

AGENDA



Date: April 5, 2019

The regular meeting of the Dallas Police and Fire Pension System Board of Trustees will be held at **8:30 a.m. on Thursday, April 11, 2019, in the Second Floor Board Room at 4100 Harry Hines Boulevard, Dallas, Texas.** Items of the following agenda will be presented to the Board:

A. MOMENT OF SILENCE

B. CONSENT AGENDA

1. Approval of Minutes

Regular meeting of March 14, 2019

2. Approval of Refunds of Contributions for the Month of March 2019

3. Approval of Estate Settlements

4. Approval of Survivor Benefits

5. Approval of Service Retirements

6. Approval of Alternate Payee Benefits

7. Approval of Payment of Previously Withdrawn Contributions

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

- 1. Welcome of newly appointed Trustee**
- 2. Results of the Actuarial Review Required by Texas Government Code 802.1012**
- 3. Audit Plan**
- 4. January 1, 2019 Actuarial Valuation Assumptions**
- 5. Pension Obligation Bond Research**
- 6. 2018 Final Budget Review**
- 7. Chairman's Discussion Items**

Recap of the meeting with the retiree associations.

8. Trustee Terms and Draft Election Schedule

9. Portfolio Update

10. Private Asset Cash Flow Projection Update

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.072 of the Texas Government Code.

11. Report on Investment Advisory Committee Meeting

12. Lone Star Investment Advisors Funds

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.071 of the Texas Government Code.

13. Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including DPF v. The Townsend Group et al., USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPF and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws.

14. Legislative Update

15. Monthly Contribution Report

16. Board approval of Trustee education and travel

- a. Future Education and Business-related Travel
- b. Future Investment-related Travel

17. Board Members' reports on meetings, seminars and/or conferences attended

TEXPERS Annual Conference

D. BRIEFING ITEMS

- 1. Reports and concerns of active members and pensioners of the Dallas Police and Fire Pension System**
- 2. Executive Director's report**
 - a. Associations' newsletters
 - NCPERS Monitor (March 2019)
 - b. Open Records

The term "possible action" in the wording of any Agenda item contained herein serves as notice that the Board may, as permitted by the Texas Government Code, Section 551, in its discretion, dispose of any item by any action in the following non-exclusive list: approval, disapproval, deferral, table, take no action, and receive and file. At the discretion of the Board, items on this agenda may be considered at times other than in the order indicated in this agenda.

At any point during the consideration of the above items, the Board may go into Closed Executive Session as per Texas Government Code, Section 551.071 for consultation with attorneys, Section 551.072 for real estate matters, Section 551.074 for personnel matters, and Section 551.078 for review of medical records.



ITEM #A

MOMENT OF SILENCE

In memory of our Members and Pensioners who recently passed away

NAME	ACTIVE/ RETIRED	DEPARTMENT	DATE OF DEATH
Kenneth E. Jordan	Retired	Fire	Mar. 6, 2019
James D. Mercer	Retired	Police	Mar. 13, 2019
W. E. Orzechowski	Retired	Police	Mar. 15, 2019
David M. Davis	Retired	Police	Mar. 27, 2019
J. K. Scarborough	Retired	Fire	Mar. 31, 2019

Regular Board Meeting – Thursday, April 11, 2019

**Dallas Police and Fire Pension System
Thursday, March 14, 2019
8:30 a.m.
4100 Harry Hines Blvd., Suite 100
Second Floor Board Room
Dallas, TX**

Regular meeting, William F. Quinn, Chairman, presiding:

ROLL CALL

Board Members

Present at 8:30 a.m. William F. Quinn, Samuel L. Friar, Blaine Dickens (by phone), Ray Nixon, Tina Hernandez Patterson (by phone), Robert C. Walters, Joseph P. Schutz

Absent: Nicholas A. Merrick, Gilbert A. Garcia, Kneeland Youngblood

Staff

Kelly Gottschalk, Josh Mond, Kent Custer, Brenda Barnes, John Holt, Cynthia Thomas, Ryan Wagner, Greg Irlbeck, Milissa Romero

Others

Leandro Festino, Ron Pastore, Mark Morrison, Nina Cortell, David Harper, Kenneth Sprecher, Zaman Hemani, Sara Mongerson, Sandy Alexander

* * * * *

The meeting was called to order at 8:30 a.m.

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A. MOMENT OF SILENCE

The Board observed a moment of silence in memory of retired police officer William L. Brown, Jr. and retired firefighters M. D. Reinertson, E. H. Dudley, Kenneth W. Epley and L. M. Hester.

No motion was made.

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**Regular Board Meeting
Thursday, March 14, 2019**

B. CONSENT AGENDA

1. Approval of Minutes

Regular meeting of February 14, 2019

2. Approval of Refunds of Contributions for the Month of February 2019

3. Approval of Estate Settlements

4. Approval of Survivor Benefits

5. Approval of Service Retirements

6. Approval of Alternate Payee Benefits

After discussion, Mr. Walters made a motion to approve the minutes of the meeting of February 14, 2019. Mr. Friar seconded the motion, which was unanimously approved by the Board.

After discussion, Mr. Friar made a motion to approve the remaining items on the Consent Agenda, subject to the final approval of the staff. Mr. Schutz seconded the motion, which was unanimously approved by the Board.

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C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. Chairman's Discussion Items

- a. USERRA contributions from the City of Dallas
- b. Mayoral Trustee Vacancy

The Chairman briefed the Board about USERRA contributions from the City of Dallas and the Mayoral Trustee vacancy due to the resignation of Frederick E. Rowe.

No motion was made.

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**Regular Board Meeting
Thursday, March 14, 2019**

2. Investment Advisory Committee

- a. Possible Investment Policy Statement Amendment
 - b. Possible New Member Appointment
-
- a. The requirements in the Investment Policy Statement regarding meetings of the Investment Advisory Committee (IAC) do not address the number of outside members who must attend meetings. Staff discussed with the Board a possible amendment of the Investment Policy Statement to provide for the requirement that a majority of outside members be present at any meeting of the IAC and that the Board be advised of how each IAC member voted on any vote for any action reported to the Board by the IAC.
 - b. Staff updated the Board that one of the appointed IAC members is no longer able to serve on the committee.

After discussion, Mr. Nixon volunteered to step down from the IAC temporarily and made a motion to approve the Investment Policy Statement as amended. Mr. Walters seconded the motion, which was unanimously approved by the Board.

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3. Fourth Quarter 2018 Investment Performance Analysis and Third Quarter 2018 Private Markets & Real Assets Review

Leandro Festino, Managing Principal with Meketa Investment Group and the Investment Staff reviewed the investment performance.

No motion was made.

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4. Securities Lending

In response to questions from the February 14, 2019 meeting, Staff provided perspective on recent drivers of securities lending income.

No motion was made.

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**Regular Board Meeting
Thursday, March 14, 2019**

5. AIRRO Update and Potential Funding

DPFP has a \$37 million commitment to the Asian Infrastructure and Related Resources Opportunity (AIRRO) fund. Staff updated the Board on recent events within the AIRRO fund and a potential capital raise that may be dilutive to limited partners unless they participate. The Board directed staff to update the Board with any material information.

No motion was made.

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6. Lone Star Investment Advisor Funds

Staff briefed the Board on funds managed by Lone Star Investment Advisors.

The Board went into closed session executive session – Legal at 11:06 a.m.

The meeting was reopened at 12:08 p.m.

No motion was made.

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7. Portfolio Update

Investment Staff briefed the Board on recent events and current developments with respect to the investment portfolio.

No motion was made.

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**Regular Board Meeting
Thursday, March 14, 2019**

8. Real Estate Overview - AEW Portfolio

The Board went into closed session executive session – Real Estate at 9:37 a.m.

The meeting was reopened at 10:53 a.m.

Ron Pastore - Senior Portfolio Manager and Mark Morrison - Assistant Portfolio Manager, representatives with AEW Capital Management (“AEW”) updated the Board on the status and plans for DPFP’s investments in RED Consolidated Holdings (“RCH”) and Camel Square, an office development in Phoenix. AEW took over management of these investments in February of 2015.

After discussion, Mr. Walters made a motion to authorize AEW to consummate the sale of Camel Square through either a single sale or separate sales, subject to final approval by the Executive Director, with the requirement that any transaction which calls for any reinvestment or participation in redevelopment by DPFP will require Board approval. Mr. Nixon seconded the motion, which was unanimously approved by the Board.

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9. Real Estate Manager Discretion

AEW and Clarion took over management of a portion of DPFP’s real estate portfolio in 2015. Both AEW, in the case of RED Consolidated Holdings (“RCH”), and Clarion, with CCH Lamar and The Tribute, manage DPFP’s interest in joint-ventures with operating partners that hold many underlying properties in various states of operations and development. Staff was seeking to confirm with the Board staff’s understanding of the discretion granted to AEW and Clarion on these investments.

After discussion, Mr. Walters made a motion to confirm the discretion of AEW and Clarion to manage DPFP’s interest in RCH, and CCH Lamar and The Tribute, respectively, including dispositions, subject to Executive Director approval, except that a sale of all or substantially all of DPFP’s interest in these investments will require Board approval. Mr. Nixon seconded the motion, which was unanimously approved by the Board.

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**Regular Board Meeting
Thursday, March 14, 2019**

10. Legislative Update

Staff briefed the Board on pending legislation which would affect DPFP.

No motion was made.

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11. Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including potential lawsuits involving collection of overpayments, USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPFP and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws, including discussion about interpretation of Section 6.13 of Article 6243a-1 and Section 551.143 of the Texas Open Meetings Act.

The Board went into closed session executive session – Legal at 11:06 a.m.

The meeting was reopened at 12:08 p.m.

The Executive Director stated that, absent contrary direction from the Board, Section 6.13 of the plan will be interpreted to provide the benefit provided under Section 6.13 to any spouse who is a qualified survivor if (i) such person was age 55 on September 1, 2017 and (ii) such person’s spouse is a member or pensioner who was receiving the benefit supplement under Section 6.13 on September 1, 2017.

No motion was made.

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12. Correction of Errors in Benefit Payments Policy

Staff proposed an amendment to the Correction of Errors in Benefit Payments Policy to limit the period interest is payable in the case where a payee cannot be located. The amendment would end the period interest is due to 30 days after a notice is sent to the last known address in DPFP’s records.

After discussion, Mr. Quinn made a motion to adopt the Correction of Errors in Benefit Payments Policy, as amended. Mr. Friar seconded the motion, which was unanimously approved by the Board.

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**Regular Board Meeting
Thursday, March 14, 2019**

13. Pension Obligation Bond Research

This item was postponed to a later date.

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14. Monthly Contribution Report

Staff presented the Monthly Contribution Report.

No motion was made.

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15. Board approval of Trustee education and travel

- a. Future Education and Business-related Travel**
- b. Future Investment-related Travel**

No discussion was held, and no motion was made regarding Trustee education and travel. There was no future investment-related travel.

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D. BRIEFING ITEMS

1. Reports and concerns of active members and pensioners of the Dallas Police and Fire Pension System

No active member or pensioner requested to address the Board with concerns.

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2. Executive Director's report

- a. Associations' newsletters**
 - NCPERS PERSist (Winter 2019)
- b. Open Records Requests**
- c. City Payroll Issues Update**

The Executive Director's report was presented.

**Regular Board Meeting
Thursday, March 14, 2019**

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Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Friar and a second by Mr. Walters, the meeting was adjourned at 12:18 p.m. Mr. Nixon was not present for the vote.

William F. Quinn
Chairman

ATTEST:

Kelly Gottschalk
Secretary

DRAFT



DISCUSSION SHEET

ITEM #C1

Topic: Welcome of newly appointed Trustee

Discussion: Mayor Rawlings appointed Susan M. Byrne to fill the remaining term vacated by Frederick E. Rowe.

Regular Board Meeting – Thursday, April 11, 2019

Memorandum

RECEIVED
2019 MAR 18 PM 4:55
CITY SECRETARY
DALLAS, TEXAS



CITY OF DALLAS

DATE March 18, 2019

TO Honorable Members of the City Council

SUBJECT **Dallas Police & Fire Pension System Board Appointment**

Under state legislation passed in 2017, the Dallas Police & Fire Pension System’s 11-member governing board shall include “six trustees appointed by the mayor, in consultation with the city council.” Last month, Trustee Frederick E. Rowe, Jr., submitted his resignation from the board. As such, I am consulting with you regarding my appointee to replace Mr. Rowe, Susan M. Byrne.

Ms. Byrne, a Dallas resident, has over 45 years of Wall Street, portfolio management and plan sponsor experience. She is the founder and vice chairman of Westwood Holdings Group, Inc. a registered investment advisor trading on the New York Stock Exchange (NYSE: WHG). In addition, Ms. Byrne served as the company's chief investment Officer from inception until 2011. She retired as an employee in June 2015.

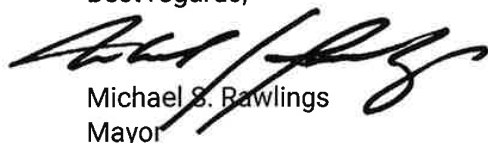
Founded in 1983, Westwood serves a variety of institutional clients, such as corporate pension funds, religious organizations, endowments and foundations. In addition, Westwood is the investment advisor to The WHG Funds, a family of open-ended mutual funds. Ms. Byrne serves on the Boards of Westwood Management and Westwood International Advisors (WIA), WHG subsidiaries. Westwood currently manages over \$21 billion in assets.

Ms. Byrne also currently serves as vice chairman of the WHG Board and on the board of Westwood Trust, WHG's subsidiary serving high net worth investors. She is a board member for the Impact Dallas Capital, a non-profit created to increase investment in southern Dallas. She is also a trustee of The Dallas Museum of Art, where she serves as treasurer and is a member of the executive committee.

Ms. Byrne is a member of both the New York and Dallas Societies of Securities Analysts. She has been featured on CNBC and in numerous financial publications, including Barron’s, Smart Money, The Wall Street Journal, Kiplinger’s and Fortune.

Please call me directly if you have any advice in this consultation process.

Best regards,


Michael S. Rawlings
Mayor

- c: T.C. Broadnax, City Manager
- Chris Caso, City Attorney (Interim)
- Carol A. Smith, City Auditor (Interim)
- Biliera Johnson, City Secretary

- Kimberly Bizar Tolbert, Chief of Staff to the City Manager
- Jon Fortune, Assistant City Manager
- Elizabeth Reich, Chief Financial Officer



DISCUSSION SHEET

ITEM #C2

Topic: Results of the Actuarial Review Required by Texas Government Code 802.1012

Attendees: Jeannie Chen, Specialist Leader, Deloitte Consulting LLP
Joe Kropiewnicki, Consultant, Deloitte Consulting LLP
Rocky Joyner, Vice President, Segal Consulting
Jeff Williams, Vice President, Segal Consulting

Discussion: Texas Government Code Section 802.1012 requires plan sponsors to conduct an actuarial review of pension systems every five years. The City of Dallas contracted with Deloitte Consulting LLP (Deloitte) to conduct the review. Deloitte reviewed both the 1-1-2018 actuarial valuation and the 12-31-2014 Experience Study. Deloitte reviewed both the Regular Plan (Combined Plan) and the Supplemental Plan. Due to the size, the Supplemental Plan review was not required but the review was conducted for informational purposes.

Deloitte will discuss their review, conclusions and recommendations. Representatives from Segal Consulting will also be available to respond to recommendations and address any questions.

Regular Board Meeting – Thursday, April 11, 2019



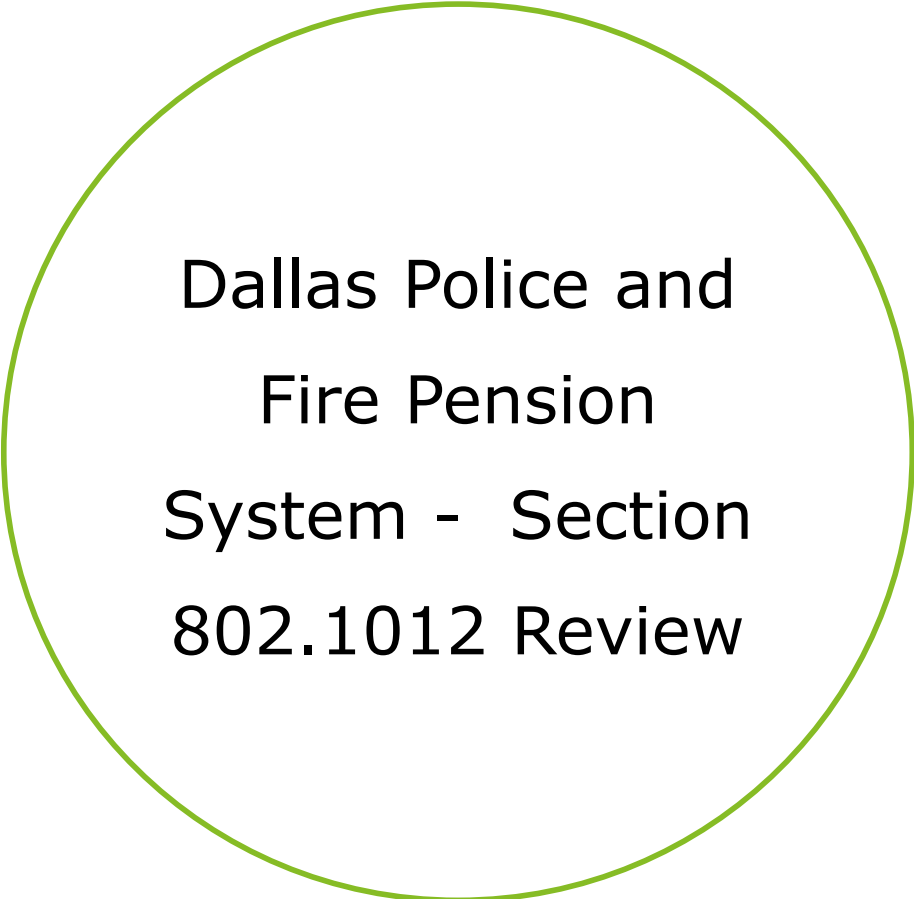
DISCUSSION SHEET

ITEM #C2 (continued)

Staff

Recommendation: Direct staff to consult with Segal and provide responses as staff deems appropriate to accompany the final report that Deloitte will submit to the City of Dallas.

Regular Board Meeting – Thursday, April 11, 2019

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Dallas Police and
Fire Pension
System - Section
802.1012 Review

Presentation of Results to Board

April 11, 2019

Requirements of Texas Government Code Section 802.1012

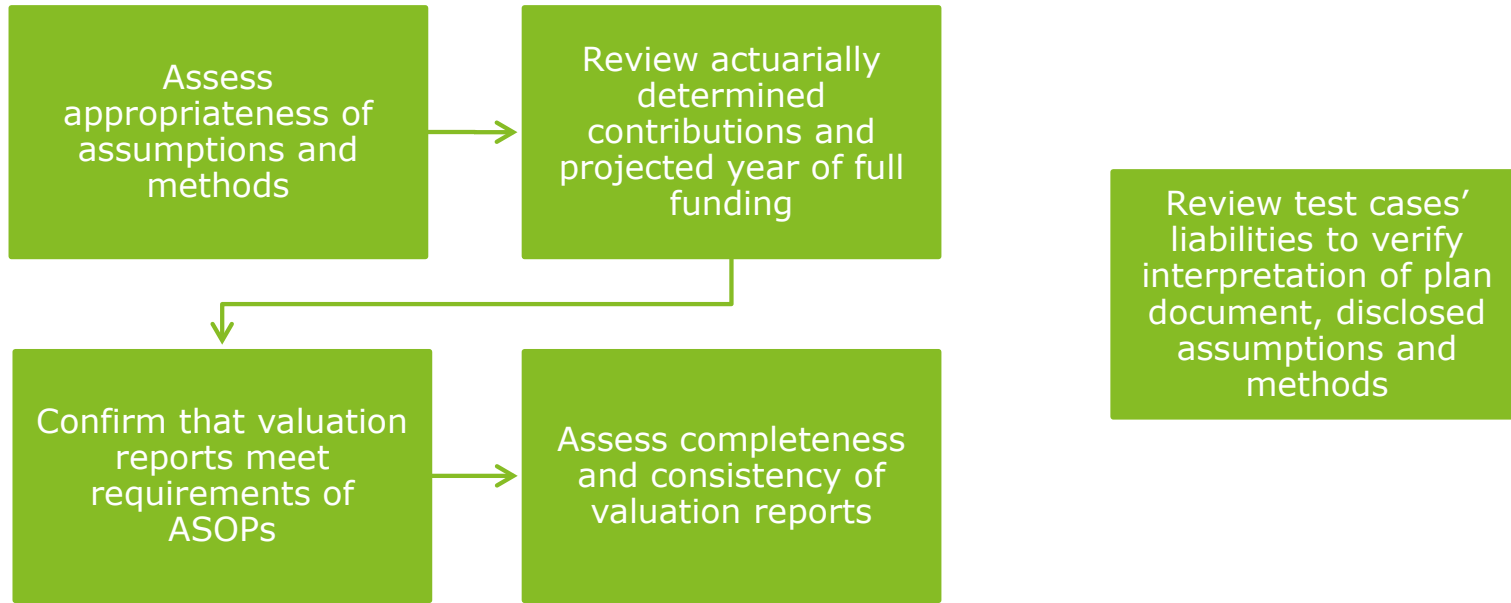
- Applies only to a public retirement system with total assets the book value of which, as of the last day of the preceding fiscal year, is at least \$100 million.
 - Deloitte’s review will focus primarily on the DFPF Plan, with commentary regarding the Supplemental Plan to the extent necessary.
- Every five years, the actuarial valuations, studies, and reports of a public retirement system most recently prepared for the retirement system... must be audited by an independent actuary

<p>Prior to Commencing Audit</p>	<ul style="list-style-type: none"> • Agree in writing with the City to maintain the confidentiality of any non-public information provided by the pension funds for the audits • Meet with manager of the pension funds to discuss appropriate assumptions to use in conducting audits
<p>No later than 30th Day After Completion</p>	<ul style="list-style-type: none"> • Submit draft report to pension funds for discussion and clarification • Discuss draft report with pension funds’ Boards • Request in writing that the pension funds submit any response to accompany the final report within 30 days of receiving draft report
<p>31st to 60th Day After Submitting Draft Report</p>	<ul style="list-style-type: none"> • Submit final audit report to the City • At first regularly scheduled open meeting after receiving final report, City Council will: <ul style="list-style-type: none"> – Include presentation of audit report on the agenda – Present final audit report and any response from the pension funds – Provide printed copies of final audit report and response from pension funds to individuals attending meeting
<p>City’s responsibility – No later than 30th day After Receiving Final Report</p>	<ul style="list-style-type: none"> • Submit a copy of the final report to the pension funds and the State Pension Review Board • Maintain a copy of the final report at main office for public inspection

Source: Texas Pension Review Board, GOVERNMENT CODE Title 8, Subtitle A

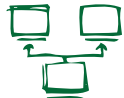
<http://www.prb.state.tx.us/txpen/wp-content/uploads/2017/09/2017-Government-Code-Title-8-Subtitle-A.pdf>

Deloitte's Process

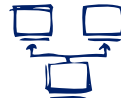


Items received from the Fund for Deloitte's Process

System data from DPFP



Final valuation data from retained actuary



Plan document



Test cases from the 1/1/2018 valuation



1/1/2018 valuation report



12/31/2014 experience study



Findings and Recommendations



Findings

- It is our opinion that the January 1, 2018 actuarial valuation and the December 31, 2014 experience study for the DPFP were performed in compliance with the applicable Actuarial Standards of Practice issued by the Actuarial Standards Board.
- The assumptions used in the January 1, 2018 actuarial valuation were updated as recommended in the experience study, and subsequent changes to certain economic and demographic assumptions recommended at September 1, 2017.
- Plan provisions, methods and assumptions disclosed in the January 1, 2018 actuarial valuation report were appropriately valued based on our review of the sample life outputs.



Recommendations

- **We did not find any issues that rose to the level of serious concern;** however, we have made recommendations that, in our opinion, may more accurately estimate the liabilities.
- We have also noted recommendations that could improve the transparency and understanding of the actuarial work performed. In addition to clarifications for certain assumptions and plan provisions being valued, we recommend providing sensitivity analysis associated with certain assumptions.

Findings and Recommendations



Recommendations (cont.)

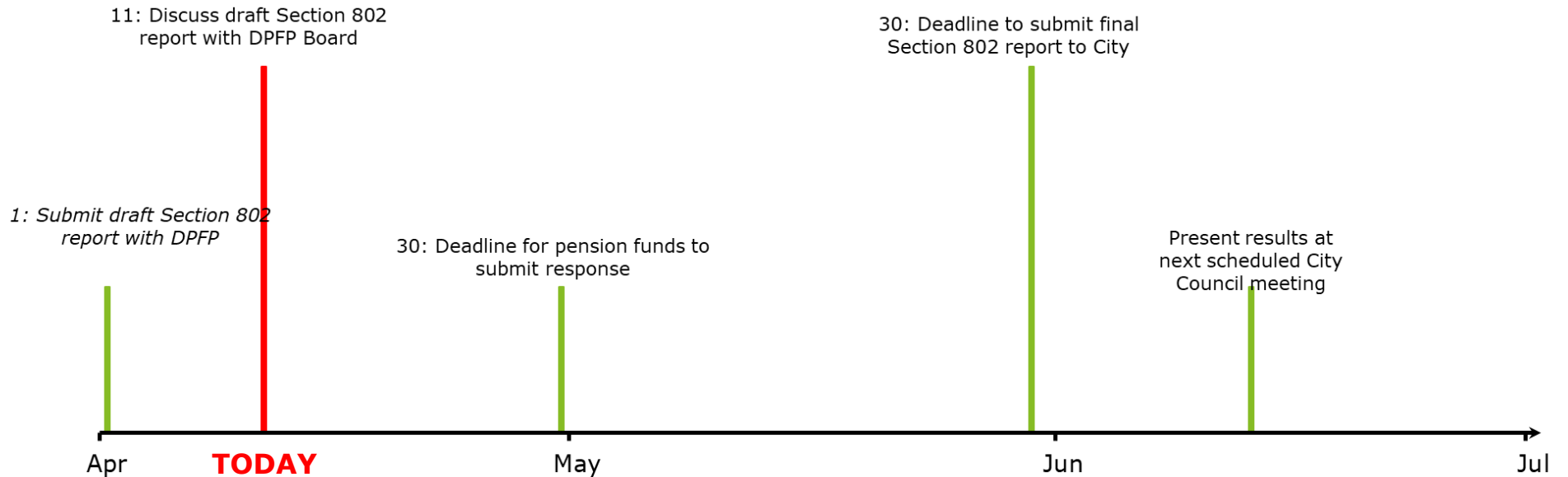
- Below are recommendations that we would like to highlight (the full list of recommendations is included in the appendix)

Valuation Report	Recommendation	Purpose
Funding Method	Determine the Actuarially Determined Contribution (ADC) based on funding policy best practices	Increase transparency between best practice funding policy and statutory contributions
Funding Method	Disclose the history of fully funded year	Increase transparency of plan funding history
Report Content	Disclose 10-20 years of undiscounted cash flows	Enhance understanding of the plan's financial obligation

Experience Study	Recommendation	Purpose
Salary Increase	Study the salary increase assumption for the DPFPP Supp, as its definition of compensation differs from the DPFPP	Improve appropriateness of assumption selection
Withdrawal	Consider adding a separate withdrawal assumption for members hired after March 1, 2011	Align assumption selection with expected behavior based on plan provisions

Timeline and Next Steps

Time Frame	Activities
April 1, 2019	<ul style="list-style-type: none"> Deloitte submitted draft Section 802 Report to DFPF
April 11, 2019	<ul style="list-style-type: none"> Deloitte discusses draft Section 802 Report with DFPF Board
by April 30, 2019	<ul style="list-style-type: none"> Deadline for DFPF to submit response (30 days after submitting draft report)
May 1, 2019 – May 30, 2019	<ul style="list-style-type: none"> Deloitte to submit final Section 802 Report to the City (60 days after submitting draft report)
After Submission of Final Report	<ul style="list-style-type: none"> Present results at next scheduled City Council Meeting



Appendix

Full Summary of Recommendations

Summary of Recommendations

Valuation Report

We recommend the following changes be considered.

Area	Recommendations	Purpose
Plan Provisions	Confirm that the pre-retirement death benefit after leaving active service with fewer than five years should be a lump sum equal to the return of member contributions without interest	Increase transparency of plan design
Plan Provisions	Expand the description of post-retirement death to include situations where the Member had elected a 100% joint and survivor annuity or a life annuity	Increase transparency of plan design
Plan Provisions	Include a description that both the Member and City contributions are reduced if the DFPF has no unfunded actuarial liability, as described in Section 4.025 of the plan document	Increase transparency of plan design
Plan Provisions	Confirm that the description of optional forms available aligns with the plan document	Increase transparency of plan design
Funding Method	Determine the ADC based on funding policy best practices	Increase transparency between best practice funding policy and statutory contributions
Funding Method	Disclose the history of fully funded year	Increase transparency of plan funding history
COLA Assumption	Include documentation for the rationale for the selection of the 2.00% assumption after 2053 for the payment of Ad Hoc COLAs	Enhance support for assumption selection
Retirement Assumption	Clarify the language for DROP actives to disclose that a retirement rate of 100% is assumed after achieving 8 years of DROP service in any future year	Enhance support for assumption selection

Summary of Recommendations

Valuation Report

We recommend the following changes be considered.

Area	Recommendations	Purpose
Retirement Assumption	Provide detail on the basis of the selection of the non-DROP retirement assumption	Enhance support for assumption selection
Form of payment Assumption	Disclose the actuarial equivalence assumption	Enhance support for assumption selection
Report Content	Demonstrate the sensitivity of the discount rate assumption by providing key metrics using a discount rate 1% higher and 1% lower than the prescribed rate	Increase understanding of impact of experience deviating from expected
Report Content	Disclose 10-20 years of undiscounted cash flows	Enhance understanding of the plan's financial obligation
Report Content	Categorize the target and actual asset allocations across consistent classes	Enhance understanding of the plan's investment policy

Summary of Recommendations

Experience Study

The following are our recommendations and purpose for the recommendations to be considered in the next experience study.

Area	Recommendations	Purpose
Investment Return	Include additional detail in support of the investment return assumption, including: <ul style="list-style-type: none"> • the reasonable range for the real return component • the target asset allocation used in the analysis • expected returns by asset class used in the forecast • Description of whether the arithmetic or geometric return was considered when developing the reasonable range of investment returns 	Support assumption selection
Salary Increase	Study the salary increase assumption for the DFPF Supp, as its definition of compensation differs from the DFPF	Improve appropriateness of assumption selection
Mortality	Discuss the basis for the selection of the Blue-Collar adjustment and the set back/forward period including a credibility analysis	Support assumption selection
Mortality	Review the appropriateness of updating the base mortality table to the Pub-2010 mortality tables	Align assumption to recently released industry accepted standard
Retirement	Consider studying the retirement behavior of deferred vested participants	Align assumption selection with expected behavior based on plan provisions
Withdrawal	Consider adding a separate withdrawal assumption for members hired after March 1, 2011	Align assumption selection with expected behavior based on plan provisions
Disability	Supplement historical data with industry-standard data for disability incidence for similar job types to increase credibility	Improve appropriateness of assumption selection

Summary of Recommendations

Experience Study

The following are our recommendations and purpose for the recommendations to be considered in the next experience study.

Area	Recommendations	Purpose
Disability	Study the incidence of service versus non-service related disabilities	Improve appropriateness of assumption selection
Age of Survivor	Disclose the observed data on the age difference between male and female spouses for the DFPF's retirees to support the assumption	Support assumption selection
Form of Payment	Study the refund versus deferred annuity behavior for terminated vested participants	Align assumption selection with expected behavior based on plan provisions
Form of Payment	Develop an optional form election assumption based on the forms offered by the DFPF and value the impact of the actuarial equivalence factors directly in the valuation software	Improve accuracy of valuation method based on plan provisions



Dallas Police and Fire Pension System

Review under Texas Government Code Section
802.1012

Prepared by Deloitte Consulting LLP

April 2019

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Actuarial Opinion

This report presents the results of the actuarial review of the most recently prepared actuarial valuation and experience study for the Dallas Police and Fire Pension System ("DPFP", or "System", or "plan"), a plan sponsored by the City of Dallas ("City"), to satisfy the requirements of Texas Government Code Section 802.1012 ("Section 802").

Our review was based on participant data and financial information provided by the DPFP and their retained actuary, Segal Consulting ("Segal" or "actuary").

In our opinion, the January 1, 2018 actuarial valuation and the December 31, 2014 experience study for the DPFP were performed in compliance with the applicable Actuarial Standards of Practice issued by the Actuarial Standards Board.

Future actuarial measurements may differ significantly from current measurements presented in this report due to such factors as the following: actual plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operations of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's actual future funded status); and changes in plan provisions or applicable law. Our scope did not include analyzing the potential range of such future measurements based on potential impacts of these factors; therefore, we did not perform such an analysis.

The undersigned with actuarial credentials collectively meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

This report was prepared solely for the benefit and internal use of the City. This report is not intended for the benefit of any other party and may not be relied upon by any third party for any purpose, and Deloitte Consulting accepts no responsibility or liability with respect to any party other than the City.

To the best of our knowledge, no employee of the Deloitte U.S. Firms is an officer or director of the employer. In addition, we are not aware of any relationship between the Deloitte U.S. Firms and the employer that may impair or appear to impair the objectivity of the work included in this analysis.

DELOITTE CONSULTING LLP

Michael de Leon, ASA, FCA, EA, MAAA
Managing Director

Jeannie Chen, ASA, EA, MAAA
Specialist Leader

Executive Summary

Intent

The intent of this report is to review the January 1, 2018 actuarial valuation and the December 31, 2014 experience study reports prepared by Segal for compliance with the applicable Actuarial Standards of Practice issued by the Actuarial Standards Board, to satisfy the requirements of Texas Government Code Section 802.1012.

Additionally, while a review of the Dallas Police and Fire Pension System Supplemental Plan ("DPFP Supp") is not required by Section 802.1012 (assets are under \$100 million), commentary provided in this report may apply to the DPFP Supp where appropriate. The plan provisions for the DPFP Supp are identical to the DPFP except that the DPFP Supp uses a different definition of pay and it excludes certain minimum benefits.

Process

To achieve the above-stated goals, we have reviewed both the DPFP-provided and actuary-provided census data, sample life output from the actuary's valuation software, the January 1, 2018 actuarial valuation report, and the December 31, 2014 experience study report. The DPFP-provided data was used by retained actuary used to develop the census data used as the basis for the actuarial valuation.

Results and Recommendations

As stated in the previous section, it is our opinion that the January 1, 2018 actuarial valuation and the December 31, 2014 experience study for the DPFP were performed in compliance with the applicable Actuarial Standards of Practice issued by the Actuarial Standards Board.

The assumptions used in the January 1, 2018 actuarial valuation were updated as recommended in the experience study, and subsequent changes to certain economic and demographic assumptions recommended at September 1, 2017.

Plan provisions, methods and assumptions disclosed in the January 1, 2018 actuarial valuation report were appropriately valued based on our review of the sample life outputs.

We did not find any issues that rose to the level of serious concern; however, we have made recommendations that, in our opinion, may more accurately estimate the liabilities.

We have also noted recommendations that could improve the transparency and understanding of the actuarial work performed. In addition to clarifications for certain assumptions and plan provisions being valued, we recommend providing sensitivity analysis associated with certain assumptions.

These comments are discussed further in the Summary of Key Findings section as well as the detailed sections that follow.

Summary of Key Findings and Recommendations

Valuation Report

We recommend the following changes be considered.

Area	Recommendations	Purpose
Plan Provisions	Confirm that the pre-retirement death benefit after leaving active service with fewer than five years should be a lump sum equal to the return of member contributions without interest	Increase transparency of plan design
Plan Provisions	Expand the description of post-retirement death to include situations where the Member had elected a 100% joint and survivor annuity or a life annuity	Increase transparency of plan design
Plan Provisions	Include a description that both the Member and City contributions are reduced if the DFPF has no unfunded actuarial liability, as described in Section 4.025 of the plan document	Increase transparency of plan design
Plan Provisions	Confirm that the description of optional forms available aligns with the plan document	Increase transparency of plan design
Funding Method	Determine the ADC based on funding policy best practices	Increase transparency between best practice funding policy and statutory contributions
Funding Method	Disclose the history of fully funded year	Increase transparency of plan funding history
COLA Assumption	Include documentation for the rationale for the selection of the 2.00% assumption after 2053 for the payment of Ad Hoc COLAs	Enhance support for assumption selection
Retirement Assumption	Clarify the language for DROP actives to disclose that a retirement rate of 100% is assumed after achieving 8 years of DROP service in any future year	Enhance support for assumption selection
Retirement Assumption	Provide detail on the basis of the selection of the non-DROP retirement assumption	Enhance support for assumption selection
Form of Payment Assumption	Disclose the actuarial equivalence assumption	Enhance support for assumption selection

Summary of Key Findings

Area	Recommendations	Purpose
Report Content	Demonstrate the sensitivity of the discount rate assumption by providing key metrics using a discount rate 1% higher and 1% lower than the prescribed rate	Increase understanding of impact of experience deviating from expected
Report Content	Disclose 10-20 years of undiscounted cash flows	Enhance understanding of the plan's financial obligation
Report Content	Categorize the target and actual asset allocations across consistent classes	Enhance understanding of the plan's investment policy

The details supporting these findings and recommendations are included in the sections that follow.

