# PENSION REVIEW BOARD OF TEXAS
# BOARD MEETING

## AGENDA
## Thursday, October 17, 2019 – 8:00 AM
## Capitol Extension, Committee Room E1.012
## 1100 N. Congress Avenue, Austin, Texas 78701

***The Board may deliberate and take action on any of the following items:***

1. Meeting called to order
2. Roll call of Board members
3. Discuss and consider Board administrative matters, including the following items – Chair Leibe
    A. **TAB 1** Approval of the June 27, 2019 Board meeting minutes
    B. Consider excusing the absence of Board members from the June 27, 2019 Board meeting
    C. Recognition of outgoing board member
    D. Introduction of new board member
4. Legislative Committee – Discuss and consider the following items – Chair Leibe
    A. **TAB 2A** Informal guidance for conducting Investment Practices and Performance Evaluations (SB 322)
    B. **TAB 2B** Informal guidance for developing a Funding Policy (SB 2224)
    C. **TAB 2C** Rulemaking relating to fee disclosures (SB 322)
    D. PRB rule review – Texas Administrative Code, Title 40, Part 17, Chapters 601, 603, 604, 605 and 607
    E. **TAB 2D** Retirement systems with board qualification requirements in statute
5. Actuarial Committee – Discuss and consider the following matters – Keith Brainard
    A. Intensive actuarial reviews of the following systems
        i. **TAB 3A** Odessa Firemen's Relief & Retirement Fund

ii. **TAB 3B** Paris Firefighters' Relief & Retirement Fund

B. **TAB 3C** Actuarial Valuation Report

C. **TAB 3D** Public retirement system reporting and compliance, including noncompliant retirement systems under Section 801.209 of the Texas Government Code

D. **TAB 3E** Update on the retirement systems subject to the Funding Soundness Restoration Plan (FSRP) requirement, including compliance

E. **TAB 3F** Retirement systems that require contributions based on the ADC

6. Education and Research Committee – Discuss and consider the Minimum Educational Training (MET) Program for trustees and system administrators pursuant to Section 801.211 of the Texas Government Code, including the following – Chair Leibe

   A. **TAB 4A** Receive update on MET compliance reporting

   B. **TAB 4B** Receive report on retirement systems that provide in-house training

7. Review and discuss report from the Executive Director on the following matters – Anumeha Kumar

   A. 2019 TEXPERS Summer Educational Forum

   B. 2019 TLFFRA Conference

   C. **TAB 5** Updated Fiscal Year 2020 Operating Budget

   D. 2019 Attorney General's Government Law & Liability Conference

   E. Staff update

8. Call for future PRB agenda items – Chair Leibe

9. Date and location of next PRB meeting – TBD

10. Invitation for public comment

11. Adjournment

NOTE: 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. The Board may go into executive/closed session regarding any item on the agenda if permitted under the Open Meetings Act, Texas Government Code Annotated, Chapter 551.

TAB 1

Pension Review Board
June 27, 2019
Minutes

1. **Meeting called to order (0:06)**

   The second meeting of 2019 of the Pension Review Board began on Thursday, June 27th, 2019, at 10:02 am in the Capitol Extension, Committee Room E1.012, 1400 N. Congress Avenue, Austin, Texas 78701.

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

2. **Roll call of Board members (0:16)**

   **Board Members Present**

   Chair Stephanie Leibe
   Keith Brainard
   Andrew Cable
   Marcia Dush
   Josh McGee
   Ernest Richards

3. **Discuss and consider Board administrative matters, including the following items – Chair Leibe (0:32)**

   A. **Board Chair's introductory remarks – Chair Leibe (0:35)**

   Chair Leibe stated that it was an honor to have been named Chair of the Pension Review Board. She expressed that she was grateful for the guidance and leadership Mr. McGee provided the Board. Going forward, she would like to see a future that looks very much like the recent past. She stated that she thought the intensive reviews have provided valuable guidance to both the funds that were reviewed as well as other funds that could benefit from the information that has come out of the reviews. She stated that she looked forward to a cooperative relationship between the Board and plans to implement the new legislation coming from the most recent legislative session. Chair Leibe acknowledged and congratulated the staff on their work.

   B. **Recognition of outgoing Chair – Chair Leibe (3:45)**

   Chair Leibe read a resolution and presented a plaque to Mr. McGee, recognizing him for his service as Board Chair from 2015-2019.

   Mr. Brainard thanked Mr. McGee for his work and leadership on the Board.

   Ms. Kumar thanked Mr. McGee on behalf of the staff.

   Mr. Richards thanked Mr. McGee and wished him the best.

   C. **Comments from outgoing Chair – Josh McGee (7:02)**

   Mr. McGee stated that he appreciated the comments from the Board members and staff. He acknowledged that the legislature and their staff had been fantastic in working with the PRB and using the PRB as a resource. Additionally, he thanked the PRB staff for providing support to plans and the legislature. He stated the PRB staff showed a high quality of work and dedication. He added that he was very impressed with the engagement of the plans and their desire to improve. He stated that he appreciated the

Governor giving him the opportunity to serve as chair and that he intended to continue to follow the PRB's activities.

**D. Discuss and consider approval of the January 24, 2019 Board meeting minutes – Chair Leibe (8:59)**

Chair Leibe entertained a motion to suspend the reading of the minutes of the PRB meeting held January 24, 2019, and to approve them as circulated.

Motion made by Ms. Dush and seconded by Mr. Richards.

**Motion Approved Unanimously**

**E. Updated committee assignments – Chair Leibe (9:50)**

Chair Leibe appointed herself to fill the vacancy left by Mr. McGee on the Actuarial Committee. She added that Mr. Brainard would remain chair of the committee and Ms. Dush would remain as the third member.

**4. Legislative Committee – Receive reports on the following items – Chair Leibe (10:48)**

**A. Pension legislation passed during the 86th Regular Session, including the following – Ashley Rendon and Mariah Miller (11:08)**

Ms. Miller, Research Specialist, stated that the PRB followed about 120 pension bills that were filed between November 2018 and mid-March 2019. She stated that during session, staff posted a pension bill report to the PRB website weekly that included the history and status of each bill, and added that 17 of those bills were passed.

**i. SB 2224 (relating to requiring a public retirement system to adopt a written funding policy)**

Ms. Miller stated that SB 2224, authored by Senator Huffman, was recommended by the Board through its interim study, and passed both chambers unanimously. She stated that the bill was signed on June 4, 2019 and would become effective on September 1, 2019. Ms. Miller explained that the bill required Texas public retirement systems to adopt a funding policy by January 1, 2020 that lays out the system's plan to achieve a funded ratio of 100% or greater. The systems will have 31 days from the date the funding policy is adopted or revised to submit the policy to the PRB and their sponsors.

**ii. SB 322 (relating to the evaluation and reporting of investment practices and performance of certain public retirement systems)**

Ms. Miller stated that SB 322, also authored by Senator Huffman, was signed on June 10, 2019, and became effective immediately. She stated that the bill had two components: investment fee disclosures and an investment performance evaluation.

Ms. Miller further explained the bill and stated that the first evaluation must be filed with the sponsor by May 1, 2020, and then the system has 31 days to submit the report to the PRB.

Ms. Kumar clarified that if systems have an independent in-house consultant, they would be able to use that consultant if the consultant does not currently manage the plan's assets.

**iii. SB 12 (relating to the contributions to and benefits under the Teacher Retirement System of Texas)**

Ms. Rendon stated that SB 12, by Senator Huffman, was signed by the Governor on June 10 and became effective immediately. She noted that the bill had two pieces: phased-in contribution increases for members, employers, and employers who do not contribute to Social Security; and a 13th check provided to certain annuitants with a cap of $2,000.

**iv. HB 2763 (relating to the police pension fund in certain municipalities)**

Ms. Rendon stated that HB 2763, authored by Representative Flynn, concerned the Galveston Employees Retirement Plan for Police. She noted that it was signed by the Governor on June 14 and became effective immediately. Ms. Rendon reminded the Board that the PRB reviewed the plan during its first round of 2018 intensive actuarial reviews. She explained that the bill contained many elements of PRB intensive review recommendations, such as a funding policy with a closed layered 30-year amortization period. She stated that the city contribution increased, representation on the plan's board would be split 50/50 between the members and the city's appointees and that the bill established qualifications for trustees.

Mr. Brainard asked if any other boards in Texas define qualifications for their trustees. Ms. Kumar responded that the Dallas Police and Fire Pension System's Board has qualification requirements for its trustees as well as training and background retirements. She stated that staff could provide that information at the next meeting after further research.

Mr. Brainard also asked staff to provide a list of other plans that require the actual contribution rate to be made pursuant to the actuarially determined rate.

B. **PRB budget appropriation for Fiscal Years 2020 and 2021 under General Appropriations Act, 86th Legislature (H.B. 1) – Anumeha Kumar (23:37)**
Ms. Kumar stated that the PRB was very appreciative of the additional appropriation the agency received in the 86th Session. She mentioned that the PRB received all the requested exceptional items. She noted that there was also a contingency rider for SB 322, which appropriated funds for the agency to hire an investment analyst to implement the new requirements under the bill.

**C. Revised Government Code – Anumeha Kumar (25:45)**

Ms. Kumar stated that the PRB would be updating its Government Code booklet to include the new legislation. She added that the booklets would be published in-house.

**D. PRB rule review – Texas Administrative Code, Title 40, Part 17, Chapters 601, 603, 604, 605 and 607 – Anumeha Kumar (26:29)**

Ms. Kumar stated that under the Government Code, state agencies are required to review their administrative rules at least once every four years and they are also required to adopt a plan for reviewing rules. She explained to the Board members the process for reviewing and adopting rules. She stated that staff would analyze the rules to see if any rules need to be readopted, revised or repealed, and will come back to the October meeting with the draft rule review posting and proposed rule amendments.

Mr. Brainard asked for clarification on whether the PRB was revising current rules or crafting new ones. Ms. Kumar stated that staff will be reviewing and revising the existing rules if need be. She stated that the PRB currently has MET rules that were adopted in 2013 and we will be reviewing them on the same schedule.

Ms. Kumar described the timeline for the rule review. The proposed rule changes would be posted to the Texas Register after the October PRB meeting, during which time the PRB will receive public comments. The comments would be presented at the following PRB meeting, likely in January 2020. At that time, the rules would be presented to be finalized and again be posted in the Texas Register.

Melissa Juarez, Assistant Attorney General and PRB General Counsel, clarified that during the current meeting, the Board was reviewing the rule review plan. She further stated that if the Board adopted the rule review plan, it would set in motion the schedule the PRB would follow for rule revisions. She stated that at the time that the PRB adopted the rule review, rule changes may be proposed concurrently that could affect any of the rules within the PRB's rule chapters.

Mr. McGee asked if there was a plan to adopt rules for SB 322 and SB 2224.

Ms. Kumar responded that the following agenda item would address Mr. McGee's question.

Mr. Brainard motioned for the Board to adopt the revised review plan as presented and authorized staff to publish the revised plan in the Texas Register.

Judge Cable seconded the motion.

**Motion Approved Unanimously**

**E. Need for additional rules and/or guidance to implement the statute, including new reporting requirements enacted by 86th Legislature – Anumeha Kumar (30:56)**

Ms. Kumar stated that because the new legislation had imminent deadlines, particularly the funding policy legislation, staff proposed that the Board direct staff to work with the Actuarial Committee to provide informal guidance with regards to the funding policy requirement as well as the investment performance evaluation requirements in SB 322. Staff recommended to the Board that the PRB engage in rulemaking to clarify what type of fee information retirement systems will have to include in CAFRs.

She stated that staff would work with the Actuarial Committee and then return to the full Board at the October meeting to present the guidance for final adoption.

Ms. Dush recommended that the staff provide both rules on fee disclosure and informal guidance on the investment reviews. She added that she would personally like to see that the guidance focuses on how systems choose their consultants and the tools they need to do appropriate work for asset allocation. She also stated that she would like to see guidance on setting benchmarks by asset class and talk about how plans evaluate their manager selection. Ms. Kumar stated that the staff would work with the Actuarial Committee to ensure those criteria are met.

Ms. Dush motioned for staff to be directed to work with the Actuarial Committee to provide both proposed rules and guidance associated with any of the new laws passed by the legislature.

Mr. Richards seconded the motion.

**Motion Approved Unanimously**

Chair Leibe reopened agenda item 4E (1:33:35) and Ms. Kumar added that staff was conducting research in preparation for the September committee meeting so that the Board may consider proposals. She noted that staff would be reaching out to retirement systems during the research process. Additionally, she noted that the PRB staff would be available to the systems for technical assistance.

**5. Actuarial Committee – Discuss and consider the following matters – Keith Brainard (39:09)**

**A. Actuarial Valuation Report – Kenny Herbold (39:23)**

Mr. Herbold stated that there were approximately 13 new valuations since the January board meeting, but that their results did not significantly change from the numbers in the January report. He noted that the numbers in the report did not reflect any changes that were made in the recent legislative session and that the changes to TRS will have a significant impact once the PRB receives their next report. He mentioned that the report did not reflect changes to the Galveston Employees Retirement Plan for Police. He added that Fort Worth Employees Retirement Fund made some changes locally instead of going to the legislature for changes and the most recent valuation did not reflect the changes they've made.

Mr. McGee stated he was impressed with how much the liability-weighted median assumed return decreased with the TRS change. He stated that he thought it was reflective of how important the system's changes are for the fiscal health of their plan. He attributed TRS's increased funding in part due to those changes.

Mr. Brainard asked for the resulting amortization period for TRS based on the legislation. Ms. Kumar stated that she believed it was projected to go under 30 years. Mr. Herbold added that he believed the intent of the legislation was to make the system actuarially sound, which would mean an amortization period below 31 years.

Mr. McGee acknowledged that going from an amortization period of 87 years down to less than 30 at a much lower discount rate was a very positive change.

Mr. Brainard stated that the difference in the actuarial valuation report demonstrates how large TRS is compared to other plans.

**B. Public retirement system reporting and compliance, including noncompliant retirement systems under Section 801.209 of the Texas Government Code – Bryan Burnham (43:39)**

Bryan Burnham, Financial Analyst, stated that the PRB currently oversees 99 plans and of those 99 plans, 91 were currently compliant. He noted that staff was working diligently to get all plans' reports in.

Mr. Burnham stated that the total net assets experienced an increase of roughly $90 million since the last board meeting and the amortization period movement had been very slight. He added that there was one more plan with an infinite amortization period since the last PRB meeting.

Mr. Burnham mentioned that the Nacogdoches County Hospital District Retirement Plan and Northeast Medical Center Hospital Retirement Plan (Northeast Medical) were the two plans on the 60-day non-compliant list. He noted that Northeast Medical had been on the non-compliant list multiple times in the past. He stated that both plans provided the PRB with sponsor audits, but the law required each plan to complete an independent audit of the retirement plan itself. He stated that PRB staff was working with the plans to receive the reports.

Ms. Dush asked, considering the new legislation, how many plans were above $100 million in total net assets, how many were between $30 million and $100 million, and how many were below $30 million. Mr. Burnham stated that roughly 2/3rds of the plans will be required to conduct the evaluations as outlined in SB 322.

**C. Update on the retirement systems subject to the Funding Soundness Restoration Plan (FSRP) requirement, including compliance – Reece Freeman (48:06)**

Mr. Freeman discussed the contribution increases and benefit changes made by the Fort Worth Employees' Retirement Fund. He noted that there was an automatic risk-sharing plan included in the changes should the fund not achieve their target amortization period by 2022.

Mr. Freeman reported on plans that are immediately subject to the FSRP formulation requirement, including plans that have past-due FSRPs. Mr. Brainard asked Mr. Freeman to clarify if Fort Worth had made significant changes to their plan but still needed to continue to work on changes to get them under the threshold. Mr. Freeman responded that the plan had a risk-sharing plan which stated that if by 2022 they do not have an amortization period of 27 years, they would increase contributions to the ADC rate. He added that if the maximum contribution allowed did not meet the requirements, they would consider benefit changes.

Mr. McGee noted that there appeared to be a trend where plans and their sponsors were being more transparent about their goals and what specifically would happen if they did not meet their goals. He added that this comes directly from the recommendations of the PRB. He encouraged the PRB staff and board to continue to recommend that plans be very explicit in defining their actions for scenarios where they do not meet their goal.

Mr. Freeman noted that in the packet there was a summary of the Fort Worth Employees' plan changes detailing the contribution increases and risk-sharing plan adopted by the system, which followed their FSRP letter.

Mr. Brainard asked if there was legislation this session that would have changed the threshold for the FSRP. Ms. Kumar noted that this was correct and that the bill by Representative Flynn would have brought the FSRP standard down to a 30-year amortization period; however, the bill did not pass out of committee. Mr. Brainard asked if there was any opposition to that bill, to which Ms. Kumar responded there was no opposition that she was aware of.

**D. Update on Texas Public Pension Data Center – Anumeha Kumar (55:41)**

Ms. Kumar updated the board that the data center was published in February and was very well received by the legislature. She noted that staff was currently looking into bringing more information to the board regarding data center traffic statistics.

Mr. Brainard commended staff for making the data very accessible and user-friendly.

**E. System Intensive Reviews – Kenny Herbold (58:25)**

Mr. Herbold explained that the metrics established a couple of years ago provided the initial look at plans when staff decided to begin intensive reviews. He stated that on April 29th, the staff held a meeting to determine what plans would be considered for review.

Mr. Herbold explained that staff decided to review two plans: Odessa Firemen's Relief and Retirement Fund and Paris Fire Fighters' Relief and Retirement Fund. He added that the plans were notified and had sent information to the PRB. He stated that the reviews would be presented at the next Actuarial Committee meeting.

Ms. Dush commented that she found the non-investment cash flow as a percentage of fiduciary net position section interesting. She stated that her interpretation of the column was that any plan with a negative number in that column had more money going out than coming in, which Mr. Herbold confirmed. She noted that almost all the plans had negative non-investment cash flow, so those plans must have investment returns in order to meet benefit payments. She noted this was very important to understand when considering asset allocation.

Mr. Herbold agreed with Ms. Dush's statement and added that it was particularly important when a plan was not fully funded and was trying to cover unfunded accrued liabilities.

**6. Education and Research Committee – Discuss and consider the Minimum Educational Training (MET) Program for trustees and system administrators pursuant to Section 801.211 of the Texas Government Code, including the following – Judge Cable (1:03:06)**

**A. Receive update on MET compliance reporting – Joey Evans (1:03:20)**

Mr. Evans explained that the MET compliance report showed there were 86 compliant plans and 2 non-compliant plans. He noted that both non-compliant plans were over the 60-day threshold and that since the publishing of the Board meeting packet, Greenville Firemen's Relief and Retirement Fund had submitted its PRB-2000 and was compliant.

**B. Receive report on PRB online training utilization in comparison to other MET sponsors and approved courses – Joey Evans (1:04:14)**

Mr. Evans noted that at the January Board meeting, the Board requested that staff determine the percentage of participants utilizing the PRB's online training courses as opposed to attending other MET sponsors' courses. He noted that the staff used the time frame from 2017 to the present.

He stated that a majority of participants received training from the PRB for core training, while a large majority of participants received continuing education from sponsors other than the PRB.

Mr. Brainard asked Mr. Evans which retirement systems were offering training in-house. Mr. Evans stated that he would get that information.

**7. Review and discuss report from the Executive Director on the following matters – Anumeha Kumar (1:27:43)**

**A. 2019 Evaluation of PRB Educational Services (1:27:45)**

Ms. Kumar explained that the survey was performed as a part of the PRB's report to the Legislative Budget Board to evaluate how satisfied the PRB's constituents were with the educational services provided by the PRB. She noted that nearly 90% of respondents indicated they were satisfied and that a common comment received was that there was a desire for continuing education training similar to the core training offered through MET. Ms. Kumar noted that this was something staff had been looking into and would like to provide.

**B. 2019 TEXPERS Summer Educational Forum (1:30:17)**

Ms. Kumar announced that the 2019 TEXPERS Summer Educational Forum was coming up in August, located in Frisco, Texas. She noted that she and Chair Leibe would be presenting at the conference. She let the Board know that if they were interested in attending, staff would arrange for them to attend.

Chair Leibe entertained a motion to approve the attendance of interested members to the TEXPERS Forum.

Motion made by Mr. Brainard and seconded by Ms. Dush.

**Motion approved unanimously.**

**C. Updated Fiscal Year 2019 Operating Budget (1:31:40)**

Ms. Kumar reported that the PRB is on track with its 2019 budget.

**D. Approval of Fiscal Year 2020 Operating Budget (1:32:08)**

Ms. Kumar noted there was a motion for the Board to approve the 2020 fiscal year budget. She added that the budget mirrored the General Appropriations Act approved by the Legislature.

Motion made by Mr. Brainard and seconded by Mr. Richards.

**Motion approved unanimously.**

**8. Personnel matters, including the evaluation, compensation, and performance of the Executive Director – Chair Leibe (1:07:00)**

Chair Leibe called for a closed session at 11:09 AM. Upon reconvening at 11:28 AM, she noted that the Board was very happy with Ms. Kumar's performance as the Executive Director and entertained a motion to increase the Executive Director salary as of September 1, 2020.

Motion made by Mr. McGee and seconded by Ms. Dush.

**Motion approved unanimously.**

Ms. Kumar thanked the Board for their recognition and ensured the Board that she and the staff would continue to work hard to uphold the quality of work that both the Board and the legislature have come to expect.

**9. Call for future PRB agenda items – Chair Leibe (1:34:50)**

There was no discussion on this item.

**10. Date and location of next PRB meeting – Thursday, October 17, 2019 (1:35:21)**

Chair Leibe stated that the next PRB meeting would be held Thursday, October 17, 2019, and the location was to be determined.

She noted that there would be two Actuarial Committee meetings in the fall, tentatively set for September and November 2019. Chair Leibe added that the September meeting may be split into two days, and if so, the first meeting would begin in the afternoon and the second would begin in the morning.

**11. Invitation for public comment (1:36:43)**

Mr. Andrew Poreda from Sage Advisory commented on SB 322. He stated that the bill was a great opportunity for plans to receive a real evaluation and recommended that plans use an outside, independent firm to conduct the evaluations. He stated that he hoped the Board would take that into consideration when documenting rules.

**12. Adjournment (1:38:30)**

Chair Leibe adjourned the meeting at 11:41 AM.

**In Attendance**

**PRB Staff**

Wes Allen
Eusebio Arizpe
Bryan Burnham
Reece Freeman
Kenny Herbold
Michelle Downie Kranes
Anumeha Kumar
Mariah Miller
Ashley Rendon
Benjamin Warden

**Guests**

Michael Trainer – San Antonio Police Pensioners Association
Kelly Gottschalk – Dallas Police and Fire Pension System
Shanna Wadsworth – CPS Energy
Robert Nathan – CPS Energy
Brian Hebert – Beaumont Fireman's Relief and Retirement Fund
Carl Whitehead – Beaumont Fireman's Relief and Retirement Fund
Ross Clary - River and Mercantile
Andrew Poreda – Sage Advisory
Steve Waas – Houston Municipal Employees Pension System
Dan Wattles – TMRS
Leslee Hardy – TMRS
Ariana Whaley – ERS
Lois Emerson – CPS Energy
Ashley Mann – House Appropriations
Paul Brown – TEXPERS
Warren Schott – San Antonio Fire and Police Pension
Jim Smith – San Antonio Fire and Police Pension
Amanda Lopez – Office of the Speaker
Katy Fallon-Brown – LBB
Pat Haggerty – El Paso Fire and Police Pension Fund
David Stacy – Midland FRRF
Rebecca Morris – Rudd and Wisdom
William Gates – Lufkin Firemen's Relief and Retirement
Terry Bratton – Houston Police Pension
Eddie Solis – TEXPERS
Janis Reinken – Austin Police Retirement System
Joe Gimenez - TEXPERS

____________________________________

Chair Stephanie Leibe

# TAB 2A

Pension Review Board
October 17, 2019

TEXAS PENSION REVIEW BOARD

**Guidance for Investment Practices and Performance Evaluations**

As required by Senate Bill 322 (86R)

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

**The following options are provided for consideration by the Actuarial Committee:**

**[Option A]** 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—**

**[Option B]** 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 responsible for selecting or terminating investment managers and receives compensation in any form related to such selections (e.g. referral fees, discounts, etc.) other than on a fee for service basis from the system.

### 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. ~~as well as~~ 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 ~~investing decisions~~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 the system following the investment policy?~~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?
- ~~Would~~ Will the retirement fund ~~have been~~be able to sustain a commitment to the policies ~~during~~ under stress test scenarios, including those based on the capital markets that have actually been experienced over the past ten, twenty, or thirty years?
- ~~Would~~ Will the investment managers ~~have been~~be able to maintain fidelity to the policy ~~over the same periods~~under the same scenarios?
- ~~Would~~ Will the policy~~, if previously implemented, have~~ achieve~~d~~ the stated investment objectives ~~and results desired~~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?~~Is the system following industry best practices regarding the establishment and evaluation of the asset allocation?~~
- 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?~~Are the investments reasonably diversified?~~
- How often are the strategic and tactical allocations reviewed?

| |
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| *(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? ~~Does the system have a written investment management fee policy?~~
- 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?~~How are the fees reported to the board?~~

- 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?
- ~~Are there any fees not directly related to the management of the portfolio?~~
- 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 ~~for past meetings~~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?~~Do the board members clearly 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?
- ~~How are trustees evaluated?~~
- 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?~~How frequently is performance reviewed?~~
- ~~Are fees considered when reviewing investment performance?~~
- 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

[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."

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To: The TPRB

Cc: Kenny Herbold

From: Josh Yager, Esq.

Re: The freedom of professional judgment of the "Independent Firm" referenced in the TGC Section 802.109.

Date: 2019-10-02

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Introduction: During the September 20, 2019 meeting of the Actuarial Committee, I offered public comment regarding the characteristics of the "independent firm" referenced in the statute. The Committee invited me to offer a written summary of my thoughts which would be provided to the full Board for consideration.

Suggested Guidance: I urge that the Board recognize the importance that the review be conducted by a party that is free from impediments to their professional judgment. I offer the following suggested non-binding guidance for the Board's consideration:

> *The independent firm that authors the system's Investment Procedures and Performance Report should be free from responsibilities or relationships that could interfere with its professional judgment.*

Independence Generally: Nearly every major profession has established a duty for its members to be free from relationships or responsibilities which would tend to cloud their professional judgement: (1) Attorneys cannot represent parties who have adverse interests, (2) doctors cannot be directly compensated by pharmaceutical companies, (3) police are not allowed to investigate crimes in which they or their family is involved, (4) CPAs are prevented from providing attestation (audit) services upon the books and records they or their firm has prepared, and (5) umpires in every sport at every level are prohibited from gambling on the games in which their professional judgment can impact the outcome. The longstanding recognition that professional judgment can be compromised by other relationships and responsibilities should be noted.

Independence vs. Administrative Expenses: Each system must determine whether to have the incumbent investment consultant author the report OR engage an independent third party to conduct this review. It is likely the incumbent investment consultant will charge a lower fee to author the report than an independent third party. This then, is the conundrum each system must resolve: (1) to pay a lower fee or (2) to have an independent review. This decision illustrates why it's hard to be a trustee; on occasion, two duties of care are in conflict. First, the duty to incur only reasonable fees and second, the duty to independently monitor the activities of the parties to whom responsibilities have been delegated. Reasonable minds can differ, and reasonable decisions can be criticized. There are no “right” answers.

Independence vs. the Chinese Wall: Some have argued that there is no risk to the independence of professional judgment when the investment consulting firm also conducts the Investment Procedures and Performance Report. Proponents of this view argue that the required independence of professional judgement is preserved where a “Chinese Wall” exists between the reviewing department and the department being reviewed. We disagree with this analysis. The term Chinese Wall, when applied to the investment industrial complex, is used to identify policies and procedures designed to prevent the flow of insider information between departments. These impediments to communication between departments (trading vs. investment banking as an example) do NOT address the risk of compromised professional judgment of the employees within the departments of the investment consulting firm. The internal policies which limit communication between departments is not designed to mitigate the risk of “corporate think” or “riding for the brand”. The doctrine of the Chinese Wall, in this case, is misapplied.

# TAB 2B

TEXAS PENSION REVIEW BOARD

**Guidance for Developing A Funding Policy**

As required by Senate Bill 2224 (86R)

Texas Government Code §802.2011 (SB 2224, 86R) requires **the governing board of a Texas public retirement system to adopt a written funding policy by January 1, 2020**. The policy is intended to be used as a retirement system's roadmap to fully fund its long-term obligations. The policy should be created with input from the system's sponsoring governmental entity whenever possible.

<u>The funding policy is required to be filed with its sponsor and the Texas Pension Review Board (PRB) no later than the 31st day after the date the policy is changed or adopted.</u>

A funding policy helps a system achieve the three fundamental goals of public pension funding: benefit security, contribution stability, and intergenerational equity. While different pension plans and their governmental sponsors may prioritize these goals differently, the funding policy should strive to **balance** these three primary pension funding goals so that member benefits are secure; employers and employees are afforded some level of contribution predictability from year to year; and liabilities are managed so that future taxpayers are not burdened with costs associated with a previous generation's service. For a more detailed discussion of the benefits of adopting a funding policy, please see the PRB's *2019 Interim Study: Funding Policies for Fixed-Rate Pension Plans*.

A funding policy should include the following components:

I. Clear and concrete funding objectives;
II. Actuarial methods;
III. A roadmap to achieve funding objectives; and
IV. Actions that will be taken to address actual experience that diverges from assumptions.

**<u>Components of a Funding Policy</u>**

### I. Establishing Clear and Concrete Funding Objectives

A funding policy should clearly establish the retirement system's funding objectives. Per Government Code §802.2011, **the funding policy must target a funded ratio of 100% or greater.** The PRB recommends that systems adopt a funding policy that fully funds the plan **over as brief a period as possible**, with **10 – 25 years** being the preferable range, using a finite, or **closed, funding period**.

### II. Selecting Actuarial Methods

An important role of a funding policy is to **set boundaries on what is allowable for actuarial calculations**. At a minimum, the three actuarial methods that should be addressed are the actuarial cost method, the asset-smoothing method, and the amortization policy.

| Actuarial Cost Method | Asset Smoothing Method | Amortization Policy |
|---|---|---|
| An actuarial cost method is a way to allocate pieces of a participant's total expected benefit to each year of their working career.<br><br>The most common actuarial cost method used in Texas, and the cost method required by GASB for financial reporting disclosures, is the entry age normal (EAN) method.<br><br>Under the EAN method, benefits are assumed to accrue as a level percentage of pay over the period from the member's entry into the plan until his/her assumed termination or retirement.<br><br>A funding policy should state the desired goals and purpose of the cost method if it does not specify the exact cost method to be used. | Asset smoothing techniques can help keep contributions stable and more predictable over time. Under smoothing, asset gains and losses are generally recognized over a period of years rather than immediately.<br><br>A five-year smoothing period where 20% of any gain or loss is recognized in each subsequent year is typically used in Texas.<br><br>The funding policy should specify the amount of return subject to smoothing (i.e. how much is deferred), the time period of the deferral, and if the smoothed value is subject to a corridor. | An amortization method is a procedure for determining the amount, timing, and pattern of recognition of a plan's gains and losses. Amortization amounts can be level dollar amounts or determined as a percentage of covered payroll. Level ~~Fixed~~ dollar amounts are preferable unless payroll is expected to decrease in the future.<br><br>One approach that helps minimize annual contribution volatility while maintaining a finite, closed funding period is the use of layered amortization, where a single closed-period amortization base is established for each year's realized experience.<br><br>Another approach is to establish closed-period amortization bases with varying recognition periods dependent upon the cause of a gain or loss. For example, one approach might be to amortize investment and/or actuarial experience gains or losses over a 5-year period, gains or losses attributable to assumption changes over a 10-year period, and gains or losses attributable to plan amendments over a 25-year period. |

A funding policy may also include directions on how to account for expected plan administrative expenses, how often experience studies should be completed to maintain up-to-date demographic actuarial assumptions, and how to set the interest discount rate.

### Negative Amortization

Negative amortization occurs when contributions are insufficient to cover the cost of benefits accrued and the interest accrued on the unfunded liability during the year. Negative amortization runs contrary to the pension prefunding concept so plans should be careful in their use of it. If a plan's amortization policy results in negative amortization, the funding policy should outline the expected period over which negative amortization will occur and provide justification for the use of negative amortization.

## III. Developing a Roadmap to Achieve Funding Objectives

A funding policy should provide a clear plan detailing how the system's funding goals will be met.

### Contribution Rates

An actuarially determined contribution (ADC) structure requires the payment of an ADC rate. An ADC is defined as the cost of benefits earned by workers in the current year (the normal cost) plus an amortization payment to recognize prior gains and/or losses. ADC contribution structures inherently adjust to the plan's changing funded status to maintain the overall trajectory towards fully funding benefit promises. This approach contrasts with fixed-rate funding structure which does not change from year-to-year unless proactive steps are taken.

If contributions are not made based on an ADC rate, the plan's governing body should establish and include the following items in the funding policy:

1. Determine an ADC that can be used as a benchmark to monitor whether the actual contributions are guiding the plan toward the stated funding objectives.
2. Establish what conditions will trigger action when the current actual contribution rate moves away from the benchmark ADC. For example, a certain funded ratio or difference between actual contribution and ADC could be used.
3. Identify tangible steps that will be taken to mitigate the differences between the actual and benchmark contribution rates, such as contribution and benefit changes. See Section IV for examples.

**Benefit and Contribution Change Parameters**

A funding policy should include elements designed to impede deviation from progress toward funding goals. This may be done by establishing parameters under which future benefit increases and contribution reductions can be considered.

*Examples*

A funding policy might state that:

- benefit enhancements can be made only if the funded ratio will remain at a certain level after the increase; or
- contribution reductions may only occur if a minimum amortization period is maintained.

## IV. Adopting Actions to Address Actual Experience That Diverges from Assumptions

A funding policy should develop predetermined steps for how a plan should respond to **both positive and negative experiences that differ from the plan's assumptions**. The following methods can be used to manage funding risk.

**Risk-Sharing**

A funding policy should identify key risks faced by the plan and how those risks, and their associated costs, will be distributed between the employer and employees. This structure prevents one party from bearing all the risk in a funding policy. Often when there is no formal risk-sharing policy, benefit reductions or cost increases are imposed on employees, retirees or both after the plan's condition has deteriorated, rather than proactively, in advance, and in a manner transparent to members and stakeholders.[i]

*Example:* If investment returns are not as high as projected, the associated costs will need to be covered by additional contributions or benefit reductions distributed amongst members and the sponsor.

**Contributions**

A solution to ensure the plan meets its funding objectives is to require that the actual contribution rate is equal to or exceeds the ADC. If that is not achievable, the funding policy should identify what the trigger should be for a required adjustment to actual contribution rates. Techniques such as the following could be used to help move the actual contribution rate in the proper direction.

Contribution Corridor

*Example:* If the actual total contribution rate is within 2% of the ADC, no change is required. However, if the total contribution is more than 2% *over or under* the ADC, a change in contribution rates is required.

Maximum and Minimum Contribution Rates

*Example*: If the ADC exceeds a pre-determined maximum contribution rate, the funding policy may require the plan to adopt benefit changes. Conversely, if the ADC drops beneath a pre-determined minimum rate, the funding policy may require certain benefit increases, such as a COLA.

Contribution Smoothing

*Example*: If the actual total contribution rate needs to be increased by 2%, the rate could be increased in increments until the total contribution rate meets the ADC. Similarly, if the contribution rate needs to be decreased by 2%, the rate may be slowly decreased over time. The funding policy may state that the contribution rate may not increase or decrease by more than a given percentage each fiscal year.

**Benefits**

A funding policy may also establish when benefit adjustments will occur and include provisions that specify how both positive and negative experience will be addressed. Plans may allow for increased benefits or an increased COLA as a result of a positive deviation, but plans will need to ensure they are able to consistently meet the new funding demands of the changes.

*Example:* The funding policy could require that if sponsor contributions are increased, member benefits must be decreased in some proportional manner. Or, the policy may include provisions that grant a COLA to retirees if the funded ratio, after the benefit change, remains above a specified percentage. Caps may also be placed on maximum COLAs, or COLAs can be tied to inflation, to manage plan costs.

**Examples of Funding Policy Components**

Many pension plans across the United States have already adopted a funding policy, including several in Texas. Below are examples of components from those funding policies.

| Component | Plan | Description |
|---|---|---|
| **Benefit and Contribution Change Parameters** | South Dakota Retirement System | The system may not consider **benefit improvements** unless the fair value funded ratio is and will remain after fully funding the cost of the improvement, over 120%.[ii] Proposed benefit improvements must be consistent with both the Board's long-term benefit goals and sound public policy with regard to retirement practices. |
| | City of Austin Employees' Retirement System | Employer **contribution** rate reductions should be considered only when annual COLA adjustments are built into funding assumptions and the funded ratio will remain greater than or equal to 105% after the reduction.[iii] |
| | City of Austin Employees' Retirement System | A **COLA** may be adjusted only when the adjustment can be financially supported; the funded ratio is $\geq$ 80% after incorporating the COLA; the amortization period is $\leq$ 20 years after incorporating the COLA; and the actual employer contribution rate is $\geq$ the ADC but no more than 18% after incorporating the COLA.[iv] |
| **Contribution Smoothing** | Fort Worth Employees' Retirement Fund | The contribution rate may not increase more than 2% of pay in one year or 4% in total to account for the ADC increase. If the maximum contribution increase has been applied and the actual contribution is still insufficient, the City Council must consider additional benefit reductions.[v] |
| **Risk-sharing** | South Dakota Retirement System | Should the funded ratio fall below 100% or if the fixed contribution rates are not sufficient to meet the actuarial requirement, the system is required to recommend corrective action, including benefit or contribution changes, in its annual report to the Legislature and Governor.[vi] |
| | Houston Firefighters' Relief & Retirement Fund<br>Houston Municipal Employees Pension System<br>Houston Police Officers' Pension System | The 3 Houston plans have a statutory funding policy that established a target contribution rate and a corridor around that rate. The plans and the City are required to take corrective action, including negotiating benefit reductions, if the recommended contribution falls outside the corridor. [vii] |

| Component | Plan | Description |
|---|---|---|
| **Risk-sharing** | Galveston Employees Retirement Plan for Police | Beginning January 1, 2025, if the actuarial valuation recommends an ADC that exceeds the aggregate (employee and City) contribution rate, the excess contribution will be split equally as a percentage of pay between the City and employee contribution rates.[viii] |
| | Maine Public Employees | COLAs are tied to investment returns. Reductions to COLAs may occur after severe market losses. The reductions will be removed once markets improve.[ix] |
| | Wisconsin State Retirement System | Retirement annuities are adjusted using a formula that factors in investment returns.[x] |
| | Pennsylvania State Employees'<br>Pennsylvania Public School Employees' | The employee contribution rate increases or decreases based on investment plan returns.[xi] |

## Questions Systems and Sponsors Should Discuss During Funding Policy Development

The process of developing a funding policy presents an opportunity for a system's board of trustees to have an open, robust discussion of their priorities regarding the funding needs of the plan. The policy should be created with input from the system's sponsoring governmental entity whenever possible. The following checklist represents a set of fundamental questions trustees should consider during funding policy development but is not exhaustive.

