees with certain amortization period-related restrictions. Any change requires a review by the Pension Review Board.	Yes
Dallas Police and Fire Pension System-Supplemental	V.T.C.S., Article 6243a-1	Determined by the legislature or by a majority vote of city voters.	Determined by the legislature or by a majority vote of city voters.	Members of the system may amend the plan including benefit provisions.	Members of the system may amend the plan including benefit provisions. Amendments should not deprive a member from benefits that have become fully vested or nonforfeitable.	Yes
El Paso City Employees' Pension Fund	El Paso City Code, Title II, Chapter 2.64	Determined by City Ordinance	Determined by City Ordinance	Determined by City Ordinance	Determined by City Ordinance	Yes
El Paso Firemen's Pension Fund	V.T.C.S., Article 6243b	Determined by city voters; however, governing statute allows city council to increase or decrease city contribution rate dependent on whether the current rate is sufficient as determined by the actuary.	Determined by the board of trustees; however, governing statute allows employee contribution rate to change if the city contribution rate is changed by city council.	Board of trustees may modify benefits prospectively and retroactively, if approved by an actuary; by a majority of active members; and either by the city council or by city voters through charter referendum. Retroactive change can only increase benefits. Certain amortization period-related restrictions apply.	Board may modify benefits prospectively. Retroactive change can only increase benefits.	Yes

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Retirement System	Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Municipal						
El Paso Police Pension Fund	V.T.C.S., Article 6243b	Determined by city voters; however, governing statute allows city council to increase or decrease city contribution rate dependent on whether the current rate is sufficient as determined by the actuary.	Determined by the board of trustees; however, governing statute allows employee contribution rate to change if the city contribution rate is changed by city council.	Board of trustees may modify benefits prospectively and retroactively, if approved by an actuary; by a majority of active members; and either by the city council or by city voters through charter referendum. Retroactive change can only increase benefits. Certain amortization period related restrictions apply.	Board may modify benefits prospectively. Retroactive changes can only increase benefits.	Yes
Fort Worth Employees' Retirement Fund	V.T.C.S., Article 6243i	Board of trustees or city council is authorized to decrease municipal contribution rate based on a special election and procedures outlined in the governing statute; however, only the city council may increase the contributions.	Determined by the board or city council based on a special election and procedures outlined in the governing statute.	Board of trustees may propose benefit increases that must be approved by city council.	City council is authorized to make benefit reductions with 90 days notice to the board.	Yes
Fort Worth Employees' Retirement Fund Staff Plan	V.T.C.S., Article 6243i	Board of trustees or city council is authorized to decrease municipal contribution rate based on a special election and procedures outlined in the governing statute; however, only the city council may increase the contributions.	Determined by the board or city council based on a special election and procedures outlined in the governing statute.	Board of trustees may propose benefit increases that must be approved by city council.	City council is authorized to make benefit reductions with 90 days notice to the board.	Yes
Galveston Employees Pension Plan for Police	V.T.C.S., Article 6243p	Determined by governing statute. After 1/1/2025, determined by actuarial valuation. If the valuation recommends an aggregate contribution greater than actual contributions, employer and employee split the difference 50%/50%.	Determined by governing statute. After 1/1/2025, determined by actuarial valuation. If the valuation recommends an aggregate contribution greater than actual contributions, employer and employee split the difference 50%/50%.	Board is authorized to make benefit increases, with approval of a 6 out of 8 trustees.	Board of trustees is authorized to make benefit modifications.	No