Experience Study

The following are our recommendations and purpose for the recommendations to be considered in the next experience study.

Area	Recommendation	Purpose
Investment Return	Include additional detail in support of the investment return assumption, including: <ul style="list-style-type: none"> the reasonable range for the real return component the target asset allocation used in the analysis expected returns by asset class used in the forecast Description of whether the arithmetic or geometric return was considered when developing the reasonable range of investment returns 	Support assumption selection
Salary Increase	Study the salary increase assumption for the DFPF Supp, as its definition of compensation differs from the DFPF	Improve appropriateness of assumption selection
Mortality	Discuss the basis for the selection of the Blue-Collar adjustment and the set back/forward period including a credibility analysis	Support assumption selection
Mortality	Review the appropriateness of updating the base mortality table to the Pub-2010 mortality tables	Align assumption to recently released industry accepted standard
Retirement	Consider studying the retirement behavior of deferred vested participants	Align assumption selection with expected behavior based on plan provisions
Withdrawal	Consider adding a separate withdrawal assumption for members hired after March 1, 2011	Align assumption selection with expected behavior based on plan provisions
Disability	Supplement historical data with industry-standard data for disability incidence for similar job types to increase credibility	Improve appropriateness of assumption selection
Disability	Study the incidence of service versus non-service related disabilities	Improve appropriateness of assumption selection
Age of Survivor	Disclose the observed data on the age difference between male and female spouses for the DFPF's retirees to support the assumption	Support assumption selection
Form of Payment	Study the refund versus deferred annuity behavior for terminated vested participants	Align assumption selection with expected behavior based on plan provisions

Summary of Key Findings

Area	Recommendation	Purpose
Form of Payment	Develop an optional form election assumption based on the forms offered by the DFPF and value the impact of the actuarial equivalence factors directly in the valuation software	Improve accuracy of valuation method based on plan provisions

The details supporting these findings and recommendations are included in the sections that follow.

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Review of Plan Provisions

The plan provisions and some actuarial assumptions and methods are prescribed in Article 6243a-1 of the Texas Statutes (as amended as of May 31, 2017 by HB3158) ("plan document"). Our review identifies the prescriptions from the plan document, and compares their requirements against the provisions, assumptions, and methods valued and disclosed in the report by the retained actuary.

Comments and Recommendations

For the DFPF, we reviewed the summary of Benefit Provisions on pages 51-58 of the valuation report and assessed the completeness of the summary provided in comparison to the plan document.

We have the following recommendations to improve transparency and completeness of the valuation report's summary of benefit provisions:

Provisions	Recommendations
Pre-Retirement Death Benefits	Confirm that the pre-retirement death benefit after leaving active service with fewer than five years should be a lump sum equal to the return of member contributions without interest. The summary of benefit provisions incorrectly states that the refund includes interest.
Post-Retirement Death Benefits	Expand the description of post-retirement death to include situations where the Member had elected a 100% joint and survivor annuity or a life annuity
Member and City Contributions	Include a description that both the Member and City contributions are reduced if the DFPF has no unfunded actuarial liability, as described in Section 4.025 of the plan document
Optional Form of Benefits	Confirm that the description of optional forms available aligns with the plan document. From the plan document, it appears that the only optional form available is a 100% joint and survivor annuity

Other than the recommendations above, the summary provisions do not conflict with the provisions described in the plan document, nor do they omit any plan provisions described in the plan document that could have a significant impact on plan benefits.

Review of Census Data

There are typical and anticipated adjustments made to census data in preparing an actuarial valuation. This section assesses the reasonableness of the retained actuary's reconciliation and data adjustment procedures, including their documentation in the valuation report. To perform this analysis, we received data files from the DFPF, valuation data files from the retained actuary and sample life output from the actuary's valuation software. The DFPF-provided data was used by the retained actuary to develop the census data used as the basis for the actuarial valuation.

Applicable ASOPs

Actuarial Standard of Practice No. 23, Data Quality, provides general guidance for determining if data is appropriate for its intended purpose and whether it is sufficiently reasonable, consistent, and comprehensive. Section 3.1 of the ASOP effective for the December 31, 2017 actuarial valuation report states:

Appropriate data that are accurate and complete may not be available. The actuary should use available data that, in the actuary's professional judgment, allow the actuary to perform the desired analysis. However, if significant data limitations are known to the actuary, the actuary should disclose those limitations and their implications.

Section 3.5 of this Standard also addresses the actuary's responsibilities in reviewing data upon which they rely and states that in such cases:

... the actuary should perform a review, unless, in the actuary's professional judgment, such review is not necessary or not practical. In exercising such professional judgment, the actuary should take into account the purpose and nature of the assignment, any relevant constraints, and the extent of any known checking, verification, or audit of the data that has already been performed.

And Section 3.4c. of this Standard states:

...judgmental adjustments or assumptions can be applied to the data that allow the actuary to perform the analysis. Any judgmental adjustments to data or assumptions should be disclosed...

Comments and Recommendations

Documentation of data review procedures performed by the actuary

Page 9 of the DFPF valuation report (and page 8 of the DFPF Supp valuation report) mentions:

An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.

This statement appropriately addresses Section 3.5 of ASOP 23.

Data reconciliation and adjustment process performed by the actuary

We have reviewed adjustments and assumptions that the actuary deemed necessary to create a valuation database. The actuary developed several sets of data questions regarding inconsistencies in participant data between multiple files or unreasonable values or movements for a particular field. We confirmed that the data answers from the City were appropriately reflected in the final valuation data.

The actuary's final valuation file is generally consistent with the data files provided by the DFPF. Additions or removals of records between the raw census file and the final valuation file appear appropriate based on our high-level review of data answers received and information in other key fields (for example, active records with military leave were absent from the raw data but were added to the final valuation data).

Page 50 of the DFPF valuation report mentions that for unknown data for participants:

Same age and service as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.

This statement appropriately addresses Section 3.4c of ASOP 23.

Verification of Sample Life Data

For each sample life, the data used in the sample life calculation is consistent with the valuation data and the data provided by the DFPF. Additional details of the sample life review can be found in the *Review of Sample Lives* section below.

Review of Actuarial Methods

This section determines if the actuarial cost method, funding method, and actuarial asset valuation method used by the DFPF are reasonable and consistent with generally accepted actuarial practice and relevant ASOPs. It also determines if the funding method of the DFPF conforms to the Pension Review Board ("PRB") Funding Guidelines effective June 30, 2017.

Cost Method

Applicable ASOPs

Actuarial Standard of Practice No. 4, *Measuring Pension Obligations*, provides guidance regarding the actuarial cost method for pension valuations. According to Section 3.13 of this ASOP, an "acceptable actuarial cost method" meets the following criteria:

- costs are allocated over the period of time that benefits are earned; and
- costs are allocated on a basis that has a logical relationship to the plan's benefit formula (compensation, service, benefit level, etc.).

Comments and Recommendations

The actuarial cost method used is Entry Age Normal (EAN) as a level percentage of pay.

Under this method, the present value of future benefits (PVFB) is determined for each employee and is then spread evenly as a level percentage of pay over each employee's career. This method therefore produces employer contributions that are level as a percentage of payroll. This method also produces an actuarial accrued liability that is generally more conservative than other cost methods.

This meets the "acceptable actuarial cost method" criteria above.

Funding Method

Applicable ASOPs

Actuarial Standard of Practice No. 4, *Measuring Pension Obligations*, provides guidance regarding the amortization/funding method for pension valuations. According to Section 3.14 of this ASOP:

A cost allocation procedure or contribution allocation procedure typically combines an actuarial cost method, an asset valuation method, and an amortization method to determine the plan cost or contribution for the period.

Generally, an "acceptable contribution allocation procedure" meets the following criteria:

- In the actuary's professional judgment, the procedure is consistent with the plan accumulating adequate assets to make benefit payments when due;

- The procedure should consider relevant input received from the principal, such as a desire for stable or predictable costs or contributions, or a desire to achieve a target funding level within a specified time frame.

Additionally, the **PRB Pension Funding Guidelines** provides guidance for the determination of a plan's funding policy:

Public retirement systems should develop a funding policy, the primary objective of which is to fund the obligations over a time frame that ensures benefit security while balancing the additional, and sometimes competing, goals of intergenerational equity and a stable contribution rate.

1. *The funding of a pension plan should reflect all plan obligations and assets.*
2. *The allocation of the normal cost portion of the contributions should be level or declining as a percentage of payroll over all generations of taxpayers, and should be calculated under applicable actuarial standards.*
3. *Funding of the unfunded actuarial accrued liability should be level or declining as a percentage of payroll over the amortization period.*
4. *Actual contributions made to the plan should be sufficient to cover the normal cost and to amortize the unfunded actuarial accrued liability over as brief a period as possible, but not to exceed 30 years, with 10 - 25 years being a more the preferable target range. For plans that use multiple amortization layers, the weighted average of all amortization periods should not exceed 30 years.* Benefit increases should not be adopted if all plan changes being considered cause a material increase in the amortization period and if the resulting amortization period exceeds 25 years.*

**Plans with amortization periods that exceed 30 years as of 06/30/2017 should seek to reduce their amortization period to 30 years or less as soon as practicable, but not later than 06/30/2025.*

Comments and Recommendations

Page 25 of the DFPF report summarizes the calculation of the Actuarially Determined Contribution (ADC). The ADC, or the recommended employer contribution, is determined to be the sum of the employer normal cost, assumed administrative expenses, and an open 30-year amortization of the Unfunded Actuarial Accrued Liability (UAAL), all adjusted with a half-year of interest.

While the ADC uses a 30-year amortization, HB 3158 prescribes the actual employer contribution, which is outlined on page 25 of the valuation report and below:

The city will contribute 34.5% of computation payroll each year. However, for the pay periods beginning after September 1, 2017 to the pay period ending after December 31, 2024, additional minimum requirements are in force.

The percentage of payroll contributions (along with the minimums in place through 2024) are lower than the recommended contribution, and as a result the implied amortization period is greater than 30 years. Page 25 of the actuarial valuation report states:

The effective amortization, based on the City's payroll projections, is 45 years.

As such, the statutory contributions to DFPF do not meet the 4th requirement of the PRB Funding Guidelines that suggest the amortization of the UAAL should be over a period not to exceed 30 years, preferably 10-25 years.

We recommend that the ADC be determined based on funding policy best practices, such as a shorter open amortization period, a closed amortization period, and/or layered amortization bases over periods that may vary by source of (gain)/loss. This will increase the transparency between the best practice funding policy and the statutory contributions.

We also recommend disclosing the history of fully funded year.

Actuarial Value of Asset Method

Applicable ASOPs

Actuarial Standard of Practice No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*, governs the asset valuation method for pension valuations, which is used to develop the actuarial value of assets (AVA). In short, the Standard does not take issue with using Market Value of Assets (MVA) as a Plan's Actuarial Value of Assets (AVA).

When a plan opts to use a smoothing method, the ASOP provides that the actuary should select an asset valuation method that is designed to produce actuarial values of assets that bear a reasonable relationship to the corresponding market values. In making that determination, the Standard indicates that such a method would be likely to produce:

- AVAs that are sometimes greater than and sometimes less than the corresponding market values
- AVAs that fall within a reasonable range of market values
- Recognition of differences between a plan's AVA and MVA within a reasonable period of time

All three requirements above are considered to be met if in the actuary's professional judgment the asset valuation method:

- Produces AVAs within a sufficiently narrow range of market values; and/or
- Recognizes differences between AVA and MVA in a sufficiently short period

Comments and Recommendations

Page 16 of the actuarial valuation report describes the asset method:

Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value. The actuarial value of assets was reset to market value

Review of Actuarial Methods

as of December 31, 2015, with future gains and losses after that date amortized on a straight-line basis over five years.

The current actuarial value of asset method is consistent with the requirements of ASOP 44.

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Review of Economic Assumptions

Actuarial calculations inherently make predictions about future events to estimate financial costs on a present value basis and to quantify and/or qualify the risks and volatility associated with the financial costs. To do so, actuaries must make best-estimate assumptions about these possible future events and establish methods for performing the calculations. Actuarial assumptions are needed to determine the value of plan obligations to its participants, and actuarial methods create a schedule for allocating costs over a participant's career. The assumptions and methods are established by adhering to best practices for determination, studying historical experience, utilizing relevant external data, and considering internal and reputable external opinions on expected future experience. Comprehensive reporting of the assumptions and methods is required under ASOPs 27, 35, and 41.

Actuarial assumptions used in the valuation of retirement benefits are generally broken into two categories: economic and demographic. This section considers only those assumptions we have categorized as economic, which include assumption dependent on economic factors, such as the inflation rate, payroll growth rate, investment return, and salary increase rate.

This section determines if the economic assumptions are reasonable and consistent with generally accepted actuarial practice and relevant ASOPs. As a component of our review we have also reviewed the results and recommendations of the December 31, 2014 experience study, as well as subsequent changes to certain economic assumptions as a result of HB3158 and the new Meet and Confer Agreement.

Applicable ASOPs

Actuarial Standards of Practice No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries in selecting and recommending economic assumptions. ASOP No. 27 has been restated effective for any actuarial work product with a measurement date on or after September 30, 2014.

The following process is set forth by ASOP 27 in selecting an identified economic assumption:

- a. Identify any components of the assumption
- b. Evaluate relevant data
- c. Consider factors specific to the measurement
- d. Consider other general factors
- e. Select a reasonable assumption

The standard also requires the actuary to review the entire assumption set upon selection of each individual assumption to ensure internal consistency, and make adjustments as necessary.

The standard defines a reasonable assumption as follows:

3.6 — Selecting a Reasonable Assumption—Each economic assumption selected by the actuary should be reasonable. For this purpose, an assumption is reasonable if it has the following characteristics:

- a. *It is appropriate for the purpose of the measurement;*
- b. *It reflects the actuary's professional judgment;*
- c. *It takes into account historical and current economic data that is relevant as of the measurement date;*
- d. *It reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof; and*
- e. *It has no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included and disclosed under section 3.5.1, or when alternative assumptions are used for the assessment of risk.*

3.6.1 — Reasonable Assumption Based on Future Experience or Market Data—The actuary should develop a reasonable economic assumption based on the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof.

3.6.2 —Range of Reasonable Assumptions—The actuary should recognize the uncertain nature of the items for which assumptions are selected and, as a result, may consider several different assumptions reasonable for a given measurement. The actuary should also recognize that different actuaries will apply different professional judgment and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice.

ASOP 27 provides assumption specific guidance for each of the assumptions below. The remainder of this section of our report presents our review of selected economic assumptions to ensure the retained actuaries have followed the ASOP's general guidance and the assumption-specific guidance provided by the ASOP.

Inflation

The inflation assumption is not directly used to measure the liabilities of the plan; rather it is a component of all economic assumptions, including payroll growth, investment return, and salary increase.

Applicable ASOPs

The Actuarial Standards of Practice has brief guidance regarding inflationary data to consider, as noted below:

ASOP No. 27, Section 3.7.1 – Data –*The actuary should review appropriate inflation data. These data may include consumer price indices, the implicit price deflator, forecasts of inflation, yields on government securities of various maturities, and yields on nominal and inflation-indexed debt.*

Retained Actuary's Assumption

The DFPF uses an inflation assumption of 2.75%.

Experience Study Considerations

The retained actuary considered historical Consumer Price Index (CPI) data from the last 40 years, noting that inflation continues at relatively low levels from a historical perspective:

Average Annual Change in CPI-U, Through 2015	
Last 5 years	1.62%
Last 10 years	1.92%
Last 20 years	2.22%
Last 30 years	2.66%
Last 40 years	3.77%

The retained actuary also noted that, based on a recent survey of public plans from the National Association of State Retirement Administrators (NASRA), the average inflation assumption was 3.00%. Considering this trend, as well as the bond market's current low future expectation, the retained actuary determined the reasonable range to be between 2.50% and 3.00%. Ultimately, 2.75% was chosen given the DFP's salary history and because it was within the reasonable range.

Comments and Recommendations

The experience study considered both historical and survey data. To supplement the experience study analysis, which is now several years old, we considered more recent benchmarking information to validate the current inflation assumption of 2.75%. The forward-looking 30-year inflation forecasts from the Office of the Chief Actuary of the Social Security Administration provided in the 2018 OASDI Trustees Report is as follows:

Scenario	CPI
Low Cost	2.0%
Intermediate Cost	2.6%
High Cost	3.2%

Based on the information above, an inflation assumption of 2.75% is reasonable.

Payroll Growth and Wage Inflation

The assumed aggregate payroll growth is used in the amortization of the unfunded actuarial accrued liability. Payroll growth is chosen using a building block approach in which the inflation assumption is added to the assumed real wage growth. Real wage growth includes wage growth due to productivity, but excludes individual compensation increases above wage growth, also called "merit" increases.

Applicable ASOPs

The section of ASOP No. 27 addressing payroll growth provides the actuary with general guidance but is far from prescriptive:

ASOP No. 27, Section 3.11.3 — Rate of Payroll Growth—As a result of terminations and new participants, total payroll generally grows at a different rate than does a participant's salary or the average of all current participants combined. As such, when a payroll growth assumption is needed, the actuary should use an assumption that is consistent with but typically not identical to the compensation increase

assumption. One approach to setting the payroll growth assumption may be to reduce the compensation increase assumption by the effect of any assumed merit increases. The actuary should apply professional judgment in determining whether, given the purpose of the measurement, the payroll growth assumption should be based on a closed or open group and, if the latter, whether the size of that group should be expected to increase, decrease, or remain constant.

Retained Actuary's Assumption

The DFPF uses a payroll growth assumption of 2.75%. While the wage inflation assumption is not explicitly disclosed, the ultimate salary increase rate for employees with over 16 years of service is 3.00%, implying that the wage inflation assumption is 3.00%. Therefore, the DFPF's payroll growth assumption is the same as the inflation assumption while the real wage growth assumption is 0.25%, net of the DFPF's inflation assumption.

Experience Study Considerations

The prior assumption was 4.00%. However, because the average payroll increase over the study period was 0.87%, the retained actuary lowered the assumption to be equal to the inflation assumption of 2.75%.

Comments and Recommendations

National real wages can be studied by reviewing increases in the historical Average Wage Index, or AWI, published by the Social Security Administration. The AWI from 1977 to 2017, is shown below. Real Payroll Growth is the AWI less the CPI-U.

Period	Years	AWI	CPI-U (US)	Real Payroll Growth
2012-2017	5	2.31%	1.02%	1.29%
2007-2017	10	1.99%	1.30%	0.68%
1997-2017	20	2.82%	2.06%	0.76%
1987-2017	30	3.24%	2.46%	0.78%
1977-2017	40	3.98%	3.37%	0.62%

Also, the Office of the Chief Actuary of the Social Security Administration provided real payroll growth forecasts for a 30-year period in the 2018 OASDI Trustees Report:

Scenario	Payroll Differential
Low Cost	1.82%
Intermediate Cost	1.20%
High Cost	0.58%

Based on the information above, as well as the retained actuary's commentary on historical payroll growth, the 0.25% real wage growth assumption and payroll growth assumption that is the same as the inflation assumption are reasonable.

Investment Return

The investment return assumption reflects anticipated returns on the plan's current and future assets. It is also used to calculate the present value of all plan liabilities and generally has the greatest impact of all assumptions reviewed in this report. The investment return assumption is chosen using a building block approach in which the inflation assumption is added to the assumed real rate of return.

Applicable ASOPs

In selecting or recommending an investment return assumption, ASOP No. 27, Section 3.8 provides actuaries with guidance. The standard recommends the actuary review the investment data as follows.

ASOP No. 27, Section 3.8.1 — Data—*The actuary should review appropriate investment data. These data may include the following:*

- a. *current yields to maturity of fixed income securities such as government securities and corporate bonds;*
- b. *forecasts of inflation, GDP growth, and total returns for each asset class;*
- c. *historical and current investment data including, but not limited to, real and nominal returns, the inflation and inflation risk components implicit in the yield of inflation-protected securities, dividend yields, earnings yields, and real estate capitalization rates; and*
- d. *historical plan performance.*

The actuary may also consider historical and current statistical data showing standard deviations, correlations, and other statistical measures related to historical or future expected returns of each asset class and to inflation. Stochastic simulation models or other analyses may be used to develop expected investment returns from this statistical data.

The standards also state the actuary may adjust or customize the data above to reflect asset allocation, investment volatility and investment manager performance among other factors, and that combining estimated components of the investment return assumption and using multiple return rates in lieu of a single rate is also acceptable.

Retained Actuary's Assumption

The DFPF use an annual rate of investment return assumption of 7.25%, which was chosen by the DFPF's Board of Trustees, with input from the actuaries.

Market value of asset returns are assumed to be 4.75% in 2018, 5.00% in 2019, 5.25% in 2020, 6.25% in 2021, and 7.25% annually thereafter, as the DFPF works to rebalance its investment portfolio.

Experience Study Considerations

The investment rate of return assumption is developed using the "building block" approach as outlined in ASOP 27. Under this approach, the investment rate of return assumption is made up of two components; the inflation component and the real investment rate of return component. The

reasonable range of the inflation component determined above is combined with the reasonable range of the real rate of return component. This reasonable range is then evaluated and refined. The final recommendation is a specific point in this best-estimate range.

First, the retained actuary considered the DPFP’s market returns for the last ten years as reported in the January 1, 2015 actuarial valuation report:

Year Ended December 31	Market Value Investment Return
2005	10.81%
2006	14.64%
2007	8.85%
2008	-24.80%
2009	13.78%
2010	10.72%
2011	-1.78%
2012	9.92%
2013	7.70%
2014	-5.25%

	5 Years	10 Years
Arithmetic Return	4.26%	4.46%
Geometric Return	4.05%	3.74%

In addition to looking at the DPFP’s market returns, the retained actuary considered the historical returns of the DPFP’s major asset classes (as revised) as well as assumptions used by other large governmental retirement systems. NASRA published a study in February of 2016 indicating that the average rate of return assumption for over 100 of the nation’s largest governmental retirement systems was 7.62%.

Finally, the retained actuary reviewed the newly adopted investment policy, which included a three-to-five year phase-in of the revised target asset allocation. Based on the target asset allocation and the inflation assumption of 2.75%, the retained actuary believes that 7.25% is reasonable over the next 20 to 30 years. While short-term returns in the three-to-five year phase-in period may fall short of the assumption, the investment return assumption is meant to value long-term liabilities.

Comments and Recommendations

We recommend that the next experience study include additional detail in support of the investment return assumption, including:

- the reasonable range for the real return component
- the target asset allocation used in the analysis.

- expected returns by asset class used in the forecast
- Description of whether the arithmetic or geometric return was considered when developing the reasonable range of investment returns

We have assessed the validity of the 2.75% inflation assumption above. In this section, we assessed the validity of the 4.50% real return assumption based on data provided in the January 1, 2018 valuation report, which discloses the target asset allocation and the anticipated risk premiums of each of the portfolio's asset classes. The retained actuary's projected real rates of return are based on the Segal Macro Advisors. A survey released by Horizon Actuarial Services, LLC provides alternate expected returns by asset classes. The survey provides capital market assumptions specific to projections over 10 years and 20 years. The investment return assumption, as noted by the SOA's Report of the Blue Ribbon Panel on Public Pension Plan Funding, should be using rates of return that can be achieved over the next 20 to 30-year period. Therefore, we selected the 20-year time horizon for our analysis.

Using the survey's expected returns by asset class for the 20-year horizon, the asset allocation modeled by the retained actuary, and adjusting for inflation differences and expenses, we have the following results:

Review of Economic Assumptions

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Segal Macro Advisors)	Long-Term Expected Real Rate of Return (Horizon) ¹
Global Equity	20.00%	6.54%	6.98%
Emerging Markets Equity	5.00%	9.41%	9.46%
Private Equity	5.00%	10.28%	9.69%
Short-Term Core Bonds	2.00%	1.25%	2.15%
Global Bonds	3.00%	1.63%	1.08%
High Yield	5.00%	4.13%	3.96%
Bank Loans ²	6.00%	3.46%	3.46%
Structured Credit and Absolute Return ²	6.00%	5.38%	5.38%
Emerging Market Debt	6.00%	4.42%	4.37%
Private Debt ²	5.00%	7.30%	7.30%
Natural Resources	5.00%	7.62%	3.99%
Infrastructure	5.00%	6.25%	5.76%
Real Estate	12.00%	4.90%	5.19%
Liquid Real Estate	3.00%	4.71%	5.19%
Asset Allocation ²	10.00%	4.90%	4.90%
Cash	2.00%	1.06%	0.62%
Weighted Average Real Return		5.67%	5.55%
Weighted Average Nominal Return		8.42%	8.30%

¹Expected return for the 20-year time horizon for those consultants that responded to the survey, adjusted by Horizon's inflation expectation of 2.48%, as noted in Exhibit 15 of the Horizon Actuarial 2018 Survey of Capital Market Assumptions.

²The Horizon Survey does not include these asset classes, so the Segal Macro Advisors rate of return was used for purposes of the weighted average calculation.

The expected real rate of return based on the target asset allocation is 5.55% for Horizon, compared to 5.67% for Segal Macro Advisors. These are comparable and are both well above the 4.25% assumption used by the plan.

The return assumption was ultimately selected with consideration of the following data points:

- Historical returns of the plan's investments (4.46% Arithmetic and 3.74% Geometric)
- February 2016 NASRA Survey (7.62%)
- Expected return based on target asset allocation and Segal Macro Advisors returns by asset class (8.42%)

Based on the information above, we believe a long-term investment return of 7.25% is reasonable.

As shown above, the short-term investment returns are 4.75% in 2018, 5.00% in 2019, 5.25% in 2020, 6.25% in 2021, and 7.25% annually thereafter, as the DFPF works to rebalance its investment portfolio. We assessed the actual asset allocation against the long-term target asset allocation. Page 39 of the DFPF report (and Page 37 of the DFPF Supp report) discloses the actual asset allocation as of December 31, 2017 and December 31, 2016:

Asset Class	Target Allocation	Actual December 31, 2017 Allocation	Actual December 31, 2016 Allocation
Real Assets ¹	25%	40%	58%
Equity Securities ²	25%	24%	8%
Private Equity ³	5%	11%	13%
Alternative Investments ⁴	10%	7%	7%
Fixed Income Securities ⁵	33%	17%	14%
Other ⁶	2%	1%	0%

¹ Natural Resources, Infrastructure, Real Estate, Liquid Real Estate

² Global Equity and Emerging Markets Equity

³ Private Equity

⁴ Asset Allocation

⁵ Short-Term Core Bonds, Global Bonds, High Yield, Bank Loans, Structured Credit and Absolute Return, Emerging Market Debt, Private Debt

⁶ Cash

The actual asset allocation as of December 31, 2017 shows a much higher allocation to Real Assets than the target allocation. As mentioned in the experience study report, it will take three to five years to fully implement the target allocation. Progress was made between December 31, 2016 and December 31, 2017 to trend towards the target allocation.

Based on the information above, the real rate of return assumption of 4.50% as well as the investment rate of return of 7.25% is reasonable.

Salary Increase

The salary increase assumption is used to project an employee's salary from the valuation date to the assumed termination date(s). It is comprised of inflation, real wage growth and a merit scale. Inflation and real wage growth were already discussed above. This section focuses on the determination of the merit scale.

Applicable ASOPs

In selecting or recommending a total wage scale, ASOP No. 27, Section 3.10 provides actuaries with guidance. The standard recommends the actuary review the compensation data as follows.

ASOP No. 27, Section 3.10.1— Data—*The actuary should review available compensation data. These data may include the following:*

- a. *the plan sponsor's current compensation practice and any anticipated changes in this practice;*
- b. *current compensation distributions by age or service;*
- c. *historical compensation increases and practices of the plan sponsor and other plan sponsors in the same industry or geographic area; and*
- d. *historical national wage increases and productivity growth.*

The actuary should consider available plan-sponsor-specific compensation data, but the actuary should carefully weigh the credibility of these data when selecting the compensation increase assumption.

Retained Actuary's Assumption

For 2018 and 2019, the Plans use the following assumption, which is based on the Meet and Confer Agreement:

Year	Less than 10 Years of Service	10-11 Years of Service	More than 11 Years of Service
2018	5.00%	2.00%	2.00%
2019	10.00%	7.00%	2.00%

For 2020 and after, the Plans use a service-based assumption with separate rates for Police and Fire:

Years of Service	Rate (Police)	Rate (Fire)
1	5.20%	5.20%
2	5.00%	5.05%
3	4.80%	4.90%
4	4.60%	4.75%
5	4.40%	4.60%
6	4.20%	4.45%
7	4.00%	4.30%
8	3.80%	4.15%
9	3.60%	4.00%
10	3.40%	3.85%
11	3.20%	3.70%
12	3.00%	3.55%
13	3.00%	3.40%
14	3.00%	3.25%
15	3.00%	3.10%
16	3.00%	3.00%

Experience Study Considerations

The actual salary experience was examined, for the Police and Fire groups separately, and was discussed with the City's HR Director. It was determined that the two groups have similar salary

experience but Fire has a longer period before leveling out to the ultimate rate. The retained actuary reviewed the most recent Meet and Confer agreement at the time of the experience study and this confirmed what was observed in the data. Based on the salary increases during the five-year period, and taking into the Meet and Confer agreement, the retained actuary proposed modifying the salary assumption to conform to recent experience and future expectations.



Comments and Recommendations

The assumption recommended in the experience study is used for 2020 and beyond. For 2018 and 2019, the revised assumption, based on the Meet and Confer Agreement, is reasonable, as it is a best estimate of future increases based on the most currently available data.

The retained actuary is appropriately using the building blocks approach, with the salary assumption equal to 2.75% inflation plus 0.25% real wage growth plus a merit/promotion/longevity scale for employees with 0-16 years of service.

The assumption at each service level appears reasonable based on experience during the study period.

Based on the information above, the salary increase assumption is reasonable.

The DFPF Supp uses the same salary increase assumption as the DFPF. We recommend the retained actuary study the salary increase assumption for the DFPF Supp, as its definition of compensation differs from the DFPF.

Cost-of-Living Adjustment

The cost-of-living-adjustment (COLA) assumption is used to estimate the plan's future COLA adjustments for retirees, which are often based on an inflation index.

Applicable ASOPs

The section of ASOP No. 27 addressing COLA's provides the actuary with general guidance but is far from prescriptive:

ASOP No. 27, Section 3.11.2 — Cost-of-Living Adjustments — Plan benefits or limits affecting plan benefits (including the Internal Revenue Code (IRC) section 401(a)(17) compensation limit and section 415(b) maximum annuity) may be automatically adjusted for inflation or assumed to be adjusted for inflation in some manner (for example, through regular plan amendments). However, for some purposes (such as qualified pension plan funding valuations), the actuary may be precluded by applicable laws or regulations from anticipating future plan amendments or future cost-of-living adjustments in certain IRC limits.

COLA Plan Provision

As described in Section 6.12 of the plan document, the Board may grant an ad hoc COLA based on the actual market return over the prior five years less 5%, not to exceed 4% of the base benefit, if, after granting a COLA, the funded ratio on a market value of assets basis is no less than 70%.

Retained Actuary's Assumption

Prior to October 1, 2053, the assumed COLA is 0.00%.

Beginning October 1, 2053, the assumed COLA is 2.00% on the original benefit.

The assumption for the year the COLA begins will be updated on an annual basis and set equal to the year the System is projected to be 70% funded on a market value basis after the COLA is reflected.

Experience Study Considerations

The experience study does not include analysis of the COLA assumption.

Comments and Recommendations

The DFPF's COLA assumption ties to actual market returns less 5%, with the added complexity of a 4% maximum. Section 3.5.1 of ASOP 27 provides guidance on assumptions for plan provisions that are difficult to measure, such as a COLA with a maximum:

Depending on the purpose of the measurement, the actuary may determine that it is appropriate to adjust the economic assumptions to provide for considerations such as adverse deviation or plan provisions that are difficult to measure, as discussed in ASOP No. 4. Any such adjustment made should be disclosed in accordance with section 4.1.1.

The assumed investment return is 7.25%. The investment return less 5% would be 2.25%. Presumably, 2.00% was selected to reflect the impact of the 4% maximum, a difficult-to-measure plan provision as per Section 3.5.1 of ASOP 27. While this process appears reasonable, the valuation report and experience study lack appropriate documentation for the selection of the assumption. We recommend that the valuation report include documentation for the rationale for the selection of the 2.00% COLA assumption after 2053.

The valuation report states that the DFPF is projected to be 70% funded in 2053 based on projections of the unfunded actuarial accrued liability. The valuation report states that the assumed year of 70% funding will be updated each year. This is reasonable.

Review of Demographic Assumptions

Actuarial assumptions used in the valuation of retirement benefits are generally broken into two categories: economic and demographic. This section of the report considers only those assumptions we have categorized as demographic, which include any non-economic assumption and generally include assumptions regarding how the workforce will behave.

Applicable ASOPs

Actuarial Standard of Practice No. 35, *Selection of Demographic and other Noneconomic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries in selecting demographic and other assumptions not covered by ASOP No. 27. ASOP No. 35 has been restated effective for any actuarial work product with a measurement date on or after June 30, 2015. Because the assumptions resulting from this experience study will be used in actuarial valuations with measurement dates no sooner than July 1, 2015, we consider this standard applicable.

As set forth by ASOP 35, the actuary should follow the process below for selecting demographic assumptions, as applicable:

- a. Identify the types of assumptions
- b. Consider the relevant assumption universe
- c. Consider assumption formats
- d. Select the specific assumptions
- e. Select a reasonable assumption

The standard defines a *reasonable* assumption as follows:

3.3.5 — Selecting a Reasonable Assumption—Each demographic assumption selected by the actuary should be reasonable. For this purpose, an assumption is reasonable if it has the following characteristics:

- a. It is appropriate for the purpose of the measurement;*
- b. It reflects the actuary's professional judgment;*
- c. It takes into account historical and current demographic data that is relevant as of the measurement date;*
- d. It reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data (if any), or a combination thereof; and*
- e. It has no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included (as discussed in section 3.10.1), and disclosed under section 4.1.1 or when alternative assumptions are used for the assessment of risk.*

3.4 — Range of Reasonable Assumptions—The actuary should recognize the uncertain nature of the items for which assumptions are selected and, as a result, may consider several different assumptions equally

reasonable for a given measurement. The actuary should also recognize that different actuaries will apply different professional judgment and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice.

The standard also discusses consistency among selection of demographic assumptions and requires the actuary to review the combined effect of all non-prescribed assumptions selected by the actuary (both demographic assumptions selected in accordance with this standard and economic assumptions selected in accordance with ASOP No. 27).

3.7 — Consistency among Demographic Assumptions Selected by the Actuary for a Particular Measurement—With respect to any particular measurement, each demographic assumption selected by the actuary should be consistent with the other assumptions selected by the actuary unless the assumption, considered individually, is not material (see section 3.10.2). For example, if an employer's business is in decline and the effect of that decline is reflected in the turnover assumption, it should also be reflected in the retirement assumption.

ASOP 35 provides assumption specific guidance for each of the assumptions below. The remainder of this section of our report presents our review of selected demographic assumptions to ensure the retained actuaries have followed the ASOP's general guidance and the assumption-specific guidance provided by the ASOP.

Mortality

The mortality assumption is used to determine when an active employee or retired employee will become deceased.

Applicable ASOPs

ASOP No. 35, Section 3.5.3 — Mortality and Mortality Improvement—*The actuary should take into account factors such as the following in the selection of mortality and mortality improvement assumptions:*

- a. the possible use of different assumptions before and after retirement (for example, in some small plan cases a reasonable model for mortality may be to assume no mortality before retirement);*
- b. the use of a different assumption for disabled lives, which in turn may depend on the plan's definition of disability and how it is administered; and*
- c. the use of different assumptions for different participant subgroups and beneficiaries.*

The actuary should reflect the effect of mortality improvement both before and after the measurement date. With regard to mortality improvement, the actuary should do the following:

- i. adjust mortality rates to reflect mortality improvement before the measurement date. For example, if the actuary starts with a published mortality table, the mortality rates may need to be adjusted to reflect mortality improvement from the effective date of the table to the measurement date. Such an adjustment is not necessary if, in the actuary's professional judgment, the published mortality table reflects expected mortality rates as of the measurement date.*

- ii. *include an assumption as to expected mortality improvement after the measurement date. This assumption should be disclosed in accordance with section 4.1.1, even if the actuary concludes that an assumption of zero future improvement is reasonable as described in section 3.3.5. Note that the existence of uncertainty about the occurrence or magnitude of future mortality improvement does not by itself mean that an assumption of zero future improvement is a reasonable assumption.*

Background on Recent National Mortality Studies

Base Mortality Tables

In October 2014, the Society of Actuaries (“SOA”) published several reports of the Retirement Plans Experience Committee (“RPEC”). The RP-2014 Mortality Tables Report¹ reflects observed data for single-employer defined benefit pension plans covering the years 2004 – 2008 (central year, 2006). The RPEC observed that this data was relatively consistent with the data underlying the RP 2000 mortality tables (that is, from 1990 – 1994, central year 1992) adjusted for longevity improvements using MP-2014². The rates in the RP-2014 tables were developed on a liability weighted basis (i.e. exposures and deaths were weighted by compensation for actives and by benefit amount for retirees).