- [ ] **Introduction**
  - [ ] What is the purpose of the policy? What are we trying to achieve in this policy?
  - [ ] How is the plan governed? What statutes or ordinances govern plan funding?
  - [ ] What are our funding priorities?
- [ ] **Funding Objectives**
  - [ ] Over what time period will we achieve 100% funding?
  - [ ] How will we measure progress towards full funding? How will we measure if our funding objectives are being met?
- [ ] **Actuarial Methods**
  - [ ] What valuation methods do we use to determine the ADC (or benchmark ADC)?
  - [ ] How frequently should we calculate the ADC (or benchmark ADC)?
  - [ ] How will we ensure we are meeting the ADC (or benchmark ADC)?
  - [ ] Will we employ any asset smoothing methods? If so, what are they?
  - [ ] What measures do our system and sponsor need to take to achieve 100% funding?
  - [ ] How should we prepare for unanticipated changes?
  - [ ] How frequently will actuarial experience studies occur?
  - [ ] How is the interest discount rate determined?
  - [ ] Is a negative amortization period ever acceptable, and if so, under what conditions?
- [ ] **Plan for Achieving Funding Objectives**
  - [ ] How much money do we need today to pay for future promises?
  - [ ] Will we use contribution smoothing methods? If so, what are they?
  - [ ] What conditions must be met to adopt benefit increases or cost-of-living adjustments?
  - [ ] What conditions must be met for contribution decreases to occur?
- [ ] **Risk Management Policy**
  - [ ] What actions will we take should actual investment returns be less than the assumed investment returns used in the actuarial valuation? Should we consider action after a certain margin or threshold (positive or negative)?
  - [ ] What actions will trigger changes to our assumptions at the next actuarial valuation?
  - [ ] What conditions would trigger a contribution increase and what conditions must be met for contributions to return to their normal rate?
  - [ ] Could we increase contributions temporarily?
  - [ ] What conditions would trigger a review of our system's funding policy?

[i] Brainard, Keith, and Alex Brown, *In Depth: Risk Sharing in Public Retirement Plans. National Association of State Retirement Administrators*, January 2019, https://www.nasra.org/content.asp?contentid=124

[ii] South Dakota Retirement System*, SDRS Funding and System Management Policies*, https://sdrs.sd.gov/docs/SDRSFundingPolicy.pdf.

[iii] City of Austin Employees' Retirement System Benefits & Services Committee, *City of Austin Employee's Retirement System Board Approved Policy: Funding Policy and Guideline*s, 20142014. https://www.coaers.org/Portals/0/Resources/Publications/2-c%20F-2%20Funding%20Policy%20and%20Guidelines%202014-11-25.pdf?ver=2015-06-17-102341-677.

[iv] *ibid.*

[v] Employees' Retirement Fund of the City of Fort Worth, *Annual Actuarial Valuation*, 19 April 2019, p. 9, https://fortworthretirementtx-investments.documents-on-demand.com/?l=f419ce743442e5119795001fbc00ed84&d=64e81193956ae911a2cd000c29a59557.

[vi] South Dakota Retirement System*, SDRS Funding and System Management Policies*, https://sdrs.sd.gov/docs/SDRSFundingPolicy.pdf.

[vii] Retirement Horizons Incorporated, *City of Houston HMEPS Pension Reform Cost Analysis*,15 March 2017, https://www.houstontx.gov/pensions/public/documents/rhi-HMEPS.pdf.

[viii] H.B. 2763, 86th Texas Legislature, Regular Session, 2019, https://capitol.texas.gov/tlodocs/86R/billtext/pdf/HB02763F.pdf#navpanes=0

[ix] Maine Public Employees Retirement System, *Summary: PLD Plan Changes*, www.mainepers.org/Pensions/PLD%202018-Summary.htm.

[x] Brainard, Keith, and Alex Brown, *Shared-Risk in Public Retirement Plans. National Association of State Retirement Administrators*, June 9, 2014, p. 2, https://www.nasra.org/files/Issue%20Briefs/NASRASharedRiskBrief.pdf;
The Pew Charitable Trusts, *Cost-Sharing Features of State Defined Benefit Pension Plans: Distributing Risk Can Help Preserve Plans' Fiscal Health*, January 2017, p. 8, https://www.pewtrusts.org/-/media/assets/2017/05/definedbenefitplansreport.pdf.

[xi] *The Pew Charitable Trusts, Cost-Sharing Features of State Defined Benefit Pension Plans: Distributing Risk Can Help Preserve Plans' Fiscal Health, January 2017, p. 2, https://www.pewtrusts.org/-/media/assets/2017/05/definedbenefitplansreport.pdf.*

Pension Review Board
October 17, 2019

# Guidance for Developing a Funding Policy

## Comments

| Respondent | Comment |
|---|---|
| Corpus Christi Fire Fighters' Retirement System | I would like to comment that the Funding Policy SB 2224 is unjust and unclear to the TLFFRA Systems. The TLFFRA Systems are on a fixed contribution rate from the firefighters and fixed contribution rate by the city. The TLFFRA Systems do not have the luxury to present their actuarially determined contribution to the city and expect them to automatically meet the contribution. Like several other cities, we do not have a good working relationship with our city. For 20 years, we have tried to have an audience with the City Managers that have be employed by our city. Three years ago, the City Manager in place at the time, finally granted us an audience. We made a presentation and provided information on our fund. The TLFFRA statute was explained, historical data was provided and actuarial funding information was discussed. We asked for parity in contributions with the other city employees or just a consideration of an increase of contributions. The firefighters of the Retirement System have gone up on their contributions over the years, but the City has not. The funding policy supposedly should be the beginning of an open dialogue with the city. From our experience, we have not had the opportunity for an open dialogue for years. I would like to suggest that a letter be mailed to the Cities/Municipalities informing them of SB 2224 and explain what is expected from both the firefighters and the City Employer.<br><br>Creating a Funding Policy will be costly to each applicable TLFFRA System. If you can please create and establish a template for the policy, that would definitely be helpful. We still have several TLFFRA Systems where the Trustee/Chairman is the person who produces, prepares and submits reports. Providing a template would definitely support our Systems and help understand what is expected or required on the Funding Policy.<br><br>Thank you. |

TAB 2C

# Investment Expense Disclosure

As required by Senate Bill 322 (86R)

Senate Bill 322 (86R) requires Texas public retirement systems to submit, as part of their annual financial report (CAFR), a listing by asset class of all commissions and fees paid by the system during the system's previous fiscal year for the sale, purchase, or management of system assets; and the names of investment managers engaged by the system.

The Pension Review Board (PRB) is authorized to adopt rules to implement this provision, which are intended to lend clarity and consistency to the disclosures. This document provides a starting point for the PRB's Actuarial Committee to consider rulemaking in this area.

## Staff Recommendations

Staff is recommending that the Committee consider adopting rules requiring systems to report investment management fees and commissions, including carried interest/profit-sharing/performance fees, broken down by five asset classes. This information should be included in the systems' CAFR in addition to all investment activity expenses, which should include investment consultant, custodial, investment-related legal, and investment research.

### 1. Definition of Investment Expense

The Governmental Accounting Standards Board (GASB) defines investment expenses as investment-related costs that are separable from investment income and the administrative expense of the pension plan.[1]

**Staff recommends defining investment expense as**:

The following**, by asset class**:

- **Direct fees and commissions**
  - Management fees
    - Fees paid from the trust
    - Fees netted from returns
- **Indirect fees and commissions**
  - Performance fees (profit-sharing/carried interest)
    - Fees paid from the trust
    - Fees netted from returns
  - Broker fees and commissions (per share)

[1] Statement No. 67. *Financial Reporting for Pension Plans, Governmental Accounting Standards Series No*. 327-B, June 2012, gasb.org/resources/churl/399/602/GASBS67.pdf.

Most Texas public pension plans already report custodial services, investment-related legal services (if tracked separately) and investment research (if applicable) within their CAFRs. To provide standardization in investment expense reporting, staff recommends including the following in the definition of investment expenses, which should *not* be reported by asset class, as they generally apply to the overall investment program.

- Investment consulting
- Custodial services
- Investment-related legal services
- Investment research

Fees associated with trust companies that provide a variety of services (investment and administrative), should be reported either as an investment expense (in the appropriate category above) or as an administrative expense, where applicable.

### *Securities Lending*

Systems also report securities lending income and related expenses as a separate component of total net investment income. The Government Finance Officers Association (GFOA) recommends reporting the amounts together rather than divided between investment income and investment expense.[2] Staff is not recommending including securities lending as a component of investment expense reporting and plans can continue reporting securities lending expenses separately from investment expense.

## 2. Asset Classes for Fee Reporting

**Staff recommends that direct and indirect fees and commissions be reported by the following asset classes (with examples provided):**

| Cash & Short-Term | Real Assets | Equity | Fixed Income | Alternatives/ Other* |
|---|---|---|---|---|
| • Money market securities | • Real estate<br>• Commodities<br>• Natural resources | • Domestic stocks<br>• International stocks<br>• Emerging market stocks<br>• Equity mutual funds | • Municipal bonds<br>• Corporate bonds<br>• US Treasuries > 1 yr.<br>• Treasury inflation-protected securities<br>• Fixed income mutual funds | • Hedge funds<br>• Venture capital<br>• Derivatives<br>• Private equity |

***Staff recommends requiring all fees listed as "Alternatives/Other" be detailed in a footnote or separate table.**

[2] https://www.gfoa.org/securities-lending-transactions-financial-statements

## 3. Reporting Structure: Direct and Indirect Fees and Commissions

### *Management Fees*

Direct investment management fees can include fees paid to managers from the group trust and fees netted from returns at the fund level. Fees netted from returns are amounts withheld from investment returns by managers, which may or may not be disclosed to the retirement system.

**Staff recommends requiring plans to distinguish between fees paid from the trust fund and fees netted against returns.**

### *Performance Fees/Profit-sharing/Carried Interest*

Performance Fees (profit-sharing/carried interest) are arrangements paid to the manager as financial incentives based on the investment returns earned by the fund. Some of the larger systems in Texas report this information, however, it is usually in supplemental schedules.

Additionally, the Institutional Limited Partners Association (ILPA), a trade association for institutional limited partners in the private equity asset class, believes that limited partners should press their general partners for more transparency.[3]

**Staff recommends requiring plans to report performance fees such as carried interest and profit-sharing.**

The following provides an example of these levels of reporting from a CAFR received by the PRB.

| Investment Manager Fees for the Period Ended June 30, 2018 | | | | | |
|---|---|---|---|---|---|
| | Fees Paid from The pension Trust Fund | | | Fees Netted Against Returns | |
| Asset Class | Market Value of Assets Under Mgmt. | Mgmt. Fees | Performance Fees | Mgmt. Fees | Performance Fees/Carried Interest |
| **Global Equity** | | | | | |
| *Public Equity* | | | | | |
| USA | $ 26,620,336,663 | $ 25,948,282 | $ 7,898,402 | $ 15,112,927 | $ 25,810,860 |
| Non-US Developed | $ 20,143,129,906 | $ 14,970,985 | $ 20,240,205 | $ 18,073,824 | $ 43,075,888 |
| Emerging Markets | $ 13,827,302,571 | $ 25,854,357 | $ 10,801,254 | $ 5,592,407 | $ 2,188,634 |
| Directional Hedge Funds | $ 5,993,811,349 | $ 1,261,454 | $ - | $ 53,331,951 | $ 58,411,340 |
| *Total Public Equity* | ***$ 66,584,580,489*** | ***$ 68,035,078*** | ***$ 38,939,861*** | ***$ 92,111,109*** | ***$ 129,486,722*** |
| Private Equity | $ 19,935,350,059 | $ - | $ - | $ 175,065,412 | $ 202,218,680 |
| **Total Global Equity** | **$ 86,519,930,548** | **$ 68,035,078** | **$ 38,939,861** | **$ 267,176,521** | **$ 331,705,402** |
| | | | | | |
| **Stable Value** | | | | | |
| US Treasuries | $ 16,392,299,986 | $ 2,523,353 | $ 1,005,537 | $ - | $ - |
| Absolute Return | $ 3,377,655,425 | $ 1,023,551 | $ 407,878 | $ 5,847,976 | $ 3,801,837 |
| Stable Value Hedge Funds | $ 6,508,116,503 | $ - | $ - | $ 91,052,734 | $ 68,150,312 |
| Cash | $ 507,646,555 | $ - | $ - | $ - | $ - |
| **Total Stable Value** | **$ 26,785,718,469** | **$ 3,546,904** | **$ 1,413,415** | **$ 96,900,710** | **$ 71,952,149** |

[3] "ILPA Principles." Who We Are, Institutional Limited Partners Association, ilpa.org/ilea-principles/

*Brokerage Commissions/Transaction Costs*

Some Texas plans report the highest brokerage commissions paid to execute transactions (on a per share basis).

*Example:*

| Table 7 | Broker Commissions for the Fiscal Year Ended August 31, 2018 | |
|---|---|---|
| **Brokerage Firm** | **Shares Traded** | **Commissions Paid*** |
| Merrill Lynch | 425,008,579,873 | $ 7,960,246 |
| Goldman Sachs Group, Inc. | 14,506,696,802,199 | 6,875,383 |
| JPMorgan Chase | 922,637,675,354 | 5,460,817 |
| Morgan Stanley | 640,678,818,911 | 5,229,646 |
| Citigroup | 8,841,439,800,825 | 4,597,836 |
| Credit Suisse Group | 1,610,976,824,883 | 3,566,278 |
| Deutsche Bank AG | 168,802,637,664 | 2,929,066 |
| UBS AG | 507,419,931,844 | 2,355,038 |
| Barclays | 24,684,070,799 | 1,949,329 |
| Bank of New York Mellon | 3,056,389,551 | 1,912,130 |
| Summary of remaining 248 brokerage firms | 3,016,040,155,331 | 21,996,741 |
| **Total** | **30,667,441,687,233** | **$ 64,832,510** |

**Commissions paid per share is less than $0.01.*

<u>**Staff recommends requiring plans to report brokerage commissions in a separate table from management and performance fees, by asset class.**</u>

# TAB 2D

Texas Pension Review Board
October 17, 2019

# Report on Board Experience and Education Qualifications in Statute

As requested by the Board at the June PRB Meeting, the PRB has researched and summarized below a list of experience and education qualifications for retirement system boards of trustees found in Texas statute.

| System | Statute | Board Size | Description |
|---|---|---|---|
| **Teacher Retirement System** | Title 8, Gov't Code, Subtitle C: Ch. 821-825 | 9 | • Three Governor-appointed trustees must have demonstrated financial expertise, worked in private business or industry, and broad investment experience, preferably in investment of pension funds.<br>• Two members nominated by the State Board of Education must demonstrate financial expertise, have worked in private business or industry, and have broad investment experience, preferably in investment of pension funds. |
| **Texas Emergency Services Retirement System** | Title 8, Gov't Code, Subtitle H: Ch. 861-865 | 9 | • Three trustees must be persons who have experience in the fields of finance, securities investment, or pension administration. |
| **Dallas Police & Fire Pension System** | V.T.C.S. 6243a-1 | 11 | **All trustees must**:<br>• Have demonstrated financial, accounting, business, investment, budgeting, real estate, or actuarial expertise, and<br>• May not be an elected official of the city. |

| System | Statute | Board Size | Description |
|---|---|---|---|
| **Galveston Employees' Retirement Plan for Police** | V.T.C.S. 6243p | 8 | **All trustees must**:<br>• Have demonstrated financial, accounting, business, investment, budgeting, or actuarial experience;<br>• Possess a bachelor's degree from an accredited institution of higher education; or<br>• Have been vetted by both the trustee serving on the board as the president of the municipality's police association or the president's designee position; and a trustee designated by the city manager. |
| **Houston Municipal Employees Pension System** | V.T.C.S. 6243h | 11 | • Five trustees appointed by the mayor, controller, city governing body, or elected by the trustees must have expertise in at least accounting, finance, pensions, investments, or actuarial science. Not more than two trustees may have expertise in the same area. |

# TAB 3A

# Intensive Actuarial Review:

## Odessa Firemen's Relief and Retirement Fund

**October 2019**

PENSION REVIEW BOARD

# Table of Contents

# Executive Summary

## Introduction

This intensive review of Odessa Firemen's Relief and Retirement Fund ("Odessa Fire" or "the Fund") is intended to assist the Fund's board of trustees and the City of Odessa ("the City") in assessing the Fund's ability to meet its long-term pension obligation.

Odessa Fire and the City have recently made contribution increases, benefit cuts, and actuarial and investment assumption changes, but the changes have not been enough to put the Fund on a solid path to sustainability. The Pension Review Board (PRB) encourages the Fund and the City to review this report carefully and jointly adopt both short- and long-term plans to address these risks. The PRB can provide technical assistance in formulating the plan.

## Overview

Odessa Fire is currently projected to run out of assets within the next 25 years. Because benefits were not prefunded, current contributions are being used to pay benefits, like in a pay-as-you-go pension structure. Current contributions, however, are barely covering half of annual benefit payments, so the Fund is also tapping into its investment income to make up the difference. Using contributions and investment returns to pay current benefits robs the Fund of the advantages of compound interest that prefunding offers.

These practices have resulted in liability growth close to 10% per year, while assets have increased less than 2% per year, despite the past decade's strong bull market. Diverting investment income to make benefit payments affects the Fund like an oil leak in an automobile engine: the car's owner can keep adding oil, but the problem will persist until the leak is plugged. Even worse, Odessa Fire's growing benefit payments will eventually drain the Fund's assets completely unless measures are taken to plug the hole.

Another consequence of not prefunding benefits is that highly liquid assets are needed to make benefit payments, as evidenced by the Fund's extremely low non-investment cash flow rates. However, the current asset allocation is heavily weighted towards equities and alternatives implying a long-term investment horizon which the Fund does not have the luxury of relying on.

Constantly underfunding a plan places the benefits of both retirees and active members at significant risk and/or places the burden of paying for services already rendered on future generations of taxpayers and employees through contribution increases or reduction of future benefits.

## Conclusion

To plug the immediate leak in the system, Odessa Fire and the City should work together to determine the best balance between increased contributions and benefit reductions. To help the City and the Fund consider funding options, the PRB has developed projections including both contribution increases and a one-time cash infusion. For the longer term, a strong funding policy should be adopted to restore and preserve fiscal health. The Fund should also monitor investment managers' performance against benchmarks; adopt an asset allocation plan; and review the Fund's professional advisors regularly.

# Background

Texas Government Code Section 801.202(2) requires the Pension Review Board (PRB) to conduct intensive studies of potential or existing problems that threaten the actuarial soundness of or inhibit an equitable distribution of benefits in one or more public retirement systems. The PRB identified the following key metrics, in addition to amortization period, to determine and prioritize retirement systems for intensive actuarial review. The PRB selected Odessa Firemen's Relief and Retirement Fund ("Odessa Fire" or "the Fund") for review based on the 2018 actuarial valuation data shown below and at the request of the City of Odessa. Unless otherwise noted, the following metrics were calculated as of January 1, 2018.

| Amort. Period (Years) | Funded Ratio | UAAL as % of Payroll | Assumed Rate of Return | Payroll Growth Rate | Actual Cont. as % of ADC[1] | Non-Investment Cash Flow as % of FNP | DROP as % of FNP |
|---|---|---|---|---|---|---|---|
| 47.1 | 43.08% | 510.60% | 7.75% | 3.50% | 81.31% | -11.16% | 4.54% |

Contribution and cash flow data are from the Fund's 12/31/2017 financial audit.

**Plan Profile (2018 AV)**

**Actuarial Accrued Liability**: $106,469,004

**Market Value of Assets**: $45,718,416

**Normal Cost**: 14.93% of payroll

**Contributions**: 18.00% employee
20.00% employer

**Membership**: 165 active
182 annuitants

**Social Security Participation**: Yes

At the time the Fund was selected for review:

- Its funded ratio of 43.08% was the sixth lowest in the state.
- Its non-investment cash flow as a percent of FNP was the second lowest in the state.
- Its UAAL as a percent of payroll was the fourth highest in the state.
- Actual contribution as a percent of actuarially determined contribution (ADC) was the 17th lowest in the state and the third lowest in its peer group.[2]

[1] For plans whose contributions are a fixed rate, based on statutory or contractual requirements, the ADC for this purpose is the contribution needed to fund the benefits accrued in the current year and maintain an amortization period that does not exceed 30 years, as required to be reported under Texas Government Code §802.101(a).

[2] See Appendix for peer group information.

# Key Findings

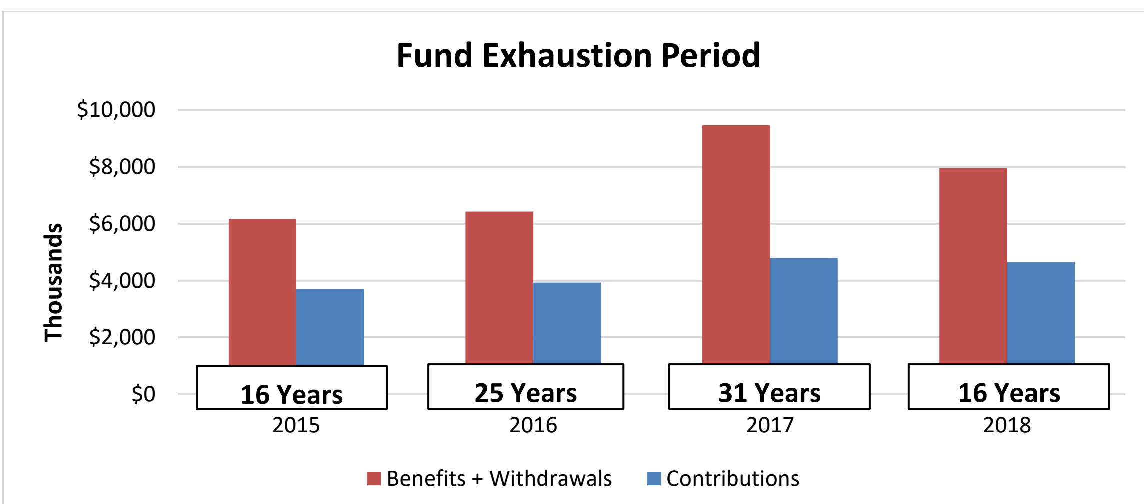
Odessa Fire should be recognized for making several significant changes in recent years in an attempt to address the long-term funding challenges it faces. In their 2016 Funding Soundness Restoration Plan (FSRP), the Fund and City reduced benefits for all employees, on a prospective basis, and increased both the City and employee contributions. To address lagging investment performance, the board took proactive steps to transition to a new investment consultant. In addition, the Fund has taken steps to improve internal data control processes.

However, the changes made in the FSRP have not been sufficient to keep the Fund on a steady path towards paying off its unfunded liability in less than 40 years (or the 30 years recommended by PRB Guidelines). The PRB has identified several specific areas of concern that warrant the Fund and City's careful consideration.

## Fund Exhaustion in 16 Years

The various risks faced by a pension fund all boil down to one relatively simple question, "Will there be enough money to pay benefits when due?" The Governmental Accounting Standards Board (GASB) requires single-employer defined benefit pension plans to compare projections of the pension plan's assets to projected benefit payments and identify the year when projected assets will no longer be sufficient to cover 100% of the projected benefit payments, if such date exists.[3] In other words, this projected date, sometimes called the Fund's exhaustion or depletion date, is the date the Fund is expected to run out of money, potentially leaving retirees vulnerable to not receiving promised benefits.

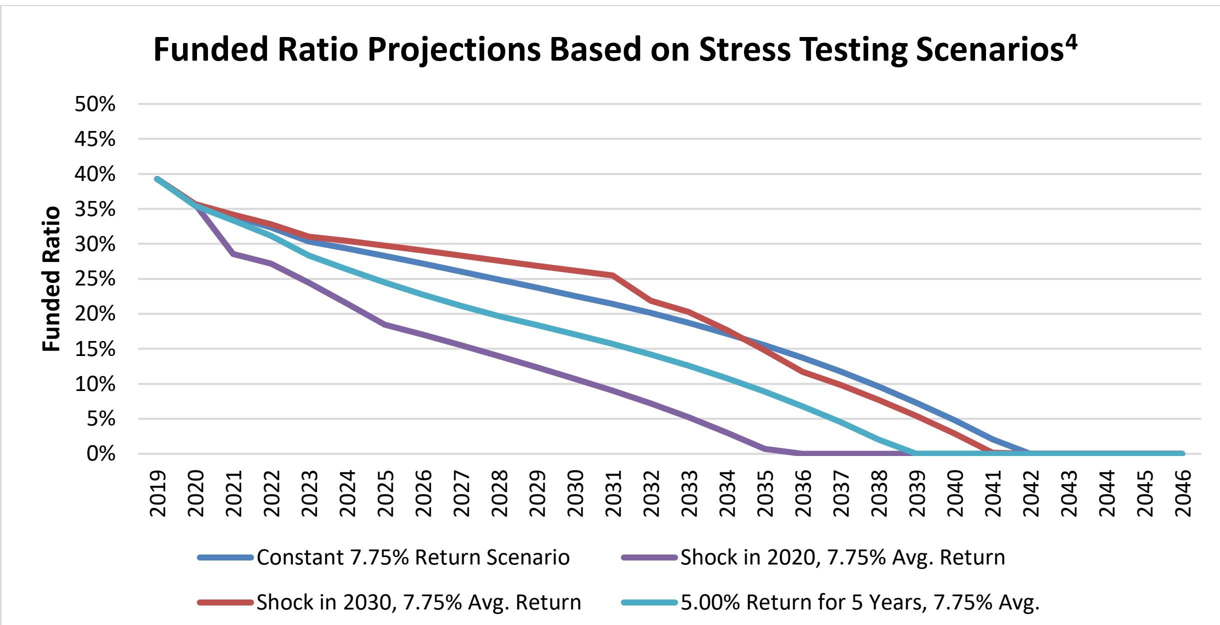
Odessa Fire has reported an exhaustion date every year since this requirement has been in effect (beginning with the 12/31/2015 annual financial report). This date improved somewhat following the 2016 plan changes made in accordance with the FSRP but returned to an alarming 16 years as of 12/31/2018.




[3] Statement No. 68 of the Governmental Accounting Standards Board

It is important to recognize that this projection does not include contributions expected to finance the benefits of new members hired after the valuation date. However, the PRB estimates that including those contributions would only postpone the exhaustion date by 5-10 years. While this projection does not guarantee that the Fund's assets will deplete in 16 (or 25) years, it should raise red flags that all stakeholders should take very seriously.

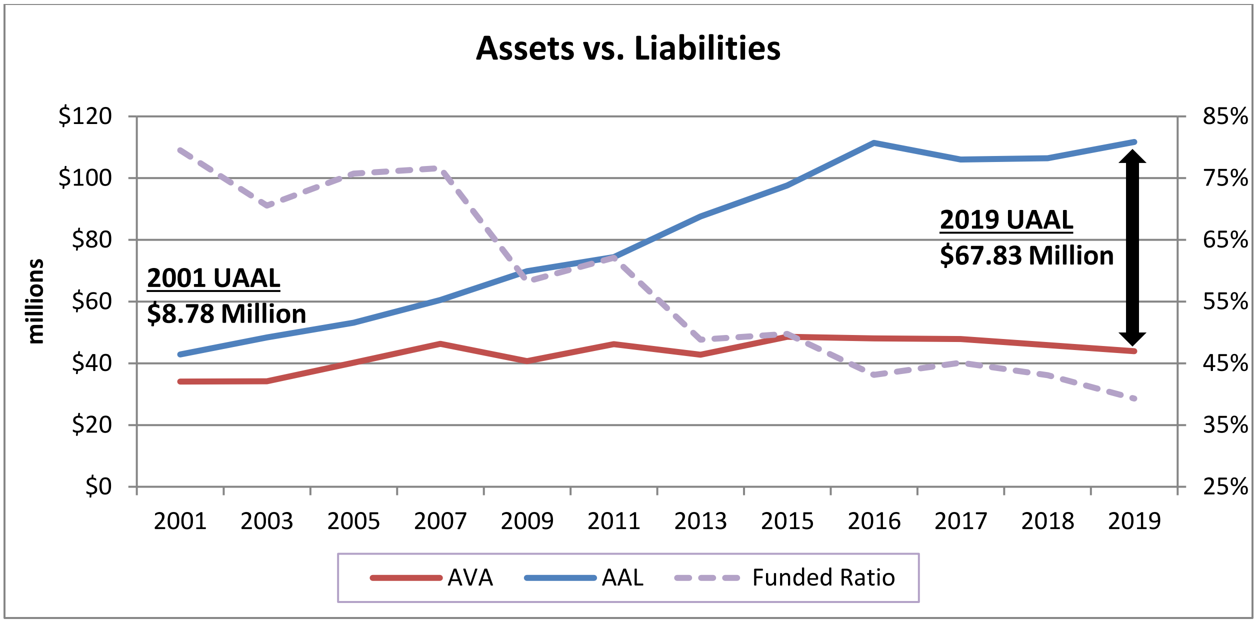
As part of this review, the PRB conducted some limited stress testing to help Odessa Fire trustees better understand how well the Fund would stand up to different market conditions. Even in scenarios where the assumed rate of return is achieved over a 30-year period, but the Fund experiences either a single negative investment shock or a short period of returns below the actuarial assumption, assets are expected to deplete sooner than under the simple constant 7.75% return in all years. The chart below shows several investment return scenarios where the average rate of return is 7.75% over the 30-year period of 2019 - 2048. The scenarios are: 1) a constant 7.75%, 2) a negative "shock" of -20% in 2020 with above average returns of 8.71% in all other years, 3) a negative shock of -20% in 2030 with above average returns of 8.71% in all other years, and 4) 5% for 5 years (2019-2023), followed by above-average returns of 8.30%.




## Assets Relatively Flat Since 2001

Since 2001, Odessa Fire's unfunded actuarial accrued liability (UAAL) has grown by nearly $60 million. The Fund's actuarial value of assets (AVA) has remained relatively flat over the same time period, averaging a 1.6% annual growth rate while liabilities were growing at more than 10% per year until the 2016 FSRP changes.

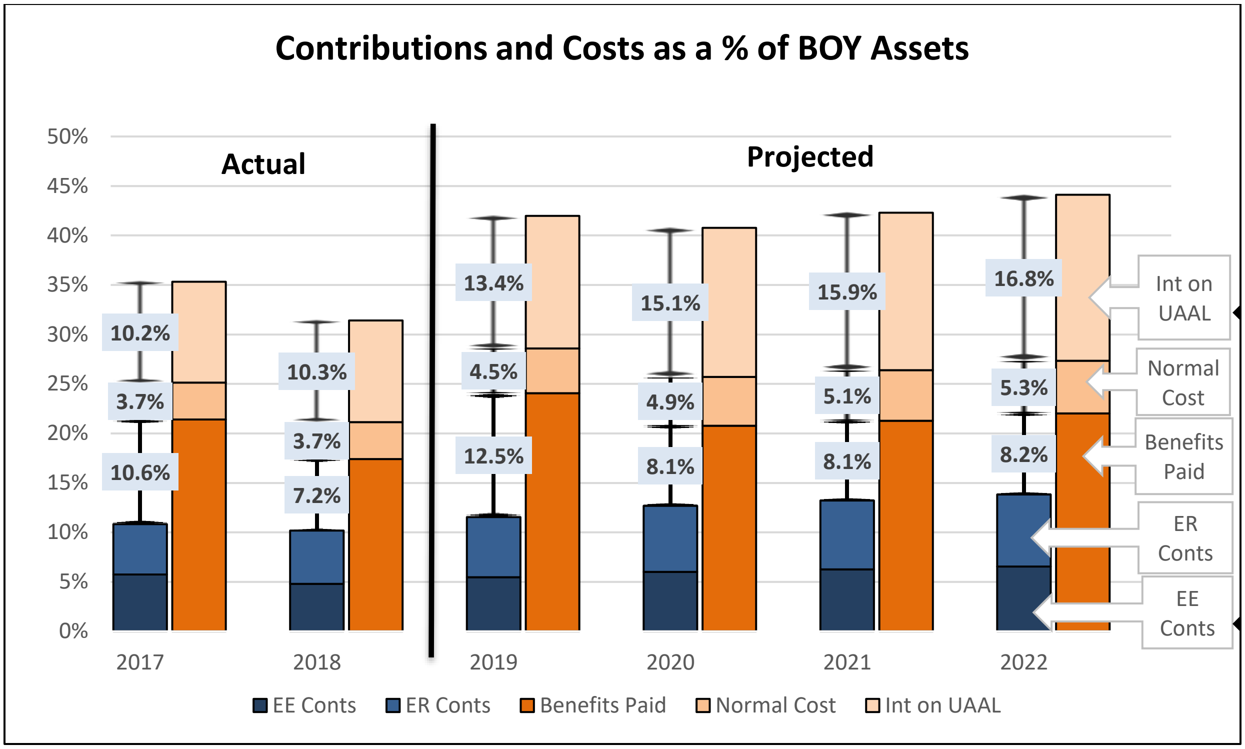
[4] Projections were calculated using expected salaries, projected actuarial accrued liability, and expected benefit payments provided by the Fund's actuary.




The stagnant asset level appears to be largely attributable to benefit payments significantly higher than contributions, the effect of which is compounded given the low funded ratio of the past decade. In the 2018 annual financial report, the auditor noted the Fund's contribution arrangement (2018 total contributions received of $4,655,268) was only enough to cover roughly 60% of the total benefit disbursements ($7,958,420) and stated, "As the Plan matures, we expect this gap to widen and then stabilize."[5]

The gap between contributions received and benefits paid puts a large onus on investments to make up the remaining assets needed to pay benefits due, much less cover the normal cost, the interest accrued on the unfunded liability, and make progress towards decreasing the UAAL to put the Fund on a path to full funding. As evidenced in the chart below, the investment return needed just to pay benefits in recent years was near or higher than the assumed return and is only projected to get higher as total assets decrease. This means that in the years in which the Fund experiences positive asset returns, at least some, if not all, of the investment gains would be needed to pay benefits rather than grow the assets. In years in which losses are experienced, assets would have to be sold at the worst time to cover benefit payments, further exacerbating the loss.

[5] Odessa Firefighters' Relief and Retirement Fund Financial Statements and Independent Auditor's Report, December 31, 2018 and 2017, page 1.




## Asset Allocation Process

According to the Fund and based on a review of the current and previous investment policy statements, the board does not have an asset allocation plan nor does it engage in any strategic asset allocation review. The board is relying primarily on the investment consultant to recommend and set the Fund's strategic asset allocation. This approach does not follow the industry best practices. The Government Finance Officers Association (GFOA) recommends retirement systems establish an asset allocation plan within their overall investment policy.[7] The first step to develop an asset allocation should be for the board of trustees, in consultation with the investment consultant, to conduct a thorough assessment of the Fund's funding goals, risk tolerance, investment horizon, and liquidity needs.[8,9]

Odessa Fire's asset allocation process appears to be based on an asset-only model with an expected long-term investment horizon which may not adequately consider the funding status and liquidity needs associated with the Fund's liabilities. Further, the focus appears to be on achieving a predetermined overall target rate of return, currently set as 7.75%. The IPS does not discuss how risk is measured, nor what constitutes a reasonable level of risk given the Fund's near-term liquidity needs to pay out benefits.

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[7] *Asset Allocation for Defined Benefit Plans*, Government Finance Officers Association, October 2009, https://www.gfoa.org/asset-allocation-defined-benefit-plans.

[8] *Pension Investing: Fundamentals and Best Practices,* Nicholas Greifer, Government Finance Officers Association, https://www.gfoa.org/sites/default/files/PensionInvesting_FundamentalsAndBestPractices.pdf

[9] *A Primer for Investment Trustees: Understanding Investment Committee Responsibilities, Jeffery Bailey and Thomas Richards, CFA Institute Research Foundation,* https://www.cfainstitute.org/-/media/documents/book/rf-publication/2017/rf-v2017-n3-1.ashx

On the surface, this makes it seem like the asset allocation is being structured to meet the pre-determined assumed rate of return, rather than the assumed rate of return being calculated as a function of a fund-appropriate asset allocation.

If the Fund were in a stronger financial position, this approach might not raise significant concern. However, given the reported exhaustion period, lack of any asset growth for nearly two decades, and projected negative cash flow illustrating a high likelihood of the need for greater liquidity, the lack of consideration given to these pressing issues does raise alarm.

## Revised Funding Soundness Restoration Plan

Odessa Fire's 2016 FSRP changes lowered the Fund's amortization period from infinite (as of 1/1/2016) to 46.5 years (as of 1/1/2017). Higher amortization periods are more sensitive to even small actuarial losses. Thus, even though only 20% of the asset losses experienced in 2018 are reflected in the calculation due to asset smoothing, the Fund's amortization rose to 77.5 years as of its 1/1/2019 valuation.