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Retirement System	Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Municipal						
Galveston Employees' Retirement Fund	Galveston City Code, Part II, Chapter 28	Determined by the city council.	Determined by the city council.	Board of trustees is authorized to make amendments to the plan.	Board of trustees is authorized to make amendments to the plan.	No
Houston Firefighter's Relief & Retirement Fund	V.T.C.S., Article 6243e.2(1)	Determined by the corridor mechanism outlined in the governing statute. Pension board and the city jointly determine the target contribution rate and the corridor around the target rate. The target rate must remain within the corridor, but once the plan is 100% funded, the rate can be lowered.	Determined by the corridor mechanism outlined in the governing statute. Based on whether the city's contribution rate is lower or greater than the target rate and funded ratio thresholds of less than, equal to or greater than 90% or 100%, the city and the pension board can/shall enter into a written agreement to increase/decrease the member contribution rate.	Determined by the corridor mechanism outlined in the governing statute. If the city's contribution rate is lower than the target rate and based on funded ratio targets of equal to or greater than 90% or 100%, the city and the pension board may enter into a written agreement to make benefit modifications.	Determined by the corridor mechanism outlined in the governing statute. If the city's contribution rate is equal or greater than the target rate, the city and the pension board shall enter into a written agreement to make benefit modifications.	No. However, the governing statute states that neither the city nor the pension board can make any unilateral changes to the pension plan.
Houston Municipal Employees Pension System	V.T.C.S., Article 6243h	Determined by the corridor mechanism outlined in the governing statute. Pension board and the city jointly determine the target contribution rate and the corridor around the target rate. The target rate must remain within the corridor, but once the plan is 100% funded, the rate can be lowered.	Determined by the corridor mechanism outlined in the governing statute. Based on whether the city's contribution rate is lower or greater than the target rate and funded ratio thresholds of less than, equal to or greater than 90% or 100%, the city and the pension board can/shall enter into a written agreement to increase/decrease the member contribution rate.	Determined by the corridor mechanism outlined in the governing statute. If the city's contribution rate is lower than the target rate and based on funded ratio targets of equal to or greater than 90% or 100%, the city and the pension board may enter into a written agreement to make benefit modifications.	Determined by the corridor mechanism outlined in the governing statute. If the city's contribution rate is equal or greater than the target rate, the city and the pension board shall enter into a written agreement to make benefit modifications.	No. However, the governing statute states that neither the city nor the pension board can make any unilateral changes to the pension plan.

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Retirement System	Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Municipal						
Houston Police Officers Pension System	V.T.C.S., Article 6243g-4	Determined by the corridor mechanism outlined in the governing statute. Pension board and the city jointly determine the target contribution rate and the corridor around the target rate. The target rate must remain within the corridor, but once the plan is 100% funded, the rate can be lowered.	Determined by the corridor mechanism outlined in the governing statute. Based on whether the city's contribution rate is lower or greater than the target rate and funded ratio thresholds of less than, equal to or greater than 90% or 100%, the city and the pension board can/shall enter into a written agreement to increase/decrease the member contribution rate.	Determined by the corridor mechanism outlined in the governing statute. If the city's contribution rate is lower than the target rate and based on funded ratio targets of equal to or greater than 90% or 100%, the city and the pension board may enter into a written agreement to make benefit modifications.	Determined by the corridor mechanism outlined in the governing statute. If the city's contribution rate is equal or greater than the target rate, the city and the pension board shall enter into a written agreement to make benefit modifications.	No. However, the governing statute states that neither the city nor the pension board can make any unilateral changes to the pension plan.
San Antonio Fire & Police Pension Fund	V.T.C.S., Article 6243o	Determined by governing statute. Modifications require legislative action.	Determined by governing statute. Modifications require legislative action.	Determined by governing statute. Modifications require legislative action.	Determined by governing statute. Modifications require legislative action.	No. However, the governing statute states that municipal contribution and retirement annuities are a part of the compensation for services rendered to the municipality and makes the statute a contract of employment.

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Local Firefighter Plans (TLFFRA)					
V.T.C.S., Article 6243e	Minimum employer contribution rate is determined by TLFFRA statute, but governing body of a municipality by ordinance can adopt a contribution rate higher than statutory rate.	TLFFRA statute authorizes the members of each fund to determine their contribution rates by voting.	TLFFRA statute allows the board of trustees to make prospective benefit modifications. The change must first be approved by 1) an eligible actuary selected by the board and 2) a majority of the participating members of the retirement system voting by secret ballot. For more information, please see TLFFRA Statute, Section 7 (Modifications of Benefits and Eligibility).	TLFFRA statute allows the board of trustees to make prospective benefit modifications after the change is approved by a board actuary and by a majority of the participating members of the system voting on the change. However, changes cannot deprive a member, retiree, or an eligible survivor of a right to receive vested accrued benefits.	Yes, except for cities that have opted out. Also, under the TLFFRA statute, board of trustees is authorized to reduce benefit payments proportionately if money available to pay benefits is insufficient to pay the full amount. The board may only reduce benefit payments for the time necessary.