As a supplement to the RP-2014 Mortality Tables Report, the Society of Actuaries also published the Supplement to the RP-2014 Mortality Tables Report, RPH-2014 Headcount-Weighted Tables³. The rates in these tables, denoted RPH-2014 (for Retirement Plans by Headcount), were calculated using the same underlying datasets and methods as those used in the development of the corresponding RP-2014 tables, but with exposures and deaths weighted by headcount rather than by amount.

As a result of comments received on the prior RP-2014 study, which included only data from private pension plans, the SOA and the RPEC initiated a mortality study of public pension plans in January 2015. The primary focus of this study was a comprehensive review of recent mortality experience of public retirement plans in the United States. The objectives of this study were the following:

1. Develop mortality tables based exclusively on public-sector pension plan experience.
2. Provide new insights into the composition of gender-specific pension mortality by factors such as job category (e.g., Teachers, Public Safety, General), salary/benefit amount, health status (i.e., healthy or disabled), geographic region and duration since event.

In October, 2018 the Pub-2010 Public Retirement Plans Mortality Tables Report⁴ was published, with job category-specific mortality base tables for Teachers, Public Safety, and General populations. Additional factors were considered and subset mortality tables were released based on income

¹ RP-2014 Mortality Tables Report (<https://www.soa.org/Files/Research/Exp-Study/research-2014-rp-report.pdf>)

² Mortality Improvement Scale MP-2014 Report (<http://www.soa.org/Research/Experience-Study/pension/research-2014-mp.aspx>)

³ Supplement to the RP-2014 Mortality Tables Report (<https://www.soa.org/Files/Research/Exp-Study/research-2014-rp-supplement.pdf>)

⁴ Pub-2010 Public Retirement Plans Mortality Tables Report (<https://www.soa.org/Files/resources/research-report/2019/pub-2010-mort-report.pdf>)

level, with which they determined mortality had a strong correlation. Separate tables were also developed for contingent survivors, as their experience was determined to differ from that of other annuitants. We believe that this study is the most credible basis on which to base public sector mortality at this time.

Mortality Improvement Scale

The RPEC's Mortality Improvement Scale MP-2014 Report⁵ reflects data from the Social Security Administration through 2009. As discussed in the report, the historical data was graduated and then projected from the resulting smoothed 2007 values to reach an ultimate rate of 1%⁶ after 20 years (from 2007⁷). As discussed in the RPEC's Mortality Improvement Scale MP-2014 Report⁸, we believe this is a reasonable ultimate rate and convergence period.

The Society of Actuaries published the MP-2015 scale of longevity improvements in October 2015, the MP-2016 scale of longevity improvements in October 2016, the MP-2017 scale of longevity improvements in October 2017, and the MP-2018 scale of longevity improvements in October 2018. The MP-2015 scale reflected two additional years of Social Security data, the MP-2016 scale reflected an additional three⁹ years (beyond those reflected in MP-2015) of Social Security data, the MP-2017 scale reflected one additional year (beyond those reflected in MP-2016) of Social Security data and the MP-2018 scale reflected one additional year (beyond those reflected in MP-2017) of Social Security data.

Retained Actuary's Assumption

The following table shows the current mortality assumptions for each group of participants:

Participant Group	Assumption
Disabled Lives	RP-2014 Disabled Retiree Mortality Table, set back three years for males and females, projected generationally using Scale MP-2015
Healthy Retirees	RP-2014 Blue Collar Healthy Annuitant Mortality Table, set forward two years for females, projected generationally using Scale MP-2015
Active Members	RP-2014 Employee Mortality Table, set back two years for males, projected generationally using Scale MP-2015

Experience Study Considerations

The actual mortality experience was examined for disabled lives, healthy retirees, and active members, separately for males and females. The following table contains the results of the plan's

⁵ www.soa.org/Research/Experience-Study/pension/research-2014-mp.aspx

⁶ The ultimate rate is actually 1% at ages up to 85, then grading down to 0.85% at 95 and 0% at 110.

⁷ To avoid so-called edge effect distortions, the last two years of actual data (2008 and 2009) were replaced with the first two years of smoothed data.

⁸ www.soa.org/Research/Experience-Study/pension/research-2014-mp.aspx

⁹ SSA published data was used for 2012 and 2013, while preliminary data was used for 2014.

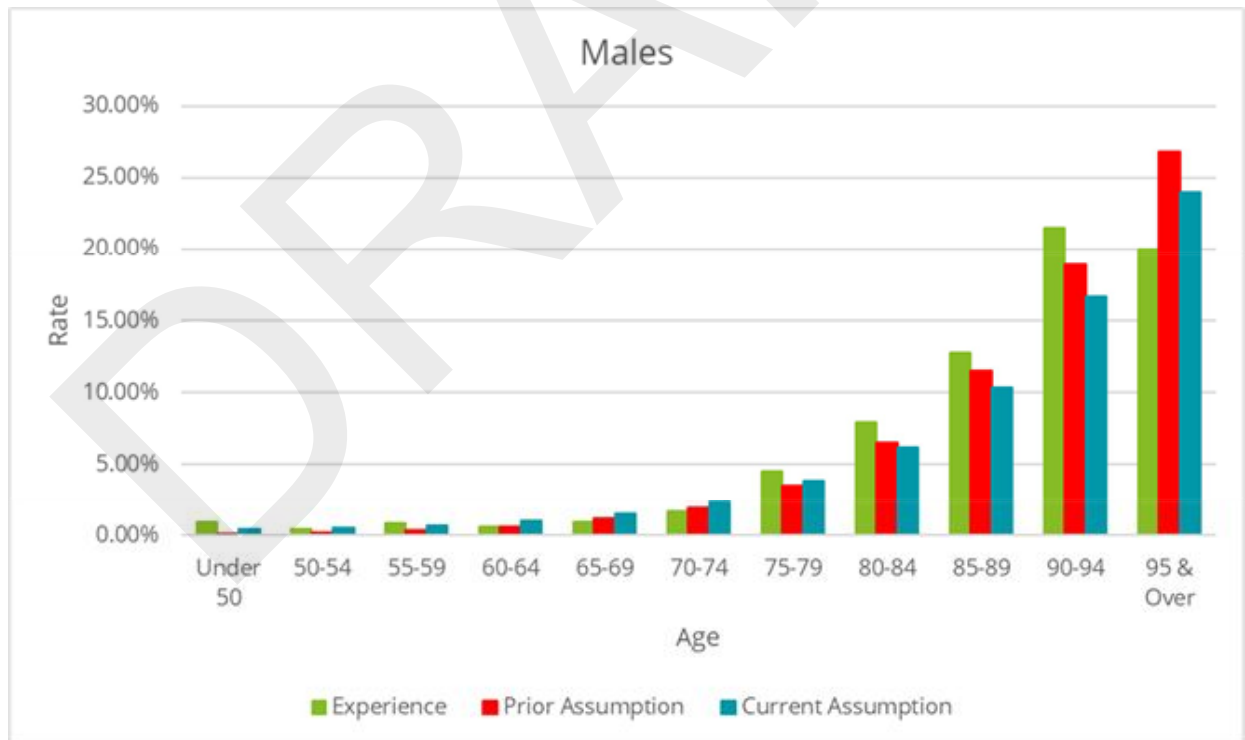
Review of Demographic Assumptions

experience over the study period including the ratio of actual deaths to expected deaths (based on the prior assumption).

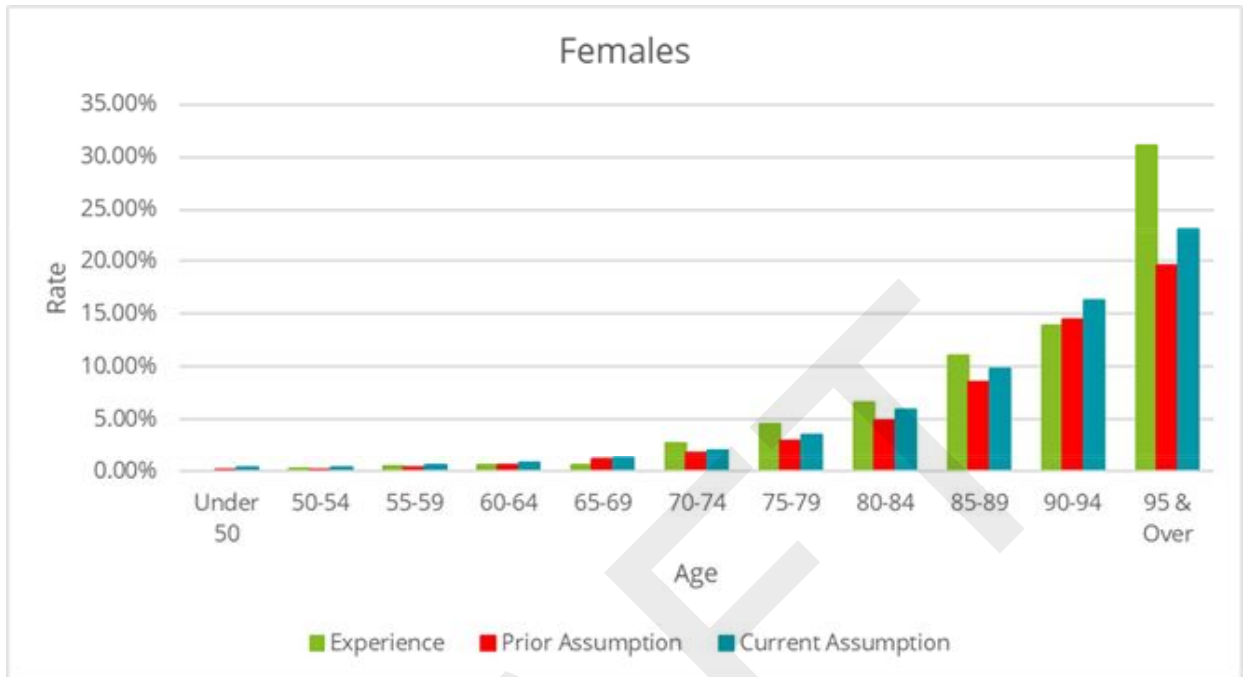
Participant Group	Exposure	Actual Deaths	Expected Deaths (Prior Assumption)	Ratio of Actual Deaths to Expected Deaths
Disabled Lives – Male	751	32	30.6	105%
Disabled Lives – Female	113	0	0.6	0%
Healthy Retirees – Male	12,115	296	264.0	112%
Healthy Retirees – Female	5,013	198	156.3	127%
Active Members – Male	24,044	22	31.2	71%
Active Members – Female	3,749	3	2.9	103%

The retained actuary recommended updating the tables to reflect the recently published RP-2014 tables and the MP-2015 improvement scale (the most recently available table at the time of the study).

The retained actuary provided additional analysis regarding the healthy retiree mortality, as this assumption is the most material (active mortality rates are so low that they don't impact liability much, and disability is a rare occurrence for this population):



Review of Demographic Assumptions



Participant Group	Ratio of Actual Deaths to Expected Deaths (Prior Assumption)	Ratio of Actual Deaths to Expected Deaths (Current Assumption)
Healthy Retirees – Male	112%	102%
Healthy Retirees – Female	127%	107%
Total	118%	104%

Comments and Recommendations

In accordance with ASOP 35 Section 3.5.3, the retained actuary considered the mortality for participants in post-retirement status, disabled retirement status, and pre-retirement (active) status. Within each of these participant groups, male and female experience was considered separately.

We have several recommendations regarding the mortality assumption:

- We recommend that the next experience study discuss the basis for the selection of the Blue-Collar adjustment and the set back/forward period including a credibility analysis. If there is no credible experience, we recommend using a standard published mortality table. The experience study does not provide sufficient discussion for the selection of these adjustments or if credible experience exists by cohort.
- We recommend that the next experience study review the appropriateness of updating the base mortality table to the Pub-2010 mortality tables. The mortality base table assumption

should be based on more recent tables and reflect the employee base covered under the DFPF to the extent that such plan experience is credible. At the time of the experience study, the RP-2014 mortality tables were the most current basis available and were the recommended base table for DFPF. The subsequent release of the Pub-2010 tables should be considered and we recommend that the appropriateness of these tables be considered for this population.

Retirement

The retirement assumption is used to determine when an employee is expected to commence benefits.

Actuarial Standards

ASOP No. 35, Section 3.5.1 — Retirement—*The actuary should take into account factors such as the following:*

- a. *employer-specific or job-related factors such as occupation, employment policies, work environment, unionization, hazardous conditions, and location of employment;*
- b. *the plan design, where specific incentives may influence when participants retire;*
- c. *the design of, and date of anticipated payment from, social insurance programs (for example, Social Security or Medicare); and*
- d. *the availability of other employer-sponsored postretirement benefit programs (for example, postretirement health coverage or savings plan).*

Retained Actuary's Assumption

The DFPF uses a separate retirement assumption for DROP Active members and non-DROP active members.

For DROP Active members, the DFPF uses an age-based assumption with separate rates for police and fire. Additionally, there are separate rates for 2018 reflecting higher retirement behavior after the September 1, 2017 plan changes.

Police			Fire		
Age	2018*	2019+	Age	2018*	2019+
Under 50	50.00%	1.00%	Under 50	50.00%	0.75%
50-52	50.00%	3.00%	50-54	50.00%	2.50%
53-54	50.00%	7.00%	55-58	50.00%	12.00%
55	50.00%	15.00%	59-64	50.00%	25.00%
56-57	50.00%	20.00%	65-66	50.00%	30.00%
58-64	50.00%	25.00%	67	50.00%	100.00%
65-66	50.00%	50.00%			
67	50.00%	100.00%			

If at least eight years in DROP as of January 1, 2017, 100% retirement rate in 2018

If less than eight years in DROP as of January 1, 2017, 50% retirement rate in 2018

For non-DROP Active members, the DFPF uses an age-based assumption, with separate rates for the following groups:

- Members hired prior to March 1, 2011 with less than 20 years of service as of September 1, 2017
- Members hired prior to March 1, 2011 with at least 20 years of service as of September 1, 2017
- Members hired on or after March 1, 2011

Additionally, a 100% retirement rate is assumed once the sum of age plus service equals 90.

In addition to the assumptions for retirement from active status, the assumptions related to retirement from deferred status is age 50 for current terminated vested participants, and age 58 for future terminated vested participants.

Experience Study Considerations

The experience study, dated May 2016, was conducted before the plan changes as of September 1, 2017. These plan changes included changes to early retirement eligibility and reductions, freezing/eliminating the supplemental benefit, and removing the Active DROP interest credit (which resulted in a change in the DROP utilization assumption from 100% to 0%). These plan changes will influence retirement behavior, with the change to the DROP having the most significant impact.

The plan revised its retirement assumption to reflect the updated plan provisions and therefore the current non-DROP actives assumption is not detailed in the experience study.

For DROP actives, the assumption was revised for 2018, with retirement rates either 100% or 50% depending if the active has more or less than eight years in the DROP. For DROP actives after 2018, the assumption is the same as recommended by the experience study. We will detail the experience study here, with consideration that the assumption recommended from the experience study only applies to a small group of actives (DROP actives with less than eight years of service).

The retained actuary examined the retirement experience during the study period and revised the rates to be consistent with observed experience.



Comments and Recommendations

For DROP actives, the updated plan provisions as of September 1, 2017 limit participation in DROP to 10 years. Additionally, DROP account balances accrued after September 1, 2017 receive no interest. Therefore, the retained actuary's revisions to the retirement assumption are reasonable, as DROP actives will likely retire at a much higher rate given the plan changes.

For non-DROP actives, the retirement assumption was also changed as a result of the September 1, 2017 plan changes. The retirement assumption is separated into three tiers based on an employee's

benefit formula and early retirement options available. For employees hired after March 1, 2011, there will not be significant retirement exposures to study until these employees begin to retire. Therefore, it is unclear how this assumption was developed.

We have several recommendations regarding the retirement assumption:

- We recommend clarifying the language for DROP actives to disclose that a retirement rate of 100% is assumed after achieving 8 years of DROP service in any future year.
- We recommend that the valuation report provide detail on the basis of the selection of the non-DROP retirement assumption. The assumption recommended from the December 31, 2014 experience study was age-based and separated by Police and Fire. The revised assumption to reflect the September 1, 2017 plan changes is age-based, separated by hire date and service as of September 1, 2017. Additionally, 100% retirement is assumed once age plus service equals 90. While it is reasonable that the retirement assumption changed as a result of the plan changes, it is unclear why the assumption no longer separates rates by Police and Fire, and the basis for the 100% retirement rate once age plus service equals 90 is unclear. The retained actuary should provide more support for the basis for this assumption.
- We recommend that the retained actuary consider studying the retirement behavior of deferred vested participants.

Withdrawal

The withdrawal assumption is used to determine when an employee who is not eligible for retirement will terminate employment.

Actuarial Standards

ASOP No. 35, Section 3.5.2 — Termination of Employment—*The actuary should take into account factors such as the following:*

- a. *employer-specific or job-related factors such as occupation, employment policies, work environment, unionization, hazardous conditions, and location of employment; and*
- b. *plan provisions, such as early retirement benefits, vesting schedule, or payout options.*

Retained Actuary's Assumption

The DFPF uses service-based retirement rates, with separate rates for police and fire:

Years of Service	Rate (Police)	Rate (Fire)
0	14.00%	5.50%
1	6.00%	4.50%
2	5.50%	4.00%
3	5.00%	3.50%
4	4.50%	3.00%
5	4.00%	1.50%

Review of Demographic Assumptions

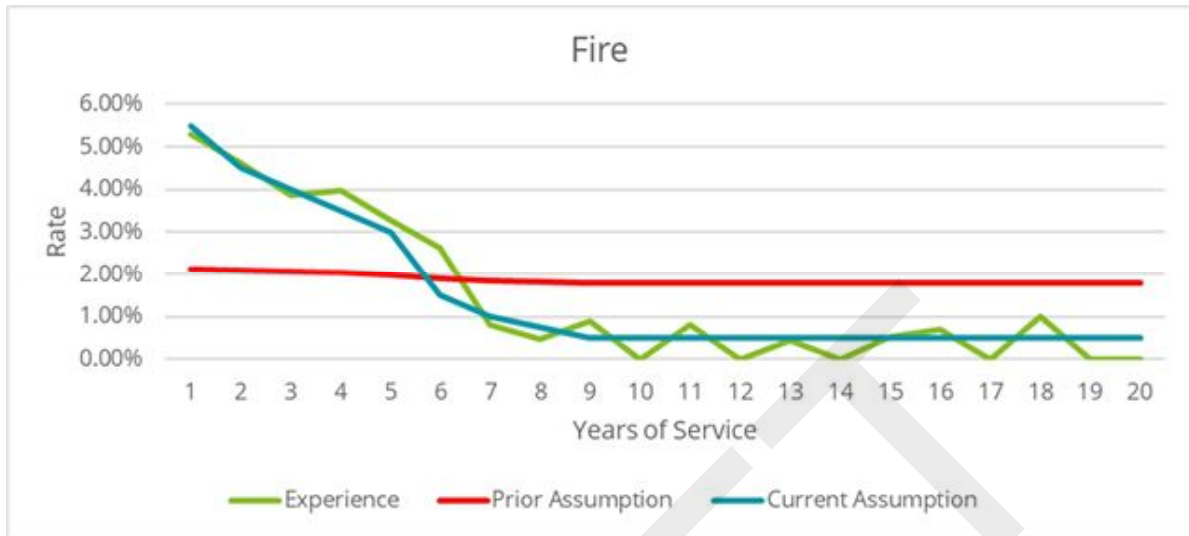
6	3.50%	1.00%
7	3.00%	0.75%
8	2.50%	0.50%
9	2.00%	0.50%
10-37	1.00%	0.50%
38 and over	0.00%	0.00%

There is 0% assumption of termination for members eligible for retirement.

Experience Study Considerations

The actual turnover experience was examined separately for the Police and Fire groups. The retained actuary found that the patterns of termination more closely correlate to service than age. Police and Fire continue to exhibit different withdrawal behavior (with police more likely to withdraw prior to retirement). Overall, the rates are quite low for both groups, which is consistent with national trends for public safety. The retained actuary proposed modifying the withdrawal assumption to conform to recent experience for each group.





Comments and Recommendations

The withdrawal assumption is based on years of service separated by Police and Fire. This is a robust basis for the assumption because it reflects the general tendency of shorter-tenured employees to incur higher rates of turnover. The assumed rates reflect higher expected turnover within the first several years of service, which is not uncommon. Based on the information provided, the withdrawal assumption appears reasonable.

We recommend adding a separate withdrawal assumption for members hired after March 1, 2011. As benefits for employees hired after March 1, 2011 are less valuable, withdrawal rates may increase as participants are less likely to remain with the City to preserve their pension benefits. Unlike the retirement assumption, which will take 20-30 years to develop meaningful experience, termination rates, especially for early years of service, can be immediately studied.

Disability

The disability assumption is used to determine when an employee becomes disabled and qualifies for disability benefits.

Actuarial Standards

ASOP No. 35, Section 3.5.4 — Disability and Disability Recovery—*The actuary should take into account factors such as the following:*

- a. *the plan's definition of disability (for example, whether the disabled person is eligible for Social Security benefits); and*
- b. *the potential for recovery. For example, if the plan requires continued disability monitoring and if the plan's definition of disability is very liberal, an assumption for rates of recovery may be appropriate. Alternatively, the probability of recovery may be reflected by assuming a lower incidence of disability than the actuary might otherwise assume.*

Retained Actuary's Assumption

The plans use a disability incidence table with sample rates as follows:

Age	Rate
20	0.010%
25	0.015%
30	0.020%
35	0.025%
40	0.030%
45	0.035%
50	0.040%

100% of disabilities are assumed to be service related.

Experience Study Considerations

Participants are eligible for disability benefits immediately upon membership. The disability rates are quite low. There were three Police disabilities in the study period, vs. 7.9 expected. There was one disability from the Fire group, vs. 7.4 expected. The retained actuary recommended lowering the rates for both the Firefighters and Police Officers from the previous assumption, and further recommended a single table for both groups.

Comments and Recommendations

The current disability rates appear reasonable and consistent with the experience reviewed. Using a single table for Police and Fire groups is an appropriate simplification due to the small sample size and inability to infer significant information about each group separately.

Due to the very small sample size, we recommend supplementing historical data with industry-standard data for disability incidence for similar job types to increase credibility.

Additionally, we recommend that the next experience study include an analysis on the incidence of service versus non-service related disabilities, as service-related disabilities are calculated with a 20-year minimum on benefit service. While there is a high likelihood of disabilities being service-related for Police and Fire, the assumption that 100% of disabilities are service-related should be addressed in the next experience study.

Marital Status

It is common for actuaries to make an assumption regarding the marital status of plan participants for use in assuming future benefit eligibility and election. Like the inflation assumption, the marital status assumption is often a component of several other assumptions.

Actuarial Standards

ASOP No. 35, Section 3.6.3 — Marriage, Divorce, and Remarriage— *The actuary should consider whether marriage, divorce, or remarriage affects the payment of benefits, the amount or type of benefits, or the*

continuation of benefit payments. If such an assumption is selected, it may also be necessary to make an assumption regarding beneficiary ages.

Retained Actuary's Assumption

75% of participants are assumed to be married.

Experience Study Considerations

During the study period, 76% of those retiring were married. The retained actuary recommended changing the assumption from 80% to 75%.

Comments and Recommendations

The observed data supported a change in the assumption to 75%. Based on the information provided, the method and assumption are reasonable.

Age of Survivor

Future Joint & Survivor annuity payment amounts are based in part on the age of the survivor. Because valuation mortality and interest rates are not equal to those used to calculate optional forms of payment, the age of survivors impacts liability amounts.

Actuarial Standards

ASOP No. 35, Section 3.6.7 — Missing or Incomplete Data— At times, the actuary may find that the data provided are incomplete due to missing elements such as birth dates or hire dates. Provided that the actuary has determined, in accordance with ASOP No. 23, Data Quality, that the overall data are of sufficient quality to complete the assignment, the actuary may need to make reasonable assumptions for the missing data elements. In making such assumptions, the actuary should consider the relevant data actually supplied. For example, it may be appropriate to assume a missing birth date is equal to the average birth date for other participants who have complete data and who have the same service credits as the participant whose date of birth is missing.

Retained Actuary's Assumption

The female spouse is assumed to be 3 years younger than the male spouse.

Experience Study Considerations

The assumption is unchanged from the prior assumption. According to the experience study, the assumption is based on actual data on the DFPF's retirees.

Comments and Recommendations

The actuary's discussion supported no change to the assumption. Based on the information provided, the method and assumption is reasonable.

However, we recommend that the next experience study disclose the observed data on the age difference between male and female spouses for the DFPF's retirees to support the assumption.

Form of Payment

In cases where participants receive no subsidy among payment forms and valuation actuarial equivalence matches that of optional payment forms, this assumption is not necessary. However, because valuation mortality and interest rates are not equal to those used to calculate optional forms of payment, this assumption impacts liabilities.

Actuarial Standards

ASOP No. 35, Section 3.5.5 — Optional Form of Benefit Assumption—*The actuary should consider factors such as the following:*

- a. *the benefit forms and benefit commencement dates available under the plan being valued;*
- b. *the historical or expected experience of elections under the plan being valued and similar plans; and*
- c. *the degree to which particular benefit forms may be subsidized.*
- d. *cost projections, including those made in conjunction with establishing or modifying the plan's design; and*
- e. *determinations of actuarial present values.*

Retained Actuary's Assumption

Married participants are assumed to elect the Joint and Survivor annuity form of payment and non-married participants are assumed to elect a Life Only annuity.

Additionally, with respect to refunds of contributions, it is assumed that vested members will defer their annuity (current terminated vested employees retire at age 50, future terminated vested employees retire at age 58).

Experience Study Considerations

This assumption was not considered in the experience study.

Comments and Recommendations

We have several recommendations regarding the form of payment assumption:

- We recommend that the retained actuary study the refund versus deferred annuity behavior for terminated vested participants. The plan provisions allow active participants who terminate prior to retirement eligibility to elect either a lump sum refund of accumulated employee contributions made (without interest), or a deferred annuity at retirement age based on the benefit provisions. There may be a significant difference in the future plan liability between a refund of employee contributions and the deferred annuity, and therefore this election behavior should be studied.

Review of Demographic Assumptions

- We recommend that the valuation report disclose the actuarial equivalence assumption. The actuarial equivalence factors are used to calculate the amount of the actuarially reduced Joint and 100% survivor annuity. A form of payment assumption is needed because the actuarial equivalence assumptions to calculate the benefits differ from the valuation assumptions, which will create gain or loss when an active transitions to a retiree.
- We recommend that the retained actuary develop an optional form election assumption based on the forms offered by the DPFP and value the impact of the actuarial equivalence factors directly in the valuation software.. Adding an optional form election assumption will result in greater transparency of the assumptions by aligning them to the plan provisions.

Validation of Actuarial Valuation Results

This section will validate the retained actuary's calculation of several key items in the valuation report, including Actuarial Accrued Liability (AAL), Normal Cost, ADC, and AVA.

Actuarial Accrued Liability and Normal Cost

Representative sample lives have been selected and reviewed as summarized in the *Review of Sample Lives* section below. By confirming decrement rates, benefit amounts, and select Present Value of Benefit calculations, we determined the reasonableness of liabilities and normal cost for sample participants.

Actuarially Determined Contribution

The DFPF's contribution policies are discussed in detail in the *Review of Actuarial Methods* section above. The purpose of this section will be to verify the retained actuary's calculation of the ADC. Note that the DFPF's actual employer contribution is a fixed percentage of payroll and is not dependent on the ADC.

Based on the information provided, including the UAAL, Normal Cost, and Administrative Expenses, we were able to verify the ADC as shown below (in \$000's).

DFPF Plan (In thousands of \$'s)		Retained Actuary	Deloitte
		01/01/2018	01/01/2018
1	UAAL	2,354,397,842	
2	Payment to Amortize UAAL over 30 Years	136,519,813	136,519,813
3	Employer Normal Cost ¹	15,177,500	
4	Adjustment for Timing ²	5,402,815	5,402,815
5	ADC	157,100,128	157,100,128

¹ Includes Administrative Expenses

² Actuarially determined contributions are assumed to be paid at the middle of every year.

The results confirm that the actuary's calculation of the ADC is consistent with the method described in the valuation report.

Actuarial Value of Assets

The components of the DFPF's AVA are the Market Value of Assets (MVA) as of the Valuation Date, as well as the excess (shortfall) between expected investment return and actual investment income for each of the five previous years. The DFPF reset its AVA method as of December 31, 2015, so only the

excess (shortfall) between expected investment return and actual investment income for the two previous years are used in the calculation.

We were able to replicate the retained actuary's calculation of the AVA as summarized below:

(In \$'s)		Retained Actuary	Deloitte
		12/31/2017	12/31/2017
1	MVA	2,103,345,471	2,103,345,471
2	Avg. Bal. Calc.		
a	Total assets, BOY	2,149,836,260	2,149,836,260
b	Total assets, EOY	2,103,345,471	2,103,345,471
c	Net Investment Income	98,457,176	98,457,176
d	Avg. Balance (a+b-c)/2	2,077,362,278	2,077,362,278
3	Expected Return (7.25% * 2.d.)	150,608,765	150,608,765
4	Actual Return	98,457,176	98,457,176
5	Current Year G/(L) (4-3)	-52,151,589	-52,151,589
6	Unrecognized asset returns	Unrecognized AMT	Unrecognized AMT
a	FYE 2017	80% -41,721,271	80% -41,721,271
b	FYE 2016	60% -5,972,601	60% -5,972,602
c	FYE 2015	40% -	40% -
d	FYE 2014	20% -	20% -
e	FYE 2013	0% -	0% -
		-47,693,872	-47,693,873
7	AVA at EOY	2,151,039,343	2,151,039,344
8	AVA / MVA =	1.023	1.023

The results confirm that the actuary's calculation of the AVA is consistent with the method described in the valuation report.

Review of Actuarial Valuations

In this section, we review the content of the actuarial report for required disclosures.

Applicable ASOPs

Actuarial Standard of Practice No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, provides guidance regarding nearly all aspects of the actuarial valuation method, including several cross-references to other ASOPs cited in this review.

Actuarial Standard of Practice No. 41, *Actuarial Communications*, provides guidance for any written, electronic, or oral communication issued by an actuary with respect to actuarial services. The standard specifically identifies disclosures that must be made within Actuarial Reports like the annual valuation provided by the DPFP.

Generally, an actuarial report should:

- Accurately and fairly represent the financial condition of the Plan
- Be written so that it can be reasonably understood by the intended audience
- Make disclosures necessary to allow a qualified actuary to approximate the results, if required data were provided.

The standards above identify what must be reported within the reviewed valuations. We have recommended additional disclosure where we judged its value to be worth the effort of production.

Comments and Recommendations

The actuarial report meets applicable actuarial standards of practice and appear to accurately represent the funded status of the plans. However, we do recommend making the following additions to the reports:

- Demonstrate the sensitivity of the discount rate assumption by providing the following key metrics using a discount rate 1% higher and 1% lower than the prescribed rate:
 - Actuarial Accrued Liability
 - Unfunded Actuarial Accrued Liability
 - Funded Ratio
- Disclose the undiscounted cash flows, a beneficial tool for understanding the plan's financial obligation. This could be for a 10 to 20 year period, showing current and future retirees separately.

Review of Actuarial Valuations

- Categorize the target and actual asset allocations across consistent classes to allow for easier observation for how closely actual allocations align with the target.

DRAFT

Review of Sample Lives

Summary of Reviewed Sample Lives

Sample life output is used by actuaries to confirm the actuarial assumptions, plan provisions, and actuarial methods used in actuarial valuations.

The retained actuary provided sample life data for active and inactive participants for each plan. For inactive sample lives, the present value of benefits was provided. For active sample lives, the present value of benefits, accrued liability, and normal cost were provided. The tables below summarize the sample lives that Deloitte reviewed.

Status	Number of Sample Lives Reviewed
Active	5
Terminated Vested	4
Retiree	4
Disabled	1
Beneficiary	1

Our review of representative sample lives consists of the following:

- Review the data provided for the sample participants to confirm its consistency with the valuation data. All data was consistent with the valuation data.
- Review sample life results for compliance with the plan provisions, assumptions and methods disclosed in the actuarial valuation report using our actuarial valuation software. Results were within a reasonable threshold.



DISCUSSION SHEET

ITEM #C3

Topic: **Audit Plan**

Attendees: Jill Svoboda, BDO, Partner
 Rachel Pierson, BDO, Manager

Discussion: Representatives from BDO, DPFP's external independent audit firm, will be present to discuss their audit plan for the year ended December 31, 2018.

Regular Board Meeting – Thursday, April 11, 2019



AUDIT PLANNING

DECEMBER 31, 2018

The following communication was prepared as part of our review, has consequential limitations, and is intended solely for the information and use of those charged with governance (e.g., Board of Directors and Audit Committee) and, if appropriate, management of the Company and is not intended and should not be used by anyone other than these specified parties.

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600 North Pearl, Suite 1700
Dallas, Texas 75201

April 11, 2019

Board of Trustees and Audit Committee
Dallas Police and Fire Pension System

Professional standards require us to communicate with you regarding matters related to the plan audit that are, in our professional judgment, significant and relevant to your responsibilities in overseeing the financial reporting process. This report provides an overview of our plan for the audit of the financial statements of the Dallas Police and Fire System (the System) as of and for the year ending December 31, 2018, including a summary of our overall objectives for the audit, and the nature, scope, and timing of the planned audit work, including procedures applied to management's discussion and analysis (MD&A), required supplementary information and schedules and any other permitted services requested by the System.

We are pleased to be of service to the System and are always available to discuss our audit plan as well as other matters that may be of interest to you.