The FSRP, despite attempting to address the long-term funding challenges, is therefore already insufficient to achieve the 40-year amortization period by the target date (2026). Texas Government Code §802.2015(d) requires the Fund to work with the City of Odessa to develop a revised FSRP before the end of November 2019.[10]

[10] Texas Government Code §802.2015

# Analysis/Recommendations

## Funding Options

As of the January 1, 2019 actuarial valuation, Odessa Fire's UAAL was $67,827,402 and would take approximately 77.5 years to amortize, assuming all assumptions are met. Based on amortization period projections provided by the Fund's actuary, the PRB estimates a reduction in UAAL of approximately $7.2 million would bring the Fund back in compliance with current FSRP requirements and achieve an amortization period of 40 years by the target date (end of 2026). The UAAL would need to be reduced by approximately $18.3 million to bring the projected funding period within the *PRB Pension Funding Guidelines* preferred maximum of 30 years.[11, 12]

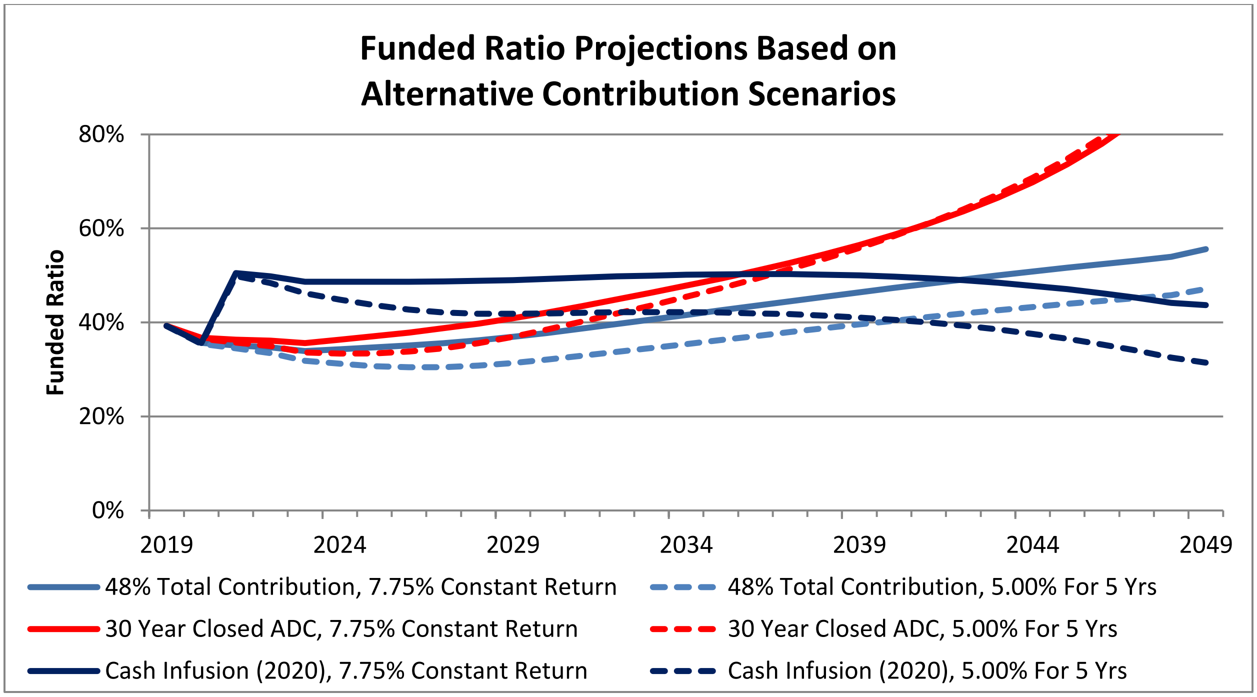
To shore up funding, Odessa Fire and the City should work together to determine the best balance between increased contributions and benefit reductions. However, it should be noted that a reduction in future benefit accruals will have virtually no impact on near-term cash outflows and the threat of a potential asset exhaustion date. Thus, certain actions which may achieve compliance with state law, may not properly address the risks faced by the Fund. Given Odessa Fire's current funding level, an increase in contributions over the near term is likely needed to stabilize the Fund.

Multiple options exist for adjusting contributions to the Fund. For example, contribution increases from the City, the employees, or both could be utilized alone or in combination with a one-time cash infusion. To help the City and the Fund begin to consider options for how to remedy the funding shortfall, the PRB developed some projections based on different contribution scenarios.

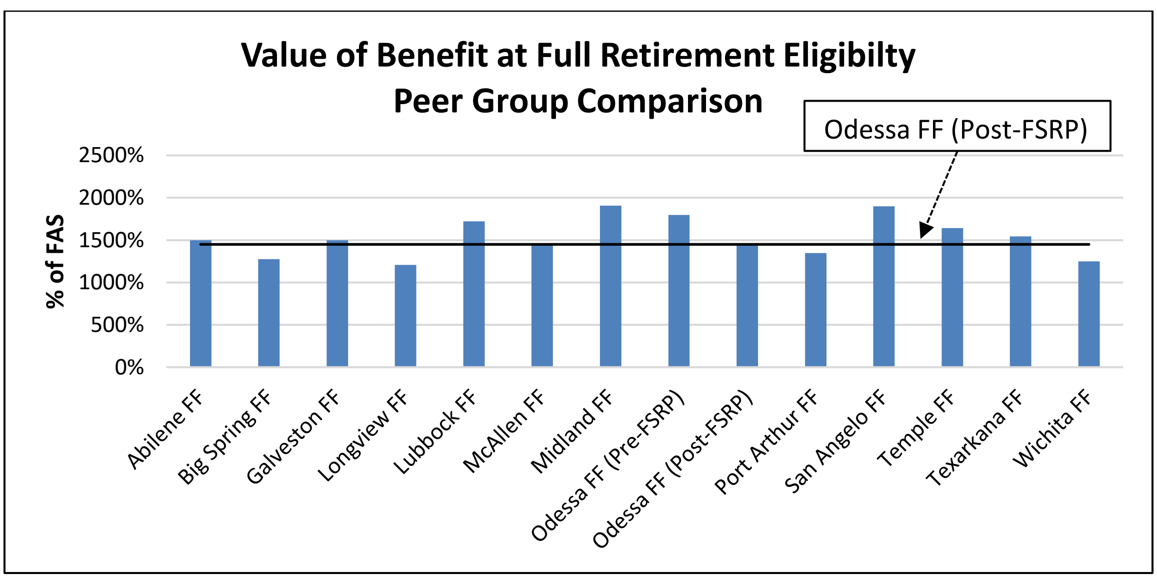
The following graph illustrates three potential options as examples: increasing the total contribution rate from 38% to 48% beginning in 2020; basing the total contribution on a 30-year closed ADC rate; or leaving the contribution arrangement as it currently is but assuming a significant one-time cash infusion of $18.3 million to the Fund during the 2020 fiscal year. The alternative contribution scenarios are shown using two different investment scenarios to illustrate how each scenario reacts to changing market conditions: 1) a constant 7.75% (solid line) and 2) 5% for 5 years (2019-2023), followed by above-average returns of 8.30% (dotted line). In all three scenarios, the Fund avoids depleting its actuarial assets for at least 30 years.

[11] These estimates are based solely on information provided in conjunction with the 1/1/2019 actuarial valuation and identify the minimum necessary to comply with state law and PRB guidelines. They do not take into account the open group projection analysis used in other areas of this review.

[12] *Pension Funding Guidelines*, Texas Pension Review Board, 30 June 2017, https://www.prb.texas.gov/txpen/wp-content/uploads/2017/03/Funding-Guidelines.pdf




While further benefit reductions will not help in the near term, they should still be considered for the long term. To help both the City and the Fund understand how current benefit levels compare to peer systems, the graph below depicts the present value of benefits at full retirement eligibility (as a percent of final average salary), both before and after the 2016 FSRP changes, in comparison with its peers.[13] Prior to the changes made in the 2016 FSRP, the Fund's value of benefit was the third highest amongst its peers but fell below the peer group average after the benefit changes.




[13] For this graph, Odessa Fire's peers are defined as other defined benefit TLFFRA plans that have a similar amount of actuarial assets, within roughly $15 million of Odessa Fire's assets, or are located relatively close geographically. Please refer to the Peer Group Value of Benefits Comparison in the appendix for more details.

When developing the revised FSRP, the Fund and the City are encouraged to think beyond the 40-year amortization period requirement and develop a strong funding policy. The goals of a funding policy are threefold: establish clear and concrete funding objectives, set boundaries on what is allowable for actuarial calculations, and develop plans for both positive and negative experiences. The funding policy should strive to balance the three primary pension funding goals so that member benefits are secure; employers are afforded some level of contribution predictability from year to year; and liabilities are managed so that future taxpayers are not burdened with costs associated with a previous generation's service. For more detail, please see the PRB's *January 2019 Interim Study: Funding Policies for Fixed-Rate Pension Plans.*[14]

The Fund should use the new funding policy requirement in Senate Bill 2224 (86R) and the revised FSRP process as an opportunity to work with the City of Odessa to address both the short- and long-term challenges faced by the Fund before funding levels deteriorate further.[15]

## Investment Practices and Governance

As noted above, the Fund identified concerns with their previous investment consultant and took proactive steps resulting in hiring a new consultant. This is a positive sign that the Fund is closely monitoring the performance of its advisors and is willing to take action if deemed necessary. However, the PRB has further concerns regarding the overall asset allocation and investment decision-making process.

The Fund should consider taking the following steps to continue to improve its investment governance and to gain a better understanding of the specific risks the Fund faces associated with its significant negative cash flow and potential future asset depletion.

### *Asset Allocation Plan*

Implement GFOA's recommendation to establish an asset allocation plan within the overall investment policy.[16] This provides the board a framework to create and continually monitor its asset allocation.

### *Asset-Liability Study*

Perform asset-liability studies, which model future asset and liability cash flows under various scenarios, to identify if the asset allocation is sufficient to support the future benefit payment stream. These studies can be utilized from time to time to assist the Fund in evaluating its asset allocation and investment risks.

### *Stress Testing*

Stress testing should be a regular part of reviewing portfolio performance, and should be used as a gauge to help assess and manage the level of risk. The Society of Actuaries Blue Ribbon Panel on Public Pension

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[14] *Interim Study: Funding Policies for Fixed-Rate Pension Plans,* Texas Pension Review Board, January 2019, https://www.prb.texas.gov/txpen/wp-content/uploads/2019/02/Funding-Policy-Paper.pdf

[15] SB 2224, 86th Texas Legislature, Regular Session, 2019, https://capitol.texas.gov/tlodocs/86R/billtext/html/SB02224F.htm

[16] *Asset Allocation for Defined Benefit Plans*, Government Finance Officers Association, October 2009, https://www.gfoa.org/asset-allocation-defined-benefit-plans.

Plan Funding recommends the use of stress testing as a means to measure investment and contribution risks over a 30-year period.[17]

### *Investment Practices and Performance Evaluation*

Texas Government Code §802.109 (SB 322, 86R) requires certain Texas retirement systems to complete an Investment Practices and Performance Evaluation by May 1, 2020.[18] This new requirement will further help current trustees, plan members, and other stakeholders gain a better understanding of current investment policies, procedures, and practices as well as how they compare against both their peers and industry best practices. This will be particularly helpful for Odessa Fire given the concerns raised in this review related to investment governance.

## Review of Professional Advisor Performance

As previously noted, the board of trustees recently hired a new investment consultant after reviewing the previous consultant and determining they were not receiving sufficient value for the cost of services. The Fund should be commended for this important step.

Best practice suggests RFPs should be issued for all outside services at regular, pre-determined intervals to continuously evaluate the level of service being provided.[19] The board is encouraged to review all professional advisors on a regular basis, either through internal performance review or by hiring an independent, third-party reviewer. For example, in the 2015 actuarial valuation, it was noted that the previous actuary was not fully valuing the cost-of-living adjustment. An actuarial audit, in which a second actuary reviews or audits the work of the Fund's actuary, may have discovered this and included a recommendation to fully value this benefit.

[17] Society of Actuaries. Report of the Blue Ribbon Panel on Public Pension Plan Funding. Schaumburg, Illinois. Feb 2014.

[18] SB 322, 86th Texas Legislature, Regular Session, 2019, https://capitol.texas.gov/tlodocs/86R/billtext/html/SB00322F.htm

[19] Procuring Actuarial Services, Government Finance Officers Association, October 2012, https://www.gfoa.org/procuring-actuarial-services

# Appendix

## Key Metrics

| | |
|---|---|
| ***Metric*** | Amortization period (47.1 years) |
| ***What it measures*** | Approximately how long it would take to fully fund the unfunded actuarial accrued liability (UAAL) based on the current funding policy. |
| ***Why it is important*** | Given the Fund's current assumptions, an amortization period above 17 years indicates the contributions to the Fund in the coming year are less than the interest accumulated for that same period and therefore the total UAAL is expected to grow over the near term. In addition, for a plan that contributes on a fixed-rate basis such as Odessa Fire, the higher the amortization period, the more sensitive it is to small changes in the UAAL. |
| ***Peer comparison*** | Odessa Fire currently ranks second highest amongst its peer TLFFRA plans (TLFFRA plans within a market value of assets of $15 million and plans with a close proximity to the city). |

| | |
|---|---|
| ***Metric*** | Funded ratio (43.08%) |
| ***What it measures*** | The percent of a fund's actuarially accrued liabilities covered by its actuarial value of assets. |
| ***Why it is important*** | The lower the funded ratio, the fewer assets a fund has to pay its current and future benefit payments. |
| ***Peer comparison*** | Odessa Fire's funded ratio is the lowest in its peer group and one of the lowest in the state. |

| | |
|---|---|
| ***Metric*** | UAAL as a percent of payroll (510.6%) |
| ***What it measures*** | The size of a plan's unfunded liability compared to the annual payroll of its active members. |
| ***Why it is important*** | Provides a way to compare plans of various sizes and expresses the outstanding "pension debt" relative to current personnel costs. |
| ***Peer comparison*** | The Fund's UAAL as a percent of payroll is the fourth highest in the State of Texas. |

| | |
|---|---|
| ***Metric*** | Assumed rate of return (7.75%) |
| ***What it measures*** | The estimated annual rate of return on the Fund's assets. |
| ***Why it is important*** | If actual future returns are lower than the assumed rate of return, future contributions will need to increase significantly, especially for a poorly funded plan. Odessa Fire's assumed rate of return is 7.75%, while its actual ten-year investment rate of return for the period ending December 31, 2017 was only 3.76%. |
| ***Peer comparison*** | Odessa Fire's assumed rate of return is higher than the national average of 7.27%.[20] |

| | |
|---|---|
| ***Metric*** | Payroll growth rate (3.50%) |
| ***What it measures*** | The estimated annual growth in the total payroll of active members contributing into the Fund. |
| ***Why it is important*** | Contributions are calculated as a percent of active members' pay and are back-loaded based on the expected growth in total payroll. If payroll does not increase at this rate, actual contributions will not meet those expected in the Fund's actuarial valuations. Given the Fund's inactive and active liabilities are not fully funded; contributions below expected levels will have serious consequences on the Fund's long-term solvency. |
| ***Peer comparison*** | The Fund's payroll growth rate of 3.50% percent is average for its peer group. |

| | |
|---|---|
| ***Metric*** | Actual contributions as a percent of actuarially determined contributions (81.31%) |
| ***What it measures*** | Whether the current employer contributions have met a theoretical minimum threshold.[21] |
| ***Why it is important*** | The employer's portion of the contribution is less than 82% of the amount needed to fund the Fund on a rolling 30-year amortization period. The PRB's 2014 Study of the Financial Health of Texas Public Retirement Systems found that plans that have consistently received adequate funding are in a better position to meet their long-term obligations. |
| ***Peer comparison*** | This is the third largest shortfall percentage in its peer group. |

[20] NASRA Issue Brief: Public Pension Plan Investment Return Assumptions. February 2019.

[21] The theoretical minimum threshold, or actuarially determined contribution (ADC), is a target or recommended contribution "to the Fund as determined by the actuary using a contribution allocation procedure," as defined in Actuarial Standards of Practice No 4. If contributions to the Fund are made as a fixed rate based on statutory or contractual requirements, the ADC for this purpose is the contribution needed to fund the benefits accrued in the current year and maintain an amortization period that does not exceed 30 years, as required to be reported under Texas Government Code §802.101(a).

| | |
|---|---|
| ***Metric*** | Non-investment cash flow as a percent of fiduciary net position (-11.16%) |
| ***What it measures*** | Non-investment cash flow shows how much the Fund is receiving through contributions in relation to its outflows: benefit payments, withdrawals and expenses. |
| ***Why it is important*** | Viewing this metric as a percent of total net assets (or fiduciary net position (FNP)), in conjunction with the funded ratio and recognition of the relative maturity of a plan, provides information about the stability of a plan's funding arrangement. |
| ***Peer comparison*** | Odessa Fire's non-investment cash flow as a percent of FNP is the second lowest in the State. If this trend continues, the Fund could face the potential risk of needing to liquidate a portion of existing assets to pay current benefits and/or expenses. |

## Plan Summary

The Odessa Firemen's Relief and Retirement Fund ("Odessa Fire" or "the Fund") is established in the Texas Local Fire Fighter's Retirement Act (TLFFRA). TLFFRA provides general guidelines for fund management, but leaves administration, plan design, contributions, and specific investments to the discretion of the board of trustees. Odessa Fire, as with all TLFFRA systems, is entirely locally funded.

### *Benefits*

| | |
|---|---|
| **Retirement Eligibility** | Frozen Benefit – Age 50 with 20 Years of Creditable Service<br>Post 2016 Benefit – Age 55 with 25 Years of Creditable Service |
| **Vesting** | Frozen Benefit –20 Years of Service<br>Post 2016 Benefit –20 Years of Service, with full benefits payable at 25 years of service. |
| **Benefit Formula** | Frozen Benefit – Final Average Salary x 3.6% x Years of creditable service plus a longevity benefit equal to $107 per month for each year of creditable service in excess of 20 years (prior to 12/31/2016)<br>Post 2016 Benefit – Final Average Salary x 2.88% x Years of creditable service after 12/31/2016, <= 25 years. |
| **Final Average Salary (FAS)** | Frozen Benefit - Highest 5 years within final 10 years of credited service prior to 12/31/2016.<br>Post 2016 Benefit - Final 5 years |
| **COLA** | 1% applied to frozen benefit only for members hired prior to 1/31/2013, payable each January 1. Ad hoc for members who do not meet requirements for automatic COLA, 1% of monthly frozen benefit provided the Fund's investment performance is not less than a rolling 5-year average of 8.50%. |
| **Retirement Benefit Options** | 3 DROP Options, must have completed 20 years of Credited Service as of 12/31/2016 for eligibility:<br>1. Regular DROP, 3 yr. max. 4% interest (on benefit credits only and must be participating in DROP prior to 1/1/2017) and employee contributions credited.<br>2. Retro DROP, 3 yr. max, employee contributions credited, no interest.<br>3. Immediate DROP - a partial lump sum option. |
| **Social Security** | Yes |

### *Contributions*

As of the January 1, 2018 actuarial valuation, active members of Odessa Fire contribute 18% of pay while the City of Odessa contributes 20% of pay.

### *Membership*

| Total Active Members | Retired Members | Terminated | Total Members | Active-to-Annuitant Ratio |
|---|---|---|---|---|
| 160 | 186 | 18 | 364 | 0.86 |

### *TLFFRA Board Structure*

| | |
|---|---|
| Active Members | 3 - Members of the retirement system; elected by fund members. Three-year terms. |
| Sponsor Government | 1 - Mayor or designated representative, or the political subdivision's Chief Operating Officer or designated representative.<br>1 - Chief Financial Officer of the political subdivision, or designated representative. Terms correspond to term of office. |
| Taxpayer, Not Affiliated With Fund/Sponsor Govt. | 2 - Residents of the State of Texas, must not be officers/employees of the political subdivision; elected by other board of trustee members. Two-year terms. |

### *Contribution and Benefit Decision-Making*

TLFFRA authorizes members of the retirement systems to determine their contribution rates by voting. The statute requires cities to make contributions at the same rate paid by employees or 12 percent, whichever is smaller. TLFFRA also allows a city to contribute at a higher rate than employees do through a change in city ordinance.

TLFFRA allows the board of trustees to make decisions to modify the benefits (increases and reductions). However, a proposed addition or change must be approved by the actuary and a majority of participating plan members. Benefit changes cannot deprive a member, retiree or beneficiary of the right to receive vested accrued benefits.

### *Asset Allocation*

| **Asset Allocation** (as of 12/31/2018) | | | | | |
|---|---|---|---|---|---|
| **Asset Class** | **Equities** | **Fixed Income** | **Alternatives** | **Real Estate** | **Other*** |
| Current Allocation | 59.73% | 19.02% | 9.07% | 6.84% | 5.35% |
| Target Allocation | 65.00% | 25.00% | 0.00% | 10.00% | 0.00% |

*Other includes capital assets, receivables and cash

### *Investment Returns*

| **Rates of Return** (as of 12/31/2018) | | | |
|---|---|---|---|
| **Time Period** | **1-year** | **3-year** | **10-year** |
| Gross Return | -6.00% | 6.00% | N/A |
| Net Return | -7.00% | 5.00% | 7.02% |

### *Expense Breakdown*

| **Fiscal Year ending 12/31/2018** | |
|---|---|
| Fiduciary Net Position (FNP) | $39,242,633 |
| Investment Expenses | $190,488 |
| Investment Expenses % of FNP | 0.49% |
| Administrative Expenses | $321,902 |
| Administrative Expenses % of FNP | 0.82% |

## Historical Trends

To conduct an intensive review of risks associated with the long-term funding of a pension Fund, it is important to analyze trends in multiple metrics. A plan with an asset level lower than its accrued liability has insufficient funds to cover benefits. A plan can experience an increase in unfunded liability due to various factors, including insufficient investment returns, inadequate contributions and inaccurate or overly aggressive assumptions. Hence, a single metric cannot effectively capture the different drivers contributing to the increase of a plan's unfunded pension obligation. This section analyzes historical trends in various metrics identified by the PRB and makes comparisons to understand the sources of growth in unfunded liability for Odessa Fire.

Odessa Fire's funded status has been steadily declining since 2000. Numerous factors have contributed to this deterioration, including inadequate contributions, investment returns being lower than the chosen assumption, increased benefit payments, and the inclusion of DROP accounts accruing interest.

### *Assets and Liabilities*

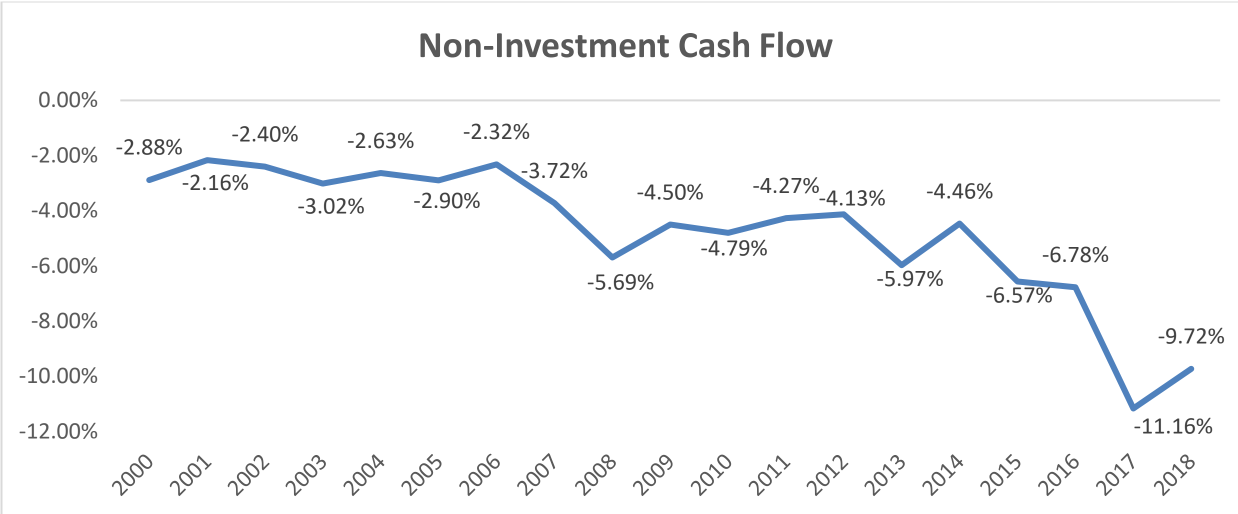
| Funding Trends<br>Funded Ratio, Assets, Liabilities and Year over Year Growth | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Valuation Year** | **2007** | **2009** | **2011** | **2013** | **2015** | **2016** | **2017** | **2018** | **2019** |
| Funded Ratio | 76.59% | 58.28% | 62.09% | 48.82% | 49.75% | 43.12% | 45.12% | 43.08% | 39.29% |
| Am Period (years) | 38 | Infinite | 71 | Infinite | Infinite | Infinite | 46.5 | 47.1 | 77.5 |
| UAAL (in millions) | $14.16 | $29.13 | $28.19 | $44.83 | $49.09 | $63.35 | $58.20 | $60.60 | $67.83 |
| AVA (in millions) | $46.43 | $40.70 | $46.17 | $42.76 | $48.59 | $48.03 | $47.85 | $45.87 | $43.89 |
| AVA Growth (YoY) | 7.35% | -6.29% | 6.51% | -3.77% | 6.60% | -0.58% | -0.19% | -2.09% | -2.18% |
| AAL (in millions) | $60.50 | $69.83 | $74.36 | $87.59 | $97.68 | $111.38 | $106.05 | $106.47 | $111.71 |
| AAL Growth (YoY) | 6.75% | 7.43% | 3.19% | 8.53% | 5.60% | 6.78% | -2.42% | 0.2% | 2.43% |

Odessa Fire's actuarial accrued liability (AAL) nearly doubled between 2007 and 2019. During the same time period, the actuarial value of assets (AVA) declined. The Fund was 77% funded in 2000 but fell to below 40% in 2019.

### *Cash Flow*

Odessa Fire had the second lowest non-investment cash flow in the State of Texas in 2017. The large drop in 2017 was primarily caused by larger than normal DROP distributions. Total contributions have grown on average by 7% annually since 2009 but are being outpaced by the average growth in yearly benefit disbursements of 8%. Benefit disbursements and contribution refunds are nearly double the amount of contributions the Fund receives.

A negative non-investment cash flow is not abnormal for mature defined benefit pension plans. However, a cash flow percentage this low is likely to be a drag on potential investment returns because a plan must either invest in a higher proportion of income-producing investments, which traditionally provide lower returns, or must liquidate existing assets to pay out current benefits and/or expenses.


Non-Investment Cash Flow
0.00%
-2.00%
-4.00%
-6.00%
-8.00%
-10.00%
-12.00%
-2.88%
-2.16%
-2.40%
-3.02%
-2.63%
-2.90%
-2.32%
-3.72%
-5.69%
-4.50%
-4.79%
-4.27%
-4.13%
-5.97%
-4.46%
-6.57%
-6.78%
-11.16%
-9.72%
2000
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2002
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2004
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2008
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2010
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2012
2013
2014
2015
2016
2017
2018

## Peer Group Key Metric Comparison

| | | Funding Val Metrics | | | | | | Fiscal Year End Metrics | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Peer Group Plans | MVA | Am Period Date | Am Period | Funded Ratio | UAAL as % of Payroll | Assumed Interest | Payroll Growth | FYE | Actual Cont. as % of ADC | DROP as % of FNP | Non-Investment Cash Flow as % of FNP |
| Midland Firemen's Relief & Retirement Fund | $ 89,754,731 | 12/31/2015 | 44.7 | 65.78% | 264.77% | 8.00% | 4.50% | 12/31/2016 | 89.77% | 0.32% | -2.44% |
| Abilene Firemen's Relief & Retirement Fund | $ 57,127,453 | 10/1/2017 | 31.9 | 55.69% | 341.79% | 8.00% | 4.00% | 9/30/2017 | 97.77% | 0.34% | -4.77% |
| Wichita Falls Firemen's Relief & Retirement Fund | $ 51,447,622 | 1/1/2018 | Infinite | 57.70% | 316.54% | 7.75% | 4.00% | 12/31/2017 | 63.05% | N/A | -5.31% |
| Port Arthur Firemen's Relief & Retirement Fund | $ 49,890,603 | 12/31/2015 | 18.3 | 77.97% | 160.73% | 8.00% | 4.00% | 12/31/2017 | 100.07% | N/A | -2.01% |
| McAllen Firemen's Relief & Retirement Fund | $ 49,459,309 | 10/1/2016 | 41.4 | 69.11% | 187.25% | 7.75% | 4.00% | 9/30/2017 | 89.78% | N/A | -2.19% |
| **Odessa Firemen's Relief & Retirement Fund** | **$ 45,717,250** | **1/1/2018** | **47.1** | **43.08%** | **510.60%** | **7.75%** | **3.50%** | **12/31/2017** | **81.31%** | **4.54%** | **-11.16%** |
| Galveston Firefighter's Relief & Retirement Fund | $ 44,651,640 | 12/31/2017 | 26.8 | 69.16% | 248.42% | 7.75% | 3.00% | 12/31/2017 | 63.67% | N/A | -4.75% |
| Longview Firemen's Relief & Retirement Fund | $ 44,353,523 | 12/31/2017 | 40.2 | 46.05% | 389.47% | 8.00% | 3.00% | 12/31/2017 | 81.60% | 0.00% | -5.56% |
| Temple Firemen's Relief & Retirement Fund | $ 44,243,769 | 9/30/2016 | 28.4 | 75.12% | 164.97% | 7.75% | 3.75% | 9/30/2018 | 95.60% | N/A | -4.44% |
| Killeen Firefighters' Relief & Retirement Fund | $ 43,947,221 | 9/30/2016 | 22.8 | 69.74% | 114.49% | 7.75% | 3.25% | 9/30/2017 | 95.94% | N/A | -0.29% |
| Texarkana Firemen's Relief & Retirement Fund | $ 34,819,005 | 12/31/2017 | 15.0 | 86.32% | 123.72% | 7.75% | 3.25% | 12/31/2017 | 101.88% | N/A | -3.61% |

## Peer Group Sponsor Funding Comparison

| Peer Group Plans | General Fund Expenditures (GFE) | EOY GF Bal | UAAL | Expected Employer Contributions | ADC | 30-yr Shortfall | 30-Y SF % of ADC | 30-Y SF % of GFE |
|---|---|---|---|---|---|---|---|---|
| Midland Firemen's Relief & Retirement Fund | $ 119,672,568 | $ 84,781,426 | $ 58,952,399 | $ 3,609,935 | $ 5,180,744 | $ 1,570,809 | 30.32% | 1.31% |
| Abilene Firemen's Relief & Retirement Fund | $ 86,557,678 | $ 28,228,036 | $ 47,286,729 | $ 2,663,240 | $ 2,761,469 | $ 98,229 | 3.56% | 0.11% |
| Wichita Falls Firemen's Relief & Retirement Fund | $ 75,116,308 | $ 18,302,309 | $ 37,628,438 | $ 1,525,133 | $ 2,321,579 | $ 796,446 | 34.31% | 1.06% |
| Port Arthur Firemen's Relief & Retirement Fund | $ 56,688,967 | $ 24,633,956 | $ 16,966,441 | $ 1,307,126 | N/A | No Shortfall | N/A | N/A |
| McAllen Firemen's Relief & Retirement Fund | $ 108,224,906 | $ 52,747,641 | $ 21,571,433 | $ 1,497,603 | $ 1,668,099 | $ 170,496 | 10.22% | 0.16% |
| **Odessa Firemen's Relief & Retirement Fund** | **$ 96,559,369** | **$ 25,859,030** | **$ 60,600,337** | **$ 2,373,699** | **$ 2,987,300** | **$ 613,601** | **20.54%** | **0.64%** |
| Galveston Firefighter's Relief & Retirement Fund | $ 46,926,941 | $ 19,821,390 | $ 19,767,545 | $ 1,352,717 | N/A | No Shortfall | N/A | N/A |
| Longview Firemen's Relief & Retirement Fund | $ 59,460,750 | $ 19,184,004 | $ 50,377,694 | $ 2,360,600 | $ 2,815,904 | $ 455,304 | 16.17% | 0.77% |
| Temple Firemen's Relief & Retirement Fund | $ 71,640,414 | $ 27,779,728 | $ 16,392,673 | $ 1,380,104 | N/A | No Shortfall | N/A | N/A |
| Killeen Firefighters' Relief & Retirement Fund | $ 76,891,477 | $ 22,315,018 | $ 18,990,872 | $ 1,878,929 | $ 2,020,571 | $ 141,642 | 7.01% | 0.18% |
| Texarkana Firemen's Relief & Retirement Fund | $ 32,041,049 | $ 14,114,855 | $ 5,584,452 | $ 880,171 | N/A | No Shortfall | N/A | N/A |

## Peer Group Expense Comparison

| Peer Group Plans | 10 yr. return (Net)[22] | Active/ Annuitants | Average Benefit | NPL | Admin Expenses | Admin Exp as % of Assets | Investment Expenses | Inv Exp as % of Assets | Other Expenses | Total Expenses | Exp as % of Assets |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Midland Firemen's Relief & Retirement Fund | 3.97% | 1.26 | $ 49,417 | $ 58,207,074 | $ 145,324 | 0.16% | $ 735,812 | 0.82% | $134,245 | $ 1,015,381 | 1.13% |
| Abilene Firemen's Relief & Retirement Fund | 4.40% | 0.94 | $ 41,351 | $ 52,087,861 | $ 38,825 | 0.07% | $ 224,051 | 0.39% | - | $ 262,876 | 0.46% |
| Wichita Falls Firemen's Relief & Retirement Fund | 5.81% | 1.15 | $ 32,947 | $ 70,486,203 | $ 157,958 | 0.31% | $ 198,290 | 0.39% | - | $ 356,248 | 0.69% |
| Port Arthur Firemen's Relief & Retirement Fund | 5.98% | 1.42 | $ 46,802 | $ 12,214,539 | $ 59,039 | 0.12% | $ 47,624 | 0.10% | - | $ 106,663 | 0.21% |
| McAllen Firemen's Relief & Retirement Fund | 4.17% | 1.65 | $ 33,865 | $ 25,632,406 | $ 33,822 | 0.07% | $ 295,831 | 0.60% | - | $ 329,653 | 0.67% |
| **Odessa Firemen's Relief & Retirement Fund** | **3.76%** | **0.91** | **$ 52,055** | **$ 92,884,709** | **$ 204,605** | **0.45%** | $ 218,069 | **0.48%** | **-** | **$ 422,674** | **0.92%** |
| Galveston Firefighter's Relief & Retirement Fund | 5.30% | 1.59 | $ 12,259 | $ 12,508,868 | $ 133,006 | 0.30% | $ 102,848 | 0.23% | - | $ 235,854 | 0.53% |
| Longview Firemen's Relief & Retirement Fund | 3.17% | 1.19 | $ 42,251 | $46,871,450 | $ 97,453 | 0.22% | $ 176,452 | 0.40% | - | $ 273,905 | 0.62% |
| Temple Firemen's Relief & Retirement Fund | 4.17% | 1.32 | $ 48,054 | $ 16,382,826 | $ 47,886 | 0.11% | $ 105,167 | 0.24% | - | $ 153,053 | 0.35% |
| Killeen Firefighters' Relief & Retirement Fund | 4.30% | 3.13 | $ 35,937 | $ 16,319,951 | $ 96,351 | 0.22% | $ 54,185 | 0.12% | - | $ 150,536 | 0.34% |
| Texarkana Firemen's Relief & Retirement Fund | 5.73% | 1.12 | $ 31,216 | $ 6,016,096 | $ 60,495 | 0.17% | $ 232,794 | 0.67% | - | $ 293,289 | 0.84% |

[22] All 10-year returns are as of the respective plan's 2017 fiscal year.

## Peer Group Value of Benefits Comparison

| Peer Group Plans | Retirement Age | YCS | (a) Multiplier as % of FAS | Normal Form of Payment | COLA | Social Security? | (b) Annuity Factor[23] | (a)*(b) PVFB as % of FAS |
|---|---|---|---|---|---|---|---|---|
| Abilene Firemen's Relief & Retirement Fund | 50 | 20 | 60.00% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | No | 24.9775 | 1498.65% |
| Big Spring Firemen's Relief & Retirement Fund | 50 | 20 | 51.00% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | No | 24.9775 | 1273.85% |
| Galveston Firefighter's Relief & Retirement Fund | 50 | 20 | 60.00% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | No | 24.9775 | 1498.65% |
| Longview Firemen's Relief & Retirement Fund | 55 | 20 | 60.00% | Life Annuity | None | No | 20.1329 | 1207.97% |
| Lubbock Fire Pension Fund | 50 | 20 | 68.92% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | No | 24.9775 | 1721.45% |
| McAllen Firemen's Relief & Retirement Fund | 50 | 20 | 58.00% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | Yes | 24.9775 | 1448.70% |
| Midland Firemen's Relief & Retirement Fund | 50 | 20 | 75.00% | Life Annuity with 75% continued to surviving spouse (J&75%) | None | No | 25.3996 | 1904.97% |
| **Odessa Firemen's Relief & Retirement Fund (Pre-FSRP)** | **50** | **20** | **72.00%** | **Life Annuity with 2/3 continued to surviving spouse (J&2/3)** | **None** | **Yes** | **24.9775** | **1798.38%** |
| **Odessa Firemen's Relief & Retirement Fund (Post-FSRP)** | **55** | **25** | **72.00%** | **Life Annuity** | **None** | **Yes** | **20.1329** | **1449.57%** |
| Port Arthur Firemen's Relief & Retirement Fund | 50 | 20 | 54.00% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | No | 24.9775 | 1348.79% |
| San Angelo Firemen's Relief & Retirement Fund | 50 | 20 | 66.00% | Life Annuity with 72% continued to surviving spouse (J&72%) | 1.2% after age 65 | No | 28.7490 | 1897.43% |
| Temple Firemen's Relief & Retirement Fund | 50 | 20 | 65.75% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | No | 24.9775 | 1642.27% |
| Texarkana Firemen's Relief & Retirement Fund | 50 | 20 | 61.80% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | No | 24.9775 | 1543.61% |
| Wichita Falls Firemen's Relief & Retirement Fund | 55 | 20 | 50.00% | Life Annuity with 2/3 continued to surviving spouse (J&2/3) | None | Yes | 24.9775 | 1248.88% |

[23] Calculated using 2.5% interest rate, male members with spouses 2 years younger, and RP 2006 Healthy Annuitant mortality with fully generational projection using scale MP2018.