LIST OF PAID AND PART-PAID TLFFRA SYSTEMS		
Abilene Firemen's Relief & Retirement Fund	Harlingen Firemen's Relief & Retirement Fund	Port Arthur Firemen's Relief and Retirement Fund
Amarillo Firemen's Relief & Retirement Fund	Irving Firemen's Relief & Retirement Fund	San Angelo Firemen's Relief and Retirement Fund
Atlanta Firemen's Relief & Retirement Fund	Killeen Firemen's Relief & Retirement Fund	San Benito Firemen's Pension Fund
Beaumont Firemen's Relief & Retirement Fund	Laredo Firefighters Retirement System	Sweetwater Firemen's Relief & Retirement Fund
Big Spring Firemen's Relief & Retirement Fund	Longview Firemen's Relief & Retirement Fund	Temple Firemen's Relief & Retirement Fund
Brownwood Firemen's Relief and Retirement Fund	Lubbock Fire Pension Fund	Texarkana Firemen's Relief & Retirement Fund
Cleburne Firemen's Relief & Retirement Fund	Lufkin Firemen's Relief & Retirement Fund	Texas City Firemen's Relief & Retirement Fund
Conroe Fire Fighters' Retirement Fund	Marshall Firemen's Relief & Retirement Fund	The Woodlands Firefighters' Retirement System
Corpus Christi Fire Fighters' Retirement System	McAllen Firemen's Relief & Retirement Fund	Travis Cty ESD #6 Firemen's Relief & Retirement Fund
Corsicana Firemen's Relief & Retirement Fund	Midland Firemen's Relief and Retirement Fund	Tyler Firemen's Relief & Retirement Fund
Denison Firemen's Relief & Retirement Fund	Odessa Firemen's Relief & Retirement Fund	University Park Firemen's Relief & Retirement Fund
Denton Firemen's Relief and Retirement Fund	Orange Firemen's Relief & Retirement Fund	Waxahachie Firemen's Relief & Retirement Fund
Galveston Firefighter's Relief & Retirement Fund	Paris Firefighters' Relief & Retirement Fund	Weslaco Firemen's Relief & Retirement Fund
Greenville Firemen's Relief and Retirement Fund	Plainview Firemen's Relief and Retirement Fund	Wichita Falls Firemen's Relief & Retirement Fund

Contribution and Benefit Decision-Making for Texas Public Retirement Systems

Governing Statute	Employer Contributions	Employee Contributions	Benefit Increases	Benefit Reductions	Constitutional Benefit Protection (Article 66)
Special District/Supplemental Plans (Chapter 810)					
Texas Government Code, Chapter 810	Determined by the political entity.	Determined by the political entity.	Determined by the political entity.	Determined by the political entity.	Yes, unless political entity has opted out.

LIST OF RETIREMENT SYSTEMS ENABLED BY CHAPTER 810

Arlington Employees Deferred Income Plan	El Paso Firemen & Policemen's Pension Staff Plan and Trust	Northwest Texas Healthcare System Retirement Plan
Brazos River Authority Retirement Plan	Galveston Wharves Pension Plan	Plano Retirement Security Plan
Capital Metro Retirement Plan for Admin Employees	Guadalupe-Blanco River Authority	Port of Houston Authority Retirement Plan
Capital Metro Retirement Plan for Bargaining Units	Harris County Hospital District Pension Plan	Refugio Co. Memorial Hosp. Dist. Retirement Plan
CPS Energy Pension Plan	Houston MTA Non-Union Pension Plan	Retirement Plan for Anson General Hospital
Colorado River Municipal Water Dist. Pension Trust	Houston MTA Workers Union Pension Plan	Retirement Plan for Citizens Medical Center
Corpus Christi Regional Transportation Authority	Irving Supplemental Benefit Plan	Retirement Plan for Employees of Brownsville Navigation District
Dallas Co. Hospital Dist. Retirement Income Plan	JPS Pension Plan - Tarrant County Hospital District	Retirement Plan for Guadalupe Regional Medical Center
Dallas/Fort Worth Airport Board Retirement Plan	Lower Colorado River Authority Retirement Plan	Retirement Plan for Sweeny Community Hospital
Dallas/Ft. Worth Airport Board DPS Retirement Plan	Nacogdoches County Hosp. District Retirement Plan	San Antonio Metropolitan Transit Retirement Plan
DART Employees' Defined Benefit Retirement Plan & Trust	Northeast Medical Center Hospital Retirement Plan	University Health System Pension Plan