Respectfully,

BDO USA, LLP

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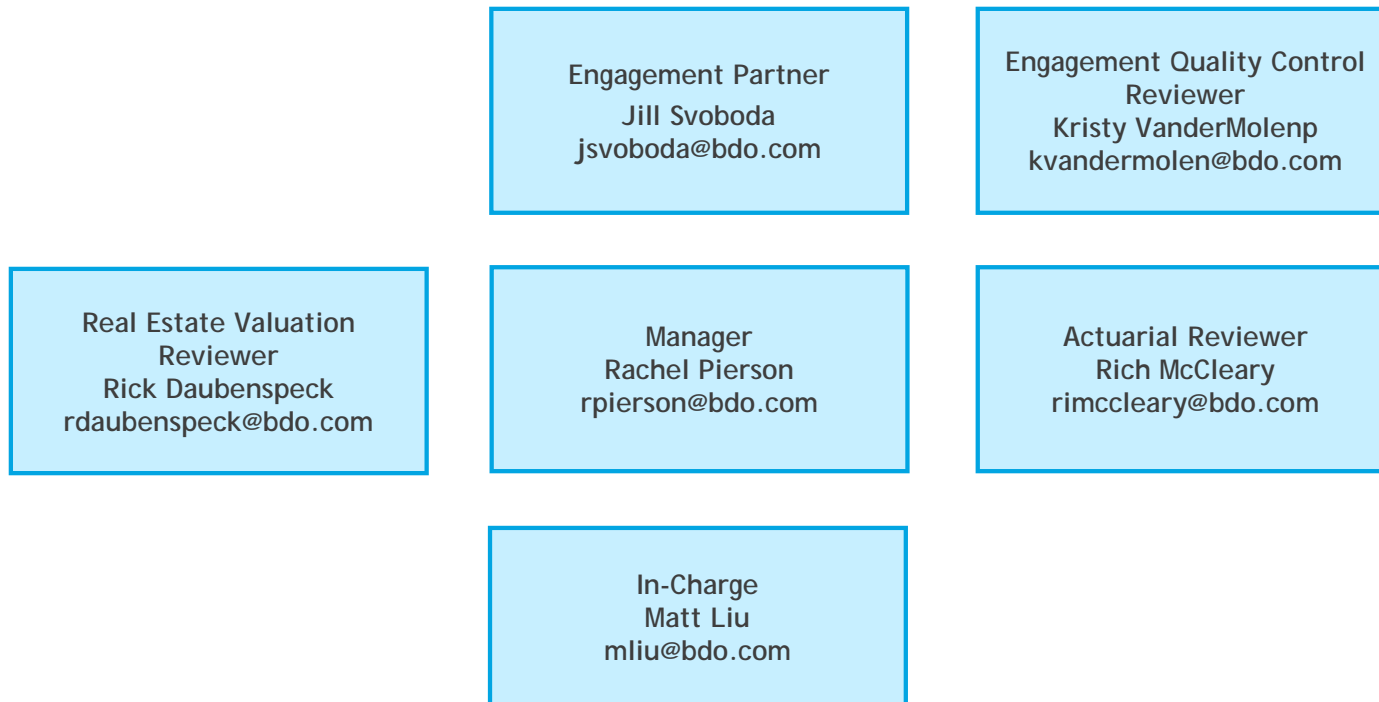
Discussion Outline

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Client Service Team

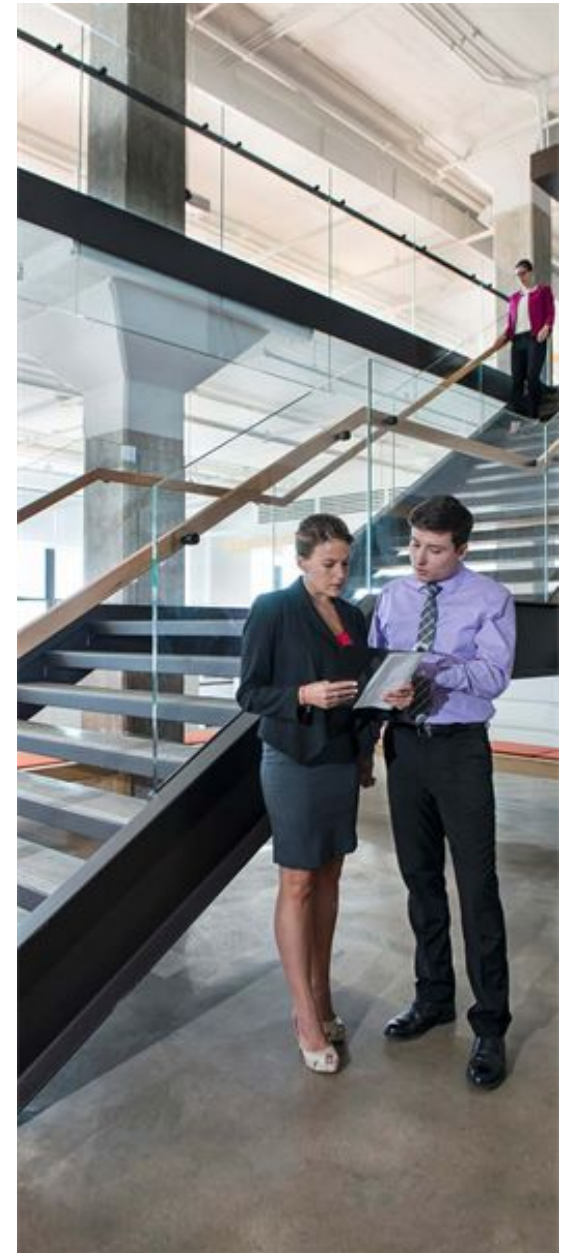
Our client service team members for this year's audit are listed in the organizational chart below. As a matter of policy, we attempt to provide continuity of service to our clients to the greatest extent possible in accordance with mandated partner rotation rules and other circumstances that may impact continuity. Where engagement team rotation is necessary, we will discuss this matter with those charged with governance and determine the appropriate new individual to be assigned to the engagement based on particular experience, expertise, and engagement needs.



Management's Responsibilities

System management is responsible for preparing, with the oversight of those charged with governance, the financial statements and disclosures in conformity with accounting principles generally accepted in the United States of America (GAAP) and adhere to the guidance established by the Governmental Accounting Standards Board (GASB) as of December 31, 2018. The System management's responsibilities also include the following:

- ▶ Establish and maintain effective internal control over financial reporting and proper accounting records.
- ▶ Identify and ensure compliance with relevant laws and regulations.
- ▶ Safeguard the System's assets.
- ▶ Select appropriate accounting principles.
- ▶ Use reasonable judgments and accounting estimates.
- ▶ Complete GAAP and GASB disclosure checklists to ensure there are no significant financial statement disclosure deficiencies.
- ▶ Make all financial records and related information available to BDO.
- ▶ Record material audit adjustments and affirm to BDO that the impact of uncorrected misstatements, if any, is immaterial to the financial statements as a whole.
- ▶ Provide BDO with a letter confirming representations made during the audit.



Engagement Objectives

Our objectives with respect to the audit of the System's financial statements are summarized below:

- ▶ Plan and perform an audit to obtain reasonable assurance about whether the financial statements are free of material misstatements, whether caused by error or fraud. An audit in accordance with auditing standards generally accepted in the United States of America and Government Auditing Standards does not provide absolute assurance relative to or any guarantee of the accuracy of the financial statements and is subject to the inherent risk that errors or fraud, if they exist, may not be detected.
- ▶ As part of our engagement, we will apply certain limited procedures to the required supplementary information (RSI) in accordance with auditing standards generally accepted in the United States of America. These limited procedures will consist primarily of inquiries of management regarding their methods of measurement and presentation, and comparing the information for consistency with management's responses to our inquiries. We will not express an opinion or provide any form of assurance on the RSI.
- ▶ Obtain a sufficient understanding of the System's internal control to plan the audit of the financial statements. However, such understanding is required for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control.
- ▶ Communicate our responsibilities in relation to the audit and establish an understanding of the terms of the engagement, including our engagement letter dated December 18, 2018 previously reviewed and approved by management.
- ▶ Provide an overview of the overall audit strategy and planned scope and timing of the audit.
- ▶ Inquire of those charged with governance about risks of material misstatement, including fraud risks, and whether those charged with governance are aware of other matters that may be relevant to the audit such as, but not limited to, violations or possible violations of laws or regulations, and complaints or concerns raised regarding accounting or auditing matters.



Engagement Objectives

- ▶ Communicate with System management and those charged with governance regarding significant deficiencies and material weaknesses identified during our audit, and other timely observations that are significant and relevant to the financial reporting process.
- ▶ Read information in other documents containing the System's audited financial statements (e.g., the Comprehensive Annual Financial Report). As we will perform only limited procedures on this information, we cannot and do not offer an opinion or any other form of assurance on such information. However, in accordance with professional standards, we will read the information included by the System and consider whether such information, or the manner of its presentation, is materially consistent with its presentation in the System financial statements. Our responsibility also includes calling to System management's attention any information that we believe is a material misstatement of fact.
- ▶ Consult regarding accounting and reporting matters as needed throughout the year.
- ▶ Work with System management toward timely issuance of financial statements.
- ▶ Maintain our independence with respect to the System.
- ▶ Ensure that those charged with governance are kept appropriately informed in a timely manner of the System's financial reporting matters; comply with professional standards as to communications with those charged with governance.

OVERALL AUDIT STRATEGY

Planned Scope

Overall, our audit strategy is to focus on higher risk areas of material misstatement (whether due to error or fraud) and other areas of concern for System management and those charged with governance.

Our audit strategy includes consideration of:

- ▶ Prior year audit results together with recent System results, investment industry results, regulatory changes, significant current year events, and discussions with management and those charged with governance regarding the System's operations, activities, and risks.
- ▶ Inherent risk within the System (i.e., the susceptibility of the financial statements to material error or fraud) before recognizing the effectiveness of the control systems.
- ▶ A continual assessment of materiality thresholds based upon qualitative and quantitative factors affecting the System.
- ▶ Recent developments within the industry, regulatory environment, and general economic conditions.
- ▶ Recently issued and effective accounting and financial reporting guidance- refer to "GASB standards Effective and/or Issued in 2018" later in this document.
- ▶ The System's significant accounting policies and procedures, including those requiring significant management judgments and estimates and those related to significant unusual transactions.
- ▶ The control environment, risk management and monitoring processes, and the possibility that the control systems and procedures may fail to prevent or detect a material error or fraud. We do not expect to perform tests of controls and will plan a substantive audit only.
- ▶ Information about systems and the computer environment in which financial records and related systems operate (including the custodian's service provider's systems as reported in their SOC 1 reports).

OVERALL AUDIT STRATEGY

Planned Scope

- ▶ Possible internal plan changes for the audited plan year, such as the following:
 - Accounting systems
 - System management personnel or those charged with governance
 - Internal control processes in accounting and financial reporting
 - Service providers (such as actuary, legal, custodian, investment managers, etc.)
 - Custodian and/or investment advisor agreements
 - System amendments
 - System policies and practices (Considering all new policies put into place in 2018 and ensuring previous policies put into place are being adhered to)
 - Workforce (significant layoffs, terminations, future reductions in force)
- ▶ Possible issues impacting the audit, such as the following:
 - System management's review of the recent System results when compared to the investment industry results
 - Regulatory reviews or communications and/or pending litigation
 - Prohibited transactions with parties-in-interest
 - Errors or fraud related to the System
 - Misappropriation of System assets
 - Concerns about fictitious participants or distributions made to missing, ineligible, or incorrect individuals
 - Fees and expenses paid to inappropriate vendors

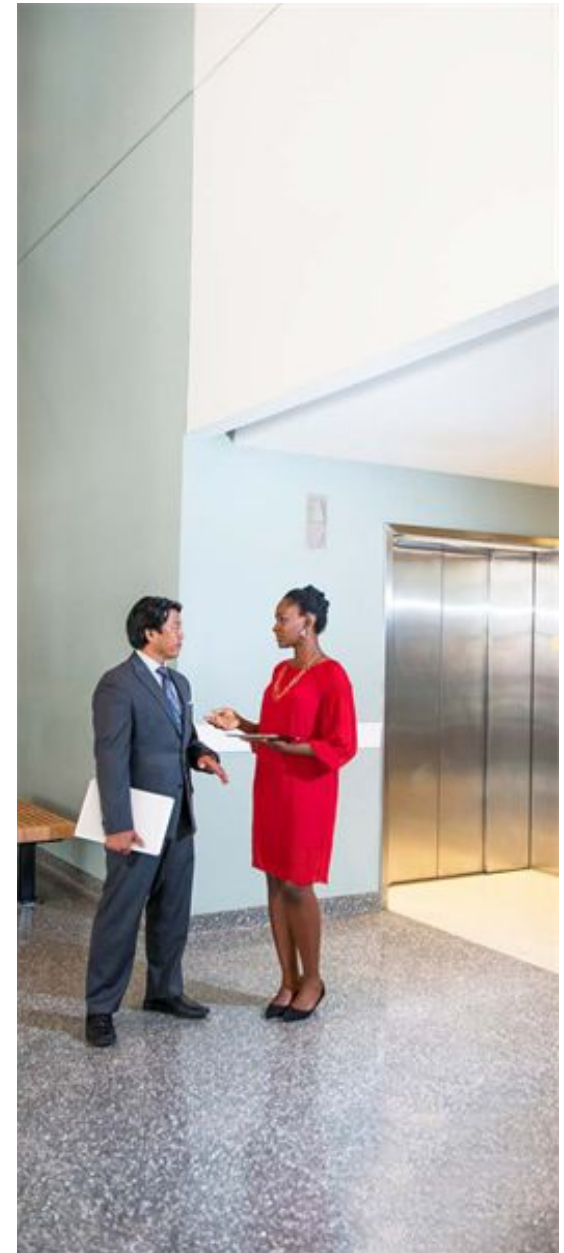
OVERALL AUDIT STRATEGY

Planned Scope

- Significant assumptions used in the valuation of the System assets
- Significant assumptions used in the actuarial determination of the total pension liability
- Effect of 2018 activity and impact on the System's Net Position including effects on debt covenants as applicable, agreements and amendments

Based upon our initial assessment, our audit will entail substantive testing only. The primary areas of focus in our overall audit strategy include the following.

- ▶ Fraud Risk
- ▶ Entity/System Level Internal Controls Over Financial Reporting
- ▶ Actuarial Valuation
- ▶ Compliance with Plan Documents (eligibility, contributions/contribution receivables, and benefit payments)
- ▶ Investments (Existence and Valuation)
- ▶ Other Receivables, Payables and System Expenses (including any new debt agreements and amendments that may have been entered into in 2018)
- ▶ Investment Income (Loss)
- ▶ Other Matters, Including Proper Disclosures, Accounting and Financial Reporting for Pensions, Legal Matter Disclosures
- ▶ Evaluation of Related Party Transactions, Including Transactions With Parties-in-Interest



Primary Areas of Focus and Audit Strategy

FRAUD RISK

Consideration	Approach
<ul style="list-style-type: none"> ▶ Fraud risk may be impacted by the following characteristics: <ul style="list-style-type: none"> • Incentive or pressure • Opportunity • Rationalization or attitude ▶ Presence of fraud risk factors and how management's controls and programs to detect and prevent fraud may mitigate these risks. ▶ Risk of management override of controls. 	<ul style="list-style-type: none"> ▶ Review System management's controls and programs relating to fraud, and assess operating effectiveness of such programs. ▶ Inquire of System management and other sponsor personnel as to their knowledge of any potential fraudulent or alleged fraudulent activities. ▶ Inquire of those charged with governance about their views about risks of material misstatements, including fraud risk and whether they are aware of: <ul style="list-style-type: none"> • tips or complaints regarding the System's financial reporting; and • matters relevant to the audit including, but not limited to, violations or possible violation of laws or regulations ▶ Consider additional procedures to address any specific fraud risks identified, including management override of controls. ▶ Introduce an element of unpredictability into our procedures by either altering the nature, timing, or extent of the procedures when compared to procedures performed in the prior year. ▶ Perform focused procedures on any significant unusual transactions, including gaining an understanding of the business purpose (or lack thereof) for the System entering into the transaction. ▶ Obtain an understanding of the System's financial relationships and transactions with those charged with governance of the System and the System Executive Director for risk assessment purposes. ▶ Exercise professional skepticism. ▶ Communicate with System management, those charged with governance and the System Executive Director, as necessary. ▶ Perform journal entry testing and fraud inquiries.

Primary Areas of Focus and Audit Strategy

ENTITY/SYSTEM LEVEL INTERNAL CONTROLS OVER FINANCIAL REPORTING

Consideration	Approach
<ul style="list-style-type: none"> ▶ System management has controls in place to maintain compliance with applicable rules and regulations and provisions of the Plan Document and Amendments. ▶ The Staff or the Executive Director has controls to monitor the activities of the outside service providers. ▶ Significant changes to personnel and internal control processes increase the risk that an internal control failure will occur due to either the design or operation of a particular control. 	<ul style="list-style-type: none"> ▶ Consider the System's internal control environment for purposes of planning our audit. ▶ Review the System's control processes in a number of areas to evaluate the design and implementation of controls in place. ▶ Review SOC 1 reports for the custodian and the external investment accounting service provider to determine whether adequate controls are in place and functioning effectively.

ACTUARIAL VALUATION

Consideration	Approach
<ul style="list-style-type: none"> ▶ Significant judgement and expertise is required in developing assumptions and performing evaluations. ▶ Actuarial valuation data is accurate and consistent. ▶ The effects of amendments, terminations, curtailments and other System events on the calculation. ▶ Whether the actuarial calculation appropriately applies current standards. ▶ Whether actuarial provisions and assumptions are deemed reasonable. ▶ Whether disclosures over actuarial assumptions and funding issues are appropriate. 	<ul style="list-style-type: none"> ▶ Confirm the actuarial data directly with the actuary. ▶ Perform census data reconciliations and review the completeness of the census data submitted to the actuary. ▶ Evaluate the professional qualifications of the actuary. ▶ With the assistance of the Actuarial Managing Director and Actuarial Manager, review and assess underlying documentation and development of assumptions and methods utilized. ▶ Review funding requirement, actuarial provisions and assumptions used for accuracy.

Primary Areas of Focus and Audit Strategy

COMPLIANCE WITH PLAN DOCUMENTS - ELIGIBILITY

Consideration	Approach
▶ Whether all covered employees have been properly included in employee eligibility records.	▶ Test that participating employees are eligible per the Plan Document on a sample basis.
▶ Whether accurate participant data for eligible employees was supplied to the custodian/service providers.	▶ Review documentation supporting eligibility. ▶ Review participant personnel files.

COMPLIANCE WITH PLAN DOCUMENTS - CONTRIBUTIONS/CONTRIBUTIONS RECEIVABLE

Consideration	Approach
▶ Whether the amounts received or due to the System have been determined, recorded, and disclosed in the financial statements in conformity with the Plan Documents and GAAP.	▶ Confirm the contributions made in 2018 directly with the City of Dallas. ▶ Test and ensure the calculation of employer and employee contributions is in accordance with the Plan Document. ▶ Test the reasonableness of contribution receivables.

Primary Areas of Focus and Audit Strategy

COMPLIANCE WITH PLAN DOCUMENTS - BENEFIT PAYMENTS

Consideration	Approach
▶ Whether benefit payments are in accordance with the Plan Document.	▶ Verify eligibility to receive the distributions.
▶ Whether benefit payments are made to or on behalf of person entitled to them and only to such persons.	▶ For DROP distributions agree distribution to proper request.
▶ Whether transactions are recorded in the proper account, amount, and period.	▶ Agree distributions to supporting checks or ACH transfer.
	▶ Test the proper tax withholdings were made, if any.
	▶ Review and recalculate benefit payments.
	▶ Test the DROP annuitization.
	▶ Perform data analytics over annuity payments throughout the year

INVESTMENTS

Consideration	Approach
▶ Due to the significant valuations issues with certain investments in the industry over the last several years, consider whether investments are properly valued and whether classified in conformity with GAAP.	▶ Confirmation investments with third-party fund managers and/or custodians.
▶ Whether investment transactions are recorded in conformity with GAAP.	▶ Test fair value of investments at year-end by comparing the carrying value to an outside third-party source, including audited financial statements presented at fair value, real estate appraisals, and partnership agreements.
	▶ Compare the investment income to rates of return per a third-party source, including audited financial statements at fair value, and test earning allocations.
	▶ Consider System management's policy of reviewing valuation methodologies, inputs and assumptions.
	▶ Review the System's investment policy in correlation with the investments in place.
	▶ Assess the appropriateness of the classification of investment within the fair value hierarchy in accordance with GASB 72, Fair Value Measurement and Application and related disclosures.

Primary Areas of Focus and Audit Strategy

OTHER RECEIVABLES, PAYABLES AND SYSTEM EXPENSES

Consideration	Approach
<ul style="list-style-type: none"> ▶ Whether receivables and payables are appropriately recorded. ▶ Whether liabilities recorded are complete and all expenses are captured. ▶ Whether securities lending obligations are appropriately recorded. ▶ Whether the System is in compliance with debt covenants and plans to alleviate violations of such covenants if any new ones were entered into in 2018. 	<ul style="list-style-type: none"> ▶ For loans payable review maturity schedules and covenants, and send confirmations. Review for any new debt agreements in 2018 to ensure compliance with covenants and related disclosures are appropriately included in the financial statements. ▶ Review schedules of uncompensated liabilities. ▶ Review securities lending arrangements. ▶ Obtain forward currency contracts and review the appropriateness of the receivable and payable balances. ▶ Perform a search of unrecorded liabilities. ▶ Obtain a detail break out of System expenses. ▶ Confirm fund management fees in correlation with the investment confirms. ▶ Select a sample of expenses and agree them to invoices and payments.

INVESTMENT INCOME (LOSS)

Consideration	Approach
<ul style="list-style-type: none"> ▶ Whether the realized gain or loss on investments is appropriately recorded. ▶ Whether dividends are appropriately recorded by the System. ▶ Whether interest earned is appropriately recorded by the System. 	<ul style="list-style-type: none"> ▶ For a selection of transactions recalculate the realized gains and losses. ▶ For a selection of transactions test dividends received by the System to independent market sources. ▶ Test interest earned by recalculating or performing reasonableness tests.

Primary Areas of Focus and Audit Strategy

OTHER MATTERS

Consideration	Approach
<ul style="list-style-type: none"> ▶ Ensure the financial report includes all appropriate disclosures. 	<ul style="list-style-type: none"> ▶ Complete a disclosure checklist specific to Pension System and one specific to GASB standards. ▶ Review the credit risk disclosure for appropriateness and adequacy. ▶ Review legal expenses and obtain legal confirmations for any potential commitments and contingencies and/or litigation that may require disclosure.

EVALUATION OF RELATED PARTY TRANSACTIONS, INCLUDING TRANSACTIONS WITH PARTIES-IN-INTEREST

Consideration	Approach
<ul style="list-style-type: none"> ▶ Consider the System's relationships and transactions with its related parties and parties-in-interest. ▶ Example of related party transactions include those between an entity, affiliates of the entity, other parties that can significantly influence the management or operating policies of the other, management, or members of their immediate families. ▶ Consider the susceptibility of the System financial statements to material misstatement (whether due to error or to fraud) that could result from the System's related party and party-in-interest relationships and transactions. 	<ul style="list-style-type: none"> ▶ Assess the risk of material misstatement associated with the System related party and party-in-interest relationships and transactions. ▶ Perform inquiry of System management regarding the identity of the System's related parties and parties-in-interest, the nature of the System's relationships and transactions with such parties and the System's process for identifying, authorizing and approving, and accounting for and disclosing such relationships and transactions. ▶ Perform inquiry and other procedures deemed appropriate to obtain an understanding of the controls, if any, that System management has established to identify, authorize and approve, and account for and disclose such relationships and transactions. ▶ Evaluate whether the System financial statements (1) appropriately account for and disclose identified relationships and transactions with related parties and parties-in-interest and (2) are fairly presented given any such relationships and transactions identified. ▶ Communicate to those charged with governance regarding significant matters arising from our audit.

We will communicate to those charged with governance, in a timely manner, any significant changes to the planned audit strategy or the significant risks initially identified that may occur during the audit to the results of audit procedures or in response to external factors, such as changes in the economic environment.

Overall Audit Timeline

The following represents our anticipated schedule with regard to our audit of the System's financial statements:

Description	Date
Planning meeting; client assistance listings provided to System management	January 2019
Develop audit strategy; determine nature and scope of testing	Mid-March 2019
Confirmation procedures	Mid-March 2019
Fieldwork	April 29 through May 17, 2019 and June 3 through June 14, 2019
Draft financials to be provided to BDO	May 13, 2019
Procedures over and review of the draft of financial statements, including RSI	From date of receipt of financials through June
Final communications with those charged with governance	June 13, 2019
Update subsequent event inquiries; release opinion on financial statements	Tentatively June 14, 2019

Independence Communication

Our engagement letter to you dated December 8, 2018 describes our responsibilities in accordance with professional standards and certain regulatory authorities with regard to independence and the performance of our services. This letter also stipulates the responsibilities of the System with respect to independence as agreed to by the System. Please refer to that letter for further information.

New GASB Standards Potentially Applicable to the System

EFFECTIVE AND/OR ISSUED IN 2018

GASB STATEMENT NO. 86, CERTAIN DEBT EXTINGUISHMENT ISSUES

- ▶ Resolves issue of how to record in-substance defeasance of debt when only existing resources are used.
- ▶ Current standards only address reporting requirements when debt is extinguished using bond proceeds.
- ▶ When cash or other existing resources are placed in an irrevocable trust to extinguish debt, it is considered to be in-substance defeasance, assuming all criteria are met.
- ▶ The difference between the reacquisition price and the net carrying amount of the debt will be recognized as a separately identified gain or loss in the period of defeasance. This differs from current practice when debt is extinguished using bond proceeds, whereby the difference is deferred.
- ▶ Payments to the escrow agent from existing resources should be reported as debt service expenditures in governmental fund types.
- ▶ The pronouncement will be effective starting with years ending June 30, 2018.

EFFECTIVE IN 2019

GASB STATEMENT 88, CERTAIN DISCLOSURES RELATED TO DEBT, INCLUDING DIRECT BORROWINGS AND DIRECT PLACEMENTS

- ▶ Defines debt for purposes of disclosure as a liability that arises from a contractual obligation to pay cash or other assets in one or more payments to settle an amount that is fixed as of the date the obligation is established.
- ▶ Would exclude pension and OPEB liabilities, leases and accounts payable as those should be disclosed in separate notes.
- ▶ Includes capital appreciation bonds and variable rate debt.
- ▶ Additional note disclosures required for unused lines of credit, assets pledged as collateral, specific debt agreement terms.
- ▶ The pronouncement will be effective starting with years ending June 30, 2019.

New GASB Standards Potentially Applicable to the System

GASB EXPOSURE DRAFT, ACCOUNTING FOR INTEREST COST DURING PERIOD OF CONSTRUCTION

- ▶ In financial statements using the economic resources measurement focus, interest incurred during construction should be recognized as an expense of the period.
- ▶ In financial statements using the current financial resources measurement focus, interest incurred during construction should be recognized as an expenditure.
- ▶ Interest cost should not be capitalized.
- ▶ Interest does not meet the definition of an asset or a deferred outflow.
- ▶ Expected effective date: Years ending December 31, 2019.

EFFECTIVE IN 2020

GASB STATEMENT NO. 87, LEASES

- ▶ This standard will require recognition of certain lease assets and liabilities for leases that are currently classified as operating leases.
- ▶ Eliminates the distinction between operating and capital leases - all leases will be recorded on the statement of net position/balance sheet.
- ▶ New definition of a lease - a contract that conveys the right to use another entity's nonfinancial asset for a period of time in an exchange or exchange-like transaction.
- ▶ Excludes leases that transfer ownership under a bargain purchase option or service concession arrangements that are covered by GASB Statement No. 60.
- ▶ Lessees would recognize a lease liability and an intangible right-to-use lease asset which would be amortized in a systematic and reasonable manner over the shorter of the lease term or the useful life of the underlying asset. Short-term leases are excluded.
- ▶ Lessors would recognize lease receivable and deferred inflow of resources which would be recognized as revenue in a systematic and rational manner over the term of the lease.
- ▶ The pronouncement will be effective starting with years ending December 31, 2020.

Tools and Resources for Those Charged with System Governance

Cybersecurity

Cybersecurity is the body of technologies, processes and practices designed to protect networks, computers and programs and data from attack, damage or unauthorized access. Vulnerable information includes participant data (such as Social Security numbers, birth dates, addresses and bank account information) and System assets. Additionally, use of third party service providers creates unique risks associated with the third party's access to sensitive System and participant data and the security of transmittals to/from the third party.

The AICPA's voluntary [Cybersecurity Risk Reporting Management Framework](#) standardizes reporting on the effectiveness of an entity's cyber risk management. Companies may use such frameworks to:

- ▶ Define their cybersecurity objectives and design a corresponding cyber risk management program to meet those objectives
- ▶ Perform a cybersecurity readiness assessment that benchmarks the current state of an organization's cyber program to identify deficient or insufficient controls, policies, and procedures, and quantify cyber risk against a standard set of criteria.
- ▶ Prepare an organization that is contemplating having an independent System and Organization Controls (SOC) attestation engagement performed to provide a higher level of assurance to management and the board.

CYBERSECURITY PREPAREDNESS

The ongoing onslaught of cybersecurity attacks and high profile data breaches have kept cybersecurity risk in the headlines and at the top of many board agendas. Companies and regulators are grappling with how to approach such breaches inclusive of consideration of controls, conducting investigations, remediation, and disclosures; all while assessing continued risks for additional data breaches in the rapidly changing technology environment being operated in.

Tools and Resources for Those Charged with System Governance

The SEC is taking cybersecurity very seriously and in February 2018 issued a [statement and interpretive guidance on public company cybersecurity disclosures](#) to clarify expectations for companies' disclosure of cybersecurity risks and incidents that are material to investors, including financial, legal, or reputational consequences. When companies become aware of a cybersecurity incident or risk that would be material to investors, they are now required to make appropriate disclosures in a timely manner, before an offer and sale of securities. In addition, this guidance indicates that steps should be taken to prevent directors, officers, and other corporate insiders from trading in company securities until investors are appropriately informed. The guidance also discusses how companies should be disclosing the potential effects of cybersecurity risk within the description of business, disclosures of legal proceedings, financial statement disclosures, and disclosures regarding board risk oversight.

Today, audit committees are required more than ever to evaluate cybersecurity risks, yet oftentimes, lack the proper tools, processes and systems to provide the necessary information. To help evaluate current practices, audit committees are encouraged to proactively discuss with their auditors the benefits in having an independent assessment of the effectiveness of the company's cybersecurity risk management program. Questions on the AICPA's SOC for Cybersecurity Examination may be directed to [Jeff Ward](#), BDO's SOC for Cybersecurity/Third Party Attestation Practice Leader and contributing member of the AICPA's ASEC Cybersecurity Working Group.

A new tool issued by the Center for Audit Quality aims to assist board members in their oversight of data security and cybersecurity risks and disclosures by providing key questions board members can use in their discussions with management and auditors and also provides key resources from leaders in the area of cybersecurity. The goal of this tool is two-fold: First, it is intended to better educate board members and others charged with governance and provide discussion starters for them to properly evaluate their cyber risks. Second, it is meant to be a tool for their auditors to help them assess how actively involved the board members and others charged with governance are assessing these risks.


Tools and Resources for Those Charged with System Governance

Some recently issued tools and resources audit committees may find helpful include:

Recommended Resources

CAQ's <u>Cybersecurity Risk Management Oversight : A Tool for Board Members</u>	April 2018
SEC Commission Statement and Guidance on Public Company Cybersecurity Disclosures	February 2018
BDO Archived Webinar: What's on the Minds of Boards?	November 2017
Are You Cyber Aware?: 10 Cybersecurity Questions for Senior Executives	October 2017
Cyber Risk Management : What You Need to Know Now	October 2017
2017 BDO Cyber Governance Survey	September 2017
Breaking Down the Equifax Data Breach	September 2017
BDO Knows Cybersecurity: Petya Cyber Attack	June 2017
BDO Highlights Important DHS - FBI Cyber Alert on North Korea - Hidden Cobra	June 2017
Introducing SOC for Cybersecurity: Translating Cyber Risk For Every Stakeholder	June 2017
The CPA's Role in Addressing Cybersecurity Risk	May 2017
Cybersecurity Officially Reaches the Board	June 2017

BDO Center for Corporate Governance and Financial Reporting



A dynamic and searchable on-line resource for board of directors and financial executives

The BDO Center for Corporate Governance and Financial Reporting was born from the need to have a comprehensive, online, and easy-to-use resource for topics relevant to boards of directors and financial executives. We encourage you to visit the Center often for up-to-date information and insights you can rely on.

What you will find includes:

- ▶ Thought leadership, practice aids, tools, and newsletters
- ▶ Technical updates and insights on emerging business issues
- ▶ Three-pronged evolving curriculum consisting of upcoming webinars and archived self-study content
- ▶ Opportunities to engage with BDO thought leaders
- ▶ External governance community resources

“Finally, a resource center with the continual education needs of those charged with governance and financial reporting in mind!”

BDO SUBSCRIPTIONS TO PROGRAMMING AND INSIGHTS

To begin receiving email notifications regarding BDO publications and event invitations (live and web-based), visit <https://www.bdo.com/member/registration> and create a user profile. If you already have an account on BDO’s website, visit the My Profile page to login and manage your account preferences <https://www.bdo.com/member/my-profile>.

For more information about BDO’s Center for Corporate Governance and Financial Reporting, please go to: www.bdo.com/resource-centers/governance.



DISCUSSION SHEET

ITEM #C4

Topic: January 1, 2019 Actuarial Valuation Assumptions

Attendees: Jeff Williams, Vice President, Segal Consulting
Rocky Joyner, Vice President, Segal Consulting

Discussion: An actuarial valuation is performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and it is an important part of the annual financial audit. Segal Consulting is preparing the January 1, 2019 actuarial valuation reports for the Regular Plan (Combined Plan) and the Supplemental Plan. Many economic and demographic assumptions are required to prepare the valuation. Pursuant to Article 16, Section 67 (f)(3) of the Texas Constitution, the Board determines the assumptions used in the valuation.

Segal will review the assumptions used in the prior valuation and provide a recommendation about whether the assumptions should be modified for the January 1, 2019 valuation.

Recommendation: Provide direction to Segal on the assumptions to be used in preparing the January 1, 2019 actuarial valuation reports for the Regular Plan (Combined Plan) and the Supplemental Plan.

Regular Board Meeting – Thursday, April 11, 2019

Dallas Police and Fire Pension System

Discussion of Actuarial Assumptions for 2019

April 11, 2019

Presented by:

Leon F. (Rocky) Joyner, Jr., FCA, ASA, MAAA, EA

Jeffrey S. Williams, FCA, ASA, MAAA, EA

The logo for Segal Consulting, featuring a white five-pointed star on a blue background, followed by the text "Segal Consulting" in white.

★ Segal Consulting

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Background

Why Conduct an Actuarial Valuation?

Purpose of Actuarial Valuation

- Calculate actuarial determined contributions
- Determine funded status
- Review recent annual experience; compare against current actuarial assumptions and methods
- Disclosure requirements
- Basis for pricing plan changes
- Meet current industry standards
- Legislative requirements
- Fiduciary responsibilities



Multi-Year Experience Studies

- The purpose of an experience study is to perform an in-depth study of the actuarial assumptions and methodologies in use by the System and determine how actual experience compared to what was expected.
- The Government Finance Officers Association (GFOA) considers the completion of regular experience studies a best practice.
- The actuary then recommends new assumptions and/or methods that take into account actual experience over the recent past as well as expectations for the future.
- An experience study was performed by Segal for the System based on the January 1, 2010 – December 31, 2014 period.
- Recommended assumptions and methods were adopted by the Board and implemented in the January 1, 2016 valuation.

Multi-Year Experience Studies

- In the 2017 valuation, assumptions were changed that were related to the plan changes effective in the Fall of 2017. Assumptions changed included retirement, DROP utilization, DROP interest, and COLA.
- The salary scale for years 2017 – 2019 was also modified in accordance with the Meet and Confer Agreement.
- Other than potentially modifying the salary scale to reflect updated Meet and Confer Agreements, it is not currently expected that new assumptions will be implemented prior to completion of the next experience study.
- The next study will be based on the period January 1, 2015 – December 31, 2019.

Two Types of Actuarial Assumptions

Economic

- Inflation
- Discount rate (Investment rate of return)
- Payroll growth rate
- Salary increases
- Administrative expenses
- DROP annuitization interest

Demographic

- Death in active service
- Death after retirement
 - Non-disabled
 - Disabled
- Withdrawal
- Disability
- Retirement
 - DROP Utilization
- Percent Married/Spouse Age
- Other Assumptions

Assumptions with the Greatest Impact

- The assumptions that usually have the largest impact on plan costs are:
 - Discount rate/investment return assumption (includes inflation and payroll growth)
 - Mortality
 - Retirement



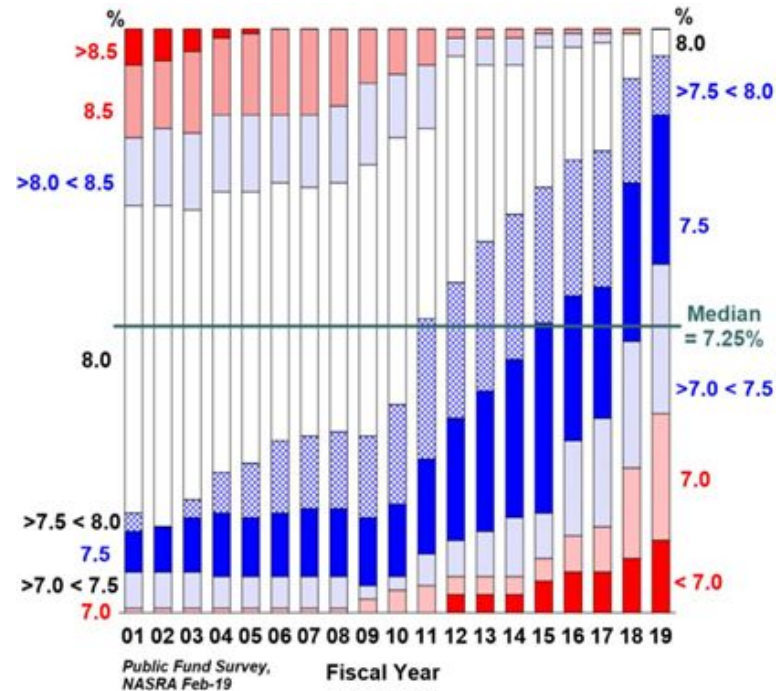
Investment Rate of Return

- **January 1, 2018 Valuation Assumption: 7.25%**
- NASRA Survey, February 2019
 - More than 90% of the 129 survey respondents lowered the assumption since FY 2010
 - More than 30% reduced their rate since February 2018.
 - For the first time in 20 years, none of the surveyed plans had assumptions greater than 8%.
 - Median has decreased to 7.25% (was 7.38% a year ago and 7.91% in 2010)
- We understand that the Board is addressing asset allocation and that this may take a couple years to accomplish, likely resulting in some short-term losses.