## Comments from Odessa Firemen's Relief and Retirement Fund

OFRRF
Odessa Firefighters Relief & Retirement Fund

VIA EMAIL September 6, 2019

Texas Pension Review Board
P.O. Box 13498
Austin, TX 78711-3498

Re: Odessa Firefighters' Relief and Retirement Fund
Intensive Actuarial Review Response

To Whom It May Concern:

Texas Government Code Section 801.202(2) requires the Pension Review Board (PRB) to conduct intensive studies of potential or existing problems that threaten the actuarial soundness of or inhibit an equitable distribution of benefits in one or more public retirement systems. The Odessa Firefighter's Relief & Retirement Fund was made aware of our selection on May 16, 2019, at the request of the City of Odessa.

Based on these requirements, we are writing to respond to the Pension Review Board's (PRB) draft of the Intensive Actuarial Review that was done on behalf of the Odessa Firefighters' Relief and Retirement Fund (Fund). The contents of the remainder of this letter and its attachments will illustrate to the PRB the steps that the Fund has made in the previous months, and years, to improve actuarial soundness and comment on or correct any data needing review.

Upon initial review of the draft it appears we did not receive the full report with pages 20 and 21 missing, or possibly it was just mis-numbered.

**Plan Summary**
On page 16 of the draft report, Plan Summary – there are two discrepancies worth noting. First, under vesting: post 2016 benefit vesting is twenty (20) years of service, with full benefits payable at twenty-five (25) years of service. Secondly, is the Social Security notation: the No should be Yes. All current members of the Odessa Firefighter's Relief & Retirement Fund pay into Social Security. It should be noted that the City of Odessa recently approved the construction of a new fire station that will produce new active members creating payroll and contribution growth which will directly assist the funding of the plan. The plan's actuary has been made aware of this information and has discussed the impact of it in their portion of the response.

**Attachments**
Attached to this letter is response and correspondence from the Fund's investment consultant, Jeff Swanson, and actuary, Brad Heinrichs, in relation to the Intensive Actuarial Review draft.

It is clear in both Foster & Foster and Southeastern's response that the Fund has taken extraordinary measures over the past several years to improve and restore actuarial soundness. Much consideration has been given to all aspects of the Fund by the Board of Trustees, Actuary, and Investment Consultant. The Fund is in current, and continuous, conversation with the City of Odessa to improve the funding status.

If you have any questions, please do not hesitate to contact us.

Respectfully submitted,

Travis Jones - Chairman

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

September 5, 2019

Board of Trustees
Odessa Firefighters'
Relief and Retirement Fund
1921 E. 37th St, Suite C
Odessa, TX 79762

*Re: Pension Review Board (PRB) Intensive Actuarial Review*

Dear Board:

Foster & Foster has reviewed the Intensive Actuarial Review of your fund and have several comments that we would like for you to pass along to the PRB. First, I think the review was well-done given the amount of information that the PRB had at its disposal, and in general do not dispute the math used in the additional calculations performed by the PRB. We believe, however, that some additional commentary should be included to help properly frame the entire picture as to what has occurred or will occur in the future with this Fund. For purposes of organizing my thoughts into a beneficial format, we will separate our comments into the following three (3) categories: Fund Status as of December 2015, Board Actions Since 2015, and Future Projections/Solutions.

## Fund Status as of December 2015

Foster & Foster was engaged to become the Fund's actuary in December of 2015 and was asked to quickly complete the January 1, 2015 Actuarial Report. The most recent actuarial valuation had been completed as of January 1, 2013. A paraphrased summary of results and the assumptions that we inherited are as follows:

| | |
|---|---|
| Assumed Rate of Return: | 8.25% (down from 8.50% in the 2011 valuation) |
| Payroll Growth Rate: | 4.50% |
| Salary Increases: | 4.50% |

| | |
|---|---|
| Amortization Period: | Infinite |
| Funded Ratio: | 49.7% |
| % of Accrued PVB to Total: | 77.4% |
| Total Normal Cost Rate: | 18.7% |
| City Contribution Rate: | 16.0% |
| Member Contribution Rate: | 15.0% |

| | |
|---|---|
| Number of Active Firefighters: | 163 |
| Number of Actives 2003: | 164 |
| Number of Money Managers: | 1 |
| Number of Inv. Consultants: | 0 |

Our initial comments to the Board were as follows:

1) We are concerned about the assumptions being used to develop the funded status, adequacy of the contributions, and amortization period. As you can see from the statistics on the prior page, three of the major assumptions were rather aggressive relative to those used by our other 350 public plans, or by most other public funds that exist across the country. In our initial review, it did not appear that the plan had been coming close to meeting those assumptions for as far back as we could see. We recommended (and the Board approved) an Experience Study.

2) Even if those assumptions were reasonable, the funded ratio was extremely low and the amortization period was infinite, which clearly means that an infusion of cash or a reduction of benefits was desperately needed.

3) We were troubled that 77.4% of the total present value of benefits had already been accrued. This indicated to us only 22.6% of the total PVB is "in play," or, said differently, less than one-fourth (1/4) of the total liability could be lowered by a reduction in benefits. Additionally, the employees are already paying for a majority (15% of the 18.7%) of their annual accrual of benefits, based on the inherited assumptions.

## Board Actions Since 2015

The Board approved and we delivered an Experience Study on July 19, 2016. As we feared, the results of the Study showed that the picture was quite a bit worse than the Board had previously been led to believe. Using a 7.75% Assumed Rate of Return (which we continue to feel remains on the aggressive end of the spectrum) and a 3.5% payroll growth assumption (also still somewhat aggressive), along with changes to salary scales, retirement rates, withdrawal rates, and disability rates, the Fund was 14.5% of pay away on an annual basis from achieving a 40-year amortization. The Fund was 25.4% of annual payroll away from achieving a 20-year amortization.

Clearly, adjustments needed to be made, and the Board immediately made the following actions:

1) Began by approving all of the assumption changes outlined in our Experience Study.
2) Voted to begin performing annual actuarial valuations instead of bi-annual, to better monitor their funded status and amortization period.
3) Engaged our firm to perform an actuarial analysis of multiple benefit reduction/contribution increase scenarios.
4) Conducted meetings with All of the members (with the actuary and the City Manager present) to provide information about the status of the Fund and to inform them that benefit reductions or contribution increases were imminent.

The results of the 1/1/2016 Actuarial Valuation using the new assumptions showed that the 40-year funding cost was 47.0%, which meant that the Fund was 16.0% of annual payroll away from a 40-year amortization, and not the 14.5% as illustrated in the Experience Study based upon the 1/1/2015 valuation.

By the end of 2016, the Board/City/Members agreed to substantial benefit reductions as well as to increase contributions. At that time, under our guidance, the Board filed a Funding Soundness Restoration Plan with the PRB. The 1/1/2017 Actuarial Valuation showed the impact of the benefit changes and contribution rate increases. The stats were as follows:

| | |
|---|---|
| Assumed Rate of Return: | 7.75% (down from 8.25% in the 2015 valuation) |
| Payroll Growth Rate: | 3.50% (down from 4.5% in the 2015 valuation) |
| Salary Increases: | 6.40% (up from 4.5% in the 2015 valuation) |
| | |
| Amortization Period: | 46.5 (previously infinite) |
| Funded Ratio: | 45.1% (up from 41.8%) |
| % of Accrued PVB to Total: | 84.6% (up from 77.9%) |
| Total Normal Cost Rate: | 15.1% (down from 21.6%) |
| City Contribution Rate: | 20.0% (up from 16.0%) |
| Member Contribution Rate: | 18.0% (up from 15.0%) |
| | |
| Number of Active Firefighters: | 161 |
| Number of Actives 2003: | 164 |
| Number of Money Managers: | 1 |
| Number of Inv. Consultants: | 0 |

As you can see above, these changes were substantial. Many representatives from other TLFFRA funds viewed these changes to be drastic. Both the Members and the City shared the pain caused by these changes.

The 2018 Actuarial Valuation prompted the Board to make further changes. They did not sit idle, since their objective is to obtain an acceptable amortization period and for this Fund to be sustainable over the long term. Upon receiving the 2018 Valuation, the Board decided to make some changes to the way it handles its investments. They hired Southeastern Advisors, an investment consulting firm, to provide them with an analysis and opinion as to how they were currently invested relative to their goal of achieving a 7.75% Assumed Rate of Return. While we will leave the technical details to Mr. Swanson, the Fund's Consultant, the Board made several changes to its money management process. At a minimum, they hired new managers and a new custodian. We are told that their ability to achieve a 7.75% return assumption is much greater now, and at less risk, than what was previously possible.

Unfortunately, the market took a major downturn at the end of 2018, causing nearly all pension funds across the country to sustain major investment losses. These losses were manifested in Odessa's 1/1/2019 Actuarial Valuation, shown in the statistics below:

| | |
|---|---|
| Assumed Rate of Return: | 7.75% |
| Payroll Growth Rate: | 3.50% |
| Salary Increases: | 6.40% |
| | |
| Amortization Period: | 77.5 |
| Funded Ratio: | 39.3% |
| % of Accrued PVB to Total: | 83.6% |
| Total Normal Cost Rate: | 14.9% |
| City Contribution Rate: | 20.0% |
| Member Contribution Rate: | 18.0% |
| | |
| Number of Active Firefighters: | 160 |
| Number of Actives 2003: | 164 |
| Number of Money Managers: | 10+ |
| Number of Inv. Consultants: | 1 |

The 40-year funding cost for this Fund is currently 42.75%, which is 4.75% more per year than what is currently being contributed.

## Future Projections

Since the 1/1/2019 Actuarial Valuation, the stock market has erased the losses it sustained at the end of 2018, and the Fund is on more stable ground. If we were to update the previous valuation with today's assets, we believe that you would see numbers like those inherent in the 2018 valuation, with an amortization period in the mid 40's.

It is our opinion that future benefit cuts are not a good idea, in spite of the Fund's current funded status, for the following reasons:

1) With 84% of the total PVB already accrued, benefit reductions for current members would make very little difference in the overall result. In other words, there isn't much meat left on the bone.

2) The Members contribute 18% of pay, and their Normal Cost is less than 15% of pay. This means that the Members are paying 3.1% more for their benefit than what they are earning.

3) As illustrated nicely in the Intensive Review, the pension benefits provided to Odessa Firefighters are now worse than those Fire Departments that Odessa competes with for talent. Specifically, neighboring cities like Midland and San Angelo now have larger benefits than Odessa. Furthermore, what is not inherent in the Peer Value Benefits Comparison is that Odessa Firefighters now pay much more for their lower benefits than their peers. This issue is currently causing retention problems within the Odessa Fire department.

4) **Help is on the way!** It is our understanding that the City has agreed to add another fire station, and the department size is expected to grow from the 160 actives shown in the 2019 valuation to approximately 210 over the next three years. These future Members will bring along at least an additional few million dollars in extra annual payroll, which would add an approximate $700,000 of additional annual contributions to help pay down the Unfunded Liability. This $700,000 would represent over 5% of current payroll, which would bring the Fund in line with a 40-year amortization.

The Board has requested that Foster & Foster perform a special actuarial analysis to estimate the impact of the changes to the size of the Fire department that will be occurring over the next few years in conjunction with the strong investment performance thus far in 2019. The results of this analysis will be completed and ready for discussion with a Foster & Foster representative in attendance at the scheduled September 19, 2019 PRB meeting. We feel that the result of this analysis will illustrate that no further action is currently needed in the form of a revised Funding Soundess Restoration Plan.

In conclusion, we feel that the Board has acted swiftly to make positive changes to their Plan. We intend to continue to work with the Board and its Investment Consultant to monitor experience as it pertains to the actuarial assumptions and make recommendations for change when necessary. The Board also intends to work closely with the City of Odessa to make sure that the Plan is adequately funded and is sustainable and capable of paying benefits for all current and future retirees.

Respectfully submitted,

Bradley R. Heinrichs, FSA, EA, MAAA

Drew D. Ballard, EA, MAAA

SOUTHEASTERN ADVISORY SERVICES, INC.
Registered Investment Advisor

September 5, 2019

Board of Trustees
Odessa Firefighters'
Relief and Retirement Fund
1921 E. 37th Street, Suite C
Odessa, TX 79762

***Re: Pension Review Board (PRB) Intensive Actuarial Review***

Dear Board:

Southeastern Advisory Services has reviewed the Intensive Actuarial Review and would like to address each of the items that are raised regarding the investment program. I would like to start by commending the Board for their commitment and diligence and in making significant progress with the assets. I believe the PRB response is reasonable and I understand the logic behind their conclusions. The comments below are offered to assist to assist you in understanding the work and recommendations we have provided thus far.

**Background**

The Board hired their former manager in 2013 to manage all assets of the Fund. Southeastern has had a working relationship with this manager for many years. This manager was well known for its Large Cap Domestic Value Equity product. However, we were not aware of any other institutional clients using this firm as the sole manager where they also provide total portfolio management and asset allocation. Our firm had also evaluated the firm's other product offerings periodically through the years. Based on our research, we have never approved or recommended any of the other specialty products from this manager.

Upon review of the legacy Investment Policy Statement (IPS), risk allocations, and the individual manager's products, we developed the following general concerns:

- Concentration of assets with a single firm using internal products.
- The IPS document was authored by the asset manager.
- Overly aggressive IPS allocations given the Fund's cash outflows.
- Target allocation to public equity significantly higher than any of our public fund clients.
- The allocation to international equity of 24% was the highest that we have seen.
- The allocation to emerging market equity of 10% is higher than any public fund that we advise.
- Specialty strategies (MLP/REIT/Converts) generally had not added value to the Fund.
- High management fees for institutional balanced asset management.

Following our analysis of the investment portfolios for the fiscal year ending 12/31/18, we became uncomfortable with the Fund's asset performance and the level of risk taken. We noted the following specific concerns:

- The FYE 12/31/18 loss of -6.5% ranked #88 in the Wilshire Public Fund Universe.
- During the 4Q18 market correction, the loss of -10% ranked #90 in the Wilshire Pubic Fund Universe.
- For the three years ending 12/31/18, the standard deviation ranked #94 in the Wilshire Public Fund Universe.
- While we found that asset manager's flagship product had merit, the other internal specialty products were generally not compelling.

After sharing our findings with the Board, it was determined that first action should be to identify new assets manager(s). In order to do so, it would be necessary to revise the IPS and identify an appropriate target index. In doing so we provided target portfolio analysis including asset allocation modeling. We also provided a comparison of capital market assumptions to the current assumed rate of return. These comparisons were used to identify a base-line allocation summarized as follows:

- 65% weighting to public equity- the most common equity target amongst our public fund clients.
- 25% weighting to fixed income- consistent with the median in the Wilshire Public Fund Universe.
- 10% weighting to international equity- consistent with the median in the Wilshire Public Fund Universe.
- Deletion of the specialty segment and the addition of private real estate.

The Board then spent the first half of 2019, revising the investment policy, identifying and hiring an independent custodian and selecting target managers/funds. The revised IPS was adopted on May 30, 2019.

**PRB Specific Concerns**

The Board has relied on Southeastern to provide the base-line allocation. We agree with the PRB that the Board should have an asset allocation plan and engage in a strategic asset allocation review. We also agree that this follows industry best practices. In our judgement however, we determined that moving the assets to new management with responsible risk allocations was the priority. The Board is now in an excellent position to conduct an asset allocation study that can often be a multi-quarter process. Southeastern acknowledges the Fund's negative cash flow and funded status and will provide a comprehensive asset allocation study that considers these factors in the coming quarters.

Southeastern does not rely on asset-only models when developing strategic asset allocation reviews. Our intention in setting the base-line allocation was not an effort to achieve the predetermined overall target returns of 7.75%. The base-line allocation was determined to be one that, in our judgement, was a responsible starting point from which to allocate the assets and to later conduct a comprehensive review. As an aside, we consult with every client each year on the reasonableness of the assumed rate of return and have been advocates for reducing these assumptions for many years.

Regarding the IPS, we believe risk is best measured by standard deviation. The new IPS does explain that the volatility of the total portfolio is expected to be similar to the target index. Our reporting measures this and scores each client's risk profile to their peers in the Wilshire Pubic Fund Universe. I believe that the asset allocation study will provide the answer to what constitutes a reasonable level of risk given the Fund's near-term liquidity needs. Once this study is completed, we are, of course, in favor of adding this into the IPS document.

In summary, we have been on retainer with the Odessa Fire for the past three quarters. In this short time, the Board has taken decisive action to address the risks and hopefully to improve future investment performance. I understand the Fund's unique challenges, the PRB's concerns and acknowledge that we have more work to do. Southeastern is committed to assisting with the Board in every way possible to ensure a responsible and profitable investment program.

Sincerely,

Jeffrey D. Swanson

Jeffrey Swanson, Senior Consultant

John Small

John Small, President

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ODESSA FIREFIGHTERS'
RELIEF AND RETIREMENT FUND

Actuarial Projection Analysis
September 17, 2019

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

September 17, 2019

Board of Trustees
Odessa Firefighters'
Relief and Retirement Fund
1921 E. 37th St, Suite B
Odessa, TX 79762

*Re: Projection Analysis*

Dear Board:

As requested, we have performed a special actuarial projection analysis to estimate the amortization period and City funding costs in the coming years under various scenarios. As you are aware, the Texas Pension Review Board (PRB) recently submitted a preliminary draft of their intensive actuarial review of the Odessa Firemen's Relief and Retirement Fund (Fund). Included in this review are comments from the PRB that the recent benefit reductions combined with the contribution increases from the members and the City, as included in the Funding Soundness Restoration Plan (FSRP), are not sufficient to achieve a 40-year amortization period by the target date of 2026. The PRB has deemed the Fund out of compliance with their original FSRP and stated that a revised FSRP must be submitted on or before November 30, 2019.

As you know, the stock market saw a significant decline in the fourth quarter of the 2018 calendar year (the S&P500 decreased from around 2,914 to 2,507; about 14%), resulting in significant asset losses to the Fund. Since the actuarial valuation is performed based on a measurement date of January 1st of each year, the asset values used for the valuation were captured following this decline, which increased the amortization period significantly in the 2019 actuarial valuation. The asset losses realized in the fourth quarter of 2018 were quickly recouped at the beginning of 2019 (the S&P500 rose from 2,507 to above 2,914 by the end of April) and the Fund is currently realizing strong investment returns thus far in 2019. As of the date of this letter, the S&P is around 3,000, approximately 20% higher than its value on January 1st. The Fund's investment consultant has estimated that the Fund's 2019 year-to-date return is approximately 13% (net of fees). This analysis will take into account this investment performance when estimating the actuarial funding metrics beyond 2019.

Also, based on prior conversations with the Board and the City, it is our understanding that the City Council has approved a plan to build a new fire station in the City which will increase the department size significantly in the next few years. This analysis will illustrate the estimated actuarial impact that the increased active membership will have on the Fund. As requested, the body of this letter provides the Board with actuarial projection results based on the following:

*Scenario 1:* Baseline projection – future experience in line with current actuarial assumptions and no growth in active membership

*Scenario 2:* Same as Scenario 1 but assuming an actual investment return (net of expenses) in calendar 2019 of 13% based on most recent return information as provided by the Fund's investment consultant

*Scenario 3:* Same as Scenario 2 but reflecting expected increase in active membership from 160 firefighters on January 1, 2019 to 180 active firefighters in 2020 and 2021 and 210 firefighters from 2022 and beyond (the anticipated completion date of the new fire station).

We feel the results of this analysis will provide valuable information for the upcoming meeting with the PRB later this week. Prior to discussing results of each scenario, it is important to first review the various assumptions that have been utilized to estimate future assets and liabilities, as well as the resulting estimated amortization period.

***Assumptions Utilized for Projection***

When reviewing the estimated results presented in this analysis, please keep in mind the following:

- The liability projections were based upon census data as of the January 1, 2019 actuarial valuation. Additionally, we relied upon actuarial assumptions, methods, asset information, and plan provisions set forth in the January 1, 2019 actuarial valuation report.

- Under Scenario 1, the market value of assets were assumed to earn 7.75% per year, net of all expenses, beginning January 1, 2019. This is the respective assumption currently used for valuation purposes. Under Scenarios 2 and 3, the market value of assets were assumed to earn 13.0% in calendar 2019, and 7.75% per year in all subsequent years.

- Under Scenarios 1 and 2, the active population was assumed to be constant, meaning that as active members are projected to terminate or retire, they will be replaced with new members. Under Scenario 3, based on direction from the Board, the active population was assumed to be as follows:

| Year Beginning January 1 | Active Population |
|---|---|
| 2019 | 160 |
| 2020-2021 | 180 |
| 2022+ | 210 |

- Based on recent experience, the following demographics were used for populating new entrants into the Fund:

| Weighting Factor | Hire Age | Beginning Salary (2019) | Percent Male |
|---|---|---|---|
| 20% | 19-20 | $48,432 | 95% |
| 30% | 22-23 | $48,432 | 95% |
| 20% | 25-26 | $48,432 | 95% |
| 15% | 28-29 | $48,432 | 95% |
| 15% | 31-32 | $48,432 | 95% |

- Unless otherwise stated, future mortality, disability, turnover, retirement, payroll, and wage increases were all assumed to occur in accordance with the actuarial assumptions outlined in the January 1, 2019 actuarial valuation report.

Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions or contribution rates, changes in assumptions, or plan experience differing from expectations.

It is important to remember that the ultimate cost of your retirement plan is independent of any actuarial assumptions or methods utilized. This cost will be the sum of the benefits paid from the fund and expenses incurred, less any net investment gains received.

***Results Discussion***

*Scenario 1 – Baseline Projection*

Scenario 1 represents a projection of the Fund's asset and liabilities such that future experience is in-line with the current actuarial assumptions in all future years with a constant active membership size of 160 firefighters. The PRB states in its intensive actuarial review that based on similar parameters, the Fund's assets are expected to be depleted within 16 years based on an analysis prescribed by the Governmental Accounting Standards Board (GASB). The PRB review acknowledges that the GASB analysis does not include contributions expected to finance benefits of new members hired after the valuation date and estimated that including such contributions would only postpone the asset depletion date by 5-10 years.

Based on our Scenario 1 projection analysis, we estimate that the Fund's assets will be depleted sometime in calendar year 2044, consistent with the PRB's estimates. This may come as a surprise to the Board since the most recent actuarial valuation resulted in an amortization period of 77.5 years which would indicate that the Fund would eventually be 100% funded and never run out of money. It is important to understand that the amortization period of 77.5 years was based on the smoothed actuarial value of assets as of the valuation date which was about $4.6 million higher than the market value of assets, meaning that the Fund has $4.6 million in deferred investment losses that have not yet been recognized in the actuarial value.

As noted on page 5 of our January 1, 2019 actuarial valuation report, if the actuarial smoothing technique was removed and the market value of assets was used, the amortization period would be infinite. In fact, based on our scenario 1 projection analysis, the amortization period is expected to reach an infinite level in 2020 as a portion of the deferred investment losses are recognized.

These results should be areas of concern for the interested stakeholders but are also the basis for performing this analysis to demonstrate the expected impact of scenarios 2 and 3 on the Fund. We have included an exhibit following this letter that shows a number of important figures under each scenario.

*Scenario 2 – 13% Investment Return in Calendar 2019*

As previously mentioned, the actuarial valuation was performed at a time following a significant stock market decline in the final quarter of calendar 2018. Since that time, the S&P500 has rebounded (and more) from the losses sustained during that quarter and has increased approximately 20% so far in calendar 2019. Based on information provided by your investment consultant, the Fund has realized a return of approximately 13% (net of fees) year-to-date, surpassing the 7.75% return assumption.

Based on the valuation timing and the market bounce back, we felt it would be valuable information in advance of the PRB meeting to estimate the actuarial impact of the 2019 investment gains realized thus far. As mentioned above, the baseline projection resulted in an estimated asset depletion in the year 2044.

If we were to assume the Fund achieves a 13% market value return in 2019, the estimated asset depletion date would extend from 2044 to 2048. It is important to point out that, due to the current level of deferred investment losses, the Fund's amortization period is still expected to be at an infinite level following recognition of those asset losses even with the anticipated favorable market return in 2019.

*Scenario 3 – 13% Investment Return in Calendar 2019; Active Membership Growth*

It is our understanding that the City has approved measures that will finance the construction of a brand-new fire station (as well as updating an existing one) that will result in significant growth to the Odessa Fire department. We have also been told that there are currently around 180 firefighters on the active payroll (up from 160 as of January 1st) with the expectation that seven (7) new firefighters will be hired before the end of 2019. Based on this information and the estimated completion date of the new fire station, scenario 3 reflects an increasing department size from 160 active firefighters as of January 1, 2019 to 180 actives in 2020 and 2021 and 210 actives in 2022 and beyond.

The Board's main question to us was "What impact will this have on the Fund and its amortization period?"

As shown on the table below, the impact is significant, and the expected department growth has the effect of lowering the amortization period to a level that should satisfy the PRB. There are two major components to consider under scenario 3 that are driving the actuarial projection results in a manner that results in an amortization period that is below 40 years.

First, the current payroll growth assumption used in the actuarial valuation is 3.5% per year. If the active membership size grows from 160 actives in 2019 to around 210 in 2022, this represents over a 30% increase in the active workforce and a similar growth in the covered payroll. This significant increase in covered payroll means a significant increase in expected contributions to the Fund (the City contributes 20% of payroll and the members contribute 18%) which results in a substantial increase in cash available to pay off the unfunded actuarial accrued liability.

Also, we have determined that the Normal Cost rate (the annual cost of benefit accruals) for new entrants is approximately 13.25% of salary but they are required to contribute 18% of their paychecks. This means that the influx of new entrants expected in the next several years will not only be funding their benefit accruals but will also be contributing around 4.75% (18.00% minus 13.25%) of their annual pay to help pay down the existing unfunded liability.

Below, we have included a table that shows the estimated amortization period over the next ten (10) years based on our scenario 3 analysis. As you can see, the amortization period drops significantly in the year 2022 when the active membership is estimated to reach 210 firefighters. It is important to note that the amortization period is estimated to be below 40 years (39.8) by the FSRP target date of 2026. Also, unlike the results of scenarios 1 and 2, the Fund is not expected to run out of money based on the estimates of scenario 3.

| January 1 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|
| Amortization Period | 77.5 | 64.6 | 65.3 | 43.5 | 43.5 | 41.9 | 41.0 | 39.8 | 38.4 | 37.1 |

***Conclusion***

As stated in our comments as a response to the PRB's intensive actuarial review, we feel their review was well-done given the information available to them and in general do not dispute the math used in their additional calculations. We also feel that the economic outlook of the Fund has changed considerably since completion of the January 1, 2019 actuarial valuation, as outlined in scenarios 2 and 3 of this analysis.

Due to the strong investment performance thus far in 2019, and the expected increase in the size of the Odessa Fire department, we believe the results of this analysis show that no further action is necessary and the current Funding Soundness Restoration Plan is still viable and valid. Please refer to the exhibits included at the end of this report.

It is important to understand that future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions or contribution rates, changes in assumptions, or plan experience differing from expectations.

The undersigned is familiar with the immediate and long-term aspects of pension valuations, and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein.

Respectfully submitted,

FOSTER & FOSTER INC.

By: ______________________________
Bradley R. Heinrichs, FSA, EA, MAAA

By: ______________________________
Drew D. Ballard, EA, MAAA

*Exhibits*

**Scenario 1 -- Estimated Baseline Projection**

| Valuation Year | Covered Payroll | Contributions | Asset Return | Actuarial Asset Value | UAAL | Funded Ratio | Amortization Period | City 40-Year Cost |
|---|---|---|---|---|---|---|---|---|
| 2019 | 11,919,000 | 4,704,000 | 7.75% | 43,887,000 | 67,827,000 | 39.3% | 77.5 | 24.8% |
| 2020 | 12,406,000 | 4,824,000 | 7.75% | 39,877,000 | 73,080,000 | 35.3% | Infinite | 25.8% |
| 2021 | 12,849,000 | 4,960,000 | 7.75% | 38,462,000 | 76,935,000 | 33.3% | Infinite | 26.3% |
| 2022 | 13,358,000 | 5,135,000 | 7.75% | 37,254,000 | 80,858,000 | 31.5% | Infinite | 26.6% |
| 2023 | 13,763,000 | 5,285,000 | 7.75% | 34,933,000 | 85,296,000 | 29.1% | Infinite | 27.3% |
| 2024 | 14,201,000 | 5,485,000 | 7.75% | 34,476,000 | 88,750,000 | 28.0% | Infinite | 27.6% |
| 2025 | 14,651,000 | 5,696,000 | 7.75% | 33,911,000 | 92,331,000 | 26.9% | Infinite | 27.8% |
| 2026 | 15,201,000 | 5,849,000 | 7.75% | 32,580,000 | 96,093,000 | 25.3% | Infinite | 27.9% |
| 2027 | 15,771,000 | 6,029,000 | 7.75% | 31,363,000 | 99,792,000 | 23.9% | Infinite | 27.9% |
| 2028 | 16,330,000 | 6,210,000 | 7.75% | 30,006,000 | 103,673,000 | 22.5% | Infinite | 28.0% |

**Scenario 2 -- Estimated -- 13% Investment Return in Calendar 2019**

| Valuation Year | Covered Payroll | Contributions | Asset Return | Actuarial Asset Value | UAAL | Funded Ratio | Amortization Period | City 40-Year Cost |
|---|---|---|---|---|---|---|---|---|
| 2019 | 11,919,000 | 4,704,000 | 13.00% | 43,887,000 | 67,827,000 | 39.3% | 77.5 | 24.8% |
| 2020 | 12,405,000 | 4,824,000 | 7.75% | 40,263,000 | 72,694,000 | 35.6% | Infinite | 25.6% |
| 2021 | 12,849,000 | 4,960,000 | 7.75% | 39,383,000 | 76,014,000 | 34.1% | Infinite | 25.9% |
| 2022 | 13,358,000 | 5,135,000 | 7.75% | 38,721,000 | 79,391,000 | 32.8% | 141.1 | 26.0% |
| 2023 | 13,763,000 | 5,285,000 | 7.75% | 36,959,000 | 83,270,000 | 30.7% | Infinite | 26.6% |
| 2024 | 14,201,000 | 5,485,000 | 7.75% | 37,074,000 | 86,151,000 | 30.1% | Infinite | 26.6% |
| 2025 | 14,651,000 | 5,696,000 | 7.75% | 36,711,000 | 89,531,000 | 29.1% | Infinite | 26.8% |
| 2026 | 15,201,000 | 5,849,000 | 7.75% | 35,597,000 | 93,077,000 | 27.7% | Infinite | 26.9% |
| 2027 | 15,771,000 | 6,029,000 | 7.75% | 34,613,000 | 96,541,000 | 26.4% | Infinite | 26.9% |
| 2028 | 16,330,000 | 6,210,000 | 7.75% | 33,508,000 | 100,170,000 | 25.1% | Infinite | 26.9% |

**Scenario 3 -- Estimated -- 13% Investment Return in Calendar 2019; Active Membership Growth**

| Valuation Year | Covered Payroll | Contributions | Asset Return | Actuarial Asset Value | UAAL | Funded Ratio | Amortization Period | City 40-Year Cost |
|---|---|---|---|---|---|---|---|---|
| 2019 | 11,919,000 | 4,704,000 | 13.00% | 43,887,000 | 67,827,000 | 39.3% | 77.5 | 24.8% |
| 2020 | 13,403,000 | 5,203,000 | 7.75% | 40,263,000 | 72,694,000 | 35.6% | 64.6 | 23.5% |
| 2021 | 13,939,000 | 5,375,000 | 7.75% | 39,776,000 | 75,775,000 | 34.4% | 65.3 | 23.6% |
| 2022 | 16,122,000 | 6,185,000 | 7.75% | 39,557,000 | 78,871,000 | 33.4% | 43.5 | 20.8% |
| 2023 | 16,754,000 | 6,422,000 | 7.75% | 38,915,000 | 82,046,000 | 32.2% | 43.5 | 20.8% |
| 2024 | 17,399,000 | 6,700,000 | 7.75% | 40,280,000 | 84,114,000 | 32.4% | 41.9 | 20.5% |
| 2025 | 18,043,000 | 6,985,000 | 7.75% | 41,303,000 | 86,565,000 | 32.3% | 41.0 | 20.2% |
| 2026 | 18,777,000 | 7,208,000 | 7.75% | 41,730,000 | 89,062,000 | 31.9% | 39.8 | 19.9% |
| 2027 | 19,527,000 | 7,456,000 | 7.75% | 42,439,000 | 91,352,000 | 31.7% | 38.4 | 19.6% |
| 2028 | 20,284,000 | 7,713,000 | 7.75% | 43,261,000 | 93,673,000 | 31.6% | 37.1 | 19.2% |

# TAB 3B

# Intensive Actuarial Review:

## Paris Firefighters' Relief and Retirement Fund

**October 2019**

Texas Pension Review Board

# Table of Contents

# Executive Summary

## Introduction

This intensive actuarial review of Paris Firefighters' Relief and Retirement Fund ("Paris Fire" or "the Fund") is intended to assist the Fund's board of trustees and the City of Paris ("the City") in assessing the Fund's ability to meet its long-term pension obligation. The plan members and the City increased their contribution rates in 2018 from 15% to 16% and 12% to 14%, respectively. Despite these increases, the unfunded liability will continue to grow, and its low funded status will continue through the next decade.

The Pension Review Board (PRB) encourages the Fund and the City to review the findings and conclusions of this report carefully and jointly adopt a forward-looking plan to address these risks and guide the Fund towards a path of long-term sustainability. The PRB can provide technical assistance in formulating such a plan.

## Overview

Paris Fire's actuarial value of assets (AVA) was lower in its latest valuation (12/31/2016) than it was in 2001, while the actuarial accrued liability has increased by more than 78% over the same time period. This has resulted in a **dramatic decrease in the funded ratio from 67.6% to 35.6%**. This underfunding can be primarily attributed to the fact that existing benefits are not funded and the contributions going into the Fund are not enough to pay current distributions, much less pre-fund future benefits or pay the interest on the existing unfunded benefit liability debt.

In fact, given the retiree (inactive member) portion of the accrued liability is less than 50% funded, in addition to using all contributions and investment income, the fund sold nearly $1.5 million in assets between 2001 and 2016 simply to pay benefits**. At 35.6% funded, Paris Fire is essentially a pay-as-you-go plan, as its assets are leaking out of the plan faster than its contributions and investment income can replace.** Spending down assets, rather than accumulating them, means that the Fund does not reap the advantage of compound interest available to traditional, pre-funded pension plans.

The Fund's board of trustees has been slow to react to its perilous situation, appearing to have focused primarily on maintaining a low amortization period rather than heeding other warning signs such as its declining funded ratio, low cash flow, and consistently underperforming its assumed investment return during a decade-long bull market. The board has not completed legislatively-mandated minimum training requirements designed to ensure fiduciaries of public pension funds are prepared to fulfill their duties.

## Conclusion

Paris Fire should consider increasing contributions to address immediate funding demands in the short-term; developing a strong funding policy to alleviate the need for stopgap measures in the future; working with its actuaries and other consultants to ensure its investment assumption is not too aggressive; as well as reviewing its investment processes to generate needed improvement in asset returns.

In addition, there is also a need for a more hands-on approach to the plan's governance by its board. Completing minimum training requirements is just an initial step toward developing proactive leadership, which should also include seeking guidance from peer systems, additional educational opportunities, and asking questions of the Fund's professional advisors and reviewing their performance regularly.

# Background

Texas Government Code Section 801.202(2) requires the PRB to conduct intensive studies of potential or existing problems that threaten the actuarial soundness of or inhibit an equitable distribution of benefits in one or more public retirement systems. The PRB identified a set of key metrics, in addition to amortization period, to determine and prioritize retirement systems for intensive actuarial review. After evaluating these metrics, the PRB selected Paris Firefighters' Relief and Retirement Fund ("Paris Fire" or "the Fund") for review. The following data points were calculated based on the Fund's December 31, 2016 actuarial valuation and December 31, 2017 annual financial report, the information available to the PRB at the time the Fund was selected for review in May 2019:

| Amort. Period (Years) | Funded Ratio | UAAL as % of Payroll | Assumed Rate of Return | Payroll Growth Rate | Actual Cont. as % of ADC[1] | DROP as % of FNP | Non-Investment Cash Flow as % of FNP |
|---|---|---|---|---|---|---|---|
| 41.9 | 35.64% | 373.34% | 7.50% | 3.50% | 80.16 | N/A | -12.44% |

**Plan Profile**

**Actuarial Accrued Liability**: $14,957,795

**Market Value of Assets**: $4,764,272

**Normal Cost**: 9.54% of payroll

**Contributions**: 16.00% employee
14.00% employer

**Membership**: 49 actives
41 annuitants

**Social Security Participation**: No

- Its **funded ratio** of 35.64% was the lowest in the state.
- The Fund's **non-investment cash flow as a percent of FNP** of -12.44% was also the lowest in the state.
- Its **UAAL as a percent of payroll** of 373.34% was the ninth highest in the state and the third highest among its peers.[2]
- **Actual contribution as a percent of its Actuarially Determined Contribution (ADC)** of 80.16% was one of the ten lowest in the state and the second lowest among peers.