9. Legislative committee matters

9a. 2019-2020 Biennial Report

Pension Review Board
November 12, 2020

Biennial Report

Outline

- Executive Summary
    - The Pension Review Board provides the legislature an overview of agency activities.
- Pension Review Board Overview
    - Mission Statement
    - Statutory Functions
    - Board Composition
    - Organizational Structure
- Major Accomplishments and Activities
    - Transparency Initiatives and Resulting Mandates
        - Funding Policy
            - Provides a description of the interim study on funding policies, the legislation resulting from the study, and a summary of the funding policies received thus far and PRB discussion during its meetings. The section also provides an overview of how the PRB has assisted systems in meeting the funding policy requirement, including the creation of informal guidance and sample funding policy.
        - Investment Practices and Performance Evaluations (IPPE)
            - Provides a description of the new statutory requirement for certain systems to perform investment practices and performance evaluations and of the informal guidance created by the PRB to assist systems with the requirement. This section references *the Investment Practices Report* and summary of all evaluations received thus far.
        - Investment Expenses
            - Provides a description the investment expense reporting requirement enacted during the 86th Legislative session and reviews the PRB's process for implementing the statute including the creation of rules, the asset class categorization guide, and optional template.
    - Legislative Recommendations
        - Review of funding policy & funding soundness restoration plan (FSRP) statutory requirements and final recommendations
            - Summarizes the legislative recommendations from the PRB to improve the funding policy and funding soundness restoration plan statutory requirements.
    - Reporting Requirements
        - FSRP
            - Provides an overview of the FSRP statute, system compliance with the statute, and how the PRB is assisting systems with the requirement. The section also summarizes FSRPs and provides updates from systems subject to the requirement.
        - Summary of reporting requirements and calendar update

            - Provides an overview of the reporting requirements calendar compiled by the PRB to assist systems.
    - Covid-19 and Market Crisis Response
        - Overview of staff transition to remote work
            - Reviews how the PRB staff transitioned to fully remote work with minimal presence in the office during March of 2020 due to COVID-19. This section also summarizes the return to work plan and consistency of customer service during the last several months.
        - Joint Committee Meeting
            - Provides an overview of the discussion of the COVID-19 market and actuarial impacts on plans as of May 2020.
        - Work with plans on delayed reports
            - Discusses how the PRB worked with plans to help them meet reporting deadlines and how the PRB remained accessible to plans despite all staff working remotely.
        - Open meeting assistance
            - Provides a review of how the PRB has assisted plans with the changes to the Open Meeting requirements, including providing assistance with Zoom meetings.
    - Public Retirement System Reviews and Analysis
        - Intensive Reviews
            - Paris, Odessa
                - Provides a summary of the two intensive reviews completed by the PRB during the current biennium.
            - Updates from prior intensive review plans
                - Provides an update on how previously reviewed systems have been working to improve their plans based on PRB recommendations and assistance.
    - Data/Reporting
        - Online Data Center
            - Reviews the launch of the Data Center, the maintenance of the Data Center thus far, and ways the PRB is intending to improve its functionality.
        - Public Pension Search Tool
            - Discusses how the PRB provides data to the Texas Comptroller's office for the *Public Pension Search Tool*.
        - Agency website (overview)
            - Provides a description of what information is available on the PRB's website and how to access the information.
        - PRB Guide to Public Retirement Systems in Texas (2019 Guide, 2021 in progress)
            - Reviews the PRB's *Guide to Public Retirement Systems in Texas* by summarizing the components of the Guide.
    - MET Program
        - Overview