NASRA Issue Brief: Public Pension Plan Investment Return Assumptions

Updated February 2019

CHANGE IN DISTRIBUTION OF PUBLIC PENSION INVESTMENT RETURN ASSUMPTIONS, FY01 TO FY19



Source: Compiled by NASRA based on Public Fund Survey, February 2019

Impact of Potential Change in Discount Rate

- In our opinion, 7.25% remains a reasonable long-term assumption, but is at the upper end of the reasonable range.
- The top row of the table below, in red, is from the January 1, 2018 valuation.
- The bottom three rows include updated asset projections, as described below.
 - All assumptions are based on the 2018 valuation, with the exception of updated asset return projections. A market value rate of return of 0% is assumed for 2018.
 - The asset portfolio is now expected to produce returns of 5.25% in 2019, 5.75% in 2020, 6.25% in 2021, 6.75% in 2022, and 7.25% thereafter. These assumptions were provided by the System.

Discount Rate	January 1, 2018 Actuarial Accrued Liability (billions)	January 1, 2018 Total Normal Cost (millions)	Funded Percentage (Actuarial Value)	Projected Year of Full Funding
7.25%	\$4.51	\$53.68	47.74%	2063
7.25%	\$4.51	\$53.68	47.74%	2068
7.00%	\$4.62	\$57.20	46.56%	2073
6.75%	\$4.74	\$61.00	45.38%	2080

Pub-2010 Public Sector Mortality Tables

- The Society of Actuaries released the final Pub-2010 Public Retirement Plans Mortality Tables in January 2019.
- These are the first mortality tables produced solely for public sector participants.
- There are three categories of Pub-2010 tables – Teachers, General, and Public Safety. These are subdivided into employee, annuitant and disability tables, and further subdivided by income level.
- In total, the study included approximately 46 million life years of exposure, and 580K deaths, covering calendar years 2008-2013.
- For Public Safety, the study included 3.5 million exposures, and 31K deaths.



Mortality

- The last experience study for Dallas Police and Fire included about 17K annuitant exposures and almost 500 deaths.
- While over 1,000 deaths would have made the data more credible, it was deemed sufficient for purposes of choosing tables and adjusting them to reflect the observed mortality experience.
- **Since the current assumption was put in place in 2016, the System has not experienced significant liability gains or losses resulting from mortality. That is, the tables appear to be accurately anticipating deaths from the participant population.**
- Segal's plan is to update the System's mortality tables in next year's experience study, and implement the new tables in the January 1, 2020 actuarial valuation.
- It is anticipated that the new Pub-2010 tables will be relied on, and adjusted to reflect the System's experience.
- The generational mortality projection scale will also be updated.

Comparison of Mortality Rates for DROP Annuitization

- The mortality tables used to determine life expectancies for DROP annuitization in November 2017 are the same tables used for the actuarial valuation.
 - RP-2014 Blue Collar Healthy Annuitant Mortality Tables, with the female table set forward two years, projected generationally with Scale MP-2015. The sex-distinct tables were blended 85% male and 15% female for annuitization purposes.
- For informational purposes, on the next slide we have compared the life expectancies using the current mortality tables to the life expectancies based on the Pub-2010 Public Safety Healthy Retiree Tables, amount-weighted, projected generationally with Scale MP-2018.

Comparison of Mortality Rates for DROP Annuitization

- As shown below, the blended rates using the current valuation healthy retiree mortality table and the Pub-2010 Public Safety healthy retiree table described on the prior page provide similar life expectancies for annuitization purposes.

Current Mortality Assumption Life Expectancy in Years					Pub-2010 Public Safety Retiree Life Expectancy in Years			
<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>85/15 Blend</u>	<u>Rounded Years</u>	<u>Male</u>	<u>Female</u>	<u>85/15 Blend</u>	<u>Rounded Years</u>
50	34.57	35.79	34.76	35	35.68	37.68	35.98	36
55	29.74	30.90	29.91	30	30.59	32.56	30.89	31
60	25.15	26.19	25.31	25	25.70	27.67	26.00	26
65	20.81	21.68	20.94	21	21.10	23.02	21.38	21
70	16.76	17.43	16.86	17	16.81	18.60	17.08	17

- In the next experience study, these tables, along with the above-median and below-median tables, will be reviewed and adjusted as necessary in order to determine the fit that best matches the System's experience.

Comparison of Mortality Rates Between General Employees and Public Safety

- As shown below, the Pub-2010 General Healthy Retiree amount-weighted table, projected generationally with Scale MP-2018, and the Pub-2010 Safety Healthy Retiree amount-weighted table, projected generationally with Scale MP-2018, produce similar life expectancies for retirees.

Age	Male Life Expectancy in Years		Female Life Expectancy in Years	
	General	Public Safety	General	Public Safety
50	35.64	35.68	38.60	37.68
55	30.72	30.59	33.61	32.56
60	26.00	25.70	28.75	27.67
65	21.51	21.10	24.01	23.02
70	17.25	16.81	19.44	18.60

Retirement Rates

- New expected retirement rates were implemented in the 2017 valuation, in conjunction with the legislative changes.
- The new rates are divided into current active DROP members and non-DROP active members, and non-DROP rates also vary based on hire date and earned service as of September 2017.
- There has not been sufficient experience since the adoption of the 2017 legislative changes to recommend any adjustment to the rates at this time.



Caveats and Disclaimers

- Actual results may differ significantly from the measurements shown in the attached projections due to such factors as: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the smoothing of investment gains or losses); changes in plan provisions or applicable laws; and the City contributing amounts other than those anticipated.
- The information contained in this presentation was prepared for use by the System and Board of Trustees. Segal is not responsible for representations made regarding the information herein to any third parties. Please note that care should be taken in using the information in this presentation independent of the whole presentation to avoid possible misinterpretation of the results.
- The assumptions used in these projections are the same as those in the January 1, 2018 actuarial valuation, unless stated otherwise. The valuation presumes ongoing plan viability.
- The projections included were prepared under the guidance of Jeffrey S. Williams. Mr. Williams is a Member of the American Academy of Actuaries and qualified to render the actuarial opinions herein.
- ***The results of these projections are not a guarantee of future performance and should be used as a guideline, not an absolute, while making decisions regarding the future of the System. Projections, by their very nature, cannot be guaranteed.***

Questions and Discussion

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DISCUSSION SHEET

ITEM #C5

Topic: Pension Obligation Bond Research

Discussion: The Board requested information about Pension Obligation Bonds (POBs). Staff will provide a general overview of POBs, provide information about the POBs issued in 2005 by the City of Dallas to provide funding for the City of Dallas Employees Retirement Fund and the potential impact on DFPF's funding of a POB issuance by the City of Dallas.

Regular Board Meeting – Thursday, April 11, 2019



Pension Obligation Bond Research

April 11, 2019

Pension Obligation Bonds (POBs)

- Pension Obligation Bonds (POBs) are General Obligation debt issued by the plan sponsor, (e.g. the City of Dallas).
- The Pension Plan has no statutory authority to issue POBs
- POBs are issued on a taxable basis. The interest rate is higher than typical tax-exempt municipal debt.
- The goal of a POB is to earn a rate of return on the proceeds that exceeds the interest rate paid on the debt.
- The actual POB debt structure can take many forms.
- Contributions due from the plan sponsor are sometimes modified to adjust for the debt service on the bonds.

Ability to modify City Contributions to DPFP

Article 6243a-1, Section 4.02 (b)

Any change to the contributions required to be made to the pension system by the city may only be made:

- (1) by the legislature;
- (2) by a majority vote of the voters of the city; or
- (3) in accordance with a written agreement entered into between the pension system, by at least a two-thirds vote of all trustees of the board, and the city, provided that a change made in accordance with this subdivision may not increase the period required to amortize the unfunded actuarial accrued liability of the fund.

Pension Obligation Bonds (POBs)

- The City has a history of issuing POBs
 - 2005 Employees Retirement Fund (ERF)
 - 2010 Refunding a portion of the 2005 ERF issuance
- The Government Finance Officers Association (GFOA) recommended that state and local governments do not issue POBs in a 2015 advisory. The GFOA advisory, including the reasons for the GFOA recommendation, are included with the agenda materials.
- The Center for State & Local Government Excellence issued a brief in 2014 titled An Update on Pension Obligation Bonds, in which, many of the risks of issuing POBs are identified. The brief also includes the following statement: “POBs could be implemented as part of a larger pension reform plan in which the POB helps provide immediate relief while other reforms put the plan on the path to long-term sustainability.” The issue brief has been provided with the agenda materials.

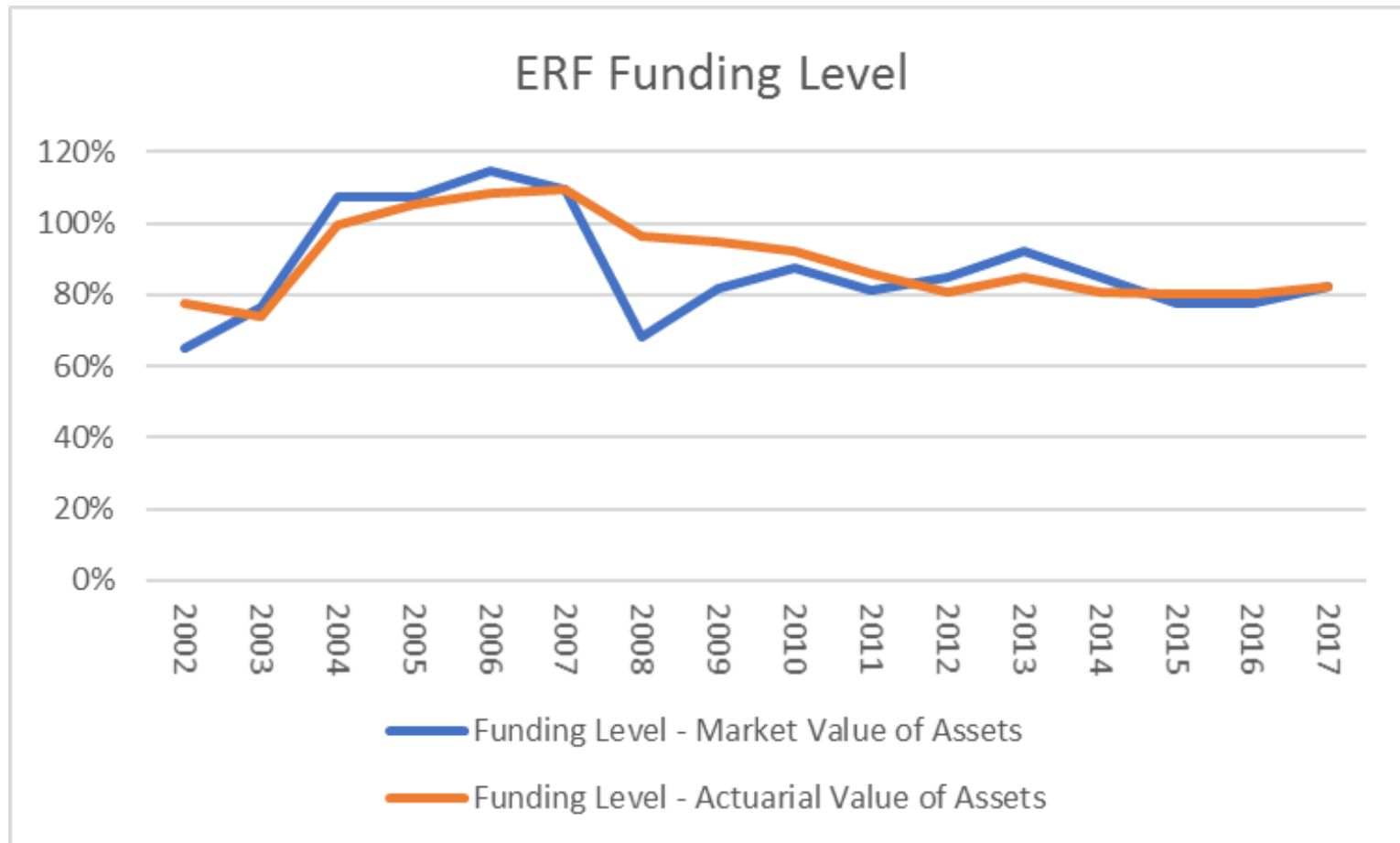
Dallas Employees Retirement (ERF) Plan Experience

- City issued taxable Pension Obligation Bonds (POBs) on February 16, 2005
 - The bonds were issued in 3 series (A, B & C)
 - Proceeds - \$533,397,000
 - True Interest Cost (TIC) - 5.398%
- \$75 million of the bonds (Series C) were refunded on November 18, 2010 to achieve interest rate savings.
 - The TIC on the refunding issue - 4.640%
- At the time the POBs were issued ERF's rate of return assumption was 8.25%. The assumed rate of return was lowered to 8.00% for the 12-31-2014 valuation and to 7.75% beginning with the 12-31-2016 valuation.
- The comments and conclusions on the following slides are DPFP staff's assessment of information and data and do not represent comments from ERF or the City of Dallas.

Dallas Employees Retirement (ERF) Plan Experience – as of 12-31-2018

- Did issuing the POB's achieve the goal of fully funding the ERF unfunded liability?
 - **Yes**, the funding level of the plan was greater than 100% until 2008.
- Is the fund in a better position because of the issuance of the POB's?
 - **Yes**, the assets of the fund are more than they would be without the issuance of the POBs.
- Hypothetically, if instead of paying debt service, the same amount of money went into the plan as additional contributions, would the fund have been better off than issuing the POBs?
 - **No**, the assets of the fund are more with the POB proceeds and earnings (after giving effect to lower contributions to pay debt service) than they would have been with the additional contributions and the earnings on the additional contributions.

ERF Funding Level

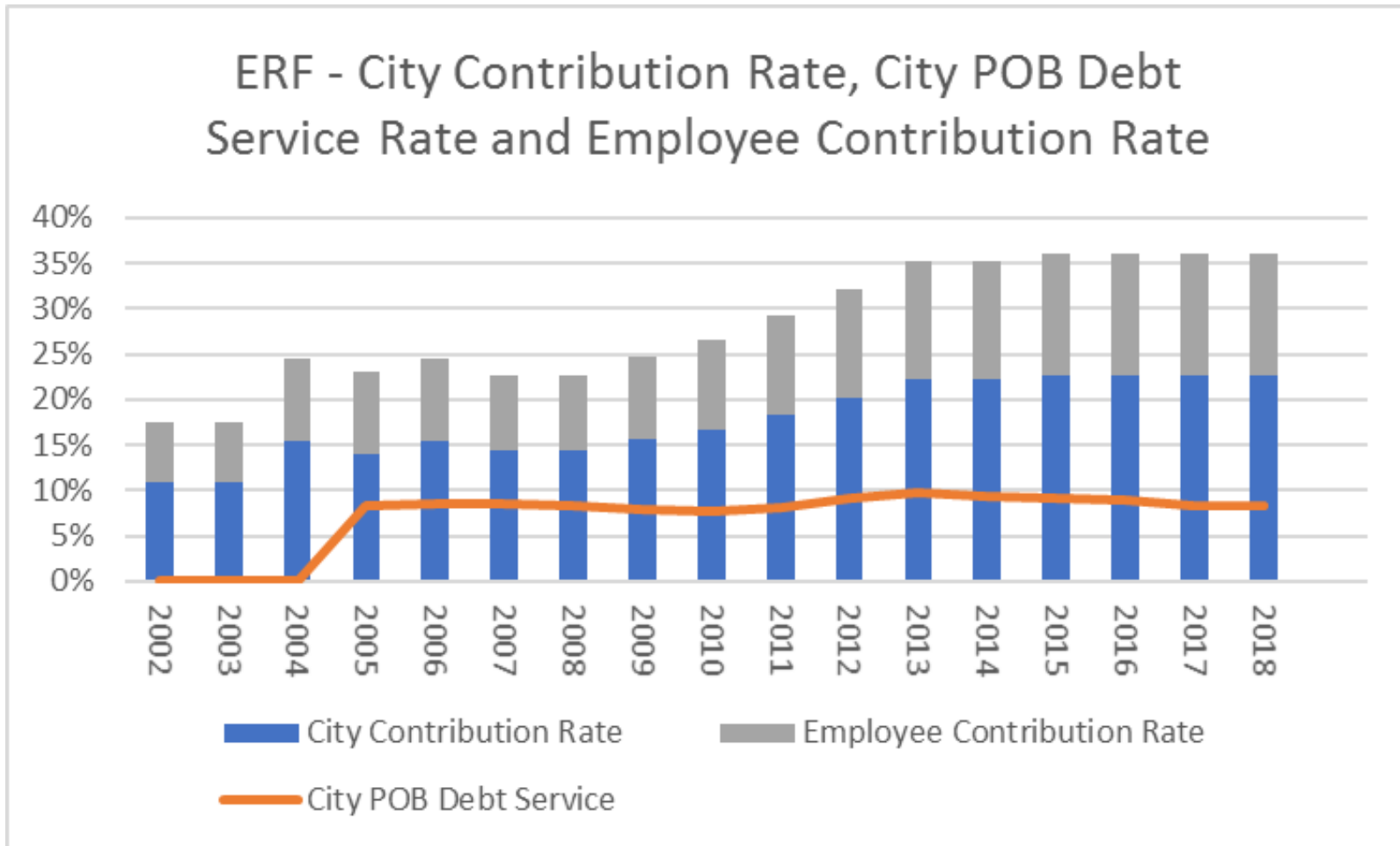


Source: ERF Annual Actuarial Valuation Reports

Dallas Employees Retirement (ERF) Plan Experience – as of 12-31-2018

- Has the City paid more as a result of the POBs?
 - **No**, contributions due the fund are reduced by the debt service. However, this answer assumes the City would have altered their prior fixed rate contribution structure to the actuarial determined contribution (ADC) sharing structure that was implemented with the 2005 plan changes. The fund would not have been sustainable under the original fixed rate contribution structure.
 - Having the additional assets from the POBs reduced the actuarial determined contribution (ADC) rate, saving the City more money than had the ADC been calculated without the additional assets.
- Are contribution rates higher than prior to the POB issuance?
 - **Yes**, contributions were 11% City and 6.5% employee prior to the POBs. Contribution rates have increased. Rates are determined by a sharing of the actuarial determined contribution less debt service with a cap of 36% from the City and employee combined. The cap has limited contributions to the fund since 2015. For Fiscal Year 2019 the employee contribution rate is 13.32%, the City Contribution rate to the fund is 22.68%. Regardless of the POB issuance, higher contribution rates were required.

Contribution Rates and Debt Service as a Rate of Payroll



Dallas Employees Retirement (ERF) Plan Experience – as of 12-31-2018

- Have benefit changes been made to the ERF plan since the POB issuance?
 - **Yes**, a new tier of lower benefits was added for employees hired after December 31, 2016.
- Has the ERF earned a higher return on the proceeds from the POB issuance than the City has paid in debt service?
 - **Yes**, through 2018, the return on the proceeds have exceeded the debt service paid by the City. However, due to the 2008 financial crisis, when comparing the earnings on the proceeds and the debt service paid, there was not a material difference until the end of 2012.

POB Authorization Statute

Sec. 107.003.

(a) A municipality may issue obligations to fund all or any part of an unfunded liability.

(b) Before authorizing issuance and delivery of an obligation under this section, the governing body of the municipality must enter into a written agreement with the governing body of the public retirement system that:

(1) has fiduciary responsibility for assets of the public pension fund or public pension funds that are to receive the net proceeds of the obligations to be issued; and

(2) has the duty to oversee the investment and expenditure of the assets of the public pension fund.

(c) The written agreement must state the amount of the unfunded liability and the date or dates on which the public pension fund will accept the net proceeds of the obligations to be issued in payment of all or a portion of the unfunded liability.

Current Texas Legislation

- Senate Bill 957 – if passed by the legislature, will require voter approval for the City to issue POBs greater than \$50 million.
- Voters approved the ERF POBs.
 - Altering the contribution rates required voter approval even without the POB issuance

Potential Impact of a POB for DPFP

(based on 1-1-2018 valuation – assumes all assumptions realized)

- Assumptions:
 - Estimated debt service
 - Based on current rates, City of Dallas AA- S&P bond rating, 30-year term, TIC 4.54%.
 - Debt service increases at 2.75% per year to match projected payroll increases
 - Debt issued in 2020, in one issuance (for modeling purposes to assess the overall potential impact)
- If City contributions are reduced to pay debt service:
 - \$1 billion
 - Debt service is 28%-31% of contributions, \$46 million in 2020
 - Improves the fully funded date from 2063 to 2055: 8-year improvement, 38 years-to-fund
 - Funding level after proceeds are received is 66%, drops to a low of 63% and begins to increase in 2031
 - \$2 billion
 - Debt service is 57%-63% of contributions, \$92 million in 2020
 - Improves the fully funded date from 2063 to 2045: 18-year improvement, 29 years-to-fund
 - Funding level after the proceeds are received is 87%, drops to a low funding level of 85% and begins to increase in 2023

Potential Impact of a POB for DPFP

(based on 1-1-2018 valuation – assumes all assumptions are realized)

- If City contributions are *not* reduced to pay debt service:
 - \$1 billion
 - Debt service is 28%-31% of contributions, \$46 million in 2020
 - Improves the fully funded date from 2063 to 2039: 25-year improvement, 21 years-to-fund
 - Funding level after proceeds are received is 66% and continues to rise
 - \$2 billion
 - Debt service is 57%-63% of contributions, \$92 million in 2020
 - Improves the fully funded date from 2063 to 2027: 36-year improvement, 10 years-to-fund
 - Funding level after the proceeds are received is 87% and continues to rise

Conclusion

- ERF has benefited from a POB issuance.
- ERF has increased both City and employee contribution rates and made benefit changes – the POB issuance was one piece of the funding actions necessary for ERF.
- A POB issuance for DPFPP could result in overall savings to the City. The City and member contribution levels decrease significantly when there is no unfunded liability:
 - 6243a-1, Section 4.025: if the pension system has no unfunded actuarial liability according to the most recent actuarial valuation, the annual normal costs must be equally divided between the city and the members.
 - The normal cost in the 1-1-2018 valuation report was 17.89%.
- There are several considerations and risks that could impact the City in a POB issuance.
- DPFPP has made contribution and benefit changes, both first as a new tier and then significant changes for current employees and retirees.
- It is reasonable to consider POBs as a part of a larger pension reform plan.
- Interest rates are low now and they may not be as low in 2024 when additional funding or changes will likely be required.



ADVISORY

Pension Obligation Bonds

Advisory:

GFOA Advisories identify specific policies and procedures necessary to minimize a government's exposure to potential loss in connection with its financial management activities. It is not to be interpreted as GFOA sanctioning the underlying activity that gives rise to the exposure.

BACKGROUND:

Pension obligation bonds (POBs) are taxable bonds¹ that some state and local governments have issued as part of an overall strategy to fund the unfunded portion of their pension liabilities by creating debt. The use of POBs rests on the assumption that the bond proceeds, when invested with pension assets in higher-yielding asset classes, will be able to achieve a rate of return that is greater than the interest rate owed over the term of the bonds. However, POBs involve considerable investment risk, making this goal very speculative.² Failing to achieve the targeted rate of return burdens the issuer with both the debt service requirements of the taxable bonds and the unfunded pension liabilities that remain unmet because the investment portfolio did not perform as anticipated. In recent years, local jurisdictions across the country have faced increased financial stress as a result of their reliance on POBs, demonstrating the significant risks associated with these instruments for both small and large governments.

RECOMMENDATION:

The Government Finance Officers Association (GFOA) recommends that state and local governments do not issue POBs for the following reasons:

1. The invested POB proceeds might fail to earn more than the interest rate owed over the term of the bonds, leading to increased overall liabilities for the government.
2. POBs are complex instruments that carry considerable risk. POB structures may incorporate the use of guaranteed investment contracts, swaps, or derivatives, which must be intensively scrutinized as these embedded products can introduce counterparty risk, credit risk and interest rate risk.³
3. Issuing taxable debt to fund the pension liability increases the jurisdiction's bonded debt burden and potentially uses up debt capacity that could be used for other purposes. In addition, taxable debt is typically issued without call options or with "make-whole" calls, which can make it more difficult and costly to refund or restructure than traditional tax-exempt debt.
4. POBs are frequently structured in a manner that defers the principal payments or extends repayment over a period longer than the actuarial amortization period, thereby increasing the sponsor's overall costs.

3/13/2019

Pension Obligation Bonds

5. Rating agencies may not view the proposed issuance of POBs as credit positive, particularly if the issuance is not part of a more comprehensive plan to address pension funding shortfalls.

Notes:

1 The Tax Reform Act of 1986 eliminated the tax exemption for pension obligation bonds.

2 Alicia H. Munnell, Jean-Pierre Aubry, and Mark Cafarelli, "An Update on Pension Obligation Bonds," Center for Retirement Research at Boston College, July 2014.

3 See GFOA Advisory – *Using Debt-Related Derivatives and Developing a Derivatives Policy (2015)*

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ISSUE BRIEF

An Update on Pension Obligation Bonds

July 2014



How have pension obligation bonds (POBs) fared since the financial crisis? This issue brief examines the rationale for issuing POBs and evaluates the factors affecting the probability that a government will issue a POB.

The analysis by Alicia H. Munnell, Jean-Pierre Aubry, and Mark Cafarelli from the Center for Retirement Research at Boston College found that governments are more likely to issue POBs if their debt levels are high, they are short of cash, and the pension plan represents a substantial obligation to government. If their timing is good, governments will earn more on the proceeds than they have to pay in interest.

The encouraging news is that four years of economic recovery have improved the performance of POBs. Fiscally sound governments that issue POBs, and understand the risks involved, find them to be a useful tool. Likewise, governments facing severe fiscal stress could use them strategically as part of a broader pension reform effort.

However, just as the researchers found in their [2010 study](#), many of the jurisdictions that have issued POBs could ill afford the risk. Detroit is a prime example of such a jurisdiction, issuing POBs in 2005 and 2006 just as the market was approaching a peak.

The Center for State and Local Government Excellence gratefully acknowledges the financial support from ICMA-RC to undertake this research project.

A handwritten signature in black ink that reads "Elizabeth K. Kellar". The signature is written in a cursive, flowing style.

Elizabeth K. Kellar
President and CEO
Center for State and Local Government Excellence

An Update on Pension Obligation Bonds

BY ALICIA H. MUNNELL,
JEAN-PIERRE AUBRY,
AND MARK CAFARELLI*

Introduction

This update shows how Pension Obligation Bonds (POBs) have fared since the financial crisis. This instrument, which is a general obligation of the government, alleviates pressure on the government's cash position; and it may offer cost savings if the bond proceeds are invested, through the pension fund, in assets that realize a return higher than the cost of the bond. At the time of our last study, 2009 data showed that most issuers had lost money by issuing a POB.¹ One question is the extent to which five additional years have changed that picture. The earlier study also looked at the factors leading a state or locality to issue a POB and concluded that those least able to absorb the risk were the most likely to do so. The second question is whether that continues to be the story.

The *brief* proceeds as follows. The first section presents a brief history of POBs from their introduction in 1985 to the present. The second section introduces the rationale for, and possible risks associated with, issuing a POB. The third section evaluates POBs at three points in time: 2007 (at the height of the stock market), 2009 (in the midst of the financial crisis), and 2014 (today). The fourth section summarizes the regression results—using an expanded sample that includes cities that do not administer their own pension plan—that relate the probability of issuing a POB to the financial pressures of the sponsor, the economic environment, and financial conditions such as the “expected spread” between interest rates and stock market returns. The fifth section presents a two-fold conclusion. On the one hand, five years of economic recovery have improved the performance of POBs; on average they have produced a real internal rate

of return of 1.5 percent. On the other hand, while POBs could potentially be a useful tool under the right circumstances, evidence to date suggests that the jurisdictions that issue POBs tend to be the financially most vulnerable with little control over the timing.

Background

In 1985, the city of Oakland, CA, issued the first POB.² At the time, POBs offered city, municipal, and state governments a classic arbitrage opportunity. Issued on a tax-exempt basis, the government could immediately invest the proceeds through the pension fund in higher-yielding taxable securities, such as U.S. Treasury bonds, which would lock in a positive net return from the transaction.³ However, because POBs (and all “arbitrage bonds”) deprived the federal government of tax revenues, Congress stopped state and local governments from issuing tax-exempt bonds solely to reinvest the proceeds in higher-yielding securities. Indeed, the Tax Reform Act of 1986 (TRA86), which did away with the tax exemption for POBs, appeared to mark an end for this instrument.

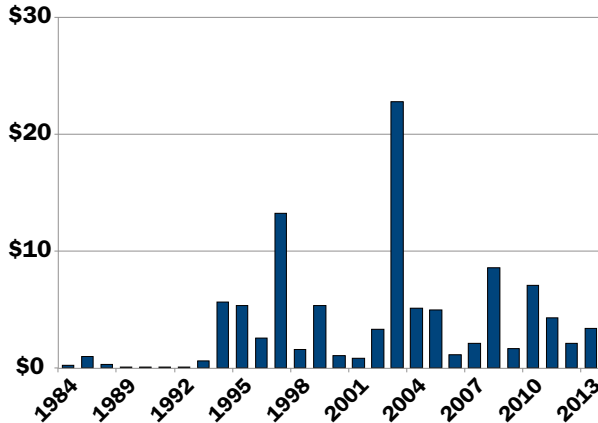
Surprisingly, POBs re-emerged in the 1990s. The strong performance of the stock market led some governments (and bankers) to see a potential arbitrage opportunity for taxable POBs. Two factors were important. First, taxable interest rates had come down considerably, which meant that POB borrowing costs were lower as well. Second, pension funds had increased their equity holdings substantially over the decade,⁴ which generated higher returns for the plans and, thus, led actuaries to assume higher future returns. The combination of these two factors was enough to convince some governments that POBs offered an attractive “actuarial arbitrage.”⁵

Since TRA86 and the end of arbitrage bonds, governments have issued about \$105 billion in taxable POBs. The most notable characteristic of the pattern of new issues is the spike in POB dollars issued in 2003 (see Figure 1, pg. 4), which is partly due to a single

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POB issuance worth almost \$10 billion (\$12.4 billion in 2013 dollars) by the state of Illinois.⁶

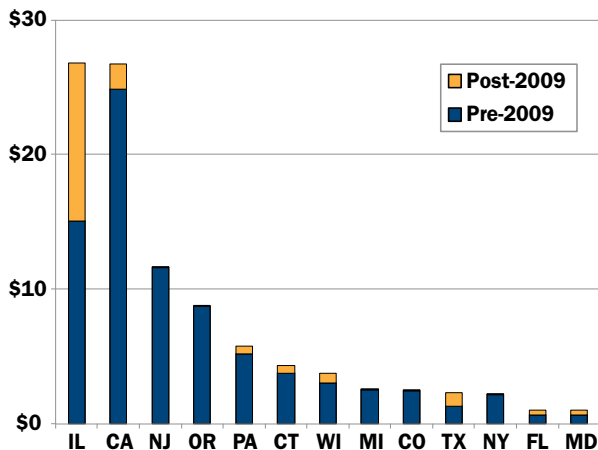
Figure 1. Pension Obligation Bonds Issued from 1985–2013, Billions of 2013 Dollars



Source: Data set compiled from Bloomberg Online Service (2012), and SDC Thomson Reuters (2013) databases.

Even with the 2003 spike, the total amount of POBs issued in any given year has never been more than 1 percent of the total assets in public pensions. However, certain states and localities are more active in the POB market than others. Figure 2 shows total issuances by state from 1985 to 2013.⁷ It is clear that the bulk of activity in POBs has been centered in about 10 states, with Illinois and California being major players.⁸

Figure 2. Pension Obligation Bonds Issued from 1985-2013 for States with More Than \$1 Billion Issued, Billions of 2013 Dollars



Source: Data set compiled from Bloomberg Online Service (2012), and SDC Thomson Reuters (2013) databases.

The Pros and Cons of Issuing a POB

While the market remains small, it is clear that certain jurisdictions see POBs as attractive policy instruments. The available literature suggests two primary reasons for their appeal:⁹

- **Budget relief:** During periods of economic stress, governments use POBs for budget relief. State and local governments often face legal requirements to reduce underfunding. With declining revenues, officials may see POBs as the “least bad alternative” among a variety of tough fiscal choices.
- **Cost savings:** POBs offer issuers an actuarial arbitrage opportunity, which, in theory, can reduce the cost of pension obligations through the investment of the bond proceeds in higher risk/higher return assets. By commingling POB proceeds with pension assets, the assumption is that bond proceeds will return whatever the pension returns. Given that actuarial practice assumes public pensions will return about 8 percent, POBs can be a compelling proposition (especially to governments whose taxable borrowing costs are in the 5-6 percent range).

While the actuarial arbitrage highlighted above may be persuasive, the issuance of POBs poses serious risks:¹⁰

- **Financial:** The success of POBs depends on pension returns averaging more than the cost of financing the debt. However, these assumptions may not turn out to be correct.
- **Timing:** POBs involve considerable timing risk, as the proceeds from the issuance are invested en masse into the pension plan. Dollar-cost averaging would be the more measured approach to investing large sums of money.¹¹
- **Flexibility:** While the issuance of a POB does not change the total indebtedness of the sponsor, it does change the nature of the indebtedness.¹² Requirements to amortize unfunded pension liabilities may be relatively flexible obligations that can be smoothed over time, while the POB is an inflexible debt with required annual payments.
- **Political:** If the government uses the POB to fully fund the pension, it may end up with a pension system having more assets than liabilities. Such overfunding may create the political risk that unions and other interest groups will call for benefit increases, despite the fact that the underfunding just moved from the pension plan’s balance sheet to the sponsor’s balance sheet.¹³

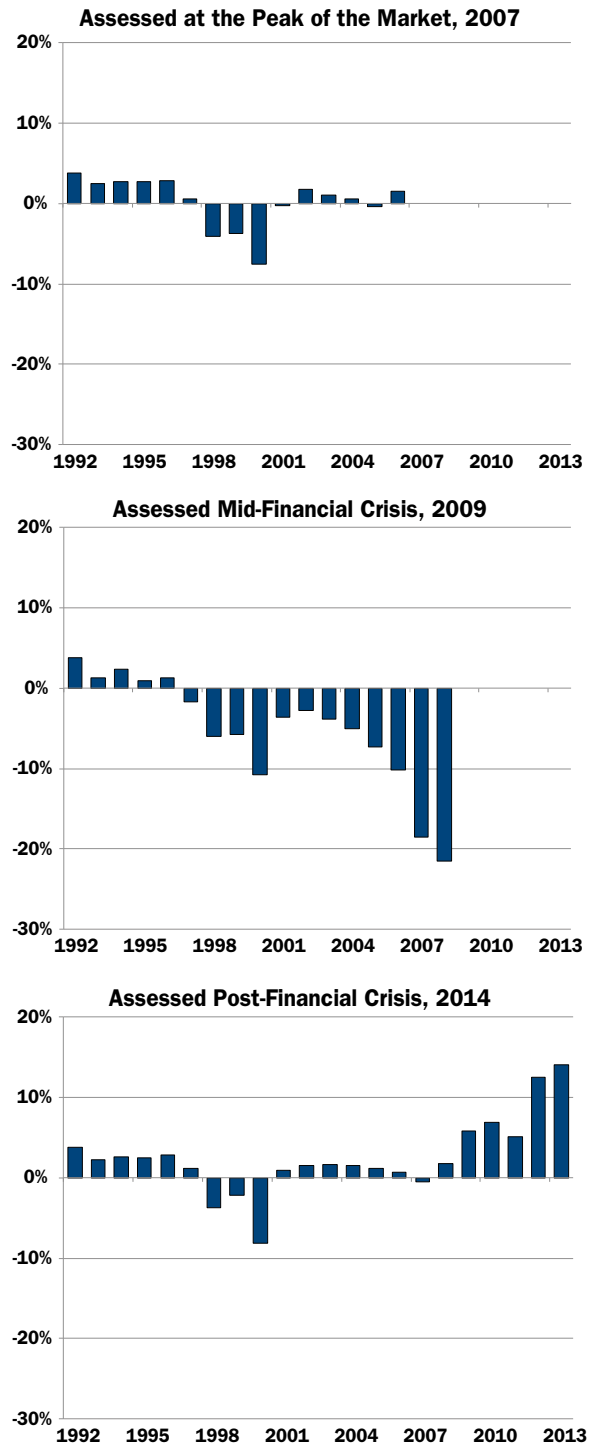
Evidence to Date

In order to assess the extent to which POBs have met issuers' expectations, we calculate the internal rate of return for all POBs issued in a given year. This analysis is based on the universe of taxable POBs issued since the passage of TRA86 through 2013.¹⁴ The universe includes 5,109 POBs issued from 529 different governing entities, totaling approximately \$98 billion in 2013 dollars.