Since selecting Paris Fire, the PRB received the Fund's 2018 annual financial report in June 2019. The data used in this review is from the December 31, 2016 actuarial valuation and December 31, 2018 annual financial report.

[1] For plans whose contributions are made as a fixed rate based on statutory or contractual requirements, the ADC for this purpose is the contribution needed to fund the benefits accrued in the current year and maintain an amortization period that does not exceed 30 years, as required to be reported under Texas Government Code §802.101(a).

[2] See Appendix for more detail on Paris Fire's peer group.

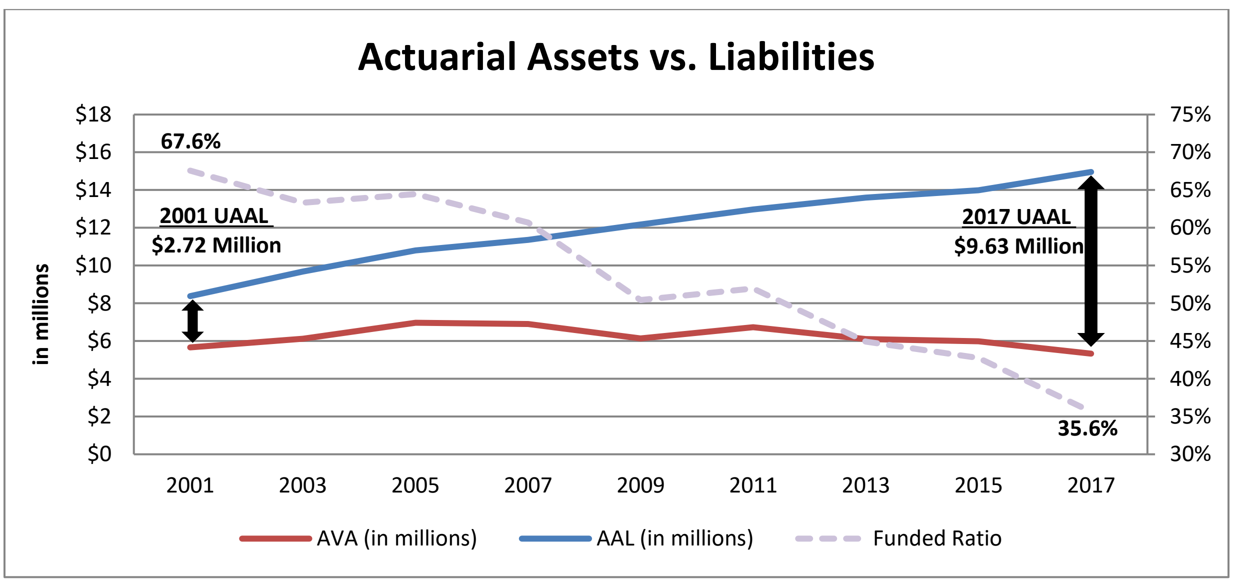
## Risk Analysis

Paris Fire is one of the few Texas public retirement systems with a flat benefit design (which equates to $94 per month per year of service credit), which is typically less risky than the more common benefit structures based on final average salary (FAS) calculations. In a flat benefit structure, distributions are driven by growth in the retiree population and, unlike FAS-based benefit designs, are not impacted by payroll growth.

Despite its lower-risk benefit design, Paris Fire is experiencing significant financial stress. High distributions compared to contributions and investment experience consistently not meeting assumptions have caused a precipitous decline in funded ratio, and if not addressed, funding levels could continue to worsen in the coming years. Since 2007, Paris Fire has changed investment managers, and both the City and members have made contribution increases. However, in the short term, the Fund will require additional contributions to put it back on the path toward financial soundness. There is also a need for a more proactive approach to the plan's governance by its board to help sufficiently mitigate these risks.

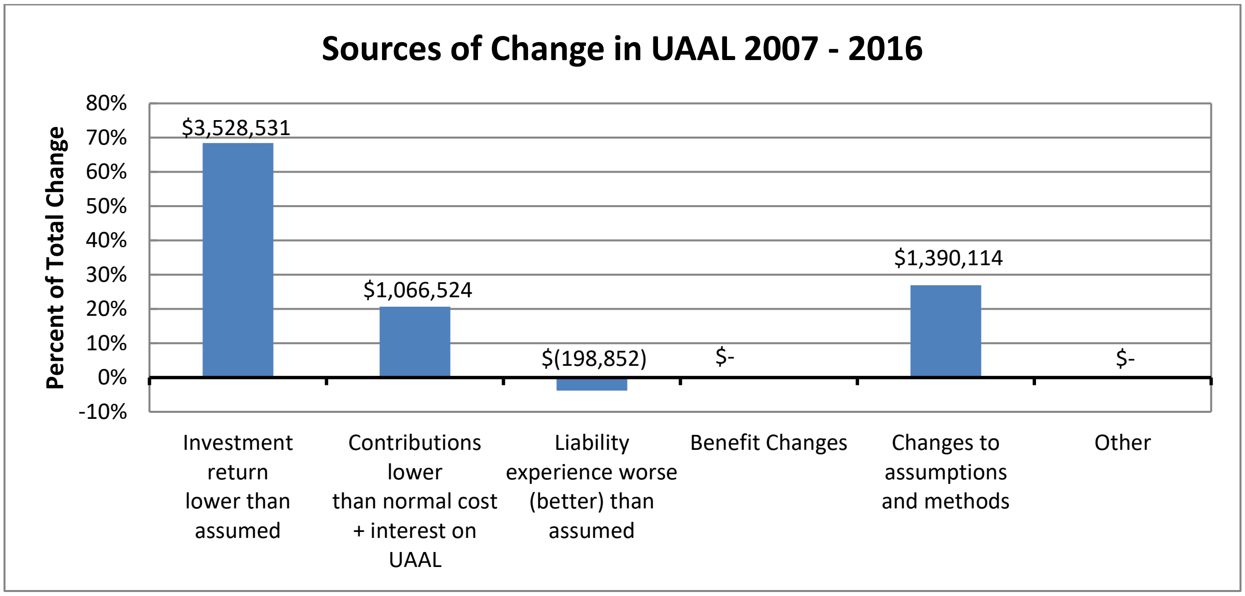
### Funding Risk

Paris Fire's unfunded actuarial accrued liability (UAAL) has more than tripled since 2001, from $2.7 million to $9.6 million. As the Fund's actuarial accrued liability (AAL) has steadily climbed, its assets have stagnated, so much so that the projected 1/1/2019 AVA is more than 30% lower than its peak as of 1/1/2005. Paris Fire's funded ratio decreased from **60.7%** in 2007 to **35.6%** as of its December 31, 2016 actuarial valuation. This decrease in funding over the course of a decade is staggering, especially when considering that Standard & Poor's credit rating methodology considers a three-year average pension funded ratio of 60% or below as "weak."[3]



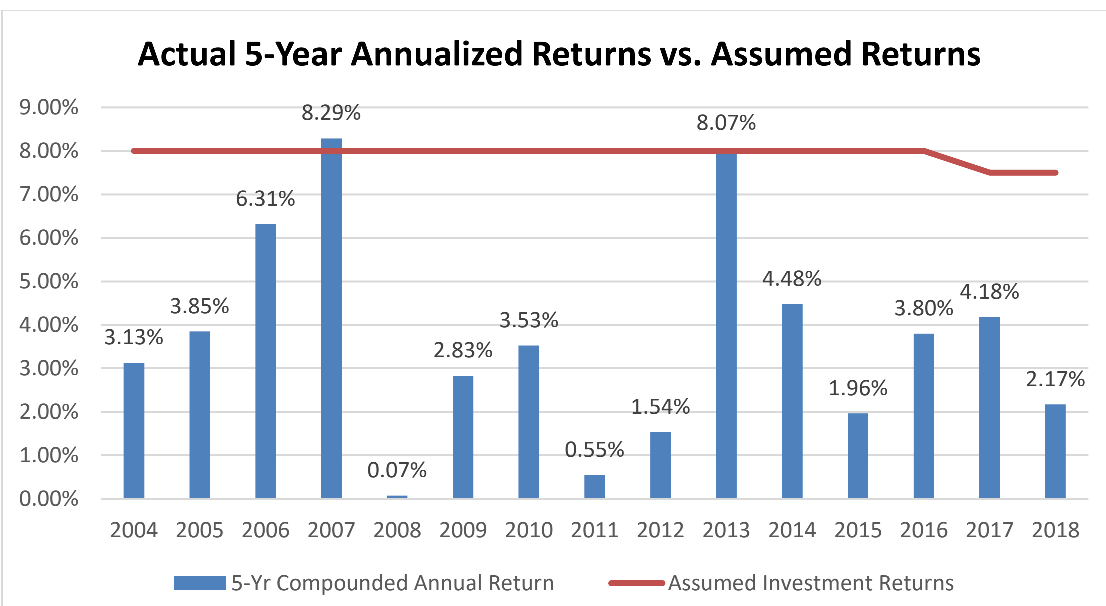

[3] *U.S. State Ratings Methodology*, Standard & Poor's, October 17, 2016.

Based on analysis of the causes of change in the UAAL, the Fund's inability to meet or exceed its assumed investment return was by far the greatest cause of the UAAL increase, as shown in the following graph. Insufficient contributions and adjustments to actuarial assumptions have also negatively impacted the UAAL, but insufficient investment returns have outpaced all other factors, combined.




## Investment Return Experience vs. Assumptions

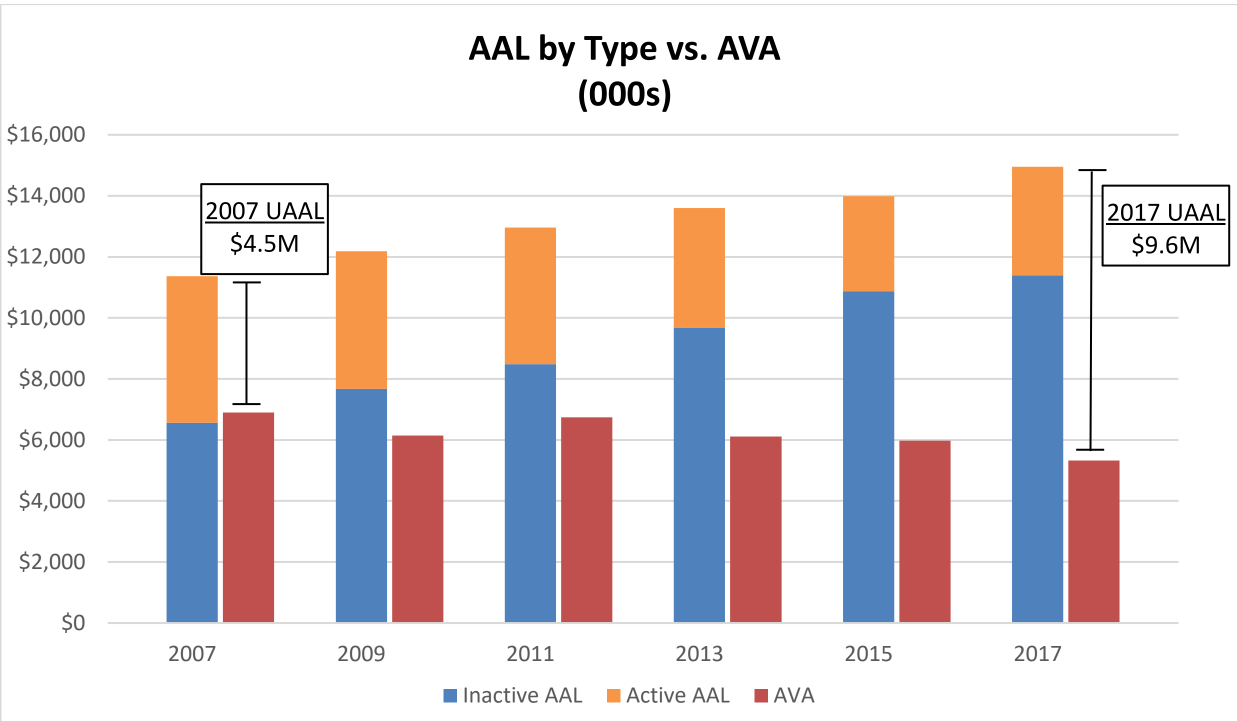
Over the time period for which data is available, Paris Fire's 5-year annualized returns fell well short of the assumed rate of return in all but two periods. Since 2008, the 5-year return has only surpassed the assumed rate once, with all other years less than 4.5%. The Fund's 10-year annualized returns are even worse, with not a single period ever reaching, much less surpassing, the assumed return.



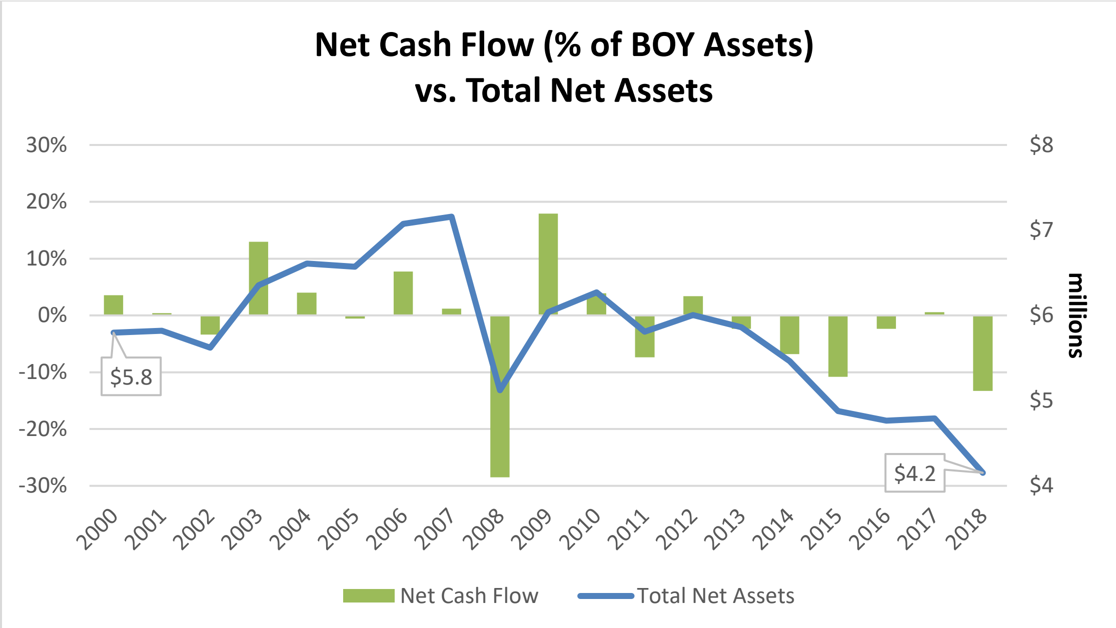
While not achieving the assumed rate of return is the largest factor causing the increase in unfunded liability, the graph shows that multi-year returns are still positive. This tells us that investment returns alone are not the cause of the rapid asset depletion mentioned above.

## Cash Flow

The purpose of pre-funding a defined benefit plan is to build an asset balance sufficient to support benefit payments, which is why, negative non-investment cash flow is expected in a mature plan. In a well-funded plan, the combination of new contributions and investment growth are sufficient to pay benefits, fund new benefit accruals and pay down any outstanding unfunded actuarial accrued liability (UAAL). However, in the case of Paris Fire, where the retiree (inactive) portion of the AAL is less than 50 percent funded, **contributions and investment income are only being used to pay benefits.**

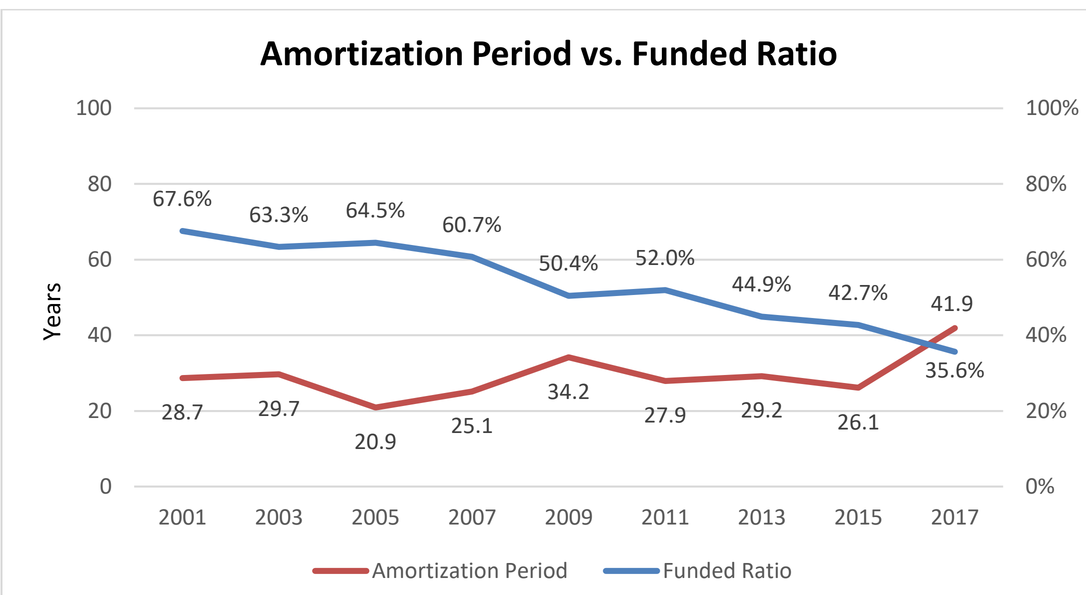



Not only is Paris Fire experiencing negative non-investment cash flow, its total net cash flow (contributions and investment income minus benefit payments, withdrawals and expenses) was negative, averaging -1.05% since 2001. **This means that in addition to using all contributions and investment income, the fund sold nearly $1.5 million in assets simply to pay benefits.**




## Measuring Plan Health

Using amortization period as the sole measurement of fund health for the past decade would give a false impression of Paris Fire's financial well-being because its amortization period was less than 30 years for most of its recent history. However, a review of the long-term trend of Paris Fire's assets or funded ratio would have indicated the Fund was facing difficulties. **This is one of the reasons the PRB recommends a comprehensive review of multiple factors relating to a pension plan's long-term sustainability**, including funded ratio and cash flow, when assessing the condition of a pension plan.



### Conclusions/Recommendations

Pre-funding a defined benefit plan, i.e. setting aside assets now for benefits that will be paid in the future, is necessary for a plan's ability to sustain itself over the long-term. Consistently underfunding a plan places the benefits of both retirees and active members at significant risk and/or places the burden of paying for services already rendered on future generations of taxpayers and employees through the reduction of future benefits or an increase in contributions.

#### *Short- and Long-term Funding Options*

The Fund currently cannot earn a high enough investment return on a regular basis to cover its benefit payments, normal cost and interest on the unfunded liability. To shore up funding, Paris Fire and the City should work together to determine the best balance between increased contributions and benefit reductions, even though Paris Fire already has a flat dollar benefit design. Given Paris Fire's current funding level, an increase in contributions over the near term is likely needed to stabilize the Fund.

For the long term, the Fund and the City are encouraged to develop a strong funding policy. The goals of a funding policy are threefold: establish clear and concrete funding objectives, set boundaries on what is allowable for actuarial calculations, and develop plans for both positive and negative experiences. The funding policy should strive to balance the three primary pension funding goals so that member benefits are secure; employers are afforded some level of contribution predictability from year to year; and liabilities are managed so that future taxpayers are not burdened with costs associated with a previous generation's service. For more detail, please see the PRB's *January 2019 Interim Study: Funding Policies for Fixed-Rate Pension Plans.*[4] The Fund should use the new funding policy requirement in Senate Bill 2224 (86R) as an opportunity to work with the City of Paris to address both the short- and long-term challenges faced by the Fund before funding levels deteriorate further.[5]

## Governance Risk

### Monitoring Investment Performance and Expenses

According to the investment policy statement (IPS), the Fund's board of trustees should "systematically and regularly monitor the Plan's investments to assure the objectives are being met and policy guidelines are being followed." The IPS requires the investment manager to provide performance reports to the board and make periodic presentations. However, Paris Fire was unable to explain how this information is used to monitor the investment manager's performance. The Fund's consultants responded to PRB inquiries regarding the board's performance monitoring. While the Fund appears to be engaged in some level of monitoring, it was not clear how closely the board is following its responsibilities outlined in the IPS to evaluate investment performance through a systematic, regular process.

Further, the quarterly investment performance reports provided by the Fund's investment manager show performance **gross** of investment fees while the equity benchmark is net of fees. Therefore, while the

[4] *Interim Study: Funding Policies for Fixed-Rate Pension Plans,* Texas Pension Review Board, January 2019, https://www.prb.texas.gov/txpen/wp-content/uploads/2019/02/Funding-Policy-Paper.pdf

[5] SB 2224, 86th Texas Legislature, Regular Session, 2019, https://capitol.texas.gov/tlodocs/86R/billtext/html/SB02224F.htm

performance reports appear to show investment performance beating the established benchmark, once investment fees are deducted, the total returns fall short of a straight passive investment approach in funds that track the chosen benchmarks. Also, the performance reports do not include a benchmark for specialty investments. Since the Fund's most recent asset breakdown shows nearly 20% of assets invested in this class, the board should consider adding relevant benchmarks corresponding to the assets in this class.

| Time-weighted Returns[6] (as of 12/31/2018) | 1-Year | 3-Year | Since Sept. 2014 |
|---|---|---|---|
| **Total Gross Return** | -5.81% | 5.08% | 3.81% |
| **Total Net Return[7]** | **-6.84%** | **4.28%** | **3.04%** |
| Benchmark (60% Equities (Net) / 40% Fixed Income) | -6.04% | 5.06% | 3.53% |
| **Equities Gross Return** | **-9.87%** | **6.16%** | **5.15%** |
| Benchmark (MSCI ACWI IMI Net) | -10.08% | 6.49% | 4.14% |
| **Fixed Income Gross Return** | **-0.96%** | **3.64%** | **2.11%** |
| Benchmark (Bloomberg Barclays U.S. Universal USD) | -0.25% | 2.56% | 2.22% |
| **Specialty Gross Return** | **-4.44%** | **3.74%** | **2.72%** |

After the board determined that the previous investment manager was not producing returns on par with other TLFFRA systems, the Fund selected their current investment manager in the fall of 2014. Paris Fire continues to lag behind most of its TLFFRA peers in short- and long-term returns and currently pays one of the highest levels of investment expenses, as a percent of assets, in its peer group and across the state.[8] In 2017, **investment expenses as a percent of assets** were 0.91% and in 2018 increased to **1.03%**.

## Board Education

Recognizing the importance of trustee training, the Legislature adopted the Minimum Education Training (MET) requirement for pension trustees in 2013. This program requires trustees to complete seven hours of training in core content areas such as investments, actuarial matters and governance, during the first year they begin service. After the first year of service, trustees are only required to complete four hours of continuing education in core or non-core areas every two years. The core is designed to cover the fundamental competencies of public pensions necessary for trustees to successfully discharge their duties. The non-core includes topics that go beyond the basics and are designed to allow trustees to gain further expertise in additional areas related to their duties.

As of the time of this review, only one Paris Fire trustee was compliant with these MET Program requirements. Only one of the other six trustees had completed the basic 7-hour core training. As a

[6] From Westwood Trust's Portfolio Performance Detail as of 12/31/2018, except where noted.
[7] Calculated by PRB. 2018 investment fees were 1.03% of assets; 3-year fee average was 0.80% of assets; and 4-year fee average was 0.77% of assets.
[8] See Appendix for more detail on Paris Fire's peer group.

comparison, in 2017, over 90% of TLFFRA systems were fully compliant with the MET Program requirements.

## Conclusions/Recommendations

### *Monitoring Investments*

Investment benchmarks should be regularly reviewed to see if they are appropriate and have been met or exceeded. The board should identify benchmarks for specialty investments and add those to the IPS to allow measurement of the performance of those assets.

Best practices include revisiting manager selection periodically, including evaluating performance, fees, and the value provided by the managers. The board should review whether its active management approach is providing returns in excess of the additional expense and may want to explore passive investment strategies for one or more asset classes. Additionally, the board should consider adding to the IPS specific actions to take if returns are not met over a market cycle, such as re-evaluating the investment goals, modifying the asset mix, revising manager composition, or a combination of these.

Since it is not expected that board members be investment experts, it is important that the information presented by consultants and managers allow trustees to easily assess investment performance. Paris Fire should ask its investment manager to report returns net of fees to more easily view the actual performance of the fund, particularly because investment expenses tend to be higher as a percentage of assets for smaller plans.

Finally, the board should consider engaging an independent third party to review its governance processes to assess how they compare against industry best practices. This type of review could include looking at the board's investment decision-making processes, delegation of authority, and board investment expertise to help identify potential improvements. Due to its small size, Paris Fire is not required to conduct the Investment Practices and Performance evaluation in Texas Government Code §802.109 (SB 322, 86R), but could benefit greatly from conducting even a limited-scope evaluation.

### *Board Member Education*

Paris Fire's trustees should complete MET core training as soon as possible, which is provided online, free of cost by the PRB, and continue seeking opportunities for continuing education to keep their knowledge up to date.

# Appendix

## Key Metrics

| | |
|---|---|
| ***Metric*** | Amortization period (41.9 years) |
| ***What it measures*** | Approximately how long it would take to fully fund the unfunded actuarial accrued liability (UAAL) based on the current funding policy. |
| ***Why it is important*** | Given the Plan's current assumptions, an amortization period greater than 18 years indicates that contributions to the Plan in the coming year are less than the interest accumulated for that same period, and therefore the total UAAL is expected to grow over the near term. In addition, for a plan that contributes on a fixed-rate basis such as Paris Fire, the higher the amortization period, the more sensitive it is to small changes in the UAAL. |
| ***Peer comparison*** | Paris Fire's amortization period is the fourth highest among its peers and is greater than the maximum PRB pension funding guideline of 30 years. |

| | |
|---|---|
| ***Metric*** | Funded ratio (35.64%) |
| ***What it measures*** | The percent of a fund's actuarially accrued liabilities covered by its actuarial value of assets. |
| ***Why it is important*** | The lower the funded ratio, the fewer assets a fund has to pay its current and future benefit payments. |
| ***Peer comparison*** | Paris Fire's 35.64% funded ratio is the lowest among its TLFFRA peer plans, and the lowest in the state of Texas. |

| | |
|---|---|
| ***Metric*** | UAAL as a percent of payroll (373.34%) |
| ***What it measures*** | The size of a plan's unfunded liability compared to the annual payroll of the active members. |
| ***Why it is important*** | Provides a way to compare plans of various sizes and expresses the outstanding "pension debt" relative to current personnel costs. |
| ***Peer comparison*** | The Fund's UAAL as a percent of payroll is the third highest in its peer group, and ninth highest in the state. |

| | |
|---|---|
| ***Metric*** | Assumed rate of return (7.50%) |
| ***What it measures*** | The estimated annual rate of return on the Fund's assets. |
| ***Why it is important*** | If actual future returns are lower than the assumed rate of return, future contributions will need to increase significantly, especially for a poorly funded plan. Paris Fire's assumed rate of return is 7.50%, while its actual ten-year investment rate of return for the period ending December 31, 2018 was 5.08%. |
| ***Peer comparison*** | Paris Fire has the third highest assumed rate of return in its peer group and the median of all plans in the state. |

| | |
|---|---|
| ***Metric*** | Payroll growth rate (3.50%) |
| ***What it measures*** | The estimated annual growth in the total payroll of active members contributing into the Fund. |
| ***Why it is important*** | Contributions are calculated as a percent of active members' pay and are back-loaded based on the expected growth in total payroll. If payroll does not increase at this rate, actual contributions will not meet those expected in the Fund's actuarial valuations. Persistent contributions below expected levels could have serious consequences on the Fund's long-term solvency. |
| ***Peer comparison*** | The Fund's payroll growth rate of 3.50% was the second highest payroll growth rate in its peer group of TLFFRA plans with similar asset size and higher than the state average. |

| | |
|---|---|
| ***Metric*** | Actual contributions as a percent of actuarially determined contributions (80.16%) |
| ***What it measures*** | Whether the current employer contributions have met a theoretical minimum threshold.[9] |
| ***Why it is important*** | The employer's portion of the contribution in 2017 was slightly greater than 80% of the amount needed to fund the plan on a rolling 30-year amortization period. The PRB's 2014 Study of the Financial Health of Texas Public Retirement Systems found that plans that have consistently received adequate funding are in a better position to meet their long-term obligations. |
| ***Peer comparison*** | This is was the second largest shortfall percentage in its peer group and one of the ten lowest in the state. |

| | |
|---|---|
| ***Metric*** | Non-investment cash flow as a percent of fiduciary net position (-12.44%) |
| ***What it measures*** | Non-investment cash flow shows how much the plan is receiving through contributions in relation to its outflows: benefit payments, withdrawals and expenses. |
| ***Why it is important*** | Viewing this metric as a percent of total net assets (or fiduciary net position (FNP)), in conjunction with the funded ratio and recognition of the relative maturity of the plan, provides information about the stability of a plan's funding arrangement. |
| ***Peer comparison*** | Paris Fire's non-investment cash flow as a percent of FNP as of 12/31/2017 was the lowest in the state. |

[9] The theoretical minimum threshold, or actuarially determined contribution (ADC), is a target or recommended contribution "to the plan as determined by the actuary using a contribution allocation procedure," as defined in Actuarial Standards of Practice No 4. If contributions to the plan are made as a fixed rate based on statutory or contractual requirements, the ADC for this purpose is the contribution needed to fund the benefits accrued in the current year and maintain an amortization period that does not exceed 30 years, as required to be reported under Texas Government Code §802.101(a).

## Plan Summary

The Paris Firefighter's Relief and Retirement Fund ("Paris Fire" or "the Fund") was established in 1941 under the Texas Local Fire Fighter's Retirement Act (TLFFRA). TLFFRA provides general guidelines for fund management, but leaves administration, plan design, contributions, and specific investments to the discretion of the board of trustees. Paris Fire, as with all TLFFRA systems, is entirely locally funded.

*Benefits*

| | |
|---|---|
| **Tiers** | Tier 1: Service before 1/1/2004<br>Tier 2: Service on or after 1/1/2004 |
| **Retirement Eligibility** | 55 years of age; 20 years of service<br>Or Rule of 80 with 20 years of service |
| **Vesting** | Fully vested after 10 years of service |
| **Primary Benefit Formula** | Tier 1: Monthly benefit = 2% x FAS before 1/1/2004<br>or $85.50 x years of service (< 3 years)<br>AND $85.50 x years of service (> 3 years)<br>OR<br>$94 x years of service at retirement<br>Tier 2: Monthly benefit = $94 x years of service at retirement<br>Minimum service retirement benefit is $500 per month |
| **Final Average Salary (FAS)** | Tier 1: Highest five years; Tier 2: N/A |
| **COLA** | None |
| **Retirement Benefit Options** | 2-year Retro DROP: Eligible once a member has satisfied Service Retirement requirements. DROP accumulation includes the sum of the monthly service retirement benefit the member would have received if had retired on the DROP determination date plus an amount equal to the member contributions to the fund while a DROP participant. No interest is credited on DROP accounts. DROP balance is distributed as a lump sum. |
| **Participates in Social Security?** | No |

*Contributions*

As of October 1, 2018, active members of Paris fire contribute 16% of pay, while the City of Paris contributes 14% of pay.

*Membership*

| Total Active Members | Total Annuitants | Terminated | Total Members | Active-to-Annuitant Ratio |
|---|---|---|---|---|
| 49 | 41 | 6 | 96 | 1.20 |

### *TLFFRA Board Structure*

| | |
|---|---|
| Active Members | 3 - Members of the retirement system; elected by fund members. Three-year terms. |
| Sponsor Government | 1 - Mayor or designated representative, or the political subdivision's Chief Operating Officer or designated representative.<br>1 - Chief Financial Officer of the political subdivision, or designated representative. Terms correspond to term of office. |
| Taxpayer, Not Affiliated With Fund/Sponsor Govt. | 2 - Residents of the State of Texas, must not be officers/employees of the political subdivision; elected by other board of trustees' members. Two-year terms. |

### *Contribution and Benefit Decision-Making*

TLFFRA authorizes members of the retirement systems to determine their contribution rates by voting. The statute requires cities to make contributions at the same rate paid by employees or 12%, whichever is smaller. TLFFRA also allows a city to contribute at a higher rate than employees do through a change in city ordinance.

TLFFRA gives the board the power to make decisions to modify the benefits (increases and reductions). However, a proposed addition or change must be approved by the actuary and a majority of participating plan members. Benefit changes cannot deprive a member, retiree or beneficiary of the right to receive vested accrued benefits.

### *Asset Allocation*

| **Asset Allocation** (as of 12/31/2018) | | | | | |
|---|---|---|---|---|---|
| Asset Class | Equities | Fixed Income | Alternatives | Real Estate | Other |
| Current Allocation | 54.12% | 33.79% | 4.52% | 4.09% | 3.48% |
| Target Allocation | 50.00% | 30.00% | 20.00%* | | - |

*Labeled as "Specialty" in Paris Fire's 2018 Investment Policy Statement, includes both Alternatives and Real Estate.

### *Investment Returns*

| **Annualized Rolling Rates of Return** (as of 12/31/2018) | | | | |
|---|---|---|---|---|
| Time Period | 1-year | 3-year | 10-year | Since 2000 |
| Net Return | -7.20% | 3.48% | 5.08% | 3.16% |

### *Expense Breakdown*

| **Plan Expenses** (as of 12/31/2018) | |
|---|---|
| Fiduciary Net Position (FNP) | $4,152,311 |
| Investment Expenses | $42,973 |
| Investment Expenses % of FNP | 1.03% |
| Administrative Expenses | $31,444 |
| Administrative Expenses % of FNP | 0.76% |

## Historical Trends

To conduct an intensive review of risks associated with the long-term funding of a pension Fund, it is important to analyze trends in multiple metrics. A plan with an asset level lower than its accrued liability has insufficient funds to cover benefits. A plan can experience an increase in unfunded liability due to various factors, including insufficient investment returns, inadequate contributions and inaccurate or overly aggressive assumptions. Hence, a single metric cannot effectively capture the different drivers contributing to the increase of a plan's unfunded pension obligation. This section analyzes historical trends in various metrics identified by the PRB and makes comparisons to understand the sources of growth in unfunded liability for Paris Fire.

Paris Fire's funded status has been steadily declining since 2001. Numerous factors have contributed to this deterioration, including investment returns being lower than the chosen assumption, increased benefit payments, and a fixed-rate funding structure. The following sections discuss these and other factors in detail.