            - Discusses the MET statutory requirements and provides a description of the program.
        - Online Courses
            - Course update
                - Indicates that the PRB is in the process of updating the courses to ensure that legislative information and industry best practices are as current as possible.
            - Completion Data, other reports to Board
                - Provides statistics on MET course completions showing how many trustees utilize the PRB's courses compared to obtaining educational services from other approved courses.
        - Sponsor accreditation/renewal
            - Sponsor update, other reports to the Board
                - Provides an overview of how many accredited sponsors and individual courses the PRB currently approved for MET credit and discusses the systems that provide MET credits to their trustees through their own in-house training.
        - MET compliance and reporting
            - Updated rules
                - Provides an update on the PRB's rule review process and how it was utilized to update the MET reporting requirement. Section includes information on how many hours each trustee must report each cycle.
            - Overall MET compliance
                - Provides overall MET compliance, references full report in appendix, and breaks down compliance by system type.
    - Technical Assistance
        - General Technical Assistance information
            - Provides performance measure information, including how many technical assistance requests and reports and whether the agency is hitting its targets.
        - Complaints
            - Describes how the PRB processes complaints and assists constituents.
        - News Clips
            - Describes the weekly news clips mailed to subscribers each week as a part of the PRB's educational outreach program.
        - Customer Service Survey/Educational Services Survey
            - Provides overviews of both the Customer Service Survey and Educational Services Survey and includes highlights from survey results.
        - Large data requests
            - Discusses how the PRB has had the opportunity to provide in-depth and large-scale technical assistance to national organizations, legislative offices, and the media.
    - Specific Assistance for TLFFRA Systems

- TLFFRA Specialist
  - Provides a description of the TLFFRA Specialist position at the PRB and how the TLFFRA Specialist provides expertise and assistance to the TLFFRA systems.
- Overview of TLFFRA systems statute requirements
  - Summarizes the statutory requirements unique to TLFFRA systems.
- Presentations for TLFFRA events
  - Summarizes the presentations the PRB has provided at TLFFRA-sponsored events.
- 2020 TLFFRA Report
  - Describes the information contained in the *2020 Texas Local Fire Fighters Retirement Act Pension Report.*
- Update to TLFFRA Handbook
  - Provides an update on the PRB's process of revising the *TLFFRA Trustee Handbook*.

- 86th Legislature
  - Public Pension Legislation of the 86th Legislature
    - Summarizes the major pension bills passed during the most recent legislative session. The section also contains data regarding the number of bills the PRB tracked and how the PRB provided impact statements.
  - Presentations and interim hearings
    - Provides summaries of the presentations the PRB has provided to the House Committee on Pensions, Investments and Financial Services and the presentation provided to the Republican Caucus.
  - 2019 Legislative Session Training
    - Summarizes the training the PRB offered to members of the legislature and their staff at the beginning on the 86th legislative session, noting that the training is available on YouTube.

- Appendix
  - *Funding Policies for Fixed-Rate Plans*
  - Funding Policy informal guidance
  - Funding policy summary – Word
  - Funding policy summary – Excel
  - IPPE informal guidance
  - Investment Performance Report
  - IPPE Summaries
  - SB 322 Rules
  - ACC Guide
  - Investment Fee Template
  - FSRP/funding policy Legislative Recommendations
  - FSRP Flow Chart
  - Summary of FSRPs
  - Calendar of reporting requirements/summary
  - MET Compliance Report

- MET Accredited Sponsor List
- Intensive Actuarial Reviews
- TLFFRA educational conference presentations
- Summary of major bills from the 86th Legislature
- Interim hearing presentations
- Republican Caucus Presentation

9b. 2021 Guide to Public Retirement Systems in Texas

9c. 87th Legislative Session Update

Legislative Appropriations Request Summary

TEXAS PENSION REVIEW BOARD

Agency Overview

The Pension Review Board (PRB) oversees all Texas public retirement systems, both state and local, in regard to their actuarial soundness and compliance with state law. Its service population consists of the members, administrators and trustees of **347** individual public retirement systems, state and local government officials, and the general public. Of these 347 systems, **100** are actuarially funded defined benefit plans for which total assets are approximately **$282 billion**, and total membership is over **2.8 million** members.

The PRB's primary duties include, but are not limited to:

- Conduct a **continuing review** of all Texas public retirement systems.
- Conduct **intensive studies** of potential or existing problems that threaten the actuarial soundness of public retirement systems.
- Prepare **actuarial impact statements** for pending legislation.
- Provide **information** and **technical assistance**.
- Recommend **policies, practices, and legislation** to public retirement systems and governmental entities.
- Develop and administer an **educational training program** for trustees and administrators of retirement systems.