We begin by looking at each bond issued in a given year. Of the 5,109 bond issuances in our data, 4,538 provide the detailed data needed to perform a meaningful assessment—the date of issuance, the date of maturity, the coupon rate, the par value, and the purchase price as a percent of par. The assumption is that the proceeds from each bond are invested in accordance with the allocation of the aggregate assets of state and local pensions from the Federal Reserve's *Flow of Funds*—approximately 65 percent in equities and 35 percent in bonds. Accordingly, we use the S&P 500 total return index and the Barclays 10-year bond total return index to approximate how the POB proceeds have grown over time. For each bond, beginning in year one, we calculate the growth of the invested bond proceeds for that year, then subtract the interest payment (using the stated coupon rate) to get a new beginning balance for the following year, and this process is repeated until the bond matures. For bonds that have not yet matured, the process is repeated until the date of the assessment. At maturity or date of assessment, we compare the ending balance with the initial proceeds to calculate an internal rate of return (IRR). These IRRs are then weighted by the size of the bond and the maturity (or, if the bond has not yet matured, the number of years between the date of issue and the assessment date) in order to calculate an aggregate IRR for each annual cohort of POBs.

The results demonstrate the risk associated with a POB strategy. If the assessment date is the end of 2007—the peak of the stock market—the picture looks fairly positive (see Figure 3). If assessed in the middle of 2009—right after the market crash—most POBs appear to be a net drain on government revenues. And, as of February 2014, the majority of POBs have produced positive returns due to the large market gains that followed the crisis. Only those bonds issued at the end of the market run-up of the 1990s, and those issued right before the crash in 2007, have produced a negative return; all others are in the black.

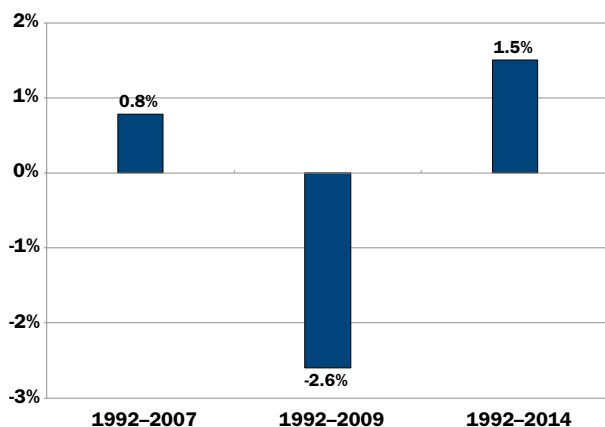
Figure 3. Internal Rate of Return on Pension Obligation Bonds, by Year Issued



Source: Authors' calculations based on total monthly returns of the S&P 500 from Standard and Poor's Index Services (1992–2014); total monthly returns of U.S. Treasuries from the *Ibbotson SBBI Classic Yearbook* (2013); and the Barclays U.S. Treasury 10-year Term Index (2014). POB data are from Bloomberg Online Service (2012); and SDC Thomson Reuters (2013).

Weighting the bonds by their dollar amount and maturity (or, if the bond has not yet matured, the number of years between the date of issue and the assessment date), Figure 4 shows the average IRR for the three periods. Between 1992 and the peak in 2007, the average real return was 0.8 percent; by 2009 the average return had dropped to -2.6 percent; and over the period 1992-2014—which includes both the financial crisis and the subsequent market rebound—the return was 1.5 percent. The story is still far from over, however, since many of these POBs have a 30-year life.

Figure 4. Average Internal Rate of Return on Pension Obligation Bonds, 1992–2007, 1992–2009, and 1992–2014



Source: See Figure 3.

What Contributes to the Issuance of a POB?

In theory, governments with well-funded pension plans and sound fiscal health might find POBs advantageous if issued at periods when interest rates are particularly low. This type of issuer could shoulder the additional risk of a POB without jeopardizing its fiscal health. Or, for governments facing severe fiscal stress, POBs could be implemented as part of a larger pension reform plan in which the POB helps provide immediate relief while other reforms put the plan on the path to long-term sustainability.¹⁵ So, the question is which governments issue POBs and why. The following regression analysis attempts to answer that question.

The Data

The first step is to define the sample. The sample of issuers used in this analysis is larger than in the earlier

study, because it includes both governments that sponsor their own pension plans and cities that participate in state cost-sharing plans. This broadening of the sample is important, because most of the POB occurrences come from local governments that only participate in a state-administered retirement system. Plan data for cities not administering their own plan are constructed based on the methods stipulated in the Governmental Accounting Standards Board's Statement 68.

The second step is to construct the dependent variable—a government issuing a POB in a given year. This step requires consolidating the multiple POB bonds into a single observation. For example, in 1997, the New Jersey state government issued 31 bonds; in this exercise, this information is consolidated to indicate that the New Jersey state government was a POB issuer in 1997. This process of consolidation results in 733 observations. Data limitations reduce the number of issues considered to 270.¹⁶

Analysis and Results

The probability of being one of the 270 POB issuances among the 140,000 states and localities is then assumed to depend on fiscal pressures facing the government, the economic environment, and financial variables such as the expected spread between interest costs and stock market returns.¹⁷ The specific variables in the model included:¹⁸

Fiscal Pressure on Government

- *Contributions/revenue:* Government contributions to the pension plan as a percent of total own-source government revenue. The assumption is that as the pension expenditure increases as a percentage of total government spending, the more likely the government is to issue a POB.
- *Debt/revenue:* Government debt as a percent of own-source revenue. The effect could go either way. A government with substantial debt may find it costly to issue a POB and therefore would not find it profitable. On the other hand, governments with high debt burdens could also be those facing large pension payments for unfunded liabilities, since the government may be more likely to defer pension contributions to make fixed required debt payments.
- *Cash/revenue:* Government cash and securities outside of trusts as a percent of total own-source revenue. The more cash on hand, the less likely a government would be pressed to issue a POB.

- *Carry deficit.* States where it is possible to carry deficits from one year to another are likely to be in more fiscal stress than those states with a strict balanced budget requirement.

Economic Environment

- *Unemployment rate:* The average unemployment rate by county over 2000-2007. The higher the unemployment rate, the more likely a government would be to issue a POB.

Financial Conditions

- *10-Year Treasury Bond.* In times of low interest rates, localities would be more likely to issue POBs as their cost of borrowing would be lower.
- *Spread:* The difference between the actual investment returns that each retirement system experienced in the previous three years and the 10-year Treasury rate. The greater the spread, the more likely to issue a POB.

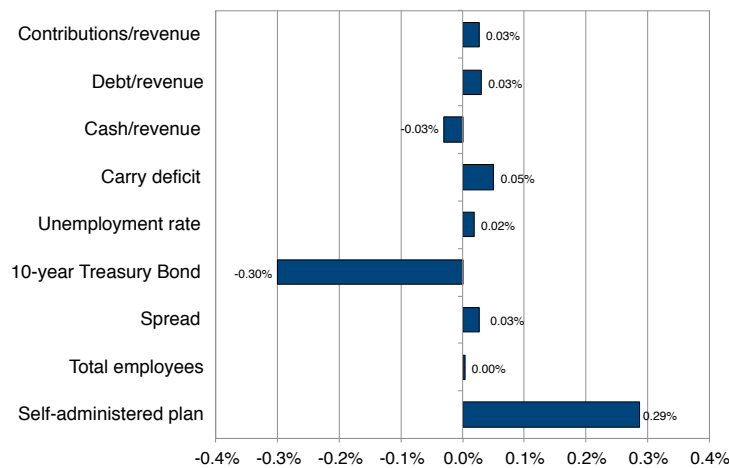
Control Variables

- *Total Employees.* The expected outcome is that larger localities would be more likely to issue a POB as they could spread the transaction cost over a larger base.

- *Self-Administered Plan.* The Census identifies governments that administer their own pension plan. This variable could be positively related to issuing a POB because POBs are generally issued by governments in order to shore up the unfunded liabilities of their own plan. On the other hand, local governments that participate in state plans have less flexibility regarding required contributions demanded by the plan, and may issue a POB when unable to make payments.
- *Individual years.* Year dummies were included to control for changes in the health of the national economy.

The results show that governments are more likely to issue POBs if the plan represents a substantial obligation to the government, they have substantial debt outstanding, and they are short of cash (see Figure 5). That is, financial pressures play a major role. Additionally, governments are more likely to issue a POB if they are in a relatively high unemployment state. Sponsors also appear to respond to financial conditions, being more likely to issue a POB when interest rates are low and the spread is high. Finally, governments that administer their own plan are much more likely to issue POBs than those participating in a state plan.

Figure 5. Factors Affecting the Probability of Government Issuing a Pension Obligation Bond, 1992–2013



Note: All results are statistically significant at least at the 95 percent level. For dummy variables, the effects illustrated reflect a shift from 0 to 1. In the case of continuous variables, the effects illustrated reflect a one-standard-deviation change across the mean in one variable while holding the others at their mean (see Appendix Table A1). For detailed regression results, see Appendix Table A2.¹⁹

Sources: Authors’ calculations based on government financial data and retirement plan data from the U.S. Census Bureau (2011, 2012a, and 2012b); POB data from Bloomberg Online Service (2012); SDC Thomson Reuters (2013); and the St. Louis Federal Reserve (2014).

While the magnitudes of the effects appear small, they are meaningful given that only 0.2 percent of governments in our sample issued a POB.

Conclusion

When plan sponsors issue a pension obligation bond, the bond proceeds are invested with pension plan assets. The question then is whether the government will earn more on the proceeds than it will have to pay in interest. Immediately after the financial crisis, governments appeared to have lost money on their POBs. Four years of economic recovery have improved the performance of POBs; today these bonds have netted 1.5 percent. But the story is far from over since many of these bonds have a 30-year life. And, because POBs turn a somewhat flexible commitment into a firm

commitment, governments that have issued a POB have reduced their financial flexibility.

The second finding from this update—which includes a greatly expanded number of POB issuers—is that financial pressures continue to play a major role in the issuance of these securities. But the transaction also contains an element of investment speculation in that the spread—based on the plan’s historical returns and current interest rate—is also positively related to the probability of issuing a POB. POBs could potentially be used responsibly by fiscally sound governments who understand the risks involved or could play a role as part of a broader pension reform package for fiscally stressed governments. But the results from this *brief* suggest that POB usage to date has not followed this formula—think Detroit, which issued POBs in 2005 and 2006 just as the market was approaching a peak.

Endnotes

- 1 Munnell et al. (2010).
- 2 Scanlan and Lyon (2006).
- 3 The decrease in borrowing costs in issuing tax-exempt state and municipal POBs often exceeds the differential in the risk premium of state and local bonds over federal bonds of the same duration.
- 4 See Peng (2004).
- 5 Bader and Gold (2003).
- 6 Thad Calabrese generated the POB data set from raw data on government bond issues from Bloomberg.
- 7 States with less than \$1 billion in POB issuances are not shown in the figure.
- 8 California and Illinois are, of course, large states. On a per-capita basis, the biggest players are Oregon, Illinois, and Connecticut. California is number six.
- 9 Burnham (2003); Davis (2006); and Calabrese (2009).
- 10 Burnham (2003); Davis (2006); Calabrese (2009); Block and Prunty (2008); and Hitchcock and Prunty (2009).
- 11 Timing risk could be mitigated if the POB proceeds were applied more strategically, for example for purposes of matching retiree liabilities. This approach would be contrary to the principal of performance arbitrage but, in addition to avoiding timing risk, it would also reduce plan leverage and possibly improve funding.
- 12 Hitchcock and Prunty (2009).
- 13 Government Finance Officers Association (2005). The political risk of unnecessary benefit increases can be mitigated by legislatures and boards building in governance protections. For example, benefit increases could be prohibited until funding exceeds 115–125 percent.
- 14 A data set containing only non-federal pension financing bonds issued from 1992–2009 was drawn from municipal bond data from Bloomberg Online Service. This data set was combined with data on POB issuances from 1986–2013 from SDC Thomson Reuters.
- 15 A recent report by The PFM Group (2014) on the use of POBs states that they “should be considered only in conjunction with refining the ongoing benefit structure and investment policy of the fund or trust in order to position the issuer and employees for future sustainability.” The report goes on to say that issuers who wish to take advantage of the appropriate window to issue a POB should lay the groundwork early by preparing legal documents and considering the size and structure of the issuance in advance.
- 16 Of the 270 POB occurrences used in the regression analysis, 157 come from jurisdictions that do not administer their own plan.
- 17 We apportion the pension finances of state plans to these localities according to the ratio of the locality’s payroll to the total payroll of all localities in the same state that also do not administer their own plan. If the state-administered plan is employee-specific (i.e. a police and fire plan, or a teachers plan), then we apportion based on the ratio of the locality’s payroll for that employee type to the total payroll for that employee type.
- 18 In addition to the variables described, it would also be useful to include the funding status of the plan. Presumably, poorly funded plans would be more likely to issue a POB. Unfortunately, historical funding data are not available for most plans in the sample.
- 19 Census data regarding state and local government and pension finances are only available up to fiscal years 2011 and 2012, respectively. For the regression, the most recent Census data—2011 for government finances and 2012 for pension finances—were duplicated and used for 2012 and 2013. Limiting the regression to only years with Census data does not change the results.

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Appendix

Table A1. Summary Statistics of Factors Affecting the Probability of Government Issuing a Pension Obligation Bond, 1992–2013

Variable	Mean	Standard Deviation	Maximum	Minimum
Contributions/revenue	1.87	2.79	0	21.09
Debt/revenue	4.34	5.65	0	36.82
Cash/revenue	99.35	87.34	4.30	717.90
Carry de cit	0.20	0.40	0	1
Unemployment rate	5.18	1.13	2.53	7.58
10-year Treasury Bond	4.99	1.07	1.80	7.01
Spread	2.18	9.00	-33.97	26.94
Total employees	1,148	8,762	0	405,810
Self-administered plan	0.09	0.28	0	1

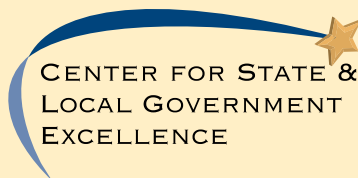
Source: Authors' calculations.

Table A2. Marginal Impact of Factors Affecting the Probability of Government Issuing a Pension Obligation Bond, 1992–2013

Variable	Marginal effects
Contributions/revenue	0.00027 *** (0.000)
Debt/revenue	0.00030 *** (0.000)
Cash/revenue	-0.00030 *** (0.000)
Carry de cit	0.00050 ** (0.041)
Unemployment rate	0.00018 *** (0.008)
10-year Treasury Bond	-0.00203 *** (0.000)
Spread	0.00027 *** (0.000)
Total employees	0.00005 ** (0.025)
Self-administered plan	0.00286 *** (0.000)
Pseudo R ²	0.1396
Number of observations	139,323

Note: Standard errors are in parentheses and adjusted for within-plan correlation. The model includes year fixed effects. The coefficients report marginal effects from a probit estimation computed at sample means of the independent variables and are significant at the 95 percent (**) or 99 percent (***) level. The dependent variable is 1 for governments that issued a POB in a given year, and 0 otherwise.

Source: Authors' calculations.



BOARD OF DIRECTORS

Robert J. O'Neill, Chair

Executive Director, ICMA

Joan McCallen, Vice Chair

President and Chief Executive Officer, ICMA-RC

Eric A. Anderson

Vice President, GovHR USA, and retired city manager

Donald J. Borut

Former Executive Director, National League of Cities

Gregory J. Dyson

Senior Vice President and Chief Operations and Marketing Officer, ICMA-RC

Jeffrey L. Esser

Executive Director, Government Finance Officers Association

The Honorable William D. Euille

Mayor, City of Alexandria, Virginia

Peter A. Harkness

Founder and Publisher Emeritus, Governing Magazine

Scott D. Pattison

Executive Director, National Association of State Budget Officers

William T. Pound

Executive Director, National Conference of State Legislatures

Antoinette A. Samuel

Deputy Executive Director, National League of Cities

Raymond C. Scheppach, PhD

Professor, University of Virginia Frank Batten School of Leadership and Public Policy;
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- Workforce development

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DISCUSSION SHEET

ITEM #C6

Topic: 2018 Final Budget Review

Discussion: Attached is a review of the Calendar Year 2018 Budget detailing expenditures for the year.

Expense items which vary from the budget by at least 5% and \$10,000 are explained in the attached review.

Supplemental Plan expenses are deducted from total expenses in arriving at Regular Plan expenses. Expenses are allocated to the two plans on a pro-rata basis, according to the ratio of each plan's assets to the total Group Trust assets. The ratio is derived from the Unitization Report prepared by JPMorgan. The ratio is 99.15% Regular Plan to .85% Supplemental Plan as of December 31, 2018.

Regular Board Meeting – Thursday, April 11, 2019

BUDGET REVIEW CALENDAR YEAR 2018						
Description		2017 Actual	2018 Budget	2018 Actual	Budget vs Actual Variance \$ Over/(Under)	Budget vs Actual Variance % Over/(Under)
1	Building expenses, incl depreciation	632,296	342,337	601,113	258,776	75.6%
2	Liability insurance	440,706	510,000	530,507	20,507	4.0%
3	Communications (phone/internet)	52,087	49,100	56,157	7,057	14.4%
4	Miscellaneous professional services	20,939	18,300	21,841	3,541	19.3%
5	Business continuity	13,839	13,500	14,654	1,154	8.6%
6	Miscellaneous Expense	234	-	1,003	1,003	100.0%
7	Employee service recognition	1,208	-	399	399	100.0%
8	Accounting services	59,000	59,000	59,000	-	0.0%
9	Elections	19,060	-	-	-	0.0%
10	Independent audit	149,500	152,500	152,500	-	0.0%
11	Public relations	247,104	-	-	-	0.0%
12	Bad Debt Expense - Members	1,740	-	(175)	(175)	100.0%
13	Records storage	1,206	1,560	1,335	(225)	-14.4%
14	Subscriptions	1,838	2,020	1,625	(395)	-19.6%
15	Staff meetings	-	1,000	563	(437)	-43.7%
16	Leased equipment	23,707	24,500	23,973	(527)	-2.2%
17	Memberships and dues	15,315	17,040	16,224	(817)	-4.8%
18	Information technology projects	1,886	75,000	74,000	(1,000)	-1.3%
19	Pension administration software & WMS	314,437	291,000	289,161	(1,839)	-0.6%
20	Member educational programs	65	2,500	-	(2,500)	-100.0%
21	Bank/security custodian services	5,142	5,000	2,293	(2,707)	-54.1%
22	Office supplies	25,148	30,500	27,652	(2,848)	-9.3%
23	Actuarial services	524,097	150,000	146,021	(3,979)	-2.7%
24	Printing	3,660	6,370	1,977	(4,393)	-69.0%
25	Mileage - Board	2,193	5,000	-	(5,000)	-100.0%
26	IT software/hardware	9,371	17,000	11,123	(5,877)	-34.6%
27	Board meetings	8,317	10,100	3,468	(6,632)	-65.7%
28	Repairs and maintenance	82,085	110,092	100,641	(9,451)	-8.6%
29	Postage	30,564	25,800	13,362	(12,438)	-48.2%
30	Conference registration/materials - Board	5,872	14,900	1,940	(12,960)	-87.0%
31	IT subscriptions/services/licenses	86,351	147,100	127,763	(19,337)	-13.1%
32	Conference/training registration/materials - Staff	5,613	27,050	5,689	(21,361)	-79.0%
33	Disability medical evaluations	7,360	30,000	7,030	(22,970)	-76.6%
34	Travel - Board	11,848	27,600	3,846	(23,754)	-86.1%
35	Network security	12,967	33,000	9,177	(23,823)	-72.2%
36	Travel - Staff	23,517	47,000	12,980	(34,020)	-72.4%
37	Employment expenses	3,378	151,125	99,361	(51,764)	-34.3%
38	Legislative consultants	319,085	291,000	126,500	(164,500)	-56.5%
39	Salaries and benefits	3,974,419	3,722,944	2,990,341	(732,604)	-19.7%
	Legal Fees, excluding insurance reimbursements	2,371,064	2,000,000	673,182	(1,326,818)	-66.3%
	Legal Fee insurance reimbursements	(1,350,107)	-	(294,183)	(294,183)	100.0%
40	Legal fees, net of insurance reimbursements	1,020,957	2,000,000	378,999	(1,621,001)	-81.1%
	Gross Total	8,158,113	8,410,938	5,914,044	(2,496,894)	-30.6%
	Less: Allocation to Supplemental Plan Budget*	69,365	234,894	50,285	(184,609)	-78.6%
	Total Regular Plan Budget	\$ 8,088,747	\$ 8,176,044	\$ 5,863,759	\$ (2,312,285)	-28.6%

* Unitization split to Supplemental is based on unitization

BUDGET
2018 - Year End Review

Budget Changes (>5% and \$10K)

	Item	Budget	Actual	\$ Variance Over/(Under)	% Variance Over/(Under)	Explanation
	INCREASES:					
1	Building expenses, incl depreciation	342,337	601,113	258,776	75.6%	Variance due to building depreciation of \$226k not budgeted. Historically, only cash items have been budgeted.
	REDUCTIONS:					
2	Legal fees, net of insurance reimbursements	2,000,000	378,999	(1,621,001)	-81.1%	Actual legal fees were expected to decline in 2018, but were even less than expected. Legal Fee reimbursements were \$294k during 2018, resulting in a net budget/actual variance of \$1,326,818.
3	Salaries and benefits	3,722,944	2,990,341	(732,604)	-19.7%	Lower than forecasted expenses due to vacant staff positions.
4	Legislative consultants	291,000	126,500	(164,500)	-56.5%	Actual expenses are less than forecasted due to the elimination of one legislative consulting firm.
5	Employment expenses	151,125	99,361	(51,764)	-34.3%	Actual recruiting and agency fees for open positions were less than forecast.
6	Travel - Staff	47,000	12,980	(34,020)	-72.4%	No due diligence travel and less other staff travel than anticipated.
7	Network security	33,000	9,177	(23,823)	-72.2%	Reduced scope of security audit in 2018 as prior year's audit recommendations were still in process of being implemented.
8	Travel - Board	27,600	3,846	(23,754)	-86.1%	Limited Board travel in 2018.
9	Disability medical evaluations	30,000	7,030	(22,970)	-76.6%	Fewer disability and recall claims in 2018. Budgeted for 10 new disabilities and 2 recalls.
10	Conference/training registration/materials - Staff	27,050	5,689	(21,361)	-79.0%	Limited conference / training by staff in 2018.
11	IT subscriptions/services/licenses	147,100	127,763	(19,337)	-13.1%	Actual costs for some forecasted services and licensing fees (3 T Pro and Diligent) were less than budgeted.
12	Conference registration/materials - Board	14,900	1,940	(12,960)	-87.0%	Limited conference attendance by Board in 2018.
13	Postage	25,800	13,362	(12,438)	-48.2%	Fewer mailed items than forecast.



DISCUSSION SHEET

ITEM #C7

Topic: Chairman's Discussion Items

Recap of the meeting with the retiree associations.

Discussion: The Chairman will brief the Board on the status of these items.

Regular Board Meeting – Thursday, April 11, 2019



DISCUSSION SHEET

ITEM #C8

Topic: **Trustee Terms and Draft Election Schedule**

Discussion: As required by the Trustee Election Procedures, this agenda item is intended to notify the Board that the terms of the following Trustees expire on August 31, 2019:

Nick Merrick, Mayoral Appointee
Ray Nixon, Mayoral Appointee
Kneeland Youngblood, Mayoral Appointee
Blaine Dickens, Non-member Trustee
Gilbert Garcia, Non-member Trustee
Tina Hernandez Patterson, Non-member Trustee

The election process for the Non-member Trustees is governed by the Article 6243a-1 of the Texas Revised Statutes and the Trustee Election Procedures adopted by the Board. A draft election schedule has been developed to allow the Nominations Committee time to vet, select and nominate a slate of candidates and carry out the election process, including a potential additional election if necessary, and have the Trustees elected prior to the September 2019 Board Meeting.

The Board does not have a role in the appointment of the Mayoral appointed trustees.

Recommendation: **Adopt** the draft 2019 Non-member Election schedule, subject to adjustment by the Nominations Committee provided the first election is completed prior to the August 2019 Board meeting and a subsequent election, if necessary, is completed prior to the September 2019 Board meeting.

Regular Board Meeting – Thursday, April 11, 2019



2019 Non-Member Trustee Election Schedule

Date	Item
April 11	Notify Board about trustee term expirations. Approve draft election schedule.
May 1	Nominations Committee meets to discuss the schedule and the process for vetting and selecting the Non-member candidates.
May 8	Email a notice to the City Manager, Police and Fire Department Chiefs and the Association Presidents announcing call for Candidates and Post notice to DPFPP Website.
May 8	Distribute via mail, and email where possible, a notification to Members and Pensioners announcing the Trustee election and call for candidates.
May 8 – June 4	Application packets are available on the DPFPP website. www.DPFPP.org or at the DPFPP office at 4100 Harry Hines Blvd., suite 100.
June 4	Applications for Non-member Trustee candidates due at DPFPP by 4:00 p.m.
June 5 – July 8	Review/Vetting Process: Nominations Committee reviews applications, interviews and vets candidates for possible inclusion on the slate as a Non-Member Trustee. <i>Note: Presiding Officer possible Jury Duty June 21-July 5th.</i>
July 8	Nominations Committee selects the slate of Non-member Trustee candidates for the ballot.
July 8 - 16	Non-Member Trustee applicants will be notified of the Nomination Committees decision.
July 16	Mail voting packets to Members’ and Pensioners’ home addresses for those who have not elected eCorrespondence.
July 17	Email Non-member Trustee voting packets to Members’ and Pensioners’ electing eCorrespondence at 8 a.m.

- July 17 - August 1** Voting begins at 8 a.m. on Wednesday July 17, voting ends at noon on Thursday, August 1.
- August 2** Vendor reports election results.
- August 2** Executive Director reports election results to Nominations Committee and posts the results on the DFPF website.
- August 5** Nominations Committee meets, if a subsequent election is necessary to fill open positions to:
1. Select candidate(s) or confirm previously selected backup candidate(s) to be placed on the ballot
- August 8** Board of Trustees certify the election results from the election.
- August 9** Mail subsequent Non-member Trustee voting packets to Members' and Pensioners' home addresses for those who have not elected eCorrespondence.
- August 12** Email subsequent Non-member Trustee voting packets to Members' and Pensioners' electing eCorrespondence at 8 a.m.
- August 12 - 22** Subsequent Non-member Trustee election, if necessary. Voting begins at 8 a.m. on Monday, August 12. Voting ends at noon on Thursday August 22.
- August 23** Vendor reports election results.
- August 23** Executive Director reports election results to Nominations Committee and posts the results on the DFPF website.
- September 1** New Trustee terms begin.
- September 12** Board of Trustees certify additional Non-Member Trustee election results.
- Definitions:**
- Nominations Committee:** A committee with voting representation from the organizations named in Section 3.011(b)(2) responsible for vetting, selecting and nominating Non-Member Trustee candidates.
- Non-Member Trustee:** Three trustees who cannot be a Member, Pensioner, a current City employee, a person who was formerly a City employee and who has been separated from the City for less than two years prior to becoming a Trustee or a currently elected City official.



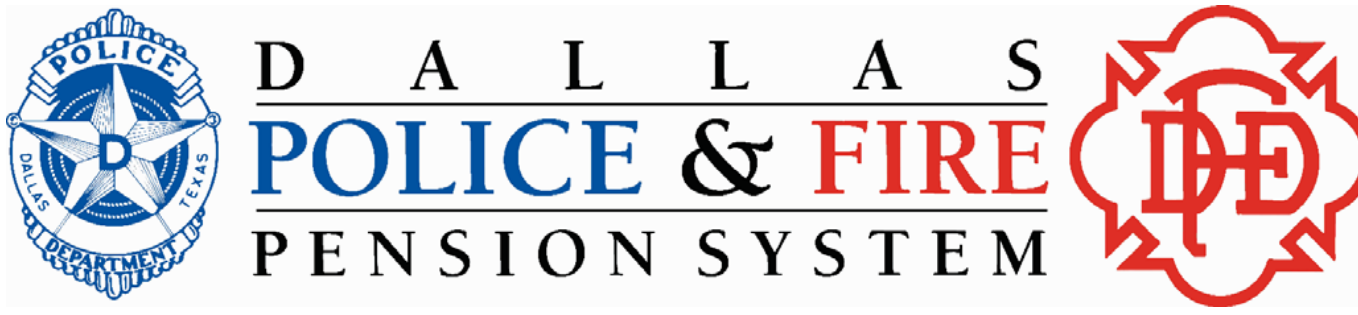
DISCUSSION SHEET

ITEM #C9

Topic: Portfolio Update

Discussion: Investment Staff will brief the Board on recent events and current developments with respect to the investment portfolio.

Regular Board Meeting – Thursday, April 11, 2019



Portfolio Update

April 11, 2019

Asset Allocation

DPFP Asset Allocation	% weight			\$ millions		
	3/31/19	Target	Variance	3/31/19	Target	Variance
Equity	37.6%	55.0%	-17.4%	755	1,106	-351
Global Equity	22.8%	40.0%	-17.2%	457	804	-347
Emerging Markets	2.4%	10.0%	-7.6%	49	201	-152
Private Equity*	12.4%	5.0%	7.4%	249	101	149
Fixed Income	30.1%	35.0%	-4.9%	605	704	-99
Safety Reserve - Cash	2.7%	3.0%	-0.3%	54	60	-6
Safety Reserve - ST IG Bonds	12.7%	12.0%	0.7%	256	241	15
Investment Grade Bonds	0.0%	4.0%	-4.0%	0	80	-80
Global Bonds	3.3%	4.0%	-0.7%	66	80	-15
High Yield Bonds	4.2%	4.0%	0.2%	84	80	3
Bank Loans	5.7%	4.0%	1.7%	114	80	34
Emerging Mkt Debt	1.0%	4.0%	-3.0%	20	80	-60
Private Debt*	0.5%	0.0%	0.5%	11	0	11
Real Assets*	32.4%	10.0%	22.4%	651	201	450
Real Estate*	21.6%	5.0%	16.6%	434	101	333
Natural Resources*	7.9%	5.0%	2.9%	160	101	59
Infrastructure*	2.8%	0.0%	2.8%	57	0	57
Total	100.0%	100.0%	0.0%	2,011	2,011	0
Safety Reserve	15.4%	15.0%	0.4%	310	302	8
*Private Market Assets	45.3%	15.0%	30.3%	911	302	609

Source: JP Morgan Custodial Data, Staff Calculations

Preliminary data as of 4/5/19

2019 Investment Review Calendar*

January ✓	<ul style="list-style-type: none"> Real Estate: Staff review of Vista 7, King's Harbor, and Museum Tower
February ✓	<ul style="list-style-type: none"> Real Estate: Clarion Presentation Global Equity Structure Review (Staff/Meketa)
March ✓	<ul style="list-style-type: none"> Real Estate: AEW Presentation
April	<ul style="list-style-type: none"> None
May	<ul style="list-style-type: none"> Real Estate: Hearthstone Presentation
June	<ul style="list-style-type: none"> Natural Resources: Hancock Presentation Staff review of Forest Inv. Assoc. and BTG Pactual
2H19	<ul style="list-style-type: none"> Infrastructure: Staff review of AIRRO and JPM Maritime Private Equity: Staff review of Lone Star, Huff, Hudson, and Industry Ventures Global Equity Manager Reviews Fixed Income Manager Reviews

*Future presentation schedule is subject to change.

Updated 4/5/19



DISCUSSION SHEET

ITEM #C10

Topic: **Private Asset Cash Flow Projection Update**

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.072 of the Texas Government Code.

Discussion: Staff will provide the quarterly update on the private asset cash flow projection model first discussed at the February 2018 Board meeting. The cash flow model projects estimated contributions to, and distributions from, private assets through the end of 2022. These estimates are intended to assist the Board in evaluating the expected time frame to reduce DFPF's exposure to these assets and the implications for the overall asset allocation and expected portfolio risk and return.

Regular Board Meeting – Thursday, April 11, 2019



D A L L A S
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PENSION SYSTEM

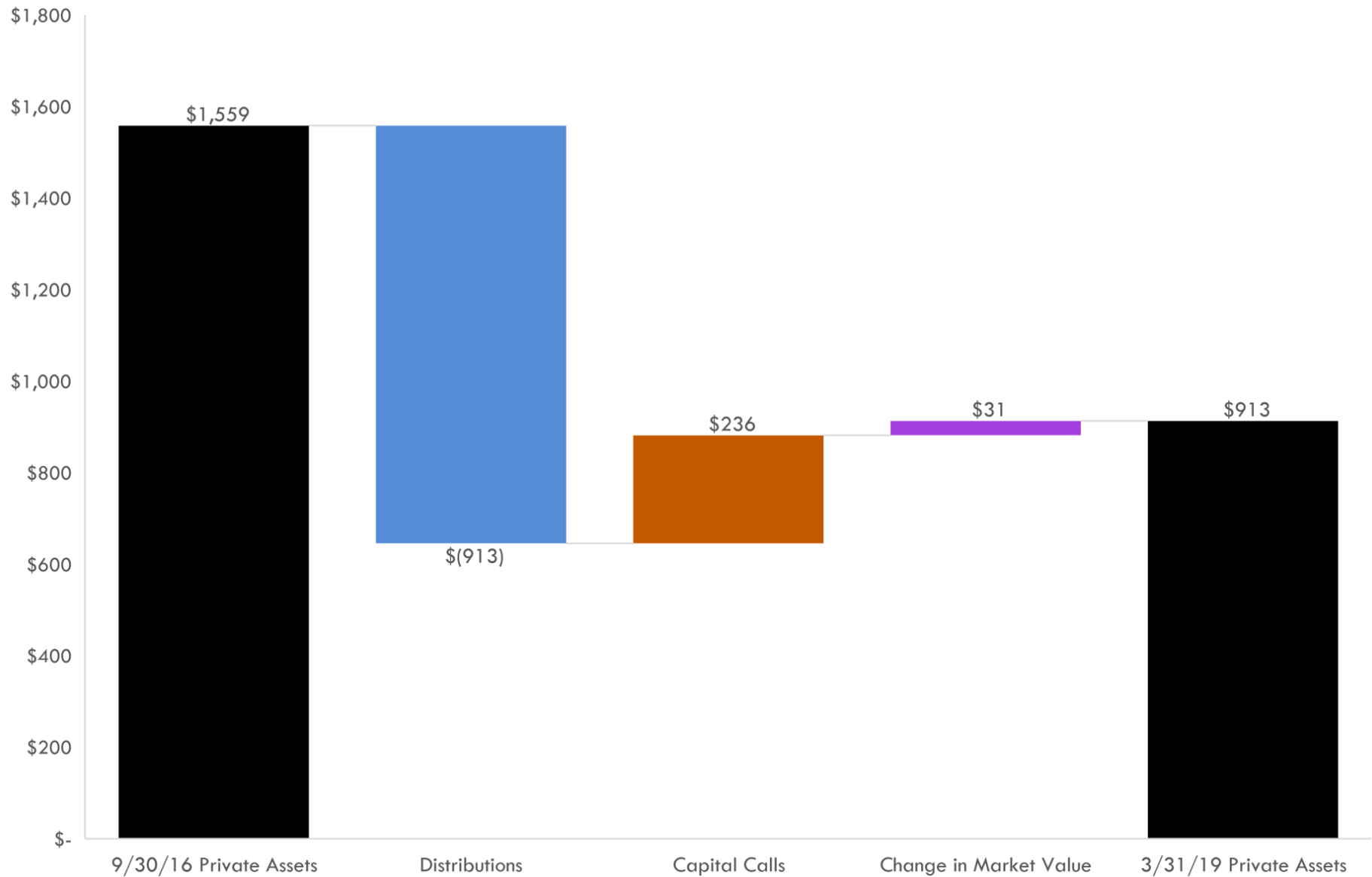


Quarterly Private Asset Cash Flow Projection Update

April 11, 2019

Private Asset Bridge Chart – Since 9/30/16

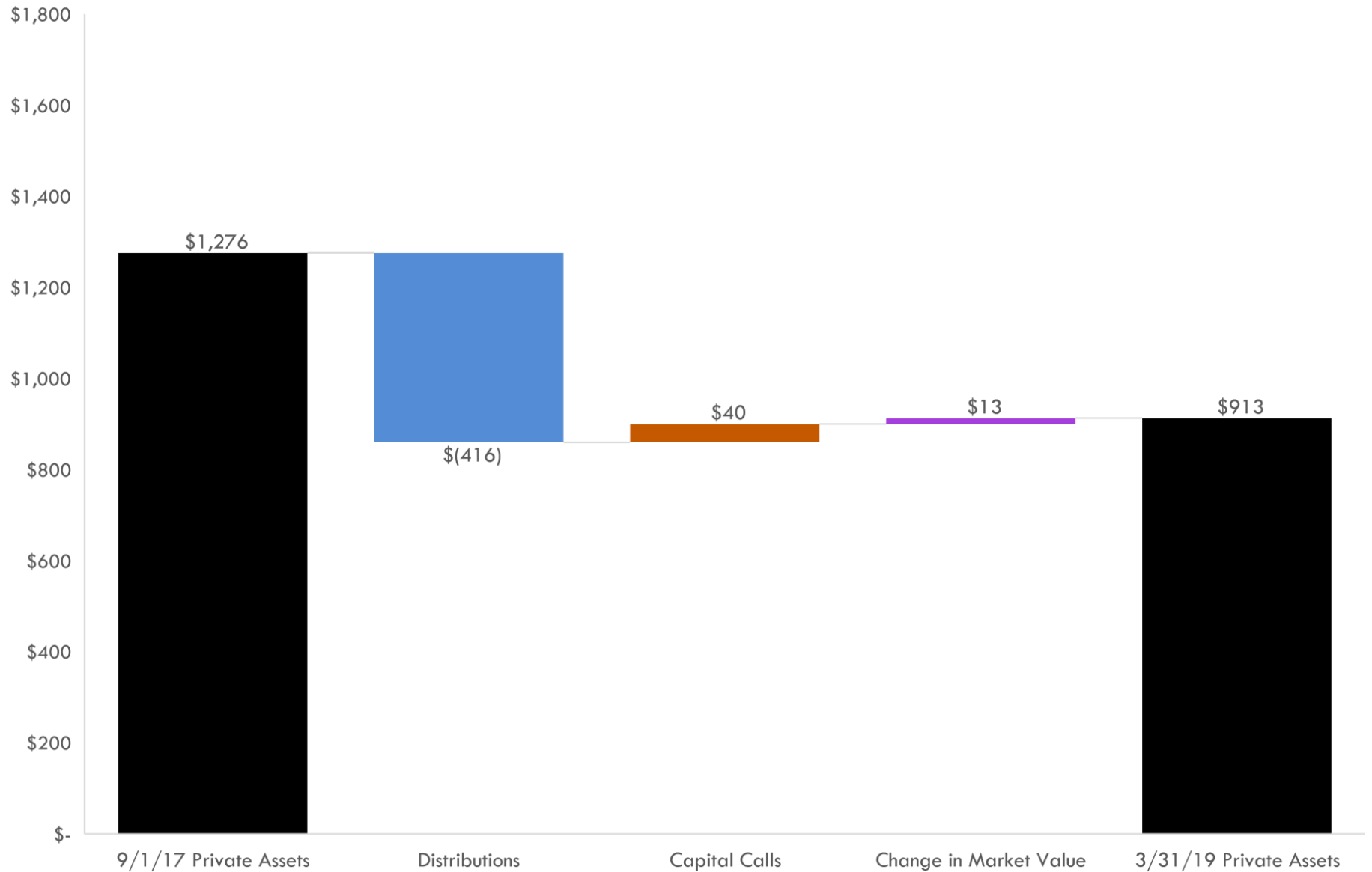
In Millions



Numbers may not foot due to rounding.