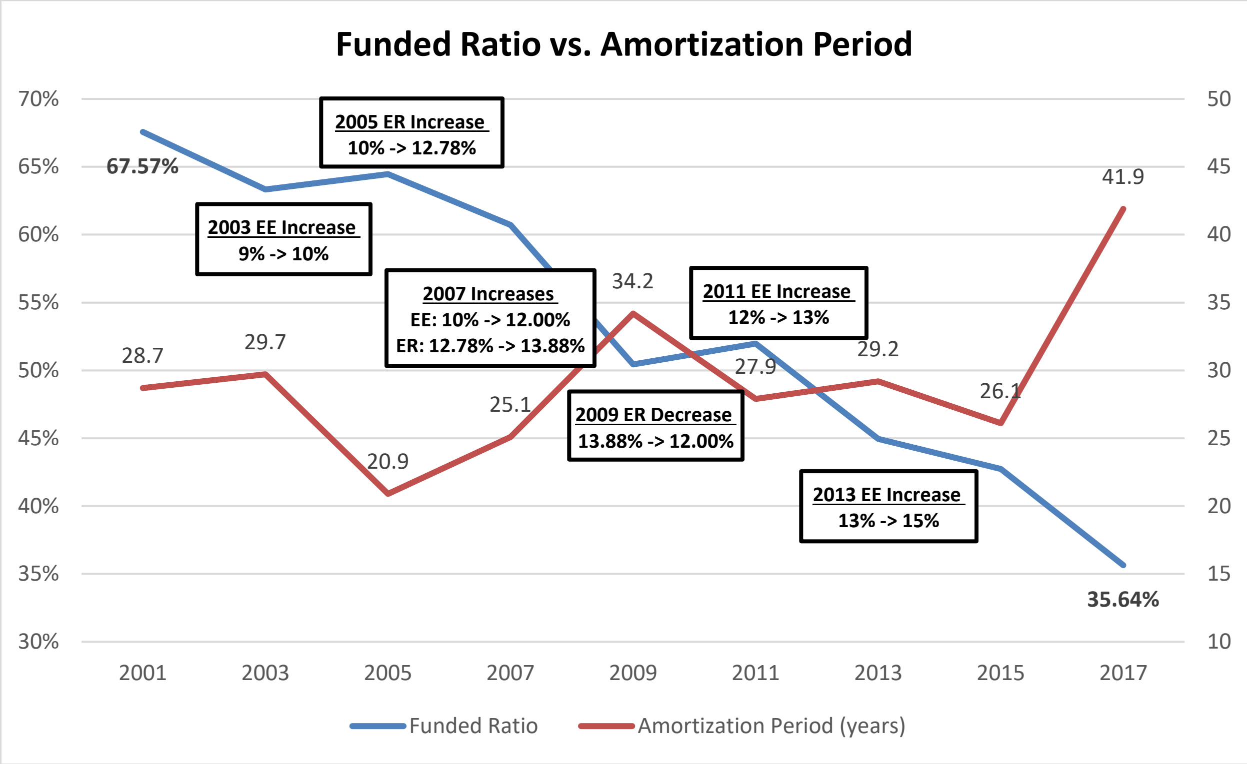
### *Assets and Liabilities*

**Funding Trends**
**Funded Ratio, Assets, Liabilities and Year over Year Growth**

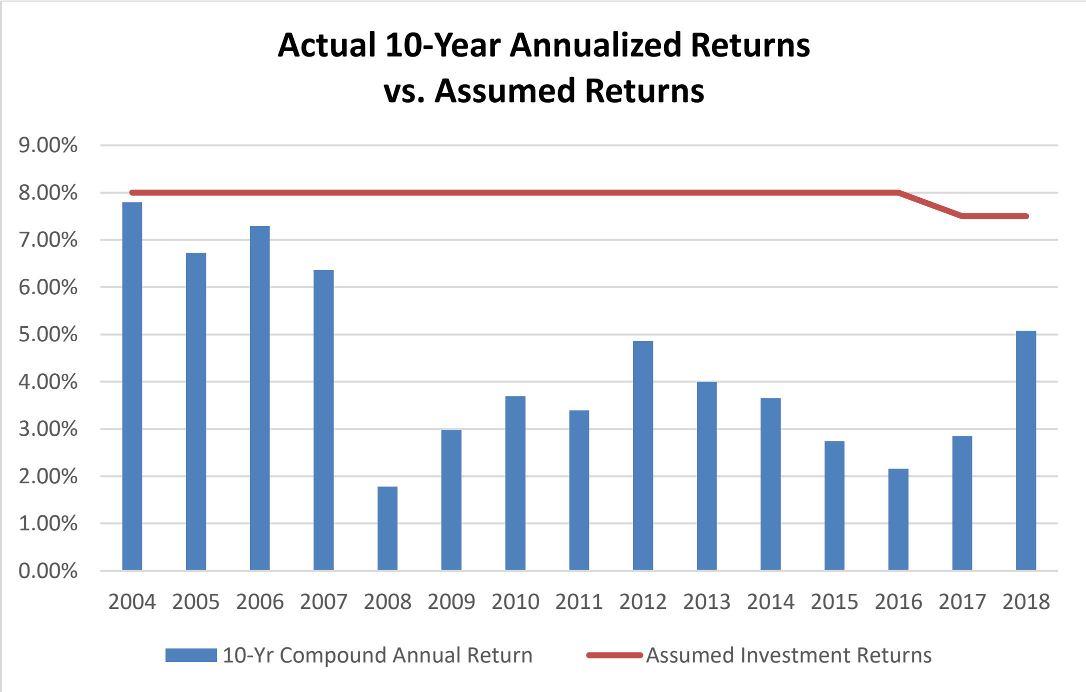
| Valuation Year | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 | 2015 | 2017 |
|---|---|---|---|---|---|---|---|---|---|
| Funded Ratio | 67.57% | 63.33% | 64.47% | 60.70% | 50.45% | 51.96% | 44.94% | 42.74% | 35.64% |
| Am Period (years) | 28.7 | 29.7 | 20.9 | 25.1 | 34.2 | 27.9 | 29.2 | 26.1 | 41.9 |
| UAAL (in millions) | $2.72 | $3.55 | $3.84 | $4.47 | $6.04 | $6.23 | $7.49 | $8.01 | $9.63 |
| AVA (in millions) | $5.66 | $6.13 | $6.97 | $6.90 | $6.14 | $6.74 | $6.11 | $5.98 | $5.33 |
| AVA Growth (YoY) | - | 4.04% | 6.63% | -0.48% | -5.64% | 4.71% | -4.75% | -1.08% | -5.59% |
| AAL (in millions) | $8.38 | $9.68 | $10.81 | $11.37 | $12.18 | $12.96 | $13.60 | $13.99 | $14.96 |
| AAL Growth (YoY) | - | 7.46% | 5.68% | 2.56% | 3.51% | 3.17% | 2.42% | 1.43% | 3.39% |

The Fund's actuarial accrued liability (AAL) more than tripled between the beginning of 2001 and the beginning of 2017. During the same time period Paris Fire went from 70% funded and dropped to below 36% as of their latest valuation.

*Funded Ratio vs. Amortization Period with Contribution History (2001 -2017)*

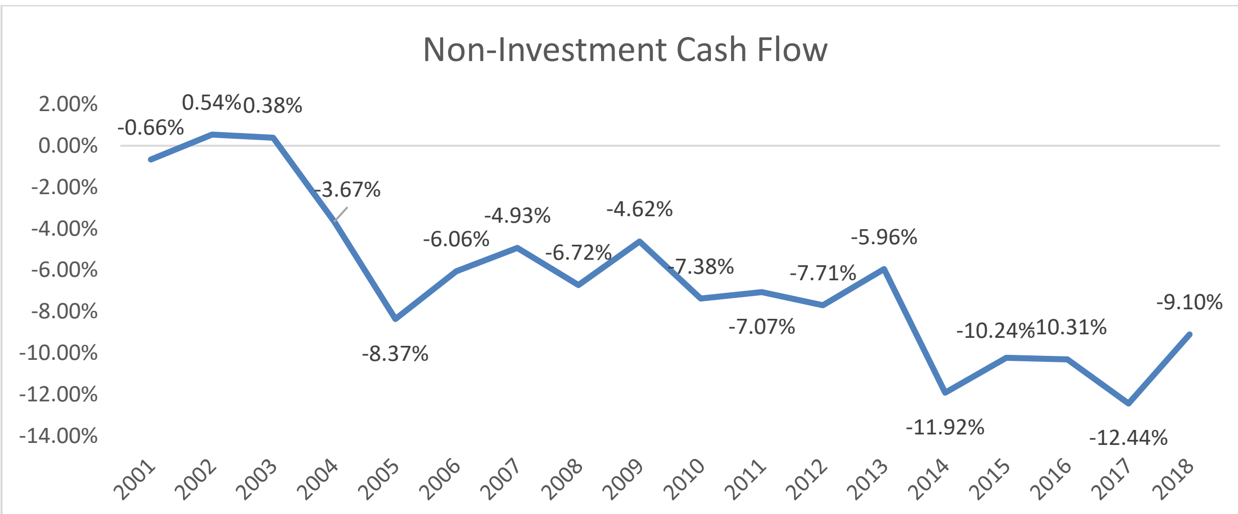



*Investment Returns*

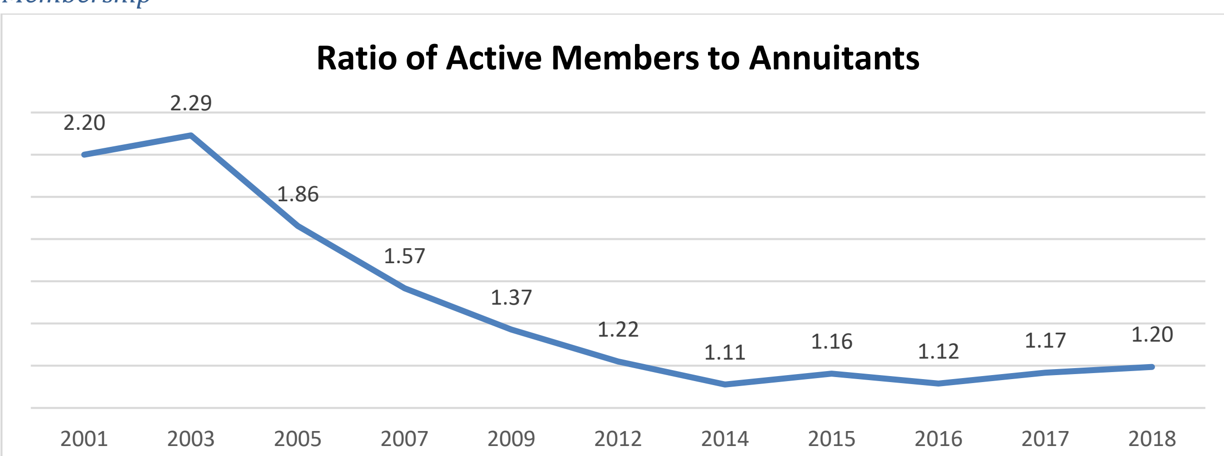


*Cashflow*

| Outflows as a Percent of Total Net Assets (Reported over the Last Ten Years) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Fiscal Year** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** |
| Benefit Payments | 11.89% | 14.07% | 14.69% | 16.85% | 14.37% | 19.92% | 21.56% | 21.59% | 21.37% | 24.55% |
| Withdrawals | 0.80% | 0.57% | 0.56% | 0.08% | 1.22% | 2.07% | 2.16% | 2.26% | 4.72% | 0.80% |
| Admin Expenses | 1.11% | 1.36% | 1.64% | 0.53% | 0.25% | 0.45% | 0.13% | 0.79% | 0.78% | 0.76% |
| Investment Expenses | - | - | - | 1.08% | 0.99% | 1.09% | 0.71% | 0.69% | 0.91% | 1.03% |
| Other Expenses | 0.42% | 0.25% | 0.07% | - | - | - | - | - | - | - |
| Total Expenses | 1.53% | 1.61% | 1.72% | 1.61% | 1.25% | 1.55% | 0.84% | 1.48% | 1.69% | 1.79% |




*Membership*



## Peer Group Key Metric Comparison

| | | Funding Valuation Metrics | | | | | | Fiscal Year End Metrics | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Peer Group Plans | MVA | Am Period Date | Am Period | Funded Ratio | UAAL as % of Payroll | Assumed Interest | Payroll Growth | FYE | Actual Cont. as % of ADC | DROP as % of FNP | Non-Investment Cash Flow as % of FNP |
| Corsicana Firemen's Relief & Retirement Fund | $8,344,317 | 12/31/2016 | 28.9 | 53.14% | 211.44% | 7.00% | 3.00% | 12/31/2017 | 101.06% | N/A | -8.11% |
| Orange Firemen's Relief & Retirement Fund | $8,154,674 | 1/1/2017 | 69.3 | 49.86% | 336.03% | 7.75% | 4.00% | 12/31/2017 | 72.93% | N/A | -6.77% |
| Sweetwater Firemen's Relief & Retirement Fund | $7,826,879 | 12/31/2016 | 27.5 | 69.99% | 229.12% | 8.00% | 4.00% | 12/31/2017 | 100.00% | N/A | -4.07% |
| Marshall Firemen's Relief & Retirement Fund | $7,712,228 | 12/31/2016 | 56.4 | 42.02% | 398.51% | 7.75% | 4.00% | 12/31/2017 | 77.36% | 4.40% | -2.90% |
| Plainview Firemen's Relief & Retirement Fund | $6,154,425 | 12/31/2017 | 44.8 | 37.67% | 517.48% | 7.50% | 3.50% | 12/31/2017 | 98.82% | N/A | -3.35% |
| **Paris Firefighters' Relief & Retirement Fund[10]** | **$4,764,272** | **12/31/2016** | **41.9** | **35.64%** | **373.34%** | **7.50%** | **3.50%** | **12/31/2017** | **80.16%** | **N/A** | **-12.44%** |
| Brownwood Firemen's Relief & Retirement Fund | $4,158,090 | 12/31/2017 | 38.6 | 45.03% | 263.23% | 7.25% | 3.25% | 12/31/2017 | 93.90% | N/A | -1.49% |
| Atlanta Firemen's Relief & Retirement Fund | $3,744,867 | 12/31/2016 | 28.4 | 82.13% | 136.63% | 7.40% | 3.00% | 12/31/2017 | 112.63% | N/A | -2.72% |
| San Benito Firemen Relief & Retirement Fund | $3,503,753 | 9/30/2017 | 21.8 | 60.68% | 152.30% | 7.50% | 4.00% | 9/30/2016 | 143.37% | N/A | -0.88% |

[10] Paris Fire's contribution, DROP and cash flow data are from the Fund's 12/31/2017 annual financial report.

## Peer Group Sponsor Funding Comparison[11]

| Peer Group Plans | General Fund Expenditures (GFE) | EOY GF Bal | UAAL | Employer Contributions | ADC | 30-yr Shortfall | 30-Y SF % of ADC | 30-Y SF % of GFE |
|---|---|---|---|---|---|---|---|---|
| Corsicana Firemen's Relief & Retirement Fund | $15,802,887 | $5,342,213 | $8,135,345 | $554,105 | $548,285 | $0 | 0.00% | 0.00% |
| Orange Firemen's Relief & Retirement Fund | $22,114,218 | $7,805,235 | $8,199,175 | $333,259 | $456,978 | $123,719 | 27.07% | 0.56% |
| Sweetwater Firemen's Relief & Retirement Fund | $8,733,810 | $3,929,907 | $3,617,210 | $284,446 | $284,446 | $0 | 0.00% | 0.00% |
| Marshall Firemen's Relief & Retirement Fund | $19,191,225 | $5,563,323 | $10,641,648 | $516,808 | $668,025 | $151,217 | 22.64% | 0.79% |
| Plainview Firemen's Relief & Retirement Fund | $13,359,607 | $15,886,659 | $10,290,086 | $507,975 | $600,643 | $92,668 | 15.43% | 0.69% |
| **Paris Firefighters' Relief & Retirement Fund** | **$24,912,768** | **$11,622,868** | **$9,626,478** | **$326,396** | **$407,179** | **$80,783** | **19.84%** | **0.32%** |
| Brownwood Firemen's Relief & Retirement Fund | $19,316,832 | $3,038,924 | $5,085,187 | $369,559 | $401,518 | $31,959 | 7.96% | 0.17% |
| Atlanta Firemen's Relief & Retirement Fund | $3,894,117 | $1,746,351 | $860,536 | $93,096 | $82,656 | $0 | 0.00% | 0.00% |
| San Benito Firemen Relief & Retirement Fund | $10,728,675 | $6,526,547 | $2,270,845 | $163,218 | $163,218 | $0 | 0.00% | 0.00% |

[11] For comparison purposes, data in this table is from FY 2017 end-of-year reports which was available from all plans and sponsors.

## Peer Group Benefit & Expense Comparison[12]

| Peer Group Plans | 10 yr. return (Net) | Active/ Annuitants | Average Benefit | Benefit Payments as a % of Assets | NPL | Admin Expenses | Investment Expenses | Total Expenses | Exp as % of Assets |
|---|---|---|---|---|---|---|---|---|---|
| Corsicana Firemen's Relief & Retirement Fund | 3.40% | 1.59 | $41,473 | 17.11% | $8,448,213 | $38,769 | $98,332 | $137,101 | 1.53% |
| Orange Firemen's Relief & Retirement Fund | 4.60% | 0.88 | $25,865 | 12.04% | $7,604,038 | $28,872 | $97,461 | $126,333 | 1.40% |
| Sweetwater Firemen's Relief & Retirement Fund | 4.91% | 1.04 | $33,311 | 9.35% | $4,041,873 | $35,021 | $66,056 | $101,077 | 1.18% |
| Marshall Firemen's Relief & Retirement Fund | 5.22% | 1.32 | $28,764 | 12.48% | $10,956,082 | $16,563 | $64,001 | $80,564 | 0.94% |
| Plainview Firemen's Relief & Retirement Fund | 2.88% | 0.92 | $25,463 | 15.31% | $10,355,264 | $20,975 | $34,590 | $55,565 | 0.90% |
| **Paris Firefighters' Relief & Retirement Fund** | **2.85%** | **1.17** | **$24,367** | **21.37%** | **$10,266,996** | **$37,553** | **$43,407** | **$80,960** | **1.69%** |
| Brownwood Firemen's Relief & Retirement Fund | 4.34% | 1.28 | $20,716 | 12.46% | $4,875,482 | $16,550 | $44,910 | $61,460 | 1.48% |
| Atlanta Firemen's Relief & Retirement Fund | 4.83% | 1.39 | $12,762 | 5.54% | $895,803 | $22,369 | $36,271 | $58,640 | 1.41% |
| San Benito Firemen Relief & Retirement Fund | 1.78% | 2.60 | $23,625 | 6.18% | $2,234,136 | $19,316 | $64,393 | $83,709 | 2.19% |

[12] For comparison purposes, data in this table is from FY 2017 end-of-year reports except for San Benito Fire which contains FY 2018 end-of-year data due to discrepancies in their 2017 annual financial report.

## Comments from Paris Firefighters' Relief and Retirement Fund

# Paris Firefighters' Relief and Retirement Fund

September 9, 2019

Ms. Anumeh Kumar
Executive Director
Texas Pension Review Board
P.O. Box 13498
Austin, TX 78711-3498

RE: Intensive Actuarial Review – Draft Report

Dear Ms. Kumar:

Thank you for providing a preliminary draft of the Intensive Actuarial Review for the Paris Firefighters' Relief and Retirement Fund. The Board of Trustees has reviewed the report and has prepared the following response.

The review provides some troubling indicators of the health of the Fund. These results are not a surprise to the Board. The Board is committed to the long-term health and sustainability of the Fund so that the members will receive the benefits promised to them. While we feel that the Fund has instituted certain long-term solutions, we also recognize the need to develop a solution to shore up the Fund over the short term.

As the report points out, the Normal Cost is 9.54% of payroll. Employees currently contribute 16% of payroll, or 167.71% of the Normal Cost. The City contributes an additional 14% of payroll for a total contribution of 30% of payroll, or 314.47% of the Normal Cost. These contribution rates were recently increased from 15% of pay for the employees and 12% of pay for the City.

The report also points out that the benefit is a flat dollar benefit and is less risky when compared to pay based benefits. In addition, as pay increases over time the benefit will become more and more affordable when compared to the contribution rates.

Westwood Wealth Management has provided a separate response to any issues brought up by the review regarding the plan assets. Their response is provided by us as an attachment to this response.

For the reasons noted above and in Westwood's response, the Board is optimistic about the long-term direction of the Fund. However, we are also concerned about short-term issues which could prevent the Fund from realizing these benefits. Most troubling to the Board are the cashflow issues noted in the report. The Fund, the City, and our advisors are dedicated to working out a solution to these issues.

The review also points out a shortfall in trustee training and education. All Board members are dedicated to becoming compliant with Minimum Education Training requirements as soon as possible by utilizing the online training provided by the PRB and attending educational conferences, if feasible.

Thank you for considering this response. The Fund and City realize the need to work together to ensure the short- and long-term sustainability of the Fund. Any recommendations noted in the final report will be considered as we work to achieve this goal.

Sincerely,

Gene Anderson

Gene Anderson
Board Trustee
Finance Director, Paris, TX
Interim City Manager, Paris, TX

Westwood Wealth Management
Response to
Texas Pension Review Board
Intensive Actuarial Review: Paris Firefighters' Relief & Retirement Fund
September 2019

## Governance Risk

### Monitoring Investment Performance and Expenses

**PRB draft comment:** According to the investment policy statement (IPS), the Fund's Board of Trustees should "systematically and regularly monitor the Plan's investments to assure the objectives are being met and policy guidelines are being followed."

**Westwood response:** A review of the IPS highlights are presented in each meeting book and the investment manager confirms compliance or noncompliance in the meeting.

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**PRB draft comment:**

Further, the quarterly investment performance reports provided by the Fund's investment manager show performance **gross** of investment fees while the equity benchmark is net of fees. Therefore, while the performance reports appear to show investment performance beating the established benchmark, once investment fees are included, the total returns fall short of a straight passive investment approach in funds that track the chosen benchmarks. Also, the performance reports do not include a benchmark for specialty investments. Since the Fund's most recent asset breakdown shows nearly 20% of assets invested in this class, the board should consider adding relevant benchmarks corresponding to the assets in this class.

| Time-weighted Returns[6] (as of 12/31/2018) | 1-Year | 3-Year | Since Sept. 2014 |
|---|---|---|---|
| **Total Gross Return** | -5.81% | 5.08% | 3.81% |
| **Total Net Return[7]** | **-6.84%** | **4.28%** | **3.04%** |
| Benchmark (60% Equities (Net) / 40% Fixed Income) | -6.04% | 5.06% | 3.53% |
| **Equities Gross Return** | **-9.87%** | **6.16%** | **5.15%** |
| Benchmark (MSCI ACWI IMI Net) | -10.08% | 6.49% | 4.14% |
| **Fixed Income Gross Return** | **-0.96%** | **3.64%** | **2.11%** |
| Benchmark (Bloomberg Barclays U.S. Universal USD) | -0.25% | 2.56% | 2.22% |
| **Specialty Gross Return** | **-4.44%** | **3.74%** | **2.72%** |

**Westwood response:** Not including Net of Fees performance in the 12.31.18 meeting review was an oversight. We typically show Net of Fees reporting along with Gross of Fees. Going forward, we will produce the report below: Total Fund Gross and Net vs. the Policy benchmark for pertinent periods. We will continue to show the Equities, Fixed Income and Specialty asset segments but not vs the equity or fixed income components of the Policy benchmark. The Specialty asset class (a third asset segment) does not have its own breakout of the two-part Policy Index; however, performance of each investment fund (including the funds included in the Specialty segment) is shown later in each meeting book vs. its relevant style index. The performance table above is intended to be a summary of the Total Fund.

FYI, the PRB's calculation is slightly off from the actual Net of Fees performance which is shown below.

## Portfolio Performance Detail as of 12/31/2018

PARIS FIREFIGHTERS'

| | 1 Year | 3 Year | Since Inception | Inception Date |
|---|---|---|---|---|
| **Total** | **-5.81%** | **5.08%** | **3.81%** | **09/30/2014** |
| **Total Net of Fees** | **-6.68%** | **4.20%** | **2.97%** | **09/30/2014** |
| 60% ACWI IMI (Net)/ 40% BBG BC US Universal Index | -6.04% | 5.06% | 3.53% | 09/30/2014 |
| **Equities** | **-9.87%** | **6.16%** | **5.15%** | **09/30/2014** |
| **Fixed Income** | **-0.96%** | **3.64%** | **2.11%** | **09/30/2014** |
| **Specialty** | **-4.44%** | **3.74%** | **2.72%** | **09/30/2014** |

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PRB draft comment: After the board determined that the previous investment manager was not producing returns on par with other TLFFRA systems, the Fund selected their current investment manager in the fall of 2014. Paris Fire continues to lag behind most of its TLFFRA peers in short- and long-term returns and currently pays one of the highest levels of investment expenses, as a percent of assets, in its peer group and across the state.[8] In 2017, **investment expenses as a percent of assets** were 0.91% and in 2018 increased to **1.03%**.

Westwood response: Our fees are all-inclusive and are tiered based on assets under management. The investment expenses listed in the PRB Draft are incorrect. This was a flat calculation of fees billed in 2018: $42,973 divided by the 12.31.18 market value of $4,152,311 which does equal 1.03%. However, fees are calculated based on average daily market value. The market value as of 12.31.18 was much lower than the average market value throughout 2018. Blended fees for the account equate to ~ 0.91% of assets which is consistent with fees charged throughout our relationship.

Administrative costs were higher in years 2016 – 2018 because the fund hired an outside administrator with fees ~ $14,000 per year. They have since terminated that individual and are realizing the cost savings.

## Conclusions/Recommendations

### *Monitoring Investments*

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**PRB draft comment:** Investment benchmarks should be regularly reviewed to see if they are appropriate and have been met or exceeded. The board should identify benchmarks for specialty investments and add those to the IPS to allow measurement of the performance of those assets.

Best practices include revisiting manager selection periodically, including evaluating performance, fees, and the value provided by the managers. The board should review whether its active management approach is providing returns in excess of the additional expense, and may want to explore passive investment strategies for one or more asset classes. Additionally, the board should consider adding to the IPS specific actions to take if returns are not met over a market cycle, such as re-evaluating the investment goals, modifying the asset mix, revising manager composition, or a combination of these.

Since it is not expected that board members be investment experts, it is important that the information presented by consultants and managers allow trustees to easily assess investment performance. Paris Fire should ask its investment manager to report returns net of fees to more easily view the actual performance of the fund, particularly because investment expenses tend to be higher as a percentage of assets for smaller plans.

Finally, the board should consider engaging an independent third party to review its governance processes to assess how they compare against industry best practices. This type of review could include looking at the board's investment decision-making processes, delegation of authority, and board investment expertise. help identify potential improvements. Due to its small size, Paris Fire is not required to conduct the Investment Practices and Performance evaluation in Texas Government Code §802.109 (SB 322, 86R), but could benefit greatly from conducting even a limited-scope evaluation

**Westwood response:** Our meeting materials include performance of the Total Fund as well as individual investment funds. We have updated our materials to include Net of Fees performance throughout our report. A copy of the September 12, 2019 meeting book will be forwarded to the PRB following the presentation to the Board.

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WESTWOOD TRUST®

# Portfolio Performance Detail as of 7/31/2019

PARIS FIREFIGHTERS'

| | QTD | YTD | 1 Year | 3 Year | 5 Year | 7 Year | Since Inception | Inception Date |
|---|---|---|---|---|---|---|---|---|
| **Total** | **0.06%** | **13.01%** | **3.84%** | **6.82%** | **---** | **---** | **5.99%** | **09/30/2014** |
| **Total Net of Fees** | **-0.16%** | **12.24%** | **2.89%** | **5.85%** | **---** | **---** | **5.09%** | **09/30/2014** |
| 60% ACWI IMI (Net)/40% BBG BC US Universal Index | 0.30% | 12.69% | 4.80% | 7.12% | --- | --- | 5.68% | 09/30/2014 |
| **Equities** | **-0.08%** | **17.37%** | **2.46%** | **9.19%** | **---** | **---** | **8.03%** | **09/30/2014** |
| **Fixed Income** | **-0.04%** | **5.02%** | **4.15%** | **2.93%** | **---** | **---** | **2.89%** | **09/30/2014** |
| **Specialty** | **0.56%** | **13.84%** | **4.30%** | **5.58%** | **---** | **---** | **5.17%** | **09/30/2014** |

Market values include accruals.

***Past performance is not indicative of future results.***

# TAB 3C

**Actuarial Valuation Report**
**October 17, 2019**

## Summary of Key Statistics

### Assets and Liabilities

| | Current Effective Date | | Prior Effective Date |
|---|---|---|---|
| | 10/17/2019 | 6/27/2019 | |
| Funded Ratio | 77.3% | 77.5% | 79.5% |
| Market Value of Assets (MVA) | $ 278,933,064,909 | $ 281,769,035,996 | $ 270,748,598,309 |
| Actuarial Value of Assets (AVA) | $ 281,785,483,480 | $ 278,157,741,983 | $ 268,240,070,090 |
| Actuarial Accrued Liability (AAL) | $ 364,463,461,432 | $ 358,921,937,379 | $ 337,614,594,609 |
| Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA) | $ 82,677,977,952 | $ 80,764,195,396 | $ 69,374,524,519 |

### Plan Amortization Periods

| | Current Effective Date | | Prior Effective Date |
|---|---|---|---|
| | 10/17/2019 | 6/27/2019 | |
| Infinite | 8 | 7 | 5 |
| >= 40 years, but not infinite | 17 | 16 | 14 |
| > 30 years, < 40 years | 12 | 14 | 15 |
| > 25 years, <= 30 years | 15 | 17 | 20 |
| >= 10 years, <= 25 years | 34 | 30 | 31 |
| > 0 years, < 10 years | 8 | 9 | 9 |
| 0 years | 5 | 6 | 5 |
| Total Plans Registered | 99 | 99 | 99 |

### Plan Discount Rates

| | Current Effective Date | | Prior Effective Date |
|---|---|---|---|
| | 10/17/2019 | 6/27/2019 | |
| 8.00% | 5 | 7 | 16 |
| > 7.50%, < 8.00% | 24 | 24 | 27 |
| 7.50% | 23 | 23 | 19 |
| > 7.00%, < 7.50% | 19 | 19 | 14 |
| 7.00% | 16 | 14 | 12 |
| > 6.50%, < 7.00% | 6 | 8 | 7 |
| <= 6.50% | 6 | 4 | 4 |
| Total Plans Registered | 99 | 99 | 99 |

| | Current Effective Date | | Prior Effective Date |
|---|---|---|---|
| | 10/17/2019 | 6/27/2019 | |
| Mean | 7.33% | 7.36% | 7.45% |
| Standard Deviation | 0.46% | 0.46% | 0.50% |
| Median | 7.50% | 7.50% | 7.50% |
| Liability Weighted Mean | 7.30% | 7.31% | 7.72% |
| Liability Weighted Median | 7.25% | 7.25% | 8.00% |

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# Actuarial Valuation Report
## October 17, 2019

| | | 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 | 8/31/2018 | 7.50% | Infinite | 70.2 | $ 27,753,334,784 | $ 27,359,943,116 | $ 11,629,320,446 | 169.13% | 8/31/2017 | Infinite | 70.1 |
| Law Enforcement & Custodial Off Sup. Ret. Fund | Active | 8/31/2018 | 7.50% | Infinite | 65.6 | $ 966,827,735 | $ 953,054,283 | $ 499,603,514 | 29.66% | 8/31/2017 | Infinite | 66.0 |
| Austin Police Retirement System | Active | 12/31/2018 | 7.25% | Infinite | 58.1 | $ 718,519,641 | $ 807,978,988 | $ 581,681,628 | N/A | 12/31/2017 | 35.0 | 65.8 |
| 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 |
| 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 |
| Wichita Falls Firemen's Relief & Retirement Fund | Active | 1/1/2018 | 7.75% | Infinite | 57.7 | $ 51,317,643 | $ 51,317,643 | $ 37,628,438 | 316.54% | 1/1/2017 | 49.4 | 62.5 |
| Longview Firemen's Relief & Retirement Fund | Active | 12/31/2018 | 7.75% | Infinite | 39.9 | $ 41,560,527 | $ 41,560,527 | $ 62,740,191 | 469.68% | 12/31/2017 | 40.2 | 46.1 |
| University Park Firemen's Relief & Retirement Fund | Closed | 12/31/2016 | 7.50% | Infinite | 44.0 | $ 9,448,371 | $ 10,146,879 | $ 12,936,513 | 387.63% | 1/1/2015 | 53.7 | 45.8 |
| Beaumont Firemen's Relief & Retirement Fund | Active | 12/31/2016 | 8.00% | 104.0 | 67.5 | $ 102,435,664 | $ 109,972,497 | $ 52,869,076 | 274.69% | 12/31/2014 | 39.1 | 72.7 |
| Teacher Retirement System of Texas | Active | 8/31/2018 | 7.25% | 87.0 | 76.9 | $ 154,568,901,833 | $ 154,050,930,573 | $ 46,165,375,254 | 102.69% | 8/31/2017 | 32.2 | 80.5 |
| Odessa Firemen's Relief & Retirement Fund | Active | 1/1/2019 | 7.75% | 77.5 | 39.3 | $ 39,242,821 | $ 43,886,792 | $ 67,827,042 | 569.08% | 1/1/2018 | 47.1 | 43.1 |
| Orange Firemen's Relief & Retirement Fund | Active | 1/1/2017 | 7.75% | 69.3 | 49.9 | $ 8,154,674 | $ 8,154,674 | $ 8,199,175 | 336.03% | 1/1/2015 | 58.2 | 57.4 |
| Judicial Retirement System of Texas Plan Two | Active | 8/31/2018 | 7.50% | 69.0 | 91.7 | $ 453,379,786 | $ 447,077,710 | $ 40,693,836 | 50.82% | 8/31/2017 | 63.0 | 90.8 |
| Harlingen Firemen's Relief & Retirement Fund | Active | 9/30/2017 | 7.75% | 59.1 | 66.1 | $ 31,224,379 | $ 31,224,379 | $ 16,040,541 | 248.99% | 12/31/2015 | Infinite | 63.1 |
| Marshall Firemen's Relief & Retirement Fund | Active | 12/31/2016 | 7.75% | 56.4 | 42.0 | $ 7,712,228 | $ 7,712,228 | $ 10,641,648 | 398.51% | 12/31/2014 | 43.2 | 46.4 |
| Cleburne Firemen's Relief & Retirement Fund | Active | 12/31/2016 | 7.25% | 49.6 | 65.4 | $ 21,323,149 | $ 22,290,500 | $ 11,784,247 | 277.79% | 12/31/2014 | 27.3 | 65.3 |
| Dallas Employees' Retirement Fund | Active | 12/31/2018 | 7.75% | 46.0 | 80.0 | $ 3,265,402,000 | $ 3,620,319,000 | $ 906,677,000 | 213.98% | 12/31/2017 | 47.0 | 82.3 |
| Dallas Police & Fire Pension System-Combined Plan | Active | 1/1/2018 | 7.25% | 45.0 | 47.7 | $ 2,103,345,471 | $ 2,151,039,343 | $ 2,354,397,842 | 680.39% | 1/1/2017 | 44.0 | 49.4 |
| Plainview Firemen's Relief & Retirement Fund | Active | 12/31/2017 | 7.50% | 44.8 | 37.7 | $ 6,154,425 | $ 6,219,603 | $ 10,290,086 | 517.48% | 12/31/2015 | 31.6 | 37.3 |
| Fort Worth Employees' Retirement Fund | Active | 12/31/2018 | 7.00% | 44.0 | 52.4 | $ 2,147,041,319 | $ 2,324,698,216 | $ 2,113,627,945 | 435.50% | 12/31/2017 | Infinite | 57.8 |
| Amarillo Firemen's Relief & Retirement Fund | Active | 12/31/2017 | 7.50% | 43.5 | 81.5 | $ 171,845,402 | $ 165,443,481 | $ 37,625,269 | 185.69% | 12/31/2015 | 34.5 | 81.8 |
| 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 |
| Paris Firefighters' Relief & Retirement Fund | Active | 12/31/2016 | 7.50% | 41.9 | 35.6 | $ 4,764,272 | $ 5,331,317 | $ 9,626,478 | 373.34% | 12/31/2014 | 26.1 | 42.7 |
| McAllen Firemen's Relief & Retirement Fund | Active | 10/1/2016 | 7.75% | 41.4 | 69.1 | $ 44,759,055 | $ 48,260,416 | $ 21,571,433 | 187.25% | 10/1/2014 | 29.0 | 70.8 |
| 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 |
| 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 |
| Conroe Fire Fighters' Retirement Fund | Active | 12/31/2017 | 7.75% | 39.0 | 62.0 | $ 25,239,676 | $ 25,874,512 | $ 15,839,009 | 179.50% | 12/31/2015 | 31.4 | 61.5 |
| 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 | 1/1/2017 | 8.00% | 36.2 | 54.9 | $ 10,399,250 | $ 11,033,641 | $ 9,078,736 | 241.05% | 1/1/2015 | 28.7 | 54.8 |

This report is a compilation of pension data reported by retirement systems in their most recent AVs, sorted by amortization period.

# Actuarial Valuation Report
## October 17, 2019

| | | 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 %** |
| Galveston Employees' Retirement Plan for Police (3) | Active | 1/1/2018 | 7.50% | 35.5 | 39.3 | $ 20,544,158 | $ 20,791,726 | $ 32,059,111 | 284.11% | 1/1/2017 | 48.7 | 42.1 |
| Lubbock Fire Pension Fund | Active | 12/31/2016 | 7.75% | 33.5 | 72.6 | $ 176,016,821 | $ 194,664,263 | $ 73,353,115 | 240.47% | 1/1/2015 | 27.6 | 75.5 |
| Austin Employees' Retirement System | Active | 12/31/2018 | 7.50% | 32.0 | 67.6 | $ 2,461,383,436 | $ 2,695,388,390 | $ 1,294,171,747 | 194.81% | 12/31/2017 | 30.0 | 68.3 |
| Fort Worth Employees' Retirement Fund Staff Plan | Active | 12/31/2017 | 7.75% | 32.0 | 77.2 | $ 4,768,637 | $ 4,533,706 | $ 1,340,754 | 84.74% | 12/31/2016 | 27.0 | 76.5 |
| Abilene Firemen's Relief & Retirement Fund | Active | 10/1/2017 | 8.00% | 31.9 | 55.7 | $ 57,456,309 | $ 59,425,441 | $ 47,286,729 | 341.79% | 10/1/2015 | 31.5 | 56.6 |
| San Angelo Firemen's Relief & Retirement Fund | Active | 12/31/2017 | 7.90% | 31.3 | 64.9 | $ 66,618,737 | $ 66,067,685 | $ 35,702,196 | 291.10% | 12/31/2015 | 38.5 | 65.7 |
| 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 |
| El Paso Police Pension Fund | Active | 1/1/2018 | 7.75% | 30.5 | 78.3 | $ 870,658,507 | $ 843,966,894 | $ 233,937,349 | 284.50% | 1/1/2016 | 33.0 | 81.1 |
| Port of Houston Authority Retirement Plan | Closed | 8/1/2018 | 6.75% | 30.0 | 98.4 | $ 184,287,781 | $ 184,287,781 | $ 2,973,899 | 9.81% | 8/1/2017 | 30.0 | 95.1 |
| Houston Police Officers' Pension System | Active | 7/1/2018 | 7.00% | 29.0 | 79.4 | $ 5,486,613,000 | $ 5,128,835,000 | $ 1,335,037,000 | 304.53% | 7/1/2017 | 30.0 | 78.3 |
| Houston Firefighters' Relief & Retirement Fund | Active | 7/1/2018 | 7.00% | 29.0 | 81.4 | $ 4,170,354,000 | $ 4,027,079,000 | $ 921,054,000 | 337.77% | 7/1/2017 | 30.0 | 80.5 |
| Houston Municipal Employees Pension System | Active | 7/1/2018 | 7.00% | 29.0 | 57.7 | $ 2,988,864,000 | $ 2,874,585,000 | $ 2,107,423,000 | 335.41% | 7/1/2017 | 30.0 | 56.4 |
| CPS Energy Pension Plan | Active | 1/1/2018 | 7.25% | 29.0 | 82.6 | $ 1,627,840,308 | $ 1,574,817,503 | $ 332,296,648 | 122.42% | 1/1/2017 | 30.0 | 80.8 |
| Corsicana Firemen's Relief & Retirement Fund | Active | 12/31/2016 | 7.00% | 28.9 | 53.1 | $ 8,344,317 | $ 9,225,595 | $ 8,135,345 | 211.44% | 12/31/2014 | 24.2 | 53.5 |
| 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 |
| Atlanta Firemen's Relief & Retirement Fund | Active | 12/31/2016 | 7.40% | 28.4 | 82.1 | $ 3,744,867 | $ 3,954,272 | $ 860,536 | 136.63% | 12/31/2014 | 36.2 | 81.9 |
| El Paso Firemen's Pension Fund | Active | 1/1/2018 | 7.75% | 28.0 | 77.8 | $ 601,790,721 | $ 581,448,450 | $ 166,117,632 | 265.17% | 1/1/2016 | 26.0 | 79.2 |
| University Health System Pension Plan | Active | 1/1/2016 | 7.00% | 28.0 | 66.4 | $ 267,492,612 | $ 284,433,717 | $ 144,221,782 | 45.23% | 1/1/2015 | 29.0 | 68.9 |
| Texas City Firemen's Relief & Retirement Fund | Active | 12/31/2016 | 7.75% | 28.0 | 50.4 | $ 14,412,583 | $ 15,853,841 | $ 15,620,735 | 301.18% | 12/31/2014 | 31.6 | 54.4 |
| Sweetwater Firemen's Relief & Retirement Fund | Active | 12/31/2016 | 8.00% | 27.5 | 70.0 | $ 7,826,879 | $ 8,437,694 | $ 3,617,210 | 229.12% | 12/31/2014 | 58.8 | 69.0 |
| 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 |
| 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 |
| Waxahachie Firemen's Relief & Retirement Fund | Active | 10/1/2016 | 7.00% | 25.4 | 66.9 | $ 14,201,159 | $ 14,201,159 | $ 7,039,421 | 164.84% | 10/1/2014 | 24.3 | 68.9 |
| 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 |
| San Antonio Metropolitan Transit Retirement Plan | Active | 10/1/2016 | 7.50% | 25.0 | 63.0 | $ 246,002,425 | $ 245,943,565 | $ 144,269,692 | 143.75% | 10/1/2015 | 26.0 | 60.4 |
| Houston MTA Workers Union Pension Plan | Closed | 1/1/2019 | 6.50% | 24.0 | 62.5 | $ 254,400,189 | $ 273,167,539 | $ 163,748,117 | 173.09% | 1/1/2018 | 25.0 | 66.3 |
| Houston MTA Non-Union Pension Plan | Closed | 1/1/2019 | 6.50% | 24.0 | 61.8 | $ 162,565,041 | $ 175,433,638 | $ 108,676,891 | 266.71% | 1/1/2018 | 25.0 | 65.6 |
| 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 |
| Galveston Wharves Pension Plan | Closed | 1/1/2017 | 7.25% | 24.0 | 73.3 | $ 11,839,852 | $ 11,839,852 | $ 4,320,705 | 162.45% | 1/1/2016 | 25.0 | 78.9 |

This report is a compilation of pension data reported by retirement systems in their most recent AVs, sorted by amortization period.