Recent Activities

To strengthen oversight and increase transparency, the 86th Legislature added new requirements through Senate Bills 2224 and 322, which the PRB has been working diligently to implement during the current biennium.

- SB 322 amended section 802.103 of the Texas Government Code to require all systems to report enhanced investment expense information. To assist with the reporting of investment expenses and to help retirement systems comply with this requirement, the PRB published rules, adopted guidance; and at the request of systems, created a reporting template.

- SB 322 also added Section 802.109 to the Texas Government Code to require systems with at least $30 million in assets to select an independent firm to evaluate the appropriateness, adequacy, and effectiveness of their investment practices and performance and to provide recommendations for improvement. The PRB has adopted guidance detailing the elements of the evaluation and created an Investment Committee to guide staff on the development and submission of the investment performance report to the Governor and Legislature, as required by statute.

- SB 2224 added Section 802.2011 to the Texas Government Code to require all public retirement systems to adopt a written funding policy. Since the bill's passage, the PRB has accomplished the following: worked with systems to develop and issue guidance, which provided a summary of industry best practices, recommended elements, and examples; at the request of the systems, provided a sample funding policy; encouraged systems to work with sponsors to craft the funding policies; and notified sponsors of the requirement.

Texas Pension Review Board
Legislative Appropriations Request Summary

Budget Overview

The total legislative appropriations request is as follows:

Summary of Baseline Request	2022	2023
General Revenue	$1,072,312	$1,072,311
Total Method of Financing	**$1,072,312**	**$1,072,311**
Number of Full-Time Equivalents (FTEs)	**13.0**	**13.0**
Summary of LAR Exceptional Item Request	**2022**	**2023**
Restoration of the 5% Budget Reduction	$56,437	$56,438
Total Exceptional Item	**$56,437**	**$56,438**
Grand Total, Including Exceptional Item	**$1,128,749**	**$1,128,749**

Exceptional Item Request

The PRB is making one exceptional item request concerning restoration of the 5% reduction to the PRB's operating budget, which would allow the agency to maintain current service levels. The PRB's exceptional item request totals $112,875 for the biennium.

- Given that 91% of the agency's budget is dedicated to salaries and wages, if the 5% reduction to the PRB's 2022-2023 baseline budget is instituted, the agency will not have sufficient funds to pay all 13 FTE positions. The PRB already operates a heavy workload with very few staff, and with an additional vacancy, workload is spread across remaining staff. This impacts the agency's ability to produce quality work and increases staff burnout. In the past, this increased workload on an already small staff has led to higher agency turnover, which hampers the agency's ability to fulfill its mission and provide exemplary service to the state.

- The PRB has made great strides in reducing employee turnover in recent years, largely due to the additional funding granted by the 86th Legislature that expanded the PRB's ability to offer merit-based salary increases to key staff and added a new FTE due to the increase in the agency's mandate under SB 322. The 5% reduction to the PRB's budget would undo the progress made by the agency in recent years as the workload on current staff would increase and the agency could lose critical, highly technical staff. Due to the technical nature of the PRB's work, small staff size and limited budget, the PRB faces unique resource challenges which make experienced staff extremely difficult to replace.

Dates of Interest for the 87th Regular Session

Posted At : October 2, 2020 10:15 AM | Posted By : TexasLRL
Related Categories: Legislative process

What are the key deadlines for the 87th Regular Session? Official deadlines will be set when the House and Senate adopt rules after session begins, but until then, related provisions in the Texas Constitution and Statutes and the ***Texas Legislative Council Drafting Manual* perpetual calendar** (shown below) can be useful.