Private Asset Bridge Chart – Since 9/1/17 (New Board Formation)

In Millions



Numbers may not foot due to rounding.

Private Asset Quarterly Cash Flows – Q1 2019

TOTAL CAPITAL CALLS & CONTRIBUTIONS	\$493,346
--	------------------

TRG AIRRO	Capital Call	\$283,602
Industry Ventures	Capital Call	\$209,744

TOTAL DISTRIBUTIONS	\$37,019,593
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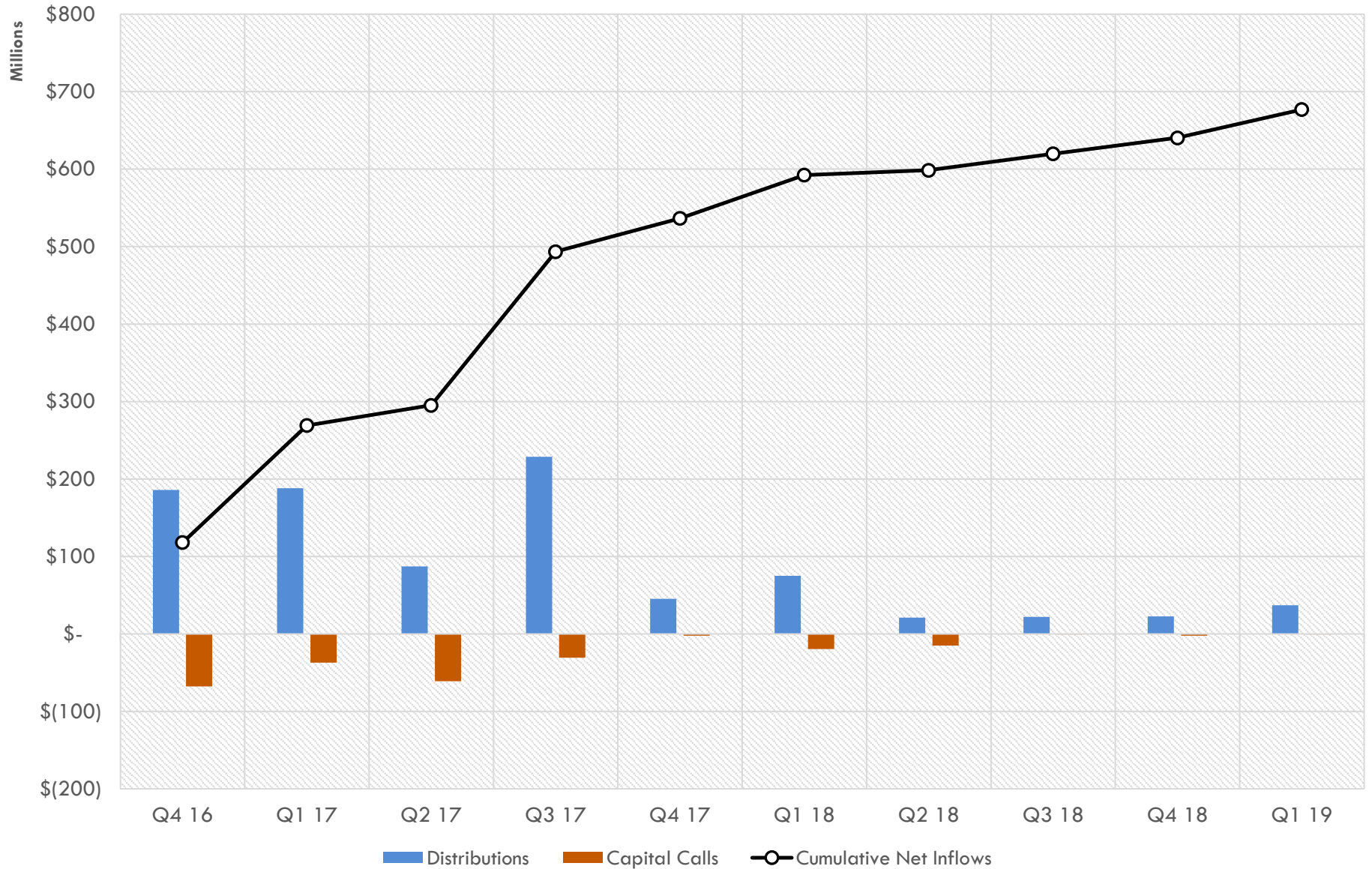
Inflows \$500k and Over

Barings	Napa Sale Proceeds	\$16,676,956
AEW	RED Pref Sale Proceeds	\$12,450,000
Museum Tower	Condo Sales	\$3,500,000
Hancock	Sale Proceeds & Operating Income	\$3,078,715
Bentall Kennedy	Operating Income	\$525,000
Other	Combined less than \$500k	\$788,922

Numbers may not foot due to rounding.

Private Asset Quarterly Cash Flows – Since 9/30/16

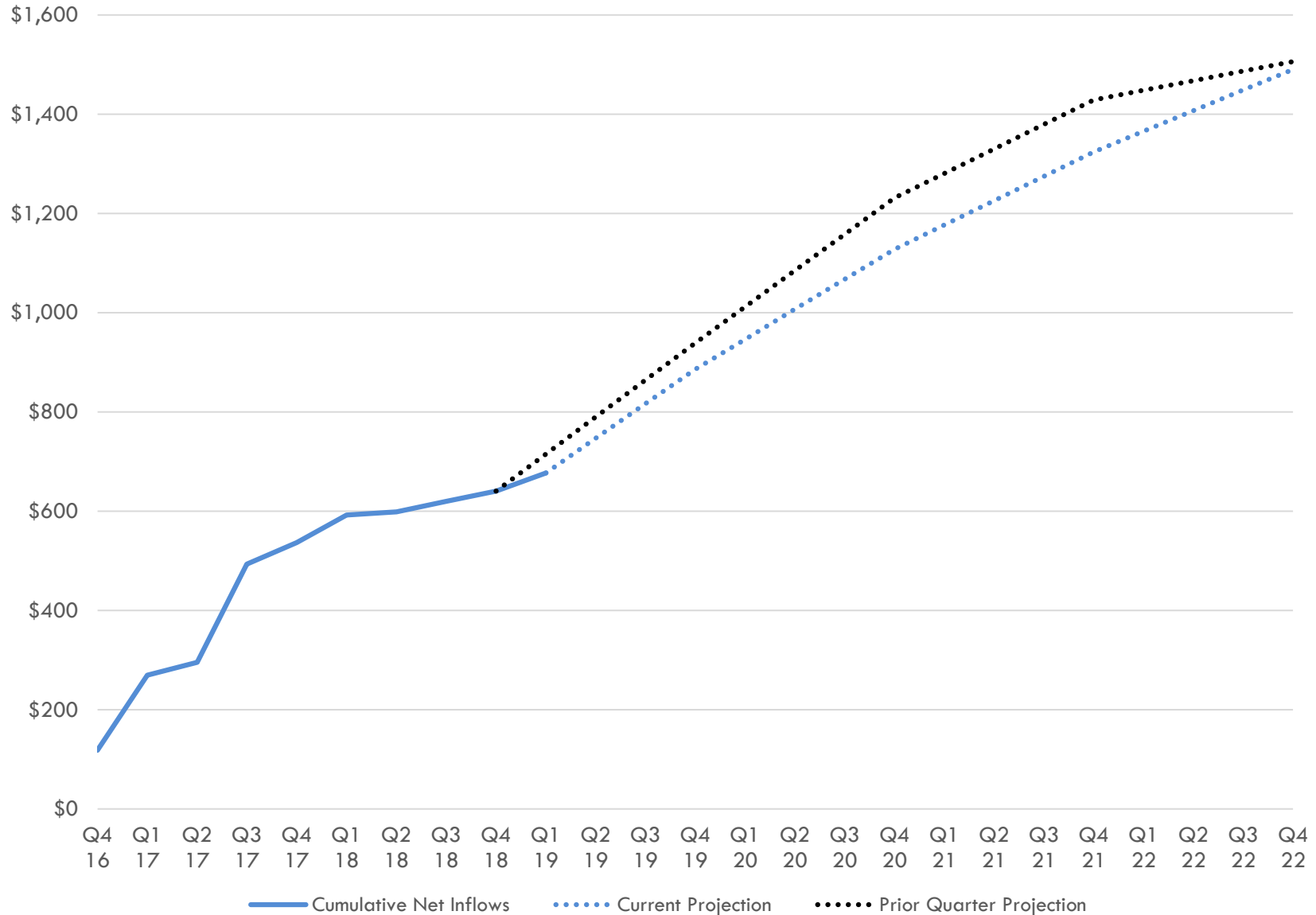
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Cumulative Actual and Projected Private Asset Net Inflows

Private asset cash flows projections are based on either in-process/planned sales, if available, or a gradual disposition through 2022.

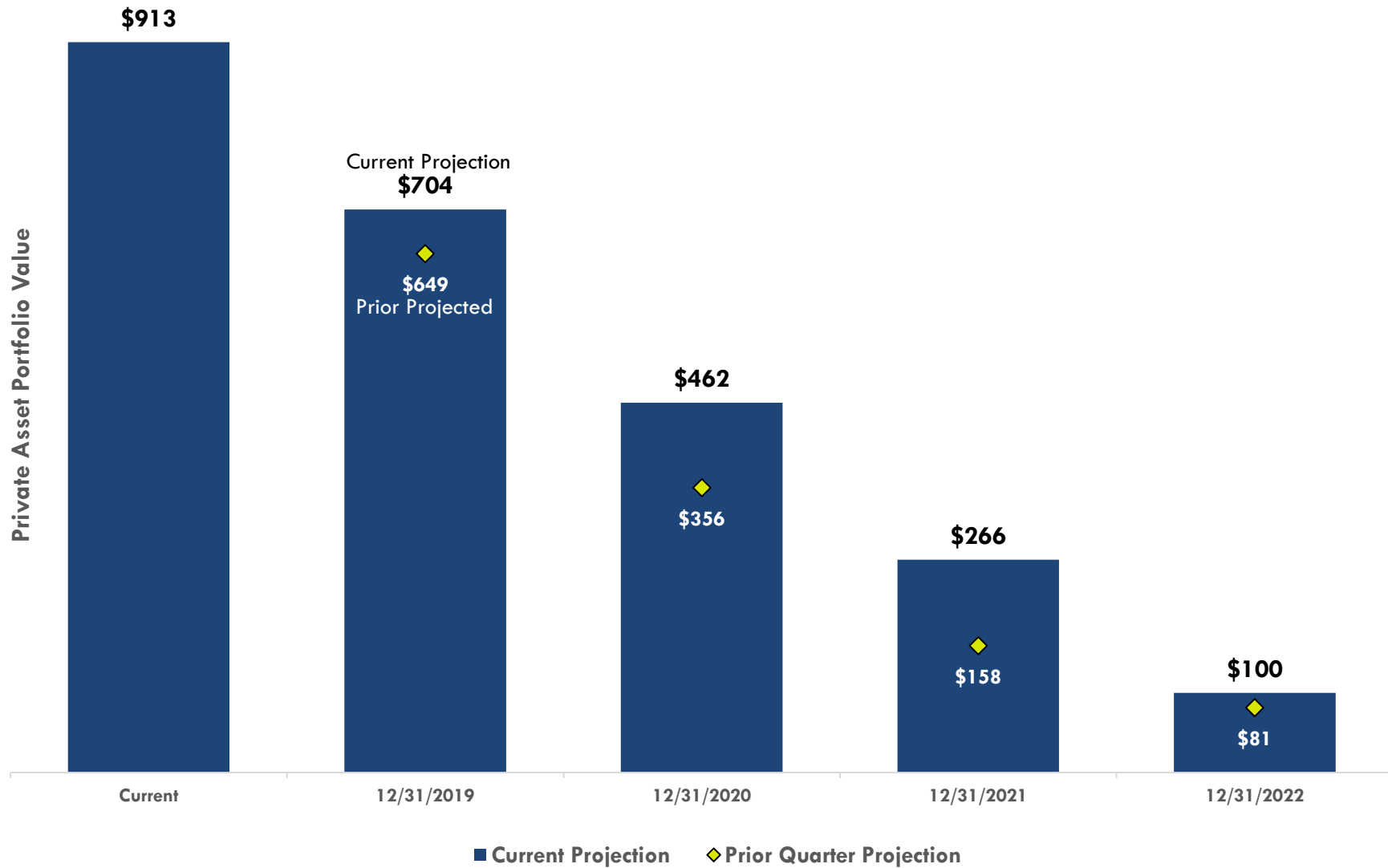
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Private Asset Year-End vs. Prior Projection

Private asset cash flows projections are based on either in-process/planned sales, if available, or a gradual disposition through 2022.

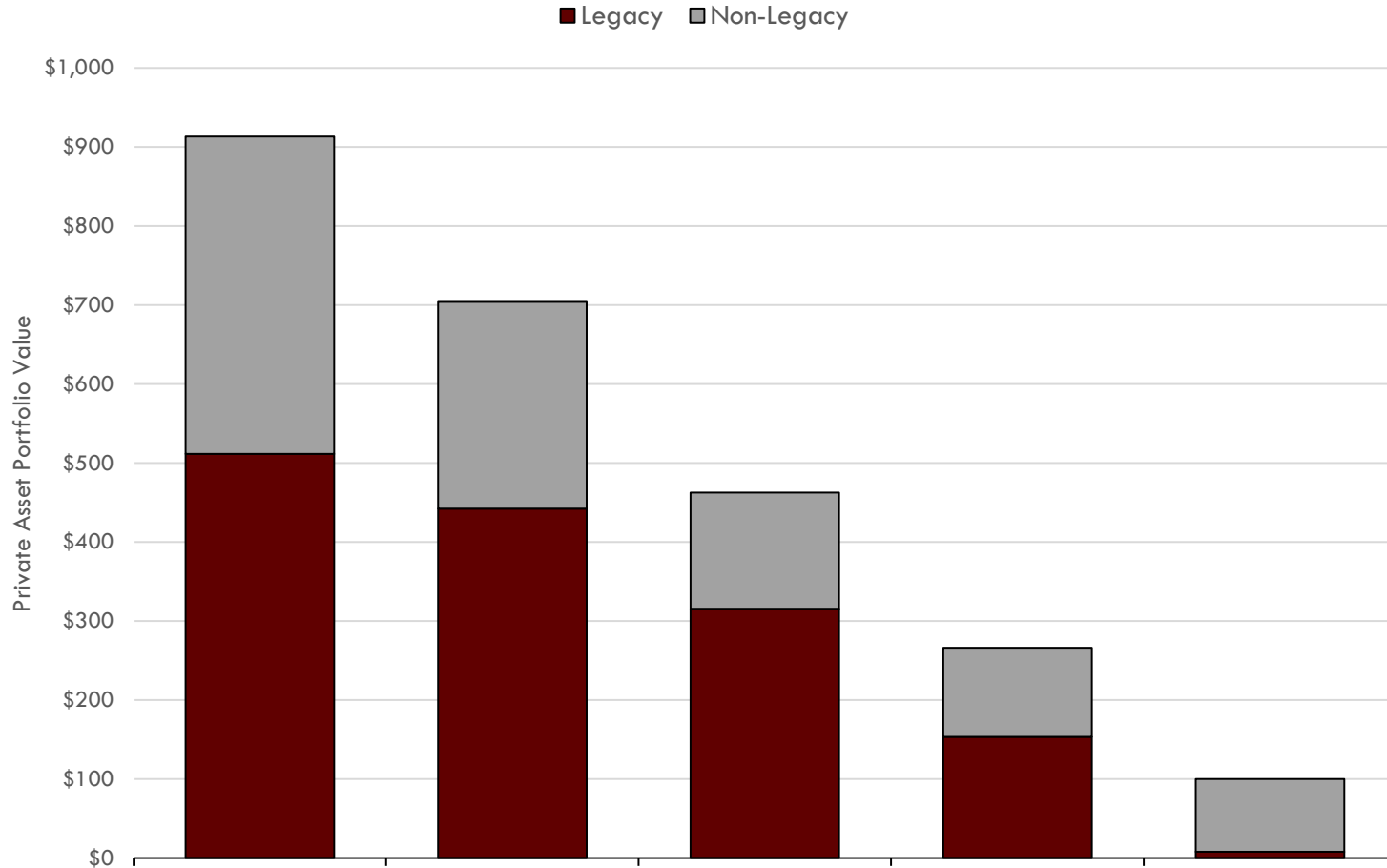
In Millions



Private Asset Disposition Timeline & Composition

Private asset cash flows projections are based on either in-process/planned sales, if available, or a gradual disposition through 2022.

In Millions

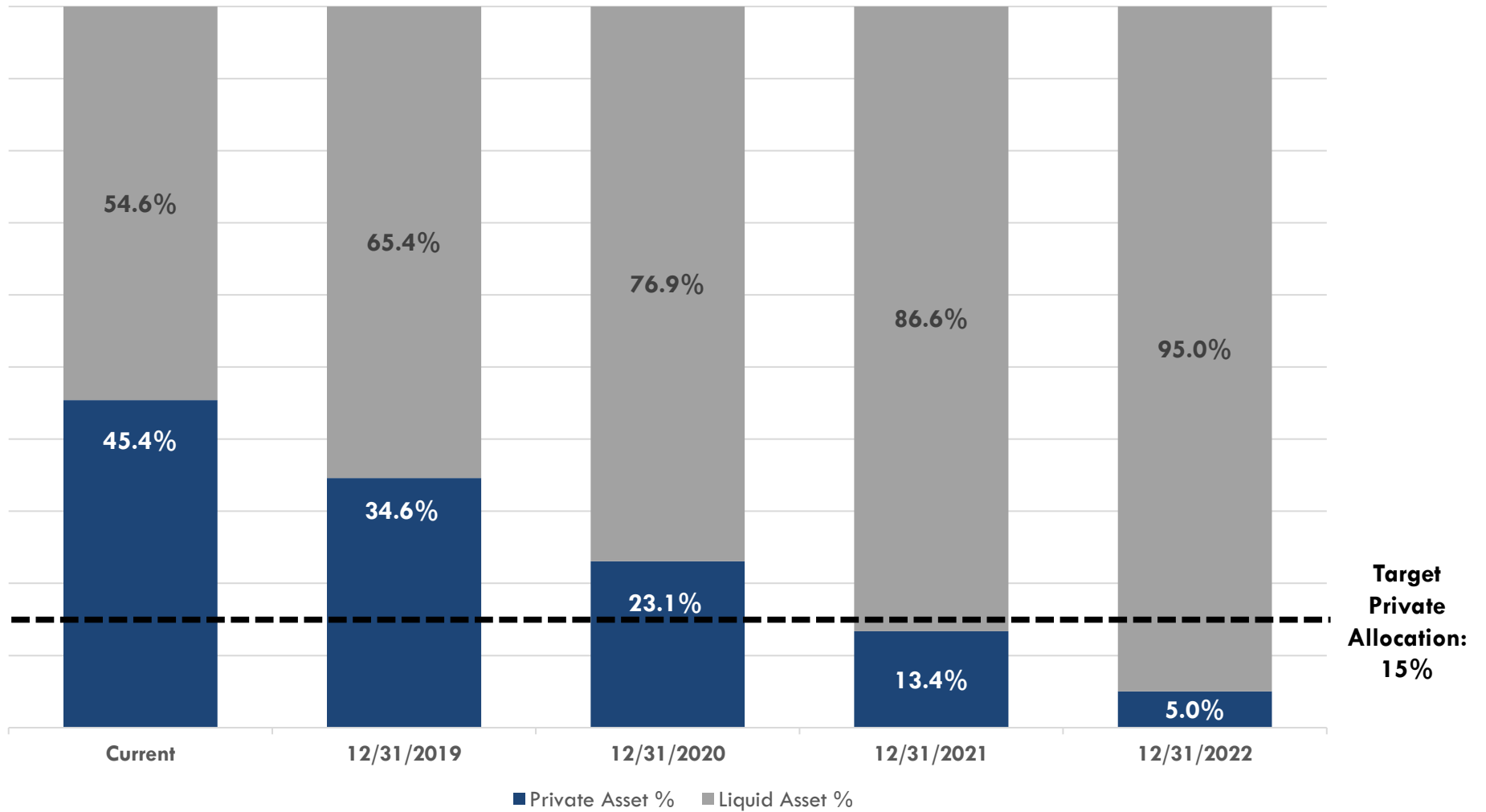


	Current	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Legacy NAV (M)	\$511	\$442	\$315	\$153	\$8
% of Private Portfolio	56%	63%	68%	58%	8%
% of DFPF Portfolio	25%	22%	16%	8%	0.5%

Forward Liquidity Projection

Private asset cash flows projections are based on either in-process/planned sales, if available, or a gradual disposition through 2022.

*Based on projected year-end NAVs provided by actuary in 1/1/2018 Actuarial Report
Assumes 100% of private asset proceeds are reinvested into liquid investments*





DISCUSSION SHEET

ITEM #C11

Topic: **Report on Investment Advisory Committee Meeting**

Discussion: The Investment Advisory Committee met on March 25, 2018. The Committee Chair and Investment Staff will comment on Committee observations and advice, including perspective on the public equity structure study.

Regular Board Meeting – Thursday, April 11, 2019



DISCUSSION SHEET

ITEM #C12

Topic: Lone Star Investment Advisor funds

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.071 of the Texas Government Code.

Discussion: The Lone Star Growth Capital fund and the Lone Star CRA fund terms expire in April 2019. The General Partner has proposed a one-year extension of each fund term with no management fee.

Staff

Recommendation: **Authorize** the Executive Director to enter into extensions of up to one year with no management fee on the Lone Star Growth Capital and Lone Star CRA funds.

Regular Board Meeting – Thursday, April 11, 2019



DISCUSSION SHEET

ITEM #C13

Topic: **Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including DPFP v. The Townsend Group et al., USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPFP and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws.**

Discussion: Counsel will brief the Board on these issues.

Regular Board Meeting – Thursday, April 11, 2019



DISCUSSION SHEET

ITEM #C14

Topic: **Legislative Update**

Discussion: Staff will brief the Board on pending legislation which would affect DFPF.

Regular Board Meeting – Thursday, April 11, 2019

By: _____ .B. No. _____

Substitute the following for ____B. No. _____:

By: _____ C.S.____B. No. _____

A BILL TO BE ENTITLED

1 AN ACT
2 relating to the evaluation and reporting of investment practices
3 and performance of certain public retirement systems.

4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

5 SECTION 1. Section 801.209(a), Government Code, is amended
6 to read as follows:

7 (a) For each public retirement system, the board shall post
8 on the board's Internet website, or on a publicly available website
9 that is linked to the board's website, the most recent data from
10 reports received under Sections 802.101, 802.103, 802.104,
11 802.105, 802.108, 802.109, 802.2015, and 802.2016.

12 SECTION 2. Section 802.103, Government Code, is amended by
13 amending Subsection (a) and adding Subsection (e) to read as
14 follows:

15 (a) The [~~Except as provided by Subsection (c), the~~]
16 governing body of a public retirement system shall publish an
17 annual financial report showing the financial condition of the
18 system as of the last day of the fiscal year covered in the report.
19 The report must include:

20 (1) the financial statements and schedules examined in
21 the most recent audit performed as required by Section 802.102;

22 (2) [~~and must include~~] a statement of opinion by the
23 certified public accountant as to whether or not the financial
24 statements and schedules are presented fairly and in accordance

1 with generally accepted accounting principles;

2 (3) a listing, by asset class, of all direct and
3 indirect commissions and fees paid by the retirement system during
4 the system's previous fiscal year for the sale, purchase, or
5 management of system assets; and

6 (4) the names of investment managers engaged by the
7 retirement system.

8 (e) The board may adopt rules necessary to implement this
9 section.

10 SECTION 3. Subchapter B, Chapter 802, Government Code, is
11 amended by adding Section 802.109 to read as follows:

12 Sec. 802.109. INVESTMENT PRACTICES AND PERFORMANCE
13 REPORTS. (a) Except as provided by Subsection (d) and subject to
14 Subsection (j), a public retirement system shall select an
15 independent firm with substantial experience in evaluating
16 institutional investment practices and performance to evaluate the
17 appropriateness, adequacy, and effectiveness of the retirement
18 system's investment practices and performance and to make
19 recommendations for improving the retirement system's investment
20 policies, procedures, and practices. Each evaluation must include:

21 (1) an analysis of any investment policy or strategic
22 investment plan adopted by the retirement system and the retirement
23 system's compliance with that policy or plan;

24 (2) a detailed review of the retirement system's
25 investment asset allocation, including:

26 (A) the process for determining target
27 allocations;

- 1 (B) the expected risk and expected rate of
2 return, categorized by asset class;
- 3 (C) the appropriateness of selection and
4 valuation methodologies of alternative and illiquid assets; and
- 5 (D) future cash flow and liquidity needs;
- 6 (3) a review of the appropriateness of investment fees
7 and commissions paid by the retirement system;
- 8 (4) a review of the retirement system's governance
9 processes related to investment activities, including investment
10 decision-making processes, delegation of investment authority, and
11 board investment expertise and education; and
- 12 (5) a review of the retirement system's investment
13 manager selection and monitoring process.
- 14 (b) The governing body of a public retirement system may
15 determine additional specific areas to be evaluated under
16 Subsection (a) and may select particular asset classes on which to
17 focus, but the first evaluation must be a comprehensive analysis of
18 the retirement system's investment program that covers all asset
19 classes.
- 20 (c) A public retirement system shall conduct the evaluation
21 described by Subsection (a):
- 22 (1) once every three years, if the retirement system
23 has total assets the book value of which, as of the last day of the
24 last fiscal year considered in an evaluation under this section,
25 was at least \$100 million; or
- 26 (2) once every six years, if the retirement system has
27 total assets the book value of which, as of the last day of the last

1 fiscal year considered in an evaluation under this section, was at
2 least \$30 million and less than \$100 million.

3 (d) A public retirement system is not required to conduct
4 the evaluation described by Subsection (a) if the retirement system
5 has total assets the book value of which, as of the last day of the
6 preceding fiscal year, was less than \$30 million.

7 (e) A report of an evaluation under this section must be
8 filed with the governing body of the public retirement system not
9 later than December 1 of each year in which the system is evaluated
10 under Subsection (c).

11 (f) Not later than the 31st day after the date the governing
12 body of a public retirement system receives a report of an
13 evaluation under this section, the governing body shall submit the
14 report to the board.

15 (g) A public retirement system shall pay the costs of each
16 evaluation of the system under this section.

17 (h) The board shall submit an investment performance report
18 to the governor, the lieutenant governor, the speaker of the house
19 of representatives, and the legislative committees having
20 principal jurisdiction over legislation governing public
21 retirement systems in the biennial report required by Section
22 801.203. The report must compile and summarize the information
23 received under this section by the board during the preceding two
24 fiscal years.

25 (i) A report of an evaluation by the Teacher Retirement
26 System of Texas and an investment report that includes the Teacher
27 Retirement System of Texas under this section satisfies the

1 requirements of Section 825.512.

2 (j) The following reports may be used by the applicable
3 public retirement systems to satisfy the requirement for a report
4 of an evaluation under this section:

5 (1) an investment report under Section 10A, Article
6 6243g-4, Revised Statutes;

7 (2) an investment report under Section 2D, Chapter 88
8 (H.B. 1573), Acts of the 77th Legislature, Regular Session, 2001
9 (Article 6243h, Vernon's Texas Civil Statutes); and

10 (3) a report on a review conducted on the retirement
11 system's investments under Section 2B, Article 6243e.2(1), Revised
12 Statutes.

13 (k) The board may adopt rules necessary to implement this
14 section.

15 SECTION 4. Notwithstanding Section 802.109(c), Government
16 Code, as added by this Act, a report of the first evaluation of a
17 public retirement system, as required by Section 802.109,
18 Government Code, as added by this Act, must be filed with the
19 governing body of the system not later than January 1, 2020.

20 SECTION 5. A state agency is required to implement a
21 provision of this Act only if the legislature appropriates money
22 specifically for that purpose. If the legislature does not
23 appropriate money specifically for that purpose, the agency may,
24 but is not required to, implement a provision of this Act using
25 other appropriations available for that purpose.

26 SECTION 6. This Act takes effect immediately if it receives
27 a vote of two-thirds of all the members elected to each house, as

- 1 provided by Section 39, Article III, Texas Constitution. If this
- 2 Act does not receive the vote necessary for immediate effect, this
- 3 Act takes effect September 1, 2019.

By: Huffman

S.B. No. 2224

A BILL TO BE ENTITLED

1 AN ACT
2 relating to requiring a public retirement system to adopt a written
3 funding policy.

4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:
5 SECTION 1. Subchapter C, Chapter 802, Government Code, is
6 amended by adding Section 802.2011 to read as follows:

7 Sec. 802.2011. FUNDING POLICY. (a) In this section:
8 (1) "Funded ratio" means the ratio of a public
9 retirement system's actuarial value of assets divided by the
10 system's actuarial accrued liability.

11 (2) "Governmental entity" has the meaning assigned by
12 Section 802.1012.

13 (b) The governing body of a public retirement system shall:
14 (1) adopt a written funding policy that details the
15 governing body's plan for achieving a funded ratio of the system
16 that is equal to or greater than 100 percent;

17 (2) maintain for public review at its main office a
18 copy of the policy;

19 (3) file a copy of the policy and each change to the
20 policy with the board not later than the 31st day after the date the
21 policy or change, as applicable, is adopted; and

22 (4) submit a copy of the policy and each change to the
23 policy to the system's associated governmental entity not later
24 than the 31st day after the date the policy or change is adopted.

S.B. No. 2224

1 SECTION 2. Not later than January 1, 2020, each public
2 retirement system shall adopt a funding policy as required by
3 Section 802.2011, Government Code, as added by this Act.

4 SECTION 3. This Act takes effect September 1, 2019.



DISCUSSION SHEET

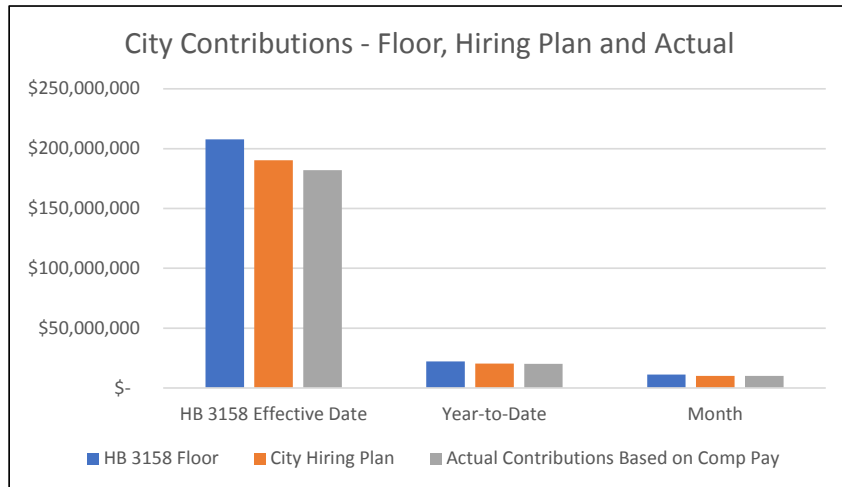
ITEM #C15

Topic: Monthly Contribution Report

Discussion: Staff will review the Monthly Contribution Report.

Regular Board Meeting – Thursday, April 11, 2019

Contribution Tracking Summary - April 2019 (February 2019 Data)

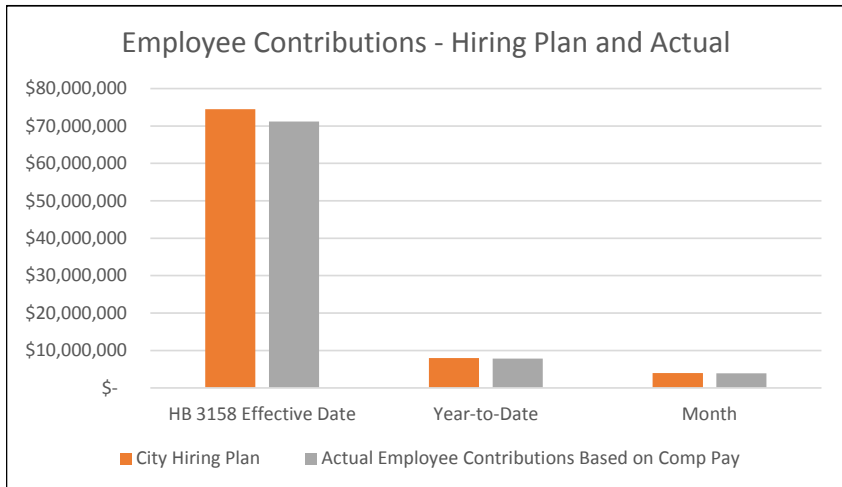


Actual Comp Pay was 96% of the Hiring Plan estimate since the effective date of HB 3158.

In the most recent month Actual Comp Pay was 99% of the Hiring Plan estimate and 90% of the floor amount.

The Hiring Plan Comp Pay estimate increased by 5.22% in 2019.

Through 2024 the HB 3158 Floor is in place so there is no City Contribution shortfall.



Since the effective date of HB 3158 actual employee contributions have been \$3.3 million less than the Hiring Plan estimate. Potential earnings loss due to the contribution shortfall is \$222k at the Assumed Rate of Return.

There is no Floor on employee contributions.

Contribution Summary Data

City Contributions

Feb-19	Number of Pay Periods Beginning in the Month	HB 3158 Floor	City Hiring Plan	Actual Contributions Based on Comp Pay	Additional Contributions to Meet Floor Minimum	Comp Pay Contributions as a % of Floor Contributions	Comp Pay Contributions as a % of Hiring Plan Contributions
Month	2	\$ 11,142,000	\$ 10,164,231	\$ 10,028,159	\$ 1,113,841	90%	99%
Year-to-Date		\$ 22,284,000	\$ 20,328,462	\$ 20,062,203	\$ 2,221,797	90%	99%
HB 3158 Effective Date		\$ 207,785,000	\$ 190,333,846	\$ 181,943,416	\$ 25,841,584	88%	96%

*Due to the Floor through 2024, there is no cumulative shortfall in City Contributions
Does not include the flat \$13 million annual City Contribution payable through 2024.
Does not include Supplemental Plan Contributions.*

Employee Contributions

Feb-19	Number of Pay Periods Beginning in the Month	City Hiring Plan	Actual Employee Contributions Based on Comp Pay	Actual Contribution Shortfall Compared to Hiring Plan	Actuarial Valuation Contribution Assumption	Actual Contributions as a % of Hiring Plan Contributions	Actual Contributions as a % of Actuarial Val Assumption
Month	2	\$ 3,977,308	\$ 3,910,046	\$ (67,262)	\$ 3,692,278	98%	106%
Year-to-Date		\$ 7,954,615	\$ 7,838,887	\$ (115,728)	\$ 7,384,556	99%	106%
HB 3158 Effective Date		\$ 74,478,462	\$ 71,192,947	\$ (3,285,515)	\$ 71,483,352	96%	100%

Potential Earnings Loss from the Shortfall based on Assumed Rate of Return \$ (222,155)

Does not include Supplemental Plan Contributions.