# Actuarial Valuation Report
## October 17, 2019

| | | 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 %** |
| 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 |
| Corpus Christi Fire Fighters' Retirement System | Active | 12/31/2016 | 7.75% | 23.1 | 62.1 | $ 133,901,631 | $ 141,141,270 | $ 85,995,868 | 265.57% | 12/31/2014 | 23.1 | 61.4 |
| 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 |
| San Benito Firemen Relief & Retirement Fund | Active | 9/30/2017 | 7.50% | 21.8 | 60.7 | $ 3,503,753 | $ 3,503,753 | $ 2,270,845 | 152.30% | 12/31/2015 | 21.7 | 60.5 |
| Capital MTA Bargaining | Frozen | 1/1/2018 | 7.25% | 21.0 | 51.9 | $ 33,199,580 | $ 32,305,890 | $ 29,935,904 | N/A | 1/1/2017 | 22.0 | 51.7 |
| Capital MTA Admin Employees (4) | Active | 1/1/2017 | 6.75% | 20.0 | 72.6 | $ 23,811,865 | $ 24,254,758 | $ 9,145,527 | 39.56% | 1/1/2016 | 20.0 | 77.1 |
| Employees of Brownsville Navigation District | Active | 1/1/2018 | 6.15% | 20.0 | 54.3 | $ 5,082,503 | $ 4,948,651 | $ 4,164,072 | 95.32% | 1/1/2017 | 19.8 | 52.8 |
| Sweeny Community Hospital | Closed | 1/1/2019 | 7.00% | 19.0 | 86.4 | $ 3,023,456 | $ 3,191,805 | $ 504,209 | 57.17% | 1/1/2018 | 20.0 | 85.8 |
| Texas Municipal Retirement System (5) | Active | 12/31/2018 | 6.75% | 18.2 | 87.1 | $ 27,683,629,439 | $ 29,385,096,235 | $ 4,346,354,832 | 65.22% | 12/31/2017 | 18.8 | 87.4 |
| Lower Colorado River Authority Retirement Plan | Closed | 1/1/2019 | 7.25% | 18.0 | 70.3 | $ 388,300,639 | $ 432,019,765 | $ 182,885,080 | 171.78% | 1/1/2018 | 19.0 | 74.0 |
| Austin Fire Fighters Relief & Retirement Fund | Active | 12/31/2018 | 7.70% | 17.9 | 88.0 | $ 909,117,796 | $ 954,574,840 | $ 129,958,768 | 141.13% | 12/31/2017 | 17.0 | 88.3 |
| Galveston Employees' Retirement Fund | Active | 12/31/2018 | 7.25% | 16.8 | 76.6 | $ 48,514,328 | $ 52,374,631 | $ 15,972,792 | 61.29% | 12/31/2017 | 11.6 | 79.6 |
| Harris County Hospital District Pension Plan (6) | 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 |
| DFW Airport Board | Active | 1/1/2019 | 7.25% | 16.0 | 83.7 | $ 493,301,369 | $ 511,070,267 | $ 99,847,700 | 187.49% | 1/1/2018 | 17.0 | 82.4 |
| DFW Airport Board DPS | Active | 1/1/2019 | 7.25% | 16.0 | 78.5 | $ 188,058,481 | $ 194,887,387 | $ 53,283,221 | 167.45% | 1/1/2018 | 17.0 | 77.7 |
| 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 |
| Texarkana Firemen's Relief & Retirement Fund | Active | 12/31/2017 | 7.75% | 15.0 | 86.3 | $ 34,819,005 | $ 35,250,649 | $ 5,584,452 | 123.72% | 12/31/2015 | 16.3 | 87.4 |
| Denton Firemen's Relief & Retirement Fund | Active | 12/31/2017 | 6.75% | 14.6 | 82.1 | $ 85,388,283 | $ 84,410,626 | $ 18,435,302 | 104.60% | 12/31/2015 | 31.6 | 80.8 |
| 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 | 1/1/2019 | 7.25% | 13.9 | 87.9 | $ 3,015,158,660 | $ 3,297,010,974 | $ 452,239,886 | 134.97% | 1/1/2018 | 9.9 | 90.3 |
| 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 | Closed | 10/1/2018 | 6.75% | 12.8 | 79.2 | $ 186,844,635 | $ 185,524,973 | $ 48,651,130 | 341.24% | 10/1/2017 | 11.8 | 78.9 |
| Texas County & District Retirement System (5) | Active | 12/31/2018 | 8.00% | 12.6 | 88.5 | $ 29,260,546,258 | $ 30,553,846,707 | $ 3,987,324,758 | 57.61% | 12/31/2017 | 12.3 | 89.1 |
| Guadalupe Regional Medical Center | Active | 1/1/2019 | 7.00% | 12.0 | 96.5 | $ 67,977,745 | $ 72,252,517 | $ 2,641,934 | 9.48% | 1/1/2018 | 3.0 | 98.4 |
| Nacogdoches County Hospital District | Active | 7/1/2017 | 7.25% | 11.9 | 82.0 | $ 46,841,434 | $ 46,180,125 | $ 10,166,263 | 31.73% | 7/1/2015 | 9.8 | 84.3 |
| Dallas Police & Fire Pension System-Supplemental (4) | Active | 1/1/2018 | 7.25% | 10.0 | 51.5 | $ 17,805,153 | $ 17,805,153 | $ 16,744,953 | 1742.77% | 1/1/2017 | 10.0 | 52.9 |
| Northeast Medical Center Hospital Retirement Plan (4) | Frozen | 7/1/2018 | 7.50% | 10.0 | 83.8 | $ 9,503,069 | $ 9,503,069 | $ 1,831,425 | N/A | 7/1/2017 | 10.0 | 83.6 |
| Guadalupe-Blanco River Authority | Closed | 1/1/2017 | 7.00% | 8.7 | 84.9 | $ 26,632,375 | $ 29,165,967 | $ 5,182,613 | 78.26% | 1/1/2016 | 8.8 | 85.7 |

This report is a compilation of pension data reported by retirement systems in their most recent AVs, sorted by amortization period.

## Actuarial Valuation Report
## October 17, 2019

| 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 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Colorado River Municipal Water Dist. (6) | Active | 1/1/2019 | 6.25% | 8.5 | 83.3 | $ 9,251,681 | $ 9,251,681 | $ 1,853,616 | 50.95% | 1/1/2018 | 7.4 | 93.8 |
| Refugio County Memorial Hospital | Frozen | 11/1/2018 | 7.00% | 7.0 | 97.8 | $ 1,834,666 | $ 1,834,666 | $ 41,529 | 1.42% | 11/1/2017 | 0.0 | 111.1 |
| Corpus Christi Regional Transportation Authority | Active | 1/1/2018 | 7.50% | 6.0 | 98.3 | $ 36,440,324 | $ 36,440,324 | $ 628,913 | 5.89% | 1/1/2017 | 7.0 | 93.2 |
| JPS - Tarrant County Hospital District | Active | 10/1/2017 | 7.25% | 3.8 | 95.1 | $ 257,037,806 | $ 246,203,390 | $ 12,785,570 | 4.99% | 10/1/2016 | 4.8 | 93.6 |
| The Woodlands Firefighters' Retirement System | Active | 1/1/2019 | 7.00% | 3.6 | 97.8 | $ 32,836,586 | $ 32,836,586 | $ 726,156 | 6.08% | 1/1/2018 | 0.0 | 106.0 |
| 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 | 10/1/2017 | 7.50% | 3.0 | 83.9 | $ 21,800,110 | $ 21,561,210 | $ 4,130,838 | N/A | 10/1/2016 | 5.0 | 73.0 |
| Plano Retirement Security Plan | Active | 12/31/2017 | 7.00% | 0.0 | 100.8 | $ 148,516,307 | $ 144,040,464 | $ (1,131,618) | -0.77% | 12/31/2015 | 19.0 | 99.2 |
| Citizens Medical Center | Active | 3/1/2018 | 7.25% | 0.0 | 107.1 | $ 105,550,707 | $ 101,520,687 | $ (6,752,729) | -12.15% | 3/1/2017 | 17.0 | 99.5 |
| Arlington Employees Deferred Income Plan | Active | 7/1/2017 | 5.00% | 0.0 | 108.0 | $ 2,838,158 | $ 2,838,158 | $ (211,065) | -6.07% | 7/1/2016 | 0.0 | 107.9 |
| Anson General Hospital | Frozen | 7/1/2017 | 7.50% | 0.0 | 123.2 | $ 1,930,866 | $ 1,905,642 | $ (359,075) | -161.25% | 7/1/2016 | 0.0 | 119.9 |
| El Paso Firemen & Policemen's Pension Staff Plan | Active | 1/1/2018 | 7.75% | 0.0 | 113.1 | $ 419,843 | $ 397,086 | $ (46,068) | -6.31% | 1/1/2016 | 0.0 | 282.9 |
| **Grand Totals:** | | | | | **77.3%** | **$ 278,933,064,909** | **$ 281,785,483,480** | **$ 82,677,977,952** | | | | **79.5%** |

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) Current amortization period reflects an employer contribution increase to 14.83% of payroll as of February 17, 2018.

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

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

(6) Amortization period is calculated by the PRB.

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# AV Supplemental Report
## October 17, 2019
## (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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Abilene Firemen's Relief & Retirement Fund | 9/30/2018 | 8.00% | $ 109.22 | $ 57.13 | $ 52.09 | 52.3 | $ 63.92 | 47.2 | 6.50% | 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 | 12/31/2018 | 7.40% | $ 5.30 | $ 3.80 | $ 1.50 | 71.8 | $ 2.13 | 64.1 | 6.93% | N/A |
| Austin Employees' Retirement System | 12/31/2018 | 7.50% | $ 3,989.56 | $ 2,461.38 | $ 1,528.18 | 61.7 | $ 2,011.39 | 55.0 | 8.60% | N/A |
| Austin Fire Fighters Relief & Retirement Fund | 12/31/2018 | 7.70% | $ 1,107.22 | $ 909.12 | $ 198.10 | 82.1 | $ 304.09 | 74.9 | 8.37% | N/A |
| Austin Police Retirement System | 12/31/2018 | 4.70% | $ 1,904.95 | $ 718.52 | $ 1,186.43 | 37.7 | $ 1,475.73 | 32.7 | 5.26% | 2041 |
| 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 | 2/28/2019 | 6.50% | $ 32.83 | $ 19.85 | $ 12.98 | 60.5 | $ 16.44 | 54.7 | 8.09% | N/A |
| Brownwood Firemen's Relief & Retirement Fund | 12/31/2018 | 7.25% | $ 9.57 | $ 3.83 | $ 5.74 | 40.1 | $ 6.96 | 35.5 | 4.31% | N/A |
| CPS Energy Pension Plan | 12/31/2018 | 7.25% | $ 1,982.35 | $ 1,522.05 | $ 460.30 | 76.8 | $ 710.60 | 68.2 | 9.38% | N/A |
| Capital MTA Admin Employees | 12/31/2017 | 5.48% | $ 45.16 | $ 30.01 | $ 15.15 | 66.5 | $ 22.38 | 57.3 | 6.75% | 2056 |
| Capital MTA Bargaining | 12/31/2017 | 7.25% | $ 62.24 | $ 33.20 | $ 29.04 | 53.3 | $ 34.83 | 48.8 | 5.52% | N/A |
| Citizens Medical Center | 2/28/2018 | 7.25% | $ 95.70 | $ 105.54 | $ (9.85) | 110.3 | $ 3.52 | 96.8 | 6.81% | N/A |
| City of El Paso Employees Retirement Trust | 8/31/2018 | 7.50% | $ 1,024.38 | $ 819.97 | $ 204.41 | 80.0 | $ 322.64 | 71.8 | 8.77% | 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. | 12/31/2018 | 6.25% | $ 10.81 | $ 9.25 | $ 1.55 | 85.6 | $ 2.28 | 80.2 | 8.57% | N/A |
| Conroe Fire Fighters' Retirement Fund | 12/31/2017 | 7.75% | $ 44.95 | $ 25.24 | $ 19.71 | 56.1 | $ 25.87 | 49.4 | 2.22% | N/A |
| Corpus Christi Fire Fighters' Retirement System | 12/31/2018 | 7.75% | $ 243.93 | $ 139.81 | $ 104.12 | 57.3 | $ 129.69 | 51.9 | 8.26% | N/A |
| Corpus Christi Regional Transportation Authority | 12/31/2017 | 7.50% | $ 37.07 | $ 36.44 | $ 0.63 | 98.3 | $ 4.92 | 88.1 | 7.05% | N/A |
| Corsicana Firemen's Relief & Retirement Fund | 12/31/2018 | 7.00% | $ 18.01 | $ 8.56 | $ 9.45 | 47.5 | $ 11.89 | 41.9 | 6.49% | N/A |
| DART Employees | 9/30/2018 | 6.75% | $ 234.18 | $ 186.85 | $ 47.33 | 79.8 | $ 70.95 | 72.5 | 6.58% | N/A |
| DFW Airport Board | 12/31/2018 | 7.25% | $ 610.92 | $ 493.30 | $ 117.62 | 80.7 | $ 201.34 | 71.0 | 8.30% | N/A |
| DFW Airport Board DPS | 12/31/2018 | 7.25% | $ 248.17 | $ 188.06 | $ 60.11 | 75.8 | $ 97.43 | 65.9 | 8.30% | N/A |
| Dallas Co. Hospital Dist. Retirement Income Plan | 12/31/2018 | 7.00% | $ 1,435.12 | $ 947.68 | $ 487.44 | 66.0 | $ 686.03 | 58.0 | 4.06% | N/A |
| Dallas Employees' Retirement Fund | 12/31/2018 | 5.98% | $ 5,547.96 | $ 3,282.31 | $ 2,265.65 | 59.2 | $ 3,006.85 | 52.2 | 9.72% | 2048 |
| Dallas Police & Fire Pension System-Combined Plan | 12/31/2017 | 7.25% | $ 4,497.35 | $ 2,103.35 | $ 2,394.00 | 46.8 | $ 2,886.44 | 42.2 | 0.90% | N/A |
| Dallas Police & Fire Pension System-Supplemental | 12/31/2017 | 7.25% | $ 33.67 | $ 17.81 | $ 15.87 | 52.9 | $ 18.83 | 48.6 | 0.90% | N/A |
| Denison Firemen's Relief & Retirement Fund | 12/31/2017 | 7.75% | $ 23.68 | $ 17.73 | $ 5.96 | 74.9 | $ 8.51 | 67.6 | 4.31% | 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 (6) | 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 | 12/31/2018 | 7.75% | $ 778.51 | $ 550.81 | $ 227.71 | 70.8 | $ 336.70 | 62.1 | 8.34% | N/A |
| El Paso Police Pension Fund | 12/31/2018 | 7.75% | $ 1,119.92 | $ 798.67 | $ 321.25 | 71.3 | $ 478.44 | 62.5 | 8.34% | N/A |
| Employees Retirement System of Texas | 8/31/2018 | 5.69% | $ 47,944.31 | $ 27,753.33 | $ 20,190.98 | 57.9 | $ 26,609.73 | 51.1 | 7.02% | 2049 |
| Employees of Brownsville Navigation District (6) | 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 | 9/30/2018 | 5.35% | $ 5,422.61 | $ 2,324.34 | $ 3,098.28 | 42.9 | $ 3,919.18 | 37.2 | 6.52% | 2042 |
| Fort Worth Employees' Retirement Fund Staff Plan | 9/30/2018 | 7.75% | $ 6.65 | $ 5.17 | $ 1.48 | 77.7 | $ 2.55 | 67.0 | 6.52% | 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.

## AV Supplemental Report
## October 17, 2019
## (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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 12/31/2017 | 7.75% | $ 64.40 | $ 44.65 | $ 19.74 | 69.3 | $ 27.07 | 62.3 | 4.36% | N/A |
| Galveston Wharves Pension Plan | 12/31/2018 | 7.25% | $ 16.32 | $ 12.50 | $ 3.82 | 76.6 | $ 5.48 | 69.5 | 9.23% | N/A |
| Greenville Firemen's Relief & Retirement Fund | 12/31/2018 | 8.00% | $ 30.77 | $ 12.25 | $ 18.52 | 39.8 | $ 21.75 | 36.0 | 7.37% | N/A |
| Guadalupe Regional Medical Center | 12/31/2018 | 7.00% | $ 73.99 | $ 67.98 | $ 6.01 | 91.9 | $ 16.50 | 80.5 | 9.62% | N/A |
| Guadalupe-Blanco River Authority | 12/31/2018 | 7.00% | $ 36.69 | $ 28.73 | $ 7.96 | 78.3 | $ 11.83 | 70.8 | 7.41% | N/A |
| Harlingen Firemen's Relief & Retirement Fund | 9/30/2018 | 7.75% | $ 52.81 | $ 32.90 | $ 19.91 | 62.3 | $ 26.43 | 55.5 | 7.20% | N/A |
| Harris County Hospital District Pension Plan | 12/31/2018 | 7.00% | $ 914.62 | $ 634.72 | $ 279.90 | 69.4 | $ 386.81 | 62.1 | 9.10% | N/A |
| Houston Firefighters' Relief & Retirement Fund | 6/30/2018 | 7.25% | $ 4,815.05 | $ 4,170.35 | $ 644.70 | 86.6 | $ 1,145.88 | 78.4 | 6.11% | N/A |
| Houston MTA Non-Union Pension Plan | 12/31/2018 | 6.50% | $ 280.78 | $ 162.57 | $ 118.21 | 57.9 | $ 144.36 | 53.0 | 8.80% | N/A |
| Houston MTA Workers Union Pension Plan | 12/31/2018 | 6.50% | $ 428.82 | $ 254.40 | $ 174.42 | 59.3 | $ 222.62 | 53.3 | 8.40% | N/A |
| Houston Municipal Employees Pension System | 6/30/2018 | 7.00% | $ 5,113.36 | $ 2,988.86 | $ 2,124.49 | 58.5 | $ 2,686.43 | 52.7 | 6.68% | N/A |
| Houston Police Officers' Pension System | 6/30/2018 | 7.00% | $ 6,745.44 | $ 5,486.61 | $ 1,258.82 | 81.3 | $ 2,006.43 | 73.2 | 6.30% | N/A |
| Irving Firemen's Relief & Retirement Fund | 12/31/2017 | 8.25% | $ 276.27 | $ 213.96 | $ 62.31 | 77.4 | $ 80.78 | 72.6 | 5.88% | N/A |
| Irving Supplemental Benefit Plan | 12/31/2018 | 6.75% | $ 85.87 | $ 58.11 | $ 27.76 | 67.7 | $ 39.69 | 59.4 | 5.72% | N/A |
| JPS - Tarrant County Hospital District | 9/30/2018 | 7.25% | $ 284.56 | $ 292.60 | $ (8.04) | 102.8 | $ 26.09 | 91.8 | 8.42% | N/A |
| Judicial Retirement System of Texas Plan Two | 8/31/2018 | 7.50% | $ 487.77 | $ 453.38 | $ 34.39 | 92.9 | $ 81.92 | 84.7 | 7.02% | N/A |
| 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 | 9/30/2018 | 7.90% | $ 250.96 | $ 154.81 | $ 96.15 | 61.7 | $ 127.82 | 54.8 | 6.45% | N/A |
| Law Enforcement & Custodial Off Sup. Ret. Fund | 8/31/2018 | 4.48% | $ 2,149.92 | $ 966.83 | $ 1,183.09 | 45.0 | $ 1,534.18 | 38.7 | 7.02% | 2038 |
| Longview Firemen's Relief & Retirement Fund | 12/31/2018 | 5.45% | $ 136.06 | $ 41.56 | $ 94.50 | 30.5 | $ 113.94 | 26.7 | 6.88% | 2042 |
| Lower Colorado River Authority Retirement Plan | 12/31/2018 | 7.25% | $ 614.91 | $ 382.64 | $ 232.27 | 62.2 | $ 295.62 | 56.4 | 3.20% | N/A |
| Lubbock Fire Pension Fund | 12/31/2018 | 7.75% | $ 290.04 | $ 186.48 | $ 103.55 | 64.3 | $ 138.44 | 57.4 | 7.01% | N/A |
| Lufkin Firemen's Relief & Retirement Fund | 12/31/2018 | 7.50% | $ 35.73 | $ 15.66 | $ 20.07 | 43.8 | $ 23.91 | 39.6 | 6.36% | N/A |
| Marshall Firemen's Relief & Retirement Fund | 12/31/2017 | 7.75% | $ 19.48 | $ 8.53 | $ 10.96 | 43.8 | $ 13.38 | 38.9 | 5.22% | N/A |
| McAllen Firemen's Relief & Retirement Fund | 9/30/2018 | 7.50% | $ 78.76 | $ 52.68 | $ 26.09 | 66.9 | $ 40.48 | 56.5 | 6.68% | N/A |
| Midland Firemen's Relief & Retirement Fund | 12/31/2017 | 8.00% | $ 147.96 | $ 89.75 | $ 58.21 | 60.7 | $ 74.35 | 54.7 | 3.97% | N/A |
| 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 | 6/30/2017 | 7.40% | $ 11.54 | $ 9.58 | $ 1.96 | 83.0 | $ 2.91 | 76.7 | 4.42% | 2053 |
| Northwest Texas Healthcare System Retirement Plan | 9/30/2018 | 7.50% | $ 25.11 | $ 23.37 | $ 1.74 | 93.1 | $ 3.86 | 85.8 | 6.38% | N/A |
| Odessa Firemen's Relief & Retirement Fund | 12/31/2018 | 4.70% | $ 157.56 | $ 39.24 | $ 118.32 | 24.9 | $ 141.90 | 21.7 | 7.02% | 2034 |
| Orange Firemen's Relief & Retirement Fund | 12/31/2018 | 5.44% | $ 21.51 | $ 7.96 | $ 13.55 | 37.0 | $ 15.70 | 33.7 | 6.58% | 2047 |
| Paris Firefighters' Relief & Retirement Fund | 12/31/2017 | 7.50% | $ 15.06 | $ 4.79 | $ 10.27 | 31.8 | $ 11.85 | 28.8 | 2.85% | N/A |
| Plainview Firemen's Relief & Retirement Fund | 12/31/2018 | 7.50% | $ 16.80 | $ 5.44 | $ 11.36 | 32.4 | $ 13.28 | 29.0 | 5.60% | 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 | 12/31/2017 | 8.00% | $ 62.11 | $ 49.89 | $ 12.21 | 80.3 | $ 18.29 | 73.2 | 5.98% | 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 |
| Refugio County Memorial Hospital | 10/31/2017 | 7.00% | $ 2.01 | $ 2.23 | $ (0.22) | 111.1 | $ 0.04 | 98.4 | 4.07% | 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.

## AV Supplemental Report
## October 17, 2019
## (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 |
|---|---|---|---|---|---|---|---|---|---|---|
| San Angelo Firemen's Relief & Retirement Fund | 12/31/2018 | 6.50% | $ 125.69 | $ 61.21 | $ 64.48 | 48.7 | $ 80.32 | 43.2 | 7.61% | 2053 |
| San Antonio Fire & Police Pension Fund | 12/31/2018 | 7.25% | $ 3,756.28 | $ 3,015.16 | $ 741.12 | 80.3 | $ 1,273.71 | 70.3 | 7.40% | N/A |
| San Antonio Metropolitan Transit Retirement Plan (7) | 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 | 9/30/2018 | 7.50% | $ 6.06 | $ 3.82 | $ 2.23 | 63.1 | $ 3.03 | 55.8 | 1.78% | N/A |
| Sweeny Community Hospital | 12/31/2018 | 7.00% | $ 3.74 | $ 3.02 | $ 0.72 | 80.8 | $ 1.07 | 73.8 | 9.31% | N/A |
| Sweetwater Firemen's Relief & Retirement Fund | 12/31/2018 | 8.00% | $ 13.21 | $ 7.76 | $ 5.45 | 58.8 | $ 6.97 | 52.7 | 7.03% | N/A |
| Teacher Retirement System of Texas | 8/31/2018 | 6.91% | $ 209,611.33 | $ 154,568.90 | $ 55,042.43 | 73.7 | $ 83,072.22 | 65.0 | 7.11% | 2069 |
| Temple Firemen's Relief & Retirement Fund | 9/30/2018 | 7.75% | $ 60.63 | $ 44.24 | $ 16.38 | 73.0 | $ 23.36 | 65.4 | 6.02% | N/A |
| Texarkana Firemen's Relief & Retirement Fund | 12/31/2018 | 7.75% | $ 42.10 | $ 31.36 | $ 10.74 | 74.5 | $ 15.25 | 67.3 | 7.61% | N/A |
| Texas City Firemen's Relief & Retirement Fund | 12/31/2017 | 7.75% | $ 32.55 | $ 16.12 | $ 16.43 | 49.5 | $ 20.15 | 44.4 | 4.22% | N/A |
| Texas County & District Retirement System (8) | 12/31/2018 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 9.02% | N/A |
| Texas Emergency Services Retirement System | 8/31/2018 | 7.75% | $ 137.51 | $ 115.86 | $ 21.65 | 84.3 | $ 43.03 | 72.9 | 7.42% | N/A |
| Texas Municipal Retirement System (8) | 12/31/2018 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.43% | N/A |
| The Woodlands Firefighters' Retirement System (6) | 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 | 12/31/2018 | 7.00% | $ 28.77 | $ 20.89 | $ 7.88 | 72.6 | $ 12.82 | 62.0 | 6.20% | N/A |
| Tyler Firefighters' Relief & Retirement Fund | 12/31/2018 | 7.50% | $ 95.70 | $ 64.60 | $ 31.10 | 67.5 | $ 41.20 | 61.1 | 7.54% | N/A |
| University Health System Pension Plan | 12/31/2018 | 7.00% | $ 526.50 | $ 360.80 | $ 165.71 | 68.5 | $ 233.34 | 60.7 | 8.83% | 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 | 9/30/2018 | 7.25% | $ 15.85 | $ 11.58 | $ 4.28 | 73.0 | $ 6.74 | 63.2 | 5.52% | N/A |
| Wichita Falls Firemen's Relief & Retirement Fund | 12/31/2018 | 4.90% | $ 130.68 | $ 46.70 | $ 83.98 | 35.7 | $ 103.53 | 31.1 | 6.87% | 2040 |
| **Grand Totals:** | | | **$ 318,640.37** | **$ 222,141.69** | **$ 96,498.68** | **69.7%** | **$ 138,550** | **61.6%** | | |

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) The plan is less than 10 years old; return is calculated since date of inception.
(7) A 10 Year Net Return was not available from this plan.
(8) 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
## October 17, 2019

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Abilene Firemen's Relief & Retirement Fund | Active | 9/30/2018 | $ 13,525,947 | 16.61% | 13.20% | 3.41% | 16.55% | 19.96% | 19.25% | Fixed | 96% |
| 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% |
| Anson General Hospital | Frozen | 6/30/2018 | $ 222,685 | 4.80% | 4.00% | 0.80% | -0.87% | -0.07% | 0.00% | Actuarial | 0% |
| 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 |
| Atlanta Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 666,400 | 18.58% | 13.00% | 5.58% | 7.42% | 13.00% | 14.57% | Fixed | 112% |
| Austin Employees' Retirement System | Active | 12/31/2018 | $ 647,143,050 | 17.73% | 8.00% | 9.73% | 9.60% | 19.33% | 18.00% | Fixed | 93% |
| Austin Fire Fighters Relief & Retirement Fund | Active | 12/31/2018 | $ 91,086,698 | 28.49% | 18.70% | 9.79% | 8.92% | 18.71% | 22.05% | Fixed | 118% |
| Austin Police Retirement System | Active | 12/31/2018 | $ 165,088,323 | 23.15% | 13.00% | 10.15% | 12.12% | 22.27% | 21.35% | Fixed | 96% |
| 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% |
| 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% |
| Brazos River Authority Retirement Plan (6) | Frozen | 2/28/2019 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Actuarial | 100% |
| Brownwood Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 1,912,275 | 14.77% | 8.00% | 6.77% | 14.96% | 21.73% | 20.24% | Fixed | 93% |
| CPS Energy Pension Plan | Active | 12/31/2018 | $ 270,313,692 | 15.98% | 5.00% | 10.98% | 12.09% | 23.07% | 21.34% | Actuarial | 93% |
| Capital MTA Admin Employees | Active | 12/31/2017 | $ 23,551,457 | 8.78% | 0.00% | 8.78% | 1.80% | 10.58% | 13.19% | Actuarial | 125% |
| Capital MTA Bargaining (6) | Frozen | 12/31/2017 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Actuarial | 167% |
| Citizens Medical Center | Active | 2/28/2018 | $ 58,274,773 | 8.67% | 3.93% | 4.74% | 0.05% | 4.79% | 4.98% | Actuarial | 104% |
| City of El Paso Employees Retirement Trust | Active | 8/31/2018 | $ 161,026,109 | 12.19% | 8.95% | 3.24% | 7.17% | 10.41% | 15.93% | Fixed | 153% |
| Cleburne Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 4,507,461 | 21.33% | 13.00% | 8.33% | 17.51% | 25.84% | 22.06% | Other | 85% |
| Colorado River Municipal Water Dist. | Active | 12/31/2018 | $ 3,680,075 | 10.12% | 0.00% | 10.12% | 4.98% | 15.10% | 14.38% | Actuarial | 95% |
| Conroe Fire Fighters' Retirement Fund | Active | 12/31/2017 | $ 8,474,517 | 19.21% | 13.24% | 5.97% | 10.31% | 16.28% | 15.00% | Fixed | 92% |
| Corpus Christi Fire Fighters' Retirement System | Active | 12/31/2018 | $ 31,298,070 | 15.91% | 13.10% | 2.81% | 17.97% | 20.78% | 20.78% | Fixed | 100% |
| Corpus Christi Regional Transportation Authority | Active | 12/31/2017 | $ 9,773,977 | 10.03% | 0.00% | 10.03% | 4.29% | 14.32% | 14.16% | Actuarial | 99% |
| Corsicana Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 4,187,264 | 15.73% | 14.00% | 1.73% | 12.27% | 14.00% | 16.56% | Fixed | 118% |
| DART Employees | Closed | 9/30/2018 | $ 14,333,000 | 7.35% | 0.02% | 7.33% | 37.65% | 44.98% | 69.77% | Actuarial | 155% |
| DFW Airport Board | Active | 12/31/2018 | $ 54,095,000 | 17.90% | 0.00% | 17.90% | 19.77% | 37.67% | 41.58% | Actuarial | 110% |
| DFW Airport Board DPS | Active | 12/31/2018 | $ 30,006,000 | 23.63% | 7.00% | 16.63% | 13.97% | 30.60% | 33.51% | Actuarial | 110% |
| Dallas Co. Hospital Dist. Retirement Income Plan | Active | 12/31/2018 | $ 659,891,000 | 7.53% | 6.20% | 1.33% | 3.23% | 4.56% | 6.06% | Actuarial | 133% |
| Dallas Employees' Retirement Fund | Active | 12/31/2018 | $ 423,803,000 | 21.40% | 13.32% | 8.08% | 11.72% | 19.80% | 14.38% | Other | 73% |
| Dallas Police & Fire Pension System-Combined Plan | Active | 12/31/2017 | $ 346,037,000 | 19.14% | 9.37% | 9.77% | 37.48% | 47.25% | 36.50% | Fixed | 77% |

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
## October 17, 2019

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dallas Police & Fire Pension System-Supplemental | Active | 12/31/2017 | $ 916,000 | 31.87% | 8.79% | 23.08% | 374.34% | 397.42% | 226.75% | Actuarial | 57% |
| Denison Firemen's Relief & Retirement Fund | Active | 12/31/2017 | $ 3,344,313 | 15.92% | 12.00% | 3.92% | 11.08% | 15.00% | 15.00% | Fixed | 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% |
| 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% |
| El Paso Firemen's Pension Fund | Active | 12/31/2018 | $ 65,506,552 | 22.17% | 18.00% | 4.17% | 14.33% | 18.50% | 18.73% | Fixed | 101% |
| El Paso Police Pension Fund | Active | 12/31/2018 | $ 89,173,129 | 21.23% | 18.00% | 3.23% | 16.59% | 19.82% | 18.00% | Fixed | 91% |
| Employees Retirement System of Texas (7) | Active | 8/31/2018 | $ 6,811,925,525 | 13.95% | 9.50% | 4.45% | 9.26% | 13.71% | 11.66% | Fixed | 85% |
| 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% |
| Fort Worth Employees' Retirement Fund | Active | 9/30/2018 | $ 467,754,197 | 13.32% | 8.06% | 5.26% | 22.91% | 28.17% | 19.99% | Fixed | 71% |
| Fort Worth Employees' Retirement Fund Staff Plan | Active | 9/30/2018 | $ 1,588,685 | 18.65% | 8.25% | 10.40% | 4.99% | 15.39% | 15.74% | Fixed | 102% |
| 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% |
| 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% |
| Galveston Firefighter's Relief & Retirement Fund | Active | 12/31/2017 | $ 7,799,971 | 19.87% | 16.00% | 3.87% | 18.12% | 21.99% | 14.00% | Fixed | 64% |
| Galveston Wharves Pension Plan | Closed | 12/31/2018 | $ 2,017,084 | 5.79% | 0.00% | 5.79% | 15.31% | 21.10% | 28.51% | Actuarial | 135% |
| Greenville Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 4,094,242 | 16.71% | 16.30% | 0.41% | 21.14% | 21.55% | 17.82% | Fixed | 83% |
| Guadalupe Regional Medical Center | Active | 12/31/2018 | $ 25,355,241 | 9.12% | 4.00% | 5.12% | 0.68% | 5.80% | 7.57% | Other | 131% |
| Guadalupe-Blanco River Authority | Closed | 12/31/2018 | $ 5,826,719 | 5.02% | 0.00% | 5.02% | 11.10% | 16.12% | 19.36% | Other | 120% |
| Harlingen Firemen's Relief & Retirement Fund | Active | 9/30/2018 | $ 6,423,120 | 18.74% | 15.00% | 3.74% | 14.57% | 18.31% | 15.00% | Fixed | 82% |
| Harris County Hospital District Pension Plan | Closed | 12/31/2018 | $ 169,885,000 | 4.87% | 0.00% | 4.87% | 13.37% | 18.24% | 18.24% | Actuarial | 100% |
| Houston Firefighters' Relief & Retirement Fund | Active | 6/30/2018 | $ 260,345,000 | 27.60% | 10.50% | 17.10% | 19.70% | 36.80% | 31.88% | Actuarial | 87% |
| Houston MTA Non-Union Pension Plan | Closed | 12/31/2018 | $ 41,769,919 | 7.85% | 0.00% | 7.85% | 18.63% | 26.48% | 26.51% | Actuarial | 100% |
| Houston MTA Workers Union Pension Plan | Closed | 12/31/2018 | $ 97,250,761 | 4.16% | 0.00% | 4.16% | 12.44% | 16.60% | 16.12% | Actuarial | 97% |
| Houston Municipal Employees Pension System | Active | 6/30/2018 | $ 611,493,104 | 11.17% | 3.00% | 8.17% | 19.67% | 27.84% | 68.94% | Actuarial | 248% |
| Houston Police Officers' Pension System | Active | 6/30/2018 | $ 412,786,000 | 24.36% | 10.50% | 13.86% | 17.91% | 31.77% | 214.92% | Actuarial | 676% |
| Irving Firemen's Relief & Retirement Fund | Active | 12/31/2017 | $ 32,264,107 | 18.53% | 12.00% | 6.53% | 12.48% | 19.01% | 16.75% | Fixed | 88% |
| Irving Supplemental Benefit Plan | Active | 12/31/2018 | $ 107,628,647 | 3.34% | 2.50% | 0.84% | 1.27% | 2.11% | 2.07% | Other | 98% |
| JPS - Tarrant County Hospital District | Active | 9/30/2018 | $ 256,365,871 | 5.51% | 1.00% | 4.51% | 2.24% | 6.75% | 6.75% | Other | 100% |
| Judicial Retirement System of Texas Plan Two | Active | 8/31/2018 | $ 78,772,445 | 20.57% | 7.43% | 13.14% | 3.28% | 16.42% | 15.94% | Fixed | 97% |
| 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% |