November 3, 2020: General election for federal, state, and county officers (**Texas Election Code, Section 41.001(a)(3)**)

November 9, 2020: Bill prefiling begins (**House Rule 8, Section 7** and **Senate Rule 7.04(a)**)

January 12, 2021: 87th Legislature convenes at noon (**Texas Constitution, Article III, Section 5(a)**; **Texas Government Code, Section 301.001**)

March 12, 2021: 60-day bill filing deadline (**Texas Constitution, Article III, Section 5(b)**)

May 31, 2021: Adjournment sine die (**Texas Constitution, Article III, Section 24(b)**)

June 20, 2021: Post-session 20-day deadline for Governor to sign or veto (**Texas Constitution, Article IV, Section 14**)

August 30, 2021: Effective date (91st day after adjournment) (**Texas Constitution, Article III, Section 39**)

10. Executive Director’s Report

10a. Updated Fiscal Year 2021 Operating Budget

TEXAS PENSION REVIEW BOARD

OPERATING BUDGET
FISCAL YEAR 2021
As of October 31, 2020

	LBB Obj. Code	GAA BUDGETED	ADJUSTED BUDGETED	TOTAL BUDGETED	TOTAL EXPENDED	ENCUMBRANCES	PERCENT EXPENDED	REMAINING BALANCE	PERCENT REMAINING
METHOD OF FINANCING									
General Revenue		$1,053,749.00		$1,053,749.00					
Contigency Rider for SB 322		$75,000.00		$75,000.00					
			$0.00	$0.00					
Total Method of Financing		**$1,128,749.00**	**$0.00**	**$1,128,749.00**					
OBJECT OF EXPENSE									
Exempt Salaries	1001A	$126,730.00		$126,730.00	$21,121.66		16.67%	$105,608.34	83.33%
Classified Salaries	1001B	$899,228.00		$899,228.00	$130,714.06		14.54%	$768,513.94	85.46%
Other Personal Exp / Longevity Pay	1002A	$14,600.00		$14,600.00	$1,040.00		7.12%	$13,560.00	92.88%
Retirement Deduction .5% Salary	1002B	$5,000.00		$5,000.00	$759.15		15.18%	$4,240.85	84.82%
Benefit Replacement Pay	1004	$0.00		$0.00	$0.00		0.00%	$0.00	100.00%
Non-Overnight Meals	1001C	$0.00		$0.00	$0.00		0.00%	$0.00	100.00%
Sub-Total Salaries & Wages		$1,045,558.00	$0.00	$1,045,558.00	$153,634.87	$0.00	14.69%	$891,923.13	85.31%
Professional Fees and Services	2001	$12,500.00		$12,500.00	$18.34	$0.00	0.15%	$12,481.66	99.85%
Consumable Supplies	2003	$3,500.00		$3,500.00	$0.00	$0.00	0.00%	$3,500.00	100.00%
Travel	2005A	$26,000.00		$26,000.00	$0.00	$0.00	0.00%	$26,000.00	100.00%
Rent-Building (Record Storage)	2006	$1,000.00		$1,000.00	$86.02	$0.00	8.60%	$913.98	91.40%
Rent-Machine & Other (Copier/Software)	2007	$15,000.00		$15,000.00	$3,500.01	$0.00	23.33%	$11,499.99	76.67%
Operating Costs (Miscellaneous)	2009A	$6,214.25		$6,214.25	$1,230.12	$0.00	19.80%	$4,984.13	80.20%
Telecommunication Services	2009D	$2,000.00		$2,000.00	$669.06	$0.00	33.45%	$1,330.94	66.55%
Education and Training	2009B	$2,500.00		$2,500.00	$0.00	$625.00	25.00%	$1,875.00	75.00%
Postage	2009C	$500.00		$500.00	$250.00	$0.00	50.00%	$250.00	50.00%
Printing	2009E	$1,000.00		$1,000.00	$0.00	$0.00	0.00%	$1,000.00	100.00%
Subscription/Publications	2009G	$2,000.00		$2,000.00	$0.00	$0.00	0.00%	$2,000.00	100.00%
PHC Deduction 1% Salary	2009H	$8,476.75		$8,476.75	$1,518.39		17.91%	$6,958.36	82.09%
Hardware & Software	2009F	$2,500.00		$2,500.00	$0.00	$2,184.00	87.36%	$316.00	12.64%
Sub-Total Operating Cost		$25,191.00	$0.00	$25,191.00	$3,667.57	$2,809.00	25.71%	$18,714.43	74.29%
Total Object of Expense		**$1,128,749.00**	**$0.00**	**$1,128,749.00**	**$160,906.81**	**$2,809.00**	**14.50%**	**$965,033.19**	**85.50%**

10b. Staff update

11. Call for future PRB agenda items

12. Date and location of future PRB meetings – TBD

13. Invitation for public comment

14. Adjournment