Reference Information

City Contributions: HB 3158 Bi-weekly Floor and the City Hiring Plan Converted to Bi-weekly Contributions						
	HB 3158 Bi-weekly Floor	City Hiring Plan-Bi-weekly	HB 3158 Floor Compared to the Hiring Plan	Hiring Plan as a % of the Floor	% Increase/ (decrease) in the Floor	% Increase/ (decrease) in the Hiring Plan
2017	\$ 5,173,000	\$ 4,936,154	\$ 236,846	95%		
2018	\$ 5,344,000	\$ 4,830,000	\$ 514,000	90%	3.31%	-2.15%
2019	\$ 5,571,000	\$ 5,082,115	\$ 488,885	91%	4.25%	5.22%
2020	\$ 5,724,000	\$ 5,254,615	\$ 469,385	92%	2.75%	3.39%
2021	\$ 5,882,000	\$ 5,413,846	\$ 468,154	92%	2.76%	3.03%
2022	\$ 6,043,000	\$ 5,599,615	\$ 443,385	93%	2.74%	3.43%
2023	\$ 5,812,000	\$ 5,811,923	\$ 77	100%	-3.82%	3.79%
2024	\$ 6,024,000	\$ 6,024,231	\$ (231)	100%	3.65%	3.65%

The HB 3158 Bi-weekly Floor ends after 2024

Employee Contributions: City Hiring Plan and Actuarial Val. Converted to Bi-weekly Contributions			
	City Hiring Plan Converted to Bi-weekly Employee Contributions	Actuarial Valuation Assumption Converted to Bi-weekly Employee contributions	Actuarial Valuation as a % of Hiring Plan
2017	\$ 1,931,538	\$ 1,931,538	100%
2018	\$ 1,890,000	\$ 1,796,729	95%
2019	\$ 1,988,654	\$ 1,846,139	93%
2020	\$ 2,056,154	\$ 2,056,154	100%
2021	\$ 2,118,462	\$ 2,118,462	100%
2022	\$ 2,191,154	\$ 2,191,154	100%
2023	\$ 2,274,231	\$ 2,274,231	100%
2024	\$ 2,357,308	\$ 2,357,308	100%

The information on this page is for reference. The only numbers on this page that may change before 2025 are the Actuarial Valuation Employee Contributions Assumptions for the years 2019-2024 and the associated percentage.

Reference Information - Actuarial Valuation and GASB 67/68 Contribution Assumptions

Actuarial Assumptions Used in the Most Recent Actuarial Valuation - These assumptions will be reevaluated annually and may change.

City Contributions are based on the Floor through 2024, the Hiring Plan from 2025 to 2037, after 2037 an annual growth rate of 2.75% is assumed

Employee Contributions for 2018 are based on the 2017 actual employee contributions inflated by the growth rate of 2.75% and the Hiring Plan for subsequent years until 2038, when the 2037 Hiring Plan is increased by the 2.75 growth rate for the next 10 years

Actuarial/GASB Contribution Assumption Changes Since the Passage of HB 3158

	Actuarial Valuation	GASB 67/68
YE 2017 (1/1/2018 Valuation)		
2018 Employee Contributions Assumption - based on 2017 actual plus growth rate not the Hiring Plan Payroll	\$ (2,425,047)	*
<i>*90% of Hiring Plan was used for the Cash Flow Projection for future years in the 12/31/2017 GASB 67/68 calculation. At 12-31-17 this did not impact the pension liability or the funded percentage.</i>		

The information on this page is for reference. It is intended to document contribution related assumptions used to prepare the Actuarial Valuation and changes to those assumptions over time, including the dollar impact of the changes. Contribution changes impacting the GASB 67/68 liability will also be included.

City Hiring Plan - Annual Computation Pay and Numbers of Employees						
Year	Computation Pay			Number of Employees		
	Hiring Plan	Actual	Difference	Hiring Plan	Actual EOY	Difference
2017	\$ 372,000,000	Not Available	Not Available	5,240	4,935	(305)
2018	\$ 364,000,000	\$ 349,885,528	\$ (14,114,472)	4,988	4,983	(5)
2019	\$ 383,000,000			5,038		
2020	\$ 396,000,000			5,063		
2021	\$ 408,000,000			5,088		
2022	\$ 422,000,000			5,113		
2023	\$ 438,000,000			5,163		
2024	\$ 454,000,000			5,213		
2025	\$ 471,000,000			5,263		
2026	\$ 488,000,000			5,313		
2027	\$ 507,000,000			5,363		
2028	\$ 525,000,000			5,413		
2029	\$ 545,000,000			5,463		
2030	\$ 565,000,000			5,513		
2031	\$ 581,000,000			5,523		
2032	\$ 597,000,000			5,523		
2033	\$ 614,000,000			5,523		
2034	\$ 631,000,000			5,523		
2035	\$ 648,000,000			5,523		
2036	\$ 666,000,000			5,523		
2037	\$ 684,000,000			5,523		

Comp Pay by Month - 2019	Annual Divided by 26 Pay Periods	Actual	Difference	2019 Cumulative Difference	Number of Employees EOM	Difference
January	\$ 29,461,538	\$ 29,084,185	\$ (377,354)	\$ (377,354)	4963	(75)
February	\$ 29,461,538	\$ 29,067,129	\$ (394,410)	\$ (771,763)	4974	(64)
March	\$ 29,461,538	\$ -		\$ (771,763)		
April	\$ 29,461,538	\$ -		\$ (771,763)		
May	\$ 44,192,308	\$ -		\$ (771,763)		
June	\$ 29,461,538	\$ -		\$ (771,763)		
July	\$ 29,461,538	\$ -		\$ (771,763)		
August	\$ 29,461,538	\$ -		\$ (771,763)		
September	\$ 29,461,538	\$ -		\$ (771,763)		
October	\$ 44,192,308	\$ -		\$ (771,763)		
November	\$ 29,461,538	\$ -		\$ (771,763)		
December	\$ 29,461,538	\$ -		\$ (771,763)		



DISCUSSION SHEET

ITEM #C16

Topic: Board approval of Trustee education and travel

- a. Future Education and Business-related Travel
- b. Future Investment-related Travel

Discussion:

- a. Per the Education and Travel Policy and Procedure, planned Trustee education and business-related travel and education which does not involve travel requires Board approval prior to attendance.

Attached is a listing of requested future education and travel noting approval status.

- b. Per the Investment Policy Statement, planned Trustee travel related to investment monitoring, and in exceptional cases due diligence, requires Board approval prior to attendance.

There is no future investment-related travel for Trustees at this time.

Regular Board Meeting – Thursday, April 11, 2019

**Future Education and Business Related Travel
Regular Board Meeting – April 11, 2019**

ATTENDING APPROVED

1. Conference: NCPERS Accredited Fiduciary Program
Dates: May 18-19, 2019
Location: Austin, TX
Est. Cost: TBD

2. Conference: NCPERS Annual Conference
Dates: May 19-22, 2019
Location: Austin, TX
Est. Cost: \$1,500

SF 02/14/2019

3. Conference: TEXPERS Summer Educational Forum
Dates: August 11-13, 2019
Location: El Paso, TX
Est. Cost: TBD



DISCUSSION SHEET

ITEM #C17

Topic: Board Members' reports on meetings, seminars and/or conferences attended

Discussion: **Conference:** **TEXPERS Annual Conference** **BD, SF**
Dates: April 7-10, 2019
Location: Austin, TX

Regular Board Meeting – Thursday, April 11, 2019



DISCUSSION SHEET

ITEM #D1

Topic: Reports and concerns of active members and pensioners of the Dallas Police and Fire Pension System

Discussion: This is a Board-approved open forum for active members and pensioners to address their concerns to the Board and staff.

Regular Board Meeting – Thursday, April 11, 2019



DISCUSSION SHEET

ITEM #D2

Topic: Executive Director's report

- a. Associations' newsletters
 - NCPERS Monitor (March 2019)
- b. Open Records

Discussion: The Executive Director will brief the Board regarding the above information.

Regular Board Meeting – Thursday, April 11, 2019

THE NCPERS

MONITOR

The Latest in Legislative News

MARCH 2019

In This Issue

2 Executive Directors Corner



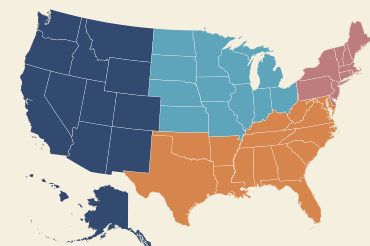
A comprehensive infrastructure and public works bill could advance in the 116th Congress. But as always, the devil is in the details. Funding is key, and opinions on how to proceed vary widely.

4 Early Prospects for 116th Congress



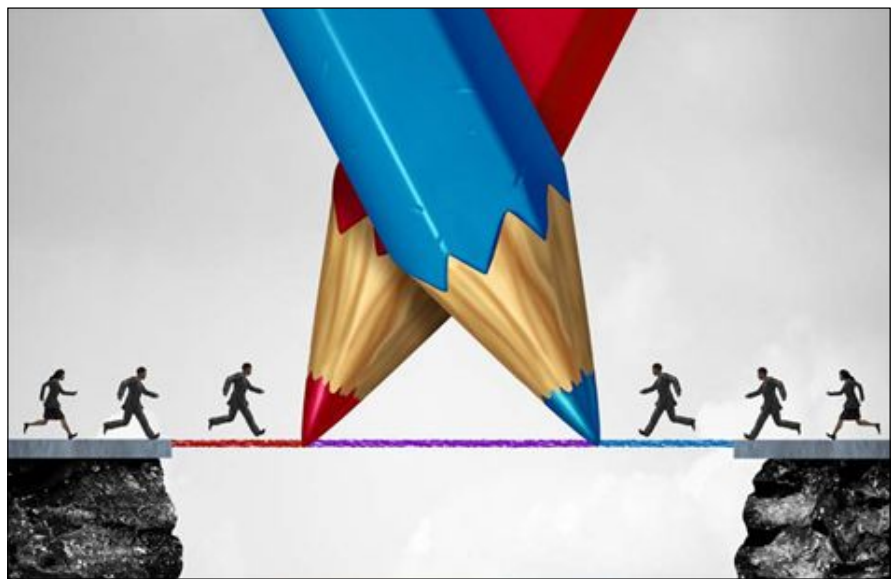
On February 6, hearings on retirement policy were held on both sides of the Capitol – the House Ways and Means Committee and the Senate Special Committee on Aging.

6 Around the Regions



This month, we will highlight Kansas, Maryland, New Mexico, and Kentucky.

House Members Reintroduce Bipartisan Bill to Boost Employer-Based Retirement Savings



As the 116th Congress settles into work, a bipartisan bill to enhance retirement savings through employer-based systems is springing back to life.

On Feb. 6, Rep. Ron Kind, D-Wis., and Rep. Mike Kelly, R-Pa., reintroduced the Retirement Enhancement and Savings Act (RESA), or H.R. 1007. By doing so, they revived a legislative initiative that in previous sessions garnered support from both sides of the aisle but failed to gain passage.

In general, RESA would modify requirements for tax-favored retirement savings accounts, and employer-provided retirement plans to encourage savings. For example, it would provide flexibility for workers employed by small businesses to join multi-employer plans. It would also increase the tax credit for small employer pension plan startup costs; give small employers who start 401(k) automatic enrollment plans a tax credit; ease non-discrimination rules for frozen defined benefit plans; and add a safe harbor for selecting lifetime income providers in defined contribution plans.

[CONTINUED ON PAGE 8](#)



Role for Pensions Explored in Infrastructure Debate

Revitalizing the nation's infrastructure is a popular goal in Washington and across the nation. Numerous opinion polls have documented strong support for bipartisan infrastructure spending, with a focus on renewing services such as highways, bridges, airports, railroads, schools, hospitals, water treatment plants and the electrical grid. As recently as February 2019, a Rasmussen Reports survey found 90 percent of Americans would support such initiatives.

A comprehensive infrastructure and public works bill could advance in the 116th Congress. But as always, the devil is in the details. Funding is key, and opinions on how to proceed vary widely.

One intriguing option is being advanced by House Budget Committee Chairman John Yarmuth, D-Ky., and it would make pension plans a central part of the solution. Chairman Yarmuth plans to propose that the federal government sell 40-year bonds to capitalize a new U.S. infrastructure bank. The move is seen as an effort to find common ground with Republicans. Yarmuth has said he envisions incorporating such a bill into a broader public-works package.

Details are still in flux, as the House Budget Committee chairman is consulting with interested parties to craft legislation. The core concept is to sell as much as \$300 billion of "Rebuild America Bonds" exclusively to public and private pension plans and funnel the proceeds into a National Infrastructure Development Bank, according to a Bloomberg news report.



Photo Illustration © 2019, iStock.com

A comprehensive infrastructure and public works bill could advance in the 116th Congress.

But as always, the devil is in the details.

Funding is key, and opinions on how to proceed vary widely.

The bonds would have a 40-year maturity and must be held for a minimum of 10 years; the interest rate on the bonds would be 200 basis points above the rate of 30-year Treasury bills, according to a separate news report in *Pensions & Investments*,

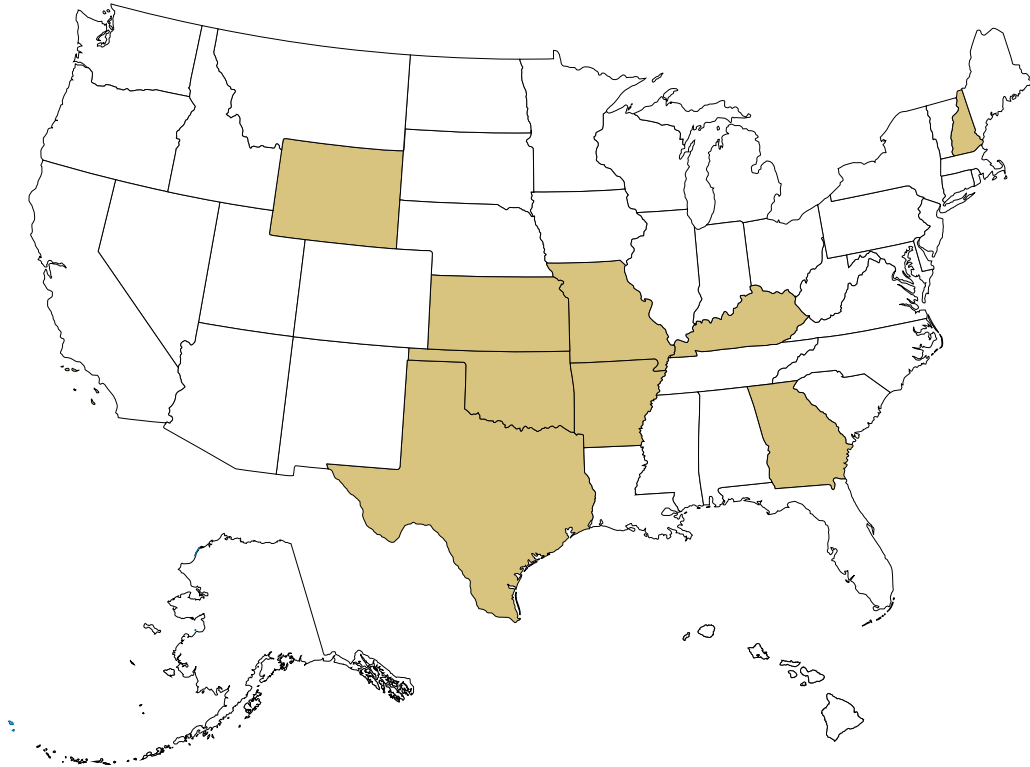
which quoted Christopher Schuler, Chairman Yarmuth's communications director. (The 30-year T-bill rate stood at 3.03 percent at press time, indicating a 5.03 percent yield on the bonds.)

The infrastructure bank would have a seven-member board appointed by the president and confirmed by the Senate, and would make direct loans for public infrastructure projects, the *Pensions and Investments* report added.

There are, of course, numerous questions for public pension funds to consider as they find themselves drawn into a potential role in financing infrastructure development. What would be considered as infrastructure, and how would it fit into a fund's total portfolio

CONTINUED ON PAGE 8

State Update



The beginning of 2019 has been busy for state legislatures and public pension reform. Legislators have not wasted time in Arkansas, Kentucky, and Missouri with attempts to undermine defined benefit plans. Additionally, in Wyoming a bill to provide ad hoc cost-of-living adjustments (COLAs) was killed. On a more positive note, there are efforts to repay plans and defeat of defined contribution bills. Details on specific state legislation are as follows:

Arkansas: House Bill 1173 was introduced on January 16 by Representative Douglas House (R). The legislation would require an annual financial stress test for the retirement systems. The stress tests will provide information on projections of: assets, liabilities, pension debt, service costs, employee and employer contributions, net amortization, benefit payments, and payroll. Separately, HB 1256, also introduced by Rep. Douglas House, aims to redetermine benefits under the Arkansas Public Employee Retirement System (APERS) yearly. Both bills are in the Joint Committee on Public Retirement and Social Security. It is also important to note that the Equable Institute and Reason Foundation are active in the state.



Georgia: On January 30, Rep. Tommy Benton (R) introduced HB 109, legislation aimed at changing the Teachers Retirement System of Georgia for new hires as of July 1, 2019. New hires would not be eligible for a pension until age 60; their salary cap would be \$200,000; and they would be required to contribute up to 10 percent instead of the current 6 percent. On February 27, a substitute bill was introduced and voted favorably by the House Committee. The substitute bill, offered by State Auditor Greg Griffin, set the employee contributions at 6 -8.5 percent; increases the normal retirement age to 62 with at least ten years of service; and sets limitations on postretirement adjustments. The new version will be reported to the full house for floor consideration.



Kansas: Senate Bill 9 was presented to Governor Laura Kelly (D) on February 26, however, as of print, it is unclear of Gov. Kelly will sign the bill. If signed, the bill would pay back \$115 million (plus interest) borrowed from the Kansas Public Employee Retirement System (KPERS) from the state general fund. The bill was introduced by Senator Molly Baumgardner (R) on January 14, and passed

[CONTINUED ON PAGE 10](#)

Early Prospects for 116th Congress

By Tony Roda

On February 6, hearings on retirement policy were held on both sides of the Capitol – the House Ways and Means Committee and the Senate Special Committee on Aging. This early attention makes clear that Congress is serious about taking action on bipartisan retirement savings enhancement legislation.

It is expected that the bill will focus on private sector, defined contribution plans. However, key committee staff are open to including non-controversial provisions that would benefit public plans. Staff of Senate Finance Committee Chairman Chuck Grassley (R-IA) and Ranking Member Ron Wyden (D-OR) spoke at the NCPERS Legislative Conference in Washington, D.C. at the end of January and asked the membership for input as they work to develop the retirement package.

The Ways and Means Committee hearing in early February touched only briefly on state and local governmental plans. One of the witnesses, Andrew Biggs of the American Enterprise Institute, is a consistent critic of public plans. He talked about the issue of defined benefit plan underfunding, including Social Security, other federal pension plans, and state and local governmental plans.

We believe that any retirement legislation should contain provisions to make improvements to the current law that allows public safety employees to exclude from their gross income up to \$3,000 from pension distributions if the monies are used for health care premiums. First, the \$3,000 cap has been unchanged since its inception in 2006. We believe the \$3,000 limit should be increased and also indexed in future years. Second, this tax benefit should be extended to all public sector workers. Finally, the structure of the current benefit should be examined. Questions have been raised on whether the direct payment requirement is workable under new health care models.

At the Ways and Means Committee hearing it also became clear that there is bipartisan interest in pursuing a solution to Social Security's long-term funding concerns. Further, the specific issue of the need to reform or repeal Social Security's Windfall Elimination Provision (WEP) was raised by several members, including full Committee Chairman Richie Neal (D-MA), Ranking Member



Photo illustration © 2019, Reuters / Kevin Lamontage - stock.adobe.com

Kevin Brady (R-TX), Social Security Subcommittee Chairman John Larson (D-CT) and Subcommittee Ranking Member Tom Reed (R-NY). WEP has been a key issue for public sector workers since its creation in 1983. However, finding the right balance in a reform package has been elusive.

Another major policy area that is long overdue for bipartisan legislative action is infrastructure. If infrastructure legislation moves, it could carry provisions related to state and local plans, namely (1) the creation of a National Infrastructure Development Bank; and (2) legislation clarifying the tax treatment of underlying municipal bonds if public infrastructure assets are transferred to public pension plans.

Congress has often looked at ways to encourage public pension plans to invest more heavily and directly in infrastructure projects. While Rep. Mike Bishop (R-MI) lost his re-election bid, his legislation (H.R. 6276, 115th), which is designed to promote investments in public infrastructure projects by state and local governmental pension plans by clarifying the tax law, is expected to be introduced in the new Congress by another Member. It is not yet clear who will introduce the legislation, although Senator Ron Wyden has been mentioned by proponents of the legislation.

In addition, NCPERS has been working to provide input to House Budget Committee Chairman John Yarmuth (D-KY), who is

[CONTINUED ON PAGE 5](#)

116TH CONGRESS CONTINUED FROM PAGE 4

developing legislation that would create a National Infrastructure Development Bank, which would be financed through the sale of \$75 billion worth of Rebuild America Bonds on the credit of the U.S. An additional \$300 billion in bonds could be issued at the request of the Bank. Under the draft legislation, the bonds mature in 40 years and they may not be resold until 10 years after the date of issuance. The bonds will bear an interest rate of 200 basis points above the 30-year Treasury bond. Interestingly for the public pension plan community, the bonds may be purchased only by pension plans – both plans governed by the Employee Retirement Income Security Act (ERISA) and governmental plans as defined by ERISA, which includes state and local governmental pension plans.

Finally, an alternative to Medicare-for-All is being developed by Sen. Sherrod Brown (D-OH), who just won re-election to a new six-year term and may be interested in running for president in 2020. Senator Brown is developing legislation to allow retired first responders who have reached age 55 to opt into Medicare. Recognizing that public safety employees generally retire in their mid-fifties and that there is always a significant gap in time from retirement to the Medicare eligibility age of 65, Sen. Brown

believes this group should be given a choice to enroll in Medicare at an earlier age. His staff is working closely with the public safety community to finalize the legislation. The target date for introduction of the bill is early March.

Be assured that NCPERS will work diligently in the 116th to promote the interests of state and local governmental pension plans. As always, we will keep you apprised of any significant developments. ♦

Tony Roda is a partner at the Washington, D.C. law and lobbying firm [Williams & Jensen](#), where he specializes in federal legislative and regulatory issues affecting state and local governmental pension plans. He represents NCPERS and statewide, county and municipal pension plans in California, Georgia, Kentucky, Ohio, Tennessee and Texas. He has an undergraduate degree in government and politics from the University of Maryland, J.D. from Catholic University of America, and LL.M (tax law) from Georgetown University.



Don't Miss NCPERS' Social Media

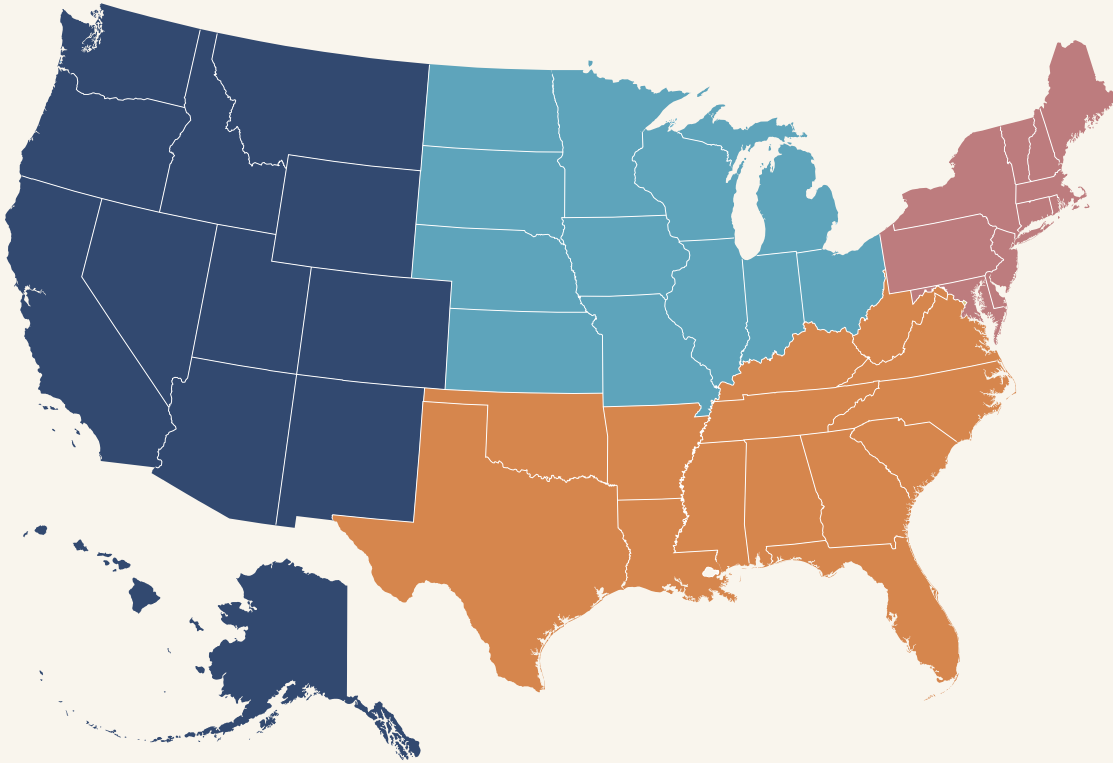
	
	
	



The Voice for Public Pensions

NCPERS Around the Regions

This month, we will highlight Kansas, Maryland, New Mexico, and Kentucky.



MIDWEST: KANSAS

The Kansas Legislature has agreed unanimously to transfer \$115 million to make up a pension payment that the state skipped in 2016.

The Kansas House on Feb. 22 voted 117-0 to shift \$115 million from the State General Fund to the Kansas Public Employee Retirement System (KPERs) Trust Fund to cover KPERs school employer contributions. The Kansas Senate had approved the measure on a 40-0 vote on Feb. 5. Both chambers are Republican-led.

The state's debt to KPERs came about in the midst of a budget crisis in 2016. The Kansas Legislature had granted special allotment authority to then-Governor Sam Brownback, a Republican. This

authority permitted him to reduce employer contributions to KPERs when the State General Fund dipped below \$100 million.

When Brownback exercised his special allotment authority, the 2016 employer contribution was reduced by \$97 million. The planned \$115 million repayment represents the missed payment, plus interest.

Governor Laura Kelly, a Democrat, praised the measure as an effort to "fix past mistakes," but warned that it "does little to address ballooning KPERs payments in future years, and it does nothing to stabilize state finances as a whole."

[CONTINUED ON PAGE 7](#)

AROUND THE REGIONS CONTINUED FROM PAGE 6

NORTHEAST: MARYLAND



Governor Larry Hogan is pressing the Maryland General Assembly to reduce tax burdens on public safety workers' retirement benefits.

Appearing Feb. 6 with firefighters from across the state, Hogan, a Republican, unveiled three pieces of legislation that he said would enhance protections for public safety workers.

The first, the "Hometown Heroes Act of 2019" or Senate Bill 171, would exempt retired public safety officials from paying state taxes on retirement income specific to their employment. It would fully exempt all retirement income of firefighters, emergency services personnel, police officers, and correctional officers. It also proposes to lower the age of retirement eligibility to 50.

The second bill, House Bill 231, would increase the amount a volunteer firefighter can exempt from their state taxes to \$10,000. The current maximum exemption is \$7,000.

Finally, Hogan cited the Workers Compensation-Medical Presumptions Act (Senate Bill 160), introduced January 21. It would expand cancer treatment by classifying more types of cancer as occupational diseases suffered in the line of duty.

THE WEST: New Mexico



Governor Michelle Lujan Grisham on Feb. 18 formed a task force to explore changes in contributions and benefits to ensure the solvency of the state pension system.

She ordered the new Public Employees Retirement Association (PERA) of New Mexico Task Force to report by August 30 on actions need to "prevent the need for more significant changes in the future and address the liabilities associated with the state's pension plans." The proposals are to be presented to the New Mexico Legislature in 2020, the governor's office announced.

As of June 30, 2017, the most recent data available, PERA's actuarial assets totaled \$15.12 billion, while actuarial liabilities totaled \$20.2 billion, for a funding ratio of 74.9 percent, Pensions & Investments reported.

Grisham, a Democrat, outlined the rationale for the task force in her executive order creating it. She noted that in 2018, PERA paid \$1.2 billion in benefits—90 percent of which stays in New Mexico communities—to 40,000 retirees.

The state undertook pension reform in 2013 to deal with the fallout from the Great Recession of 2007, and has since taken other prudent actions, Grisham said in the order. However, factors beyond PERA's control—including continued investment volatility—have increased its liabilities at a time when the long-term funding outlook has become less favorable than anticipated in 2013.

"Reasonable and measured changes to contributions and benefits today will prevent the need for more drastic changes in the future," Grisham said.

THE SOUTH: Kentucky



Two educators who were elected to the Kentucky House of Representatives in 2018 have proposed pension reform legislation that enables future teachers to keep a defined-benefit plan.

Rep. Scott Lewis and Rep. Travis Brenda, both Republicans, are proposing a two-tiered system that gives teachers the security of a defined-benefit system as well as flexibility in the form of a second retirement account, the *Lexington Herald-Leader* reported.

The bill is one of two pension bills filed Feb. 20. Rep. Jerry Miller, also a Republican, filed a separate bill that would require level-dollar funding for the pension system and would freeze pension contribution limits for local governments.

The Lewis-Brenda proposal comes in the wake of a tumultuous year for Kentucky teachers. Last spring, teachers stormed the Capitol to protest punitive pension reforms then under consideration. They ultimately stopped the reform plans put forth by Governor Matt Bevin, a Republican.

Brenda told the *Herald-Leader* he believes teachers will support the bill because it doesn't affect existing teachers and maintains a defined-benefit plan for future teachers.

"That's important," Brenda told the *Herald-Leader*. "That's what needs to be done to attract highly qualified personnel into those positions."

BIPARTISAN BILL CONTINUED FROM PAGE 1

Rep. Kind spoke in support of RESA at a Feb. 6 House Ways and Means Committee hearing titled “Improving Retirement Security for America’s Workers.” A member of the committee, Rep. Kind noted that the Economic Policy Institute has found that 55% of Americans have no meaningful retirement savings.

“As a nation, we have a problem when it comes to retirement savings,” Rep. Kind said at the hearing. “We need to take commonsense steps to ensure our businesses are offering their employees flexible retirement plans that set our workers up for success in their golden years.”

RESA was first introduced in Congress in 2016. Provisions of the legislation were included in the Family Savings Act of 2018, introduced by Rep. Kelly, which passed the House last year. A companion bill was introduced in the Senate last year by Senate Finance Committee Chairman Orrin Hatch (R-Utah), but did not gain traction.

The 2019 House version of RESA has been referred to the House Ways and Means Committee and House Education and Labor Committee for deliberations. ♦

EXECUTIVE DIRECTOR’S CORNER CONTINUED FROM PAGE 2

allocation? How would the bonds be treated for accounting purposes? Would they carry the full faith and credit of the U.S. government? What provisions would be made for trading of the bonds in 10 years’ time? Would a true secondary market emerge, or would pension plans be limited to trading among themselves?

About one thing, there is no question: The size of the U.S. infrastructure challenge is considerable. The American Society of Civil Engineers has said the U.S. needs to invest \$4.6 trillion in infrastructure through 2025.

The idea of leveraging the abundant strengths of pensions to prime the pump and get funds flowing to infrastructure is innovative and worth exploring. NCPERS is not merely watching closely, but actively engaged in refining these ideas. We are meeting and talking regularly with Chairman Yarmuth and House Budget Committee staff members to address questions, concerns and suggestions from our membership. It is crucial that our members put their topic on their own agendas, and bring us ideas and questions.

Is the proposed funding mechanism for a National Infrastructure Development Bank something NCPERS can get behind? It’s too soon to say. But the answer is forthcoming, and it will depend on the work we can do with Chairman Yarmuth and his team, and the vital input of NCPERS members. ♦

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STATE UPDATE CONTINUED FROM PAGE 3

unanimously in the Senate on February 5 and in the House on February 22. Separately, on February 6, Rep. Leo Delperdang (R) introduced HB 2165, which would move all correctional officers from KPERS to the Kansas Police & Fire Retirement System. The bill has been referred to the Committee on Financial Institutions and Pensions.



Kentucky: On February 20 by Reps. Scott Lewis and R. Travis Brenda (R) introduced HB 504; the bill would offer new teachers a defined benefit pension with newly created supplemental accounts. The bill directs unused sick leave to teachers' supplemental accounts instead of counting them towards last year of pay. New teachers would pay 13.75% of payroll into the pension system but will assume the risks of any market downturns. That risk could result in unfunded liability for the new tier. The bill would also lower total employer contributions from 13.1% for those in the Kentucky Teachers Retirement System (KTRS) to 10.75% for new hires. While the bill cannot amend benefits for teachers hired after January 1, 2020, the KTRS board would have some leeway in changes such as mandatory retirement age and benefit factors, if funding for new teacher benefits drops below 90%. The Kentucky Education Associations board has not taken a formal position on the bill as of time of print. Separately, HB 505, introduced by Rep. Jerry Miller (R) also on February 20, wants to freeze local governments' contribution levels to pensions and required employees to pay the annual required contribution (ARC) to KTRS.



Missouri: On January 23, HB 649 was introduced by Rep. Nick Schroer (R); the legislation would freeze all Missouri State Employees' Retirement System (MOSERS) plan participants in 2020 and put new hires in a defined contribution system with only 4 percent employee and employer contributions. Separately, on February 7, Rep. Jered Taylor (R) introduced HB 864, legislation that would allow new teachers in the Public School Retirement System (PSRS) the option to invest in 401 (k) style accounts, only up to 50 percent. The current system provides teachers with a stable defined benefit retirement. Both of these bills have been read for the second time in the House.



New Hampshire: HB 616 was introduced on January 3 by Rep. Dianne Schuett (D); the bill would give a COLA for retirees in the state retirement system that have been retired for at least 60 months. The bill passed the Executive Departments and Administration Committee, 17 – 2, and is currently in the Finance Committee. Separately, HB 629, introduced on January 16 by Rep. Carol McGuire (R) was killed in the Executive Departments and Administration Committee 13 – 6 on February 20. The legislation would have established a state defined contribution plan for new hires. In addition, in the Senate, SB 28 was introduced on January 14 by Sen. Kevin Cavanaugh (D); the bill requires that one of the members of the independent Investment Committee of the retirement system be an active member appointed from a list of nominations. The bill passed the Executive Departments and Administration Committee on February 14.



Oklahoma: There are two cost-of-living adjustment (COLA) bills in the House and the Senate. SB 352 was introduced by Sen. Dewayne Pemberton (R) on January 30 with a proposed 2 percent increase. The bill has been referred to the Retirement and Insurance Committee, then to the Appropriations Committee. HB 2398, introduced on February 4 by Rep. Chris Kannady, proposes an 8 percent increase. The bill has been read for the second times in the Rules Committee.



Texas: Sen. Joan Huffman (R) introduced a bill on January 18 that would increase employee and employer contribution rates between 5 to 9.5 percent for the Teacher Retirement System of Texas. The bill was referred to the State Affairs Committee on February 14.



Wyoming: A bill that would have given retirees two "13th checks" in July 2019 and 2020 was defeated on February 4. HB 314 was introduced on January 23 by Rep. Landon Brown (R) and defeated in the Appropriations Committee.

Stay tuned and visit www.NCPERS.org for more information on upcoming state pension reform legislation. You can visit the legislation maps on www.NCPERS.org to track different state pension reform bills. As always, if your state is facing pension reform efforts and you would like NCPERS' help, please let us know. ♦



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**NCPERS Accredited
Fiduciary Program
(All modules)**
May 18 – 19
Austin, TX

Trustee Educational Seminar
May 18 – 19
Austin, TX

**Annual Conference &
Exhibition (ACE)**
May 19 – 22
Austin, TX

June

Chief Officers Summit (COS)
June 13 – 14
Chicago, IL

September

**Public Pension
Funding Forum**
September 11 – 13
New York, NY

October

**NCPERS Accredited
Fiduciary Program
(All modules)**
October 26 – 27
New Orleans, LA

Public Safety Conference
October 27 – 30
New Orleans, LA

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