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
## October 17, 2019

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Laredo Firefighters Retirement System | Active | 9/30/2018 | $ 36,107,647 | 19.96% | 15.00% | 4.96% | 17.46% | 22.42% | 20.13% | Fixed | 90% |
| Law Enforcement & Custodial Off Sup. Ret. Fund | Active | 8/31/2018 | $ 1,689,590,272 | 2.11% | 0.50% | 1.61% | 1.56% | 3.17% | 1.55% | Other | 49% |
| Longview Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 12,887,040 | 15.14% | 16.81% | -1.67% | 23.44% | 21.77% | 18.29% | Fixed | 84% |
| Lower Colorado River Authority Retirement Plan | Closed | 12/31/2018 | $ 108,601,000 | 5.48% | 0.00% | 5.48% | 11.93% | 17.41% | 22.00% | Actuarial | 126% |
| Lubbock Fire Pension Fund | Active | 12/31/2018 | $ 33,080,326 | 22.20% | 12.43% | 9.77% | 12.78% | 22.55% | 21.81% | Other | 97% |
| Lufkin Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 5,135,838 | 16.85% | 14.20% | 2.65% | 21.26% | 23.91% | 23.00% | Fixed | 96% |
| Marshall Firemen's Relief & Retirement Fund | Active | 12/31/2017 | $ 2,738,929 | 16.39% | 14.00% | 2.39% | 22.00% | 24.39% | 18.87% | Fixed | 77% |
| McAllen Firemen's Relief & Retirement Fund | Active | 9/30/2018 | $ 11,901,023 | 15.53% | 11.00% | 4.53% | 9.95% | 14.48% | 13.00% | Fixed | 90% |
| Midland Firemen's Relief & Retirement Fund | Active | 12/31/2017 | $ 16,135,387 | 24.27% | 13.20% | 11.07% | 13.66% | 24.73% | 22.03% | Fixed | 89% |
| Nacogdoches County Hospital District | Active | 6/30/2016 | $ 30,057,297 | 4.56% | 2.91% | 1.65% | 2.66% | 4.31% | 5.66% | Other | 131% |
| Northeast Medical Center Hospital Retirement Plan (6) | Frozen | 6/30/2017 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Actuarial | 100% |
| Northwest Texas Healthcare System Retirement Plan (6) | Frozen | 9/30/2018 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Other | 244% |
| Odessa Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 12,183,628 | 14.93% | 18.00% | -3.07% | 28.24% | 25.17% | 20.21% | Fixed | 80% |
| Orange Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 2,396,549 | 12.76% | 12.00% | 0.76% | 18.49% | 19.25% | 14.31% | Fixed | 74% |
| Paris Firefighters' Relief & Retirement Fund | Active | 12/31/2017 | $ 2,719,967 | 9.54% | 15.00% | -5.46% | 20.43% | 14.97% | 12.00% | Fixed | 80% |
| Plainview Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 2,010,853 | 15.23% | 15.00% | 0.23% | 29.38% | 29.61% | 27.20% | Fixed | 92% |
| 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% |
| Port Arthur Firemen's Relief & Retirement Fund | Active | 12/31/2017 | $ 9,410,130 | 14.92% | 13.00% | 1.92% | 11.94% | 13.86% | 13.87% | Other | 100% |
| 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% |
| Refugio County Memorial Hospital | Frozen | 10/31/2017 | $ 3,234,547 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.85% | Actuarial | N/A |
| San Angelo Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 11,759,292 | 21.58% | 16.45% | 5.13% | 15.42% | 20.55% | 20.20% | Fixed | 98% |
| San Antonio Fire & Police Pension Fund | Active | 12/31/2018 | $ 318,038,000 | 23.86% | 12.32% | 11.54% | 5.92% | 17.46% | 24.62% | Fixed | 141% |
| 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% |
| San Benito Firemen Relief & Retirement Fund | Active | 9/30/2018 | $ 1,424,217 | 13.90% | 12.00% | 1.90% | 8.20% | 10.10% | 12.00% | Fixed | 119% |
| Sweeny Community Hospital | Closed | 12/31/2018 | $ 985,300 | 7.35% | 0.00% | 7.35% | 5.40% | 12.75% | 12.75% | Actuarial | 100% |
| Sweetwater Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 1,624,778 | 21.86% | 17.00% | 4.86% | 13.14% | 18.00% | 18.00% | Fixed | 100% |
| Teacher Retirement System of Texas | Active | 8/31/2018 | $ 43,646,405,156 | 10.06% | 7.70% | 2.36% | 5.49% | 7.85% | 7.92% | Fixed | 101% |
| Temple Firemen's Relief & Retirement Fund | Active | 9/30/2018 | $ 8,623,033 | 20.57% | 15.00% | 5.57% | 9.37% | 14.94% | 15.27% | Fixed | 102% |
| Texarkana Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 4,306,156 | 21.60% | 13.50% | 8.10% | 7.44% | 15.54% | 19.47% | Fixed | 125% |
| Texas City Firemen's Relief & Retirement Fund | Active | 12/31/2017 | $ 5,107,869 | 12.77% | 16.00% | -3.23% | 18.59% | 15.36% | 16.00% | Fixed | 104% |
| Texas County & District Retirement System | Active | 12/31/2018 | $ 6,921,029,795 | 13.53% | 6.77% | 6.76% | 4.98% | 11.74% | 12.57% | Actuarial | 107% |

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
## October 17, 2019

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Texas Emergency Services Retirement System (6) | Active | 8/31/2018 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Other | 115% |
| Texas Municipal Retirement System | Active | 12/31/2018 | $ 6,444,177,866 | 15.04% | 6.63% | 8.41% | 4.86% | 13.27% | 13.68% | Actuarial | 103% |
| 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% |
| Travis County ESD #6 FRRF | Active | 12/31/2018 | $ 6,074,844 | 24.11% | 20.00% | 4.11% | 15.09% | 19.20% | 19.20% | Fixed | 100% |
| Tyler Firefighters' Relief & Retirement Fund | Active | 12/31/2018 | $ 11,620,007 | 21.10% | 13.50% | 7.60% | 11.90% | 19.50% | 20.92% | Fixed | 107% |
| University Health System Pension Plan | Active | 12/31/2018 | $ 354,486,512 | 4.09% | 2.00% | 2.09% | 4.59% | 6.68% | 6.80% | Actuarial | 102% |
| 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% |
| 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% |
| Weslaco Firemen's Relief & Retirement Fund | Active | 9/30/2018 | $ 4,249,692 | 13.65% | 12.00% | 1.65% | 6.31% | 7.96% | 12.16% | Fixed | 153% |
| Wichita Falls Firemen's Relief & Retirement Fund | Active | 12/31/2018 | $ 11,348,015 | 14.63% | 13.00% | 1.63% | 13.76% | 15.39% | 12.83% | Other | 83% |

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.

TAB 3D

# Public Retirement System Compliance and Reporting
# As of October 9, 2019

## Compliance

| | Current Board Meeting | Previous Board Meeting |
|---|---|---|
| Non-Compliant Plans | 13 | 8 |
| Compliant Plans | 86 | 91 |
| Total Plans Registered | 99 | 99 |

## Summary of Plans Non-Compliant over 60 Days

| **Plan Type** | Current Board Meeting | Previous Board Meeting |
|---|---|---|
| Defined Benefit | 3 | 2 |

## Total Net Assets – Based on most recent financial reports

| | Current Board Meeting | Previous Board Meeting |
|---|---|---|
| Total Net Assets | $279,055,151,510 | $281,932,759,455 |

## Amortization Periods

| **Plan Amortization Periods** | Current Board Meeting | Previous Board Meeting |
|---|---|---|
| Infinite | 8 | 7 |
| >= 40 years, but not infinite | 16 | 16 |
| > 30 years < 40 years | 13 | 14 |
| > 25 years <= 30 years | 15 | 17 |
| >= 10 years <= 25 years | 34 | 30 |
| > 0 Years < 10 years | 8 | 9 |
| 0 years | 5 | 6 |
| Total Plans Registered | 99 | 99 |

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Pension Review Board
October 17, 2019

# Plans Non-Compliant over 60 Days

**In accordance with 801.209(b) of the Texas Government Code, this list includes all plans who have not submitted one or more of the following reports to the Texas Pension Review Board by the 60th day after the date the reports are due: annual financial, membership, and investment returns and assumptions report (*PRB-1000*).**

| Fiscal Year | Retirement System | Due Date |
|---|---|---|
| 2017/2018 | Nacogdoches County Hospital District Retirement Plan | 1/27/2019 |
| 2018 | Northeast Medical Center Hospital Retirement Plan | 1/27/2019 |
| 2018 | Refugio County Memorial Hospital District Retirement Plan | 5/30/2019 |

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**STATE PENSION REVIEW BOARD OF TEXAS**

# Total Net Assets

List of the total net assets of all active plans based on the most recent financial report received.

| Plan Name | Report Date | Net Assets |
|---|---|---|
| Teacher Retirement System of Texas | 8/31/2018 | $154,568,901,833 |
| Texas County & District Retirement System | 12/31/2018 | $29,260,546,258 |
| Employees Retirement System of Texas | 8/31/2018 | $27,753,334,784 |
| Texas Municipal Retirement System | 12/31/2018 | $27,683,629,439 |
| Houston Police Officers' Pension System | 6/30/2018 | $5,486,614,000 |
| Houston Firefighters' Relief & Retirement Fund | 6/30/2018 | $4,170,353,965 |
| Dallas Employees' Retirement Fund | 12/31/2018 | $3,282,313,000 |
| San Antonio Fire & Police Pension Fund | 12/31/2018 | $3,015,157,000 |
| Houston Municipal Employees Pension System | 6/30/2018 | $2,988,864,278 |
| Austin Employees' Retirement System | 12/31/2018 | $2,461,383,437 |
| Fort Worth Employees' Retirement Fund | 9/30/2018 | $2,324,335,575 |
| Dallas Police & Fire Pension System-Combined Plan | 12/31/2017 | $2,103,345,471 |
| CPS Energy Pension Plan | 12/31/2018 | $1,522,045,827 |
| Law Enforcement & Custodial Officer Supplemental Retirement Fund | 8/31/2018 | $966,827,735 |
| Dallas County Hospital District Retirement Income Plan | 12/31/2018 | $947,679,000 |
| Austin Fire Fighters Relief & Retirement Fund | 12/31/2018 | $909,117,796 |
| City of El Paso Employees Retirement Trust | 8/31/2018 | $819,966,288 |
| El Paso Police Pension Fund | 12/31/2018 | $798,668,082 |
| Austin Police Retirement System | 12/31/2018 | $718,519,641 |
| Harris County Hospital District Pension Plan | 12/31/2018 | $634,715,986 |
| El Paso Firemen's Pension Fund | 12/31/2018 | $550,808,171 |
| Dallas/Fort Worth Airport Board Retirement Plan | 12/31/2018 | $493,301,000 |
| Judicial Retirement System of Texas Plan Two | 8/31/2018 | $453,379,786 |
| Lower Colorado River Authority Retirement Plan | 12/31/2018 | $382,638,000 |

| Plan Name | Report Date | Net Assets |
|---|---|---|
| University Health System Pension Plan | 12/31/2018 | $360,796,823 |
| San Antonio Metropolitan Transit Retirement Plan | 9/30/2018 | $298,393,797 |
| JPS Pension Plan - Tarrant County Hospital District | 9/30/2018 | $292,597,099 |
| Houston MTA Workers Union Pension Plan | 12/31/2018 | $254,400,189 |
| Irving Firemen's Relief & Retirement Fund | 12/31/2017 | $213,960,011 |
| Dallas/Fort Worth Airport Board DPS Retirement Plan | 12/31/2018 | $188,059,000 |
| DART Employees' Defined Benefit Retirement Plan & Trust | 9/30/2018 | $186,845,000 |
| Lubbock Fire Pension Fund | 12/31/2018 | $186,484,535 |
| Port of Houston Authority Retirement Plan | 7/31/2018 | $184,287,781 |
| Amarillo Firemen's Relief & Retirement Fund | 12/31/2018 | $162,766,406 |
| Houston MTA Non-Union Pension Plan | 12/31/2018 | $162,565,041 |
| Laredo Firefighters Retirement System | 9/30/2018 | $154,813,837 |
| Plano Retirement Security Plan | 12/31/2018 | $139,932,167 |
| Corpus Christi Fire Fighters' Retirement System | 12/31/2018 | $139,811,086 |
| Texas Emergency Services Retirement System | 8/31/2018 | $115,863,894 |
| Beaumont Firemen's Relief & Retirement Fund | 12/31/2018 | $105,769,426 |
| Retirement Plan for Citizens Medical Center | 2/28/2018 | $105,541,328 |
| Denton Firemen's Relief & Retirement Fund | 12/31/2018 | $86,834,224 |
| Midland Firemen's Relief & Retirement Fund | 12/31/2018 | $80,013,420 |
| Retirement Plan for Guadalupe Regional Medical Center | 12/31/2018 | $67,977,745 |
| Tyler Firefighters' Relief & Retirement Fund | 12/31/2018 | $64,599,095 |
| San Angelo Firemen's Relief & Retirement Fund | 12/31/2018 | $61,210,766 |
| Irving Supplemental Benefit Plan | 12/31/2018 | $58,112,359 |
| Abilene Firemen's Relief & Retirement Fund | 9/30/2018 | $57,127,453 |
| McAllen Firemen's Relief & Retirement Fund | 9/30/2018 | $52,675,409 |
| Galveston Employees' Retirement Fund | 12/31/2018 | $48,514,329 |
| Wichita Falls Firemen's Relief & Retirement Fund | 12/31/2018 | $46,695,574 |
| Port Arthur Firemen's Relief & Retirement Fund | 12/31/2018 | $44,767,145 |
| Temple Firemen's Relief & Retirement Fund | 9/30/2018 | $44,243,769 |
| Killeen Firemen's Relief & Retirement Fund | 9/30/2018 | $43,947,221 |
| Nacogdoches County Hospital District Retirement Plan | 6/30/2016 | $43,662,691 |
| Galveston Firefighter's Relief & Retirement Fund | 12/31/2018 | $42,488,301 |

| Plan Name | Report Date | Net Assets |
| --- | --- | --- |
| Longview Firemen's Relief & Retirement Fund | 12/31/2018 | $41,560,527 |
| Odessa Firemen's Relief & Retirement Fund | 12/31/2018 | $39,242,633 |
| Corpus Christi Regional Transportation Authority | 12/31/2017 | $36,440,324 |
| The Woodlands Firefighters' Retirement System | 12/31/2018 | $32,950,794 |
| Harlingen Firemen's Relief & Retirement Fund | 9/30/2018 | $32,903,824 |
| Texarkana Firemen's Relief & Retirement Fund | 12/31/2018 | $31,355,515 |
| Capital MTA Retirement Plan for Bargaining Unit Employees | 12/31/2018 | $29,894,536 |
| Capital MTA Retirement Plan for Administrative Employees | 12/31/2018 | $29,770,966 |
| Guadalupe-Blanco River Authority | 12/31/2018 | $28,731,703 |
| Conroe Fire Fighters' Retirement Fund | 12/31/2017 | $25,239,678 |
| Northwest Texas Healthcare System Retirement Plan | 9/30/2018 | $23,368,205 |
| Travis County ESD #6 Firefighter's Relief & Retirement Fund | 12/31/2018 | $20,894,159 |
| Brazos River Authority Retirement Plan | 2/28/2019 | $19,851,827 |
| Cleburne Firemen's Relief & Retirement Fund | 12/31/2018 | $19,362,807 |
| Galveston Employees' Retirement Plan for Police | 12/31/2018 | $17,856,397 |
| Dallas Police & Fire Pension System-Supplemental | 12/31/2017 | $17,805,153 |
| Waxahachie Firemen's Relief & Retirement Fund | 9/30/2018 | $17,428,039 |
| Denison Firemen's Relief & Retirement Fund | 12/31/2018 | $16,588,602 |
| Texas City Firemen's Relief & Retirement Fund | 12/31/2017 | $16,117,766 |
| Lufkin Firemen's Relief & Retirement Fund | 12/31/2018 | $15,659,035 |
| Galveston Wharves Pension Plan | 12/31/2018 | $12,500,685 |
| Greenville Firemen's Relief & Retirement Fund | 12/31/2018 | $12,254,104 |
| Weslaco Firemen's Relief & Retirement Fund | 9/30/2018 | $11,577,179 |
| Big Spring Firemen's Relief & Retirement Fund | 12/31/2018 | $10,895,730 |
| Northeast Medical Center Hospital Retirement Plan | 6/30/2017 | $9,578,580 |
| University Park Firemen's Relief & Retirement Fund | 12/31/2018 | $9,447,674 |
| Colorado River Municipal Water District Defined Benefit Retirement P | 12/31/2018 | $9,251,681 |
| Corsicana Firemen's Relief & Retirement Fund | 12/31/2018 | $8,563,597 |
| Marshall Firemen's Relief & Retirement Fund | 12/31/2017 | $8,526,909 |
| Orange Firemen's Relief & Retirement Fund | 12/31/2018 | $7,961,733 |
| Sweetwater Firemen's Relief & Retirement Fund | 12/31/2018 | $7,760,982 |
| Plainview Firemen's Relief & Retirement Fund | 12/31/2018 | $5,436,791 |

| Plan Name | Report Date | Net Assets |
| --- | --- | --- |
| Fort Worth Employees' Retirement Fund Staff Plan | 9/30/2018 | $5,167,655 |
| Retirement Plan for Employees of Brownsville Navigation District | 12/31/2018 | $4,890,148 |
| Paris Firefighters' Relief & Retirement Fund | 12/31/2018 | $4,152,311 |
| Brownwood Firemen's Relief & Retirement Fund | 12/31/2018 | $3,834,051 |
| San Benito Firemen Relief & Retirement Fund | 9/30/2018 | $3,824,045 |
| Atlanta Firemen's Relief & Retirement Fund | 12/31/2018 | $3,801,043 |
| Retirement Plan for Sweeny Community Hospital | 12/31/2018 | $3,023,456 |
| Arlington Employees Deferred Income Plan | 6/30/2018 | $2,819,601 |
| Refugio County Memorial Hospital District Retirement Plan | 10/31/2017 | $2,227,940 |
| Retirement Plan for Anson General Hospital | 6/30/2018 | $1,948,662 |
| El Paso Firemen & Policemen's Pension Staff Plan and Trust | 12/31/2018 | $481,190 |

**TOTAL** $279,055,151,510

TAB 3E

October 17, 2019

TEXAS PENSION REVIEW BOARD

## Summary of Funding Soundness Restoration Plans (FSRPs) Submitted Since the Prior PRB Meeting

Texas Government Code Section 802.2015(e) requires FSRPs to be developed by the public retirement system and the associated governmental entity in accordance with the system's governing statute; and be designed to achieve a contribution rate that will be sufficient to amortize the unfunded actuarial accrued liability within 40 years not later than the 10th anniversary of the date on which the final version of an FSRP is agreed to. The following table summarizes the FSRPs received by the PRB since the last board meeting.

| Retirement System | FSRP Trigger Amortization Period | Plan Changes | | | Comments |
|---|---|---|---|---|---|
| | | Employee Contributions | Employer Contributions | Other | |
| Harlingen Firemen's Relief & Retirement Fund – Revised FSRP[1] | 59.1 | N/A | Old: 15.00%<br>New: 17.00% | • New Benefit Tier (members hired after 4/1/19): Benefit formula equal to 2.50% x Final Average Salary (FAS) x Years of Credited Service (YCS). FAS = highest 60-month average salary. The maximum benefit for this tier is 70% of a member's FAS.<br>• Reduced longevity benefit in original tier from $65 per YCS over 20 years to $50 per YCS over 20 years for service after 4/30/19. The benefit changes also include a cap on longevity service benefits with no additional benefit after 30 YCS. | |

[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 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 FSRP Formulation Requirement | | | | | | | |
|---|---|---|---|---|---|---|---|
| Retirement System | Am Period | Date of AV | Am Period | Date of AV | Am Period | Date of AV | FSRP Due Date |
| University Park Firemen's Relief & Retirement Fund – Revised FSRP[1] | 81.3 | 12/31/2012 | 53.7 | 1/1/2015 | Infinite | 12/31/2016 | 10/23/2018 |
| Wichita Falls Firemen's Relief & Retirement Fund – Revised FSRP[1,2] | 43.7 | 1/1/2016 | 49.4 | 1/1/2017 | Infinite | 1/1/2018 | 2/11/2019 |
| Irving Firemen's Relief & Retirement Fund – Revised FSRP[1] | 63.4 | 1/1/2014 | 46.5 | 12/31/2015 | Infinite | 12/31/2017 | 4/17/2019 |
| Midland Firemen's Relief & Retirement Fund – Revised FSRP[1] | 59.1 | 1/1/2014 | 44.7 | 12/31/2015 | Infinite | 12/31/2017 | 8/21/2019 |
| Odessa Firemen's Relief & Retirement Fund – Revised FSRP[1,2] | 46.5 | 1/1/2017 | 47.1 | 1/1/2018 | 77.5 | 1/1/2019 | 12/29/2019 |
| Longview Firemen's Relief & Retirement Fund | 50.7 | 12/31/2016 | 40.2 | 12/31/2017 | Infinite | 12/31/2018 | 2/12/2020 |

[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.

[2] A Revised FSRP has been received from the system but an actuarial analysis of the changes made has not yet been confirmed by the PRB.

Texas Pension Review Board
October 17, 2019

## 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 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 |
| Amarillo Firemen’s Relief & Retirement Fund | 28.8 | 1/1/2014 | 34.5 | 12/31/2015 | 43.5 | 12/31/2017 | N/A |
| Austin Police Retirement System | 27.3 | 12/31/2016 | 35.0 | 12/31/2017 | Infinite | 12/31/2018 | N/A |
| Beaumont Firemen's Relief & Retirement Fund | 49.6 | 12/31/2012 | 39.1 | 12/31/2014 | 104.0 | 12/31/2016 | N/A |
| Cleburne Firemen’s Relief & Retirement Fund | 34.1 | 12/31/2012 | 27.3 | 12/31/2014 | 49.6 | 12/31/2016 | N/A |
| Laredo Firefighters Retirement System | 29.8 | 9/30/2014 | 28.0 | 9/30/2016 | 43.0 | 9/30/2018 | N/A |
| McAllen Firemen's Relief & Retirement Fund | 43.9 | 9/30/2012 | 29.0 | 10/1/2014 | 41.4 | 10/1/2016 | N/A |
| Paris Firefighters' Relief & Retirement Fund | 29.2 | 1/1/2013 | 26.1 | 12/31/2014 | 41.9 | 12/31/2016 | N/A |
| Plainview Firemen's Relief & Retirement Fund | 31.4 | 12/31/2013 | 31.6 | 12/31/2015 | 44.8 | 12/31/2017 | N/A |

Texas Pension Review Board
October 17, 2019

## 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 |
| Orange Firemen's Relief & Retirement Fund – Revised FSRP | 69.3 | 1/1/2017 | 47.0 | 1/1/2017 | 2026 | 2/2020 |
| Marshall Firemen's Relief & Retirement Fund | 56.4 | 12/31/2016 | 46.5[3] | 12/31/2016 | 2026 | 3/2020 |
| Dallas Police & Fire Pension System - Combined Plan | 44.0 | 1/1/2017 | 45.0 | 1/1/2018 | 2027 | 10/2020 |
| Fort Worth Employees' Retirement Fund | Infinite | 12/31/2016 | 44.0 | 12/31/2018 | 2026 | 5/2021 |
| Harlingen Firemen's Relief & Retirement Fund – Revised FSRP | 59.1 | 9/30/2017 | 30.0[4] | 9/30/2017 | 2026 | 6/2021 |
| Dallas Employees' Retirement Fund | Infinite | 12/31/2015 | 46.0 | 12/31/2018 | 2026 | 7/2021 |
| Greenville Firemen's Relief & Retirement Fund – Revised FSRP | 55.0 | 12/31/2016 | 40.7 | 12/31/2018 | 2026 | 9/2021 |

[1] Based on the most recent valuation or FSRP.
[2] The year in which a system must reach an amortization period of 40 years or less.
[3] The amortization period does not consider already approved assumption changes that will likely result in the system being out of compliance with the FSRP when the system completes its December 31, 2018 actuarial valuation.
[4] The amortization period reflects estimates of actions that occurred after the valuation date. Systems will be removed from the list if a subsequent valuation reflects an amortization period of 40 years or less.

## Previously Completed FSRP Requirement Systems

The following table contains all systems that have formulated a Funding Soundness Restoration Plan which 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] |
| Galveston Employees' Retirement Plan for Police | 55.1 | 1/1/2014 | 35.3 | 1/1/2018 | 2026 |
| Galveston Firefighter's Relief & Retirement Fund – REVISED FSRP | Infinite | 12/31/2016 | 26.8 | 12/31/2017 | 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 |

[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.

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October 9, 2019

State Pension Review Board of Texas
P O Box 13498
Austin, TX 78711

Attn: Anumeha, Executive Director
Kenny J. Herbold, Staff Actuary

Sir/Madam:

Based on the requirements of Status of Texas Statute Sec. 802.2015, it is our understanding that the Pension Review Board (PRB) requires us to formulate a funding soundness restoration plan since our retirement system's, Harlingen Firemen's Relief & Retirement Fund (also known as the Fund), amortization period has exceeded 40 years over the past 2biennial valuation measurements.

Based on the requirements of Texas Statute above, the Harlingen Firemen's Relief & Retirement Fund's Board of Trustees (also known as the Board) and the City of Harlingen respectfully submit a revised Funding Soundness Restoration Plan (FSRP).

As discussed prior, some of the steps taken after submission of our October 2016 FSRP resulted in modest increases to our amortization period, which is why we are required to submit this revised FSRP. That doesn't mean the plan steps were wrong. It just means the additional steps needed time to manifest. Once they do, we have every confidence we will be well below the 40-year amortization period trigger of the FSRP.

Please see the following plan summary and comments regarding critical events as they developed, as well the most recent changes to our plan:

- Our first FSRP (2016) noted that our members and the City of Harlingen increased payroll contributions to 15 percent from 13 percent. This had the positive effect of reducing our am period to 48 years from infinity. We, however, knew that more adjustments would be necessary and began making them.

- In mid-2017 we honored our City's request to change from a calendar- to fiscal- year reporting structure to address various administrative concerns. Doing so reduced our investment results on paper by $1 million in our first reporting period. This increased our amortization period. Longer-term this will self-correct, but it is part of the reason our amortization period increased in the last actuarial valuation. Again, our Board knew more adjustments would be necessary.

- We began evaluating investment results and considered increasing our professional resources by hiring an investment consultant. In December 2017 we hired our first-ever investment consultant. Since 2018, they've helped us revise our investment policy and have been repositioning parts of our portfolio. Investment results play a large role in improving funding soundness but take time to develop. According to studies, proper asset allocation results in as much as 90% of investment return. Going forward, better investment returns, as a result of professional investment direction, will impact our amortization period.

- Early in 2018 our Board accepted our actuary's recommendation to reduce our discount rate to 7.75 percent from 8 percent. Again, while that did increase our amortization period we know the Pension Review Board strongly advocates for downward adjustments of the discount rate. We agree this will put us on better long-term path, especially when viewed in conjunction with improved investment results.

The City and the Board understand that these events triggered a reevaluation of our 2016 FSRP and together have formulated a funding policy to bring our Fund back into immediate compliance. Below will be a description of the efforts between The City of Harlingen, the Board and the Firefighter membership, as well an attached actuarial study from our actuary (Retirement Horizons, Inc.) to support these statements. The changes are as follows:

- *Increase City Contribution Rate by 2% of Payroll*: Permanently increasing the City contribution rate from 15% to 17% of payroll effective April 1, 2019. Effective October 1, 2019, the City contribution rate would be paid at the beginning of the year

- *Reduce Longevity Benefit*: Effective April 1, 2019, reduce all future longevity benefits from$65/month to $50/month and cap "longevity service" at 10 years of service (30 total years of service). All $65/month longevity benefits accrued as of April 1, 2019 will be grandfathered. Members with more than 20 years of total service but less than 30 years of total service are eligible to earn an additional $50/month longevity benefit per year of total service are not eligible for any additional longevity benefits.

- *Create a New Benefit Tier:* Firefighters hired after April 1, 2019 would be eligible for a different set of retirement, death, and disability benefits payable from the Fund. The benefit formula is equal to 2.50% of highest 60-month average salary per year of service (maximum benefit of 70% of final average pay). The death and disability benefits would mirror current provisions except the amounts would be aligned with the new benefit formula. That is, the on-duty disability and death benefits would be 50% (20 year service benefit) rather than 65.5% of highest 60-month average

- *Front Loading Policy:* The City has established a policy to front-load all contributions to the pension fund at the beginning of each fiscal year. ( there is a realized benefit to this as opposed to monthly)

- *Default of Salary*: The Firefighter membership delayed a 2% of the overall proposed salary increase scheduled for October 1, 2019. The current proposal also includes a schedule for extending the current Collective Bargaining Agreement by an additional year when members would receive a 3% across the board salary increase in 2021.

Please note that these changes are already reflected in our plan document and will serve as a portion of our Funding Policy. The Board and The City of Harlingen, in addition to the above and as part and our Funding Policy, will continue to work diligently to address some maintenance issues (such as establishing a Disability Policy, coordinating with our Civil Service Department hiring process, as well as our Workers Compensation program) our plan is facing which cause a gap in funding at the local government level.

This being our situation, we hope you will note the good faith efforts we've made so far to adjust our plan and take into account that we have plans for moving forward.

We would be pleased to hear from the PRB its suggestions and recommendations.

Respectfully,

Mario Alvarado Jr.
Chairman of the Board
Harlingen Firemen's Relief & Retirement Fund

Dan Serna
City Manager
City of Harlingen Texas

Enclosure

# TAB 3F

# Retirement Systems That Require Contributions Based on the Actuarially Determined Contribution

Systems that require payment of the full ADC

| System Name |
| --- |
| Arlington Employees Deferred Income Plan |
| Brazos River Authority Retirement Plan |
| Capital MTA Retirement Plan for Bargaining Unit Employees |
| Colorado River Municipal Water District Defined Benefit Retirement Plan & Trust |
| Corpus Christi Regional Transportation Authority |
| CPS Energy Pension Plan |
| Dallas County Hospital District Retirement Income Plan |
| Dallas/Fort Worth Airport Board DPS Retirement Plan |
| Dallas/Fort Worth Airport Board Retirement Plan |
| DART Employees' Defined Benefit Retirement Plan & Trust |
| Galveston Employees Retirement Plan for Police* |
| Galveston Wharves Pension Plan |
| Harris County Hospital District Pension Plan |
| Houston MTA Non-Union Pension Plan |
| Houston MTA Workers Union Pension Plan |
| Lower Colorado River Authority Retirement Plan |
| Plano Retirement Security Plan |
| Port of Houston Authority Retirement Plan |
| Refugio County Memorial Hospital District Retirement Plan |
| Retirement Plan for Anson General Hospital |
| Retirement Plan for Sweeny Community Hospital |
| San Antonio Metropolitan Transit Retirement Plan |
| Texas County & District Retirement System |
| Texas Municipal Retirement System |
| University Health System Pension Plan |

*After 1/1/2025, if the AV recommends an ADC that exceeds the aggregate (employee and city) rate, the excess contribution will be split equally as a percentage of pay between the city and employee contribution rates.

Systems that contribute based on the ADC

| System Name | Description |
|---|---|
| Fort Worth Employees' Retirement Fund | After 1/1/2022, if the contribution rate is less than the ADC for two consecutive years, city and employee contributions will be increased up to 4% of pay (no more than 2% of pay in one year), split 60% City/40% Employee. If maximum allowed contribution is applied and ADC is still not met, city council must consider additional benefit reductions. |
| Houston Firefighters' Relief & Retirement Fund | The 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. |
| Houston Municipal Employees Pension System | Under a statutorily determined process, the City pays a predetermined fixed-dollar amount (City Contribution Amount) based on the UAAL as of July 1, 2016 (Legacy Liability), plus a city contribution rate (CCR) as a percent of payroll. The CCR is jointly determined by the pension board and the City. The CCR must remain within a predetermined corridor until the plan is 100% funded. The corridor is built around target levels for CCR ("midpoints"). |
| Houston Police Officers' Pension System | The 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. |
| Capital MTA Retirement Plan for Administrative Employees | The sponsoring entity contributes the ADEC based on a 20-year rolling amortization period. |
| Dallas Employees' Retirement Fund | Calculates an ADC with smoothed changes from one year to the next and a maximum rate of 36% considering both contributions to the plan as well as debt service on a pension obligation bond. |
| Dallas Police & Fire Pension System - Supplemental | The City contributes the ADEC based on a 10-year rolling amortization period. |
| Nacogdoches County Hospital District Retirement Plan | The actuary is calculating a minimum contribution based on a 20-year level dollar amortization of the UAAL but they have consistently contributed at a higher rate. |
| Northeast Medical Center Hospital Retirement Plan | The sponsoring entity contributes the ADEC based on a 10-year rolling amortization period. |

# TAB 4A

Pension Review Board
October 17, 2019

# Minimum Educational Training (MET) Program
# Public Retirement System Reporting as of October 9, 2019

Below is a summary of systems' reporting compliance with the Minimum Educational Training (MET) Program. The MET Program has two compliance requirements: (1) system administrators and trustees must complete the required training hours and (2) systems must report their trustees' and administrator's completed hours of training. The following report shows only the systems' submission of required MET reporting.

**Minimum Educational Training Program Form (*PRB-2000*)**

| | Current Board Meeting | Previous Board Meeting |
|---|---|---|
| Compliant Systems | 59 | 86 |
| Non-Compliant Systems | 29 | 2 |
| **Total Systems** | **88** | **88** |

**Summary of Plans Non-Compliant over 60 Days**

| | Current Board Meeting | Previous Board Meeting |
|---|---|---|
| PRB-2000 | 1 | 2 |

## Plans Non-Compliant over 60 Days: Minimum Educational Training Program

In accordance with 801.209(b) of the Texas Government Code, this list includes all plans which have not submitted the required Minimum Educational Training Program Form (PRB-2000) to the State Pension Review Board by the 60th day after the date the report is due.

| Year | Retirement System | Due Date |
|---|---|---|
| 2019 | Nacogdoches County Hospital District Retirement Plan | 3/1/2019 |

TAB 4B

Pension Review Board
October 17, 2019

# Minimum Educational Training Program
# In-House Sponsors

At the June 27, 2019 PRB meeting, the Board requested a list of MET in-house sponsors.

MET activities provided by public retirement systems or their hired consultants primarily for the education of trustees and/or system administrators are considered in-house training.

| Sponsor | Core/CE |
|---|---|
| City of Austin Employees' Retirement System | Core and CE |
| Dallas Police & Fire Pension System | Core and CE |
| El Paso City Employees' Pension Fund | Core and CE |
| Employees' Retirement System | CE |
| Fort Worth Employees' Retirement Fund | CE |
| Teacher Retirement System of Texas | CE |
| Texas County and District Retirement System | Core and CE |
| Texas Municipal Retirement System | Core and CE |

TAB 5

TEXAS PENSION REVIEW BOARD

# OPERATING BUDGET
# FISCAL YEAR 2020
### As of September 30, 2019

| | 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 | $10,560.83 | | 8.33% | $116,169.17 | 91.67% |
| Classified Salaries | 1001B | $899,228.00 | | $899,228.00 | $57,875.02 | | 6.44% | $841,352.98 | 93.56% |
| Other Personal Exp / Longevity Pay | 1002A | $14,600.00 | | $14,600.00 | $620.00 | | 4.25% | $13,980.00 | 95.75% |
| Retirement Deduction .5% Salary | 1002B | $5,000.00 | | $5,000.00 | $342.19 | | 0.00% | $4,657.81 | 100.00% |
| 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 | $69,398.04 | $0.00 | 6.64% | $976,159.96 | 93.36% |
| Professional Fees and Services | 2001 | $12,500.00 | | $12,500.00 | $0.00 | $0.00 | 0.00% | $12,500.00 | 100.00% |
| 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 | $0.00 | $0.00 | 0.00% | $1,000.00 | 100.00% |
| Rent-Machine & Other (Copier/Software) | 2007 | $15,000.00 | | $15,000.00 | $0.00 | $0.00 | 0.00% | $15,000.00 | 100.00% |
| Operating Costs (Miscellaneous) | 2009A | $6,214.25 | | $6,214.25 | $1,603.38 | $0.00 | 25.80% | $4,610.87 | 74.20% |
| Telecommunication Services | 2009D | $2,000.00 | | $2,000.00 | $0.00 | $0.00 | 0.00% | $2,000.00 | 100.00% |
| Education and Training | 2009B | $2,500.00 | | $2,500.00 | $0.00 | $0.00 | 0.00% | $2,500.00 | 100.00% |
| Postage | 2009C | $500.00 | | $500.00 | $0.00 | $0.00 | 0.00% | $500.00 | 100.00% |
| 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 | $638.53 | | 7.53% | $7,838.22 | 92.47% |
| Hardware & Software | 2009F | $2,500.00 | | $2,500.00 | $0.00 | $0.00 | 0.00% | $2,500.00 | 100.00% |
| **Sub-Total Operating Cost** | | $25,191.00 | $0.00 | $25,191.00 | $2,241.91 | $0.00 | 8.90% | $22,949.09 | 91.10% |
| **Total Object of Expense** | | **$1,128,749.00** | **$0.00** | **$1,128,749.00** | **$71,639.95** | **$0.00** | **6.35%** | **$1,057,109.05** | **93.65%** |