MINUTES SUMMARY
Board Meeting
Thursday, September 13, 2018

The Required Public Meeting, Regular and Supplemental meetings of the Dallas Police and Fire Pension System Board of Trustees were held at 8:30 a.m. on Thursday, September 13, 2018, in the Second Floor Board Room at 4100 Harry Hines Blvd., Dallas, Texas.

The meeting was called to order at 8:31 a.m.

REQUIRED PUBLIC MEETING

1 The report on the health and performance of DPFP as required by Section 3.01 (j-9) of Article 6243a-1 of Vernon's Revised Civil Statutes was presented by Deborah Brigham and Jeff Williams of Segal Consulting, DPFP's actuarial firm and DPFP's Executive Director.

2. The Chairman extended an opportunity for public comment and two members spoke to the Board.

The Required Public Meeting was adjourned at 9:55 a.m.

REGULAR POLICE AND FIRE PENSION BOARD MEETING

The Regular meeting was reconvened at 9:56 a.m.

A. MOMENT OF SILENCE

The Board observed a moment of silence in memory of members and pensioners who recently passed away.

B. CONSENT AGENDA

Approved by the Board, subject to the final review of the staff.

MINUTES SUMMARY
Board Meeting
Thursday, September 13, 2018

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. Deborah Brigham and Jeff Williams of Segal Consulting, DPFP's actuarial firm, were present to discuss results of the January 1, 2018 actuarial valuation report, including the GASB No. 67 actuarial valuation.

2. Staff presented similar information contained in the Change in Net Position Bridge chart based on projected data from the January 1, 2018 Actuarial Valuation report. No motion was made.

3. Meketa, DPFP's investment consultant, discussed their asset allocation policy review and risk analysis. No motion was made, but the Board provided feedback for further review to be discussed at the October Board meeting.

4. Meketa reviewed the Second Quarter Investment Performance Analysis and First Quarter Private Markets and Real Assets Review reports No motion was made.

5. Investment Staff briefed the Board on recent events and current developments with respect to the investment portfolio. No motion was made.

6. The Board discussed and approved three candidates to serve on the Investment Advisory Committee.

7. Staff provided an update regarding DPFP investment managed by Lone Star Investment Advisors and discussed extension options and ramifications. The Board authorized the Executive Director subject to certain conditions being resolved to her satisfaction to extend until April 2019 with no fee.

8. The Board approved the settlement agreement in the pay lawsuit cases and authorized the Executive Director to execute the settlement agreement. The Board also authorized the Executive Director and General Counsel to engage Reynolds Frizzell LLP to bring any claims, including filing suit, against any entity and individuals involving actuarial services provided to DPFP, that Reynolds Frizzell with the approval of the Executive Director and General Counsel deems appropriate.

9. No discussion was held, and no motion was made regarding Trustee education and travel.

D. BRIEFING ITEMS

1. No one requested to speak to the Board. No motion was made.

2. The Executive Director's report was presented. No motion was made.

MINUTES SUMMARY
Board Meeting
Thursday, September 13, 2018

The regular Board meeting was adjourned at 12:50 p.m.

SUPPLEMENTAL POLICE AND FIRE PENSION BOARD MEETING

The meeting was called to order and recessed at 8:31 a.m.

The meeting was reconvened at 12:51 p.m.

A. CONSENT AGENDA

Approved by the Board, subject to the final review of the staff.

B. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

Deborah Brigham and Jeff Williams of Segal Consulting, DPFP's actuarial firm, were present to discuss results of the January 1, 2018 actuarial valuation report, including the GASB No. 67 actuarial valuation.

The Supplemental Board meeting was adjourned at 12:52 p.m.

Dallas Police and Fire Pension System
Thursday, September 13, 2018
8:30 a.m.
4100 Harry Hines Blvd., Suite 100
Second Floor Board Room
Dallas, TX

Required Public Meeting, William F. Quinn, Chairman, presiding:

ROLL CALL

Board Members

Present at 8:30 a.m.	William F. Quinn, Samuel L. Friar, Ray Nixon, Gilbert A. Garcia, Tina Hernandez Patterson, Joseph P. Schutz, Kneeland Youngblood
Present at 8:33 a.m.	Nicholas A. Merrick
Present at 8:36 a.m.	Frederick E. Rowe
Present at 8:43 a.m.	Blaine Dickens
Absent:	Robert C. Walters
Staff	Kelly Gottschalk, Josh Mond, Kent F. Custer, Brenda K. Barnes, John Holt, Damion Hervey, Cynthia Thomas, Ryan Wagner, Greg Irlbeck, Milissa Romero
Others	Deborah Brigham, Jeff Williams, Leandro Festino, Roberto Obregon, Chuck Campbell (by phone), Kenneth Sprecher, Janis Elliston, David Elliston, Thomas Moorman, Tom Moore, Kenneth Haben, Julian Bernal, Thomas White, Daryl Wachsman, Jerry Rhodes, Floyd D. Brown, Daniel Wojick, Michael Edwards, Zaman Hemani

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The second of two annual public meetings of the Dallas Police and Fire Pension System Board of Trustees as required by Section 3.01 (j-9) of Article 6243a-1 of Vernon's Revised Civil Statutes.

The meeting was called to order at 8:31 a.m.

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Required Public Meeting
Thursday, September 13, 2018

1. Report on the health and performance of the Pension System

a. Jeff Williams and Deborah Brigham of Segal Consulting, DPFP's actuarial firm, presented to discuss results of the January 1, 2018 actuarial valuation report, including the GASB No. 67 actuarial valuation.

b. The Executive Director presented a Change in Net Position Bridge chart based on actual historical data as part of the quarterly financial statement reporting as well as projected data as previously requested by the Board.

No motion was made.

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2. Public comment

The Chairman extended an opportunity for public comment and two members spoke to the Board.

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Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Youngblood and a second by Mr. Dickens, the meeting was adjourned at 9:55 a.m.

/s/ William F. Quinn

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William F. Quinn
Chairman

ATTEST:

/s/ Kelly Gottschalk

____
Kelly Gottschalk
Secretary

Dallas Police and Fire Pension System
Thursday, September 13, 2018
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, Ray Nixon, Gilbert A. Garcia, Tina Hernandez Patterson, Joseph P. Schutz, Kneeland Youngblood
Present at 8:33 a.m.	Nicholas A. Merrick
Present at 8:36 a.m.	Frederick E. Rowe
Present at 8:43 a.m.	Blaine Dickens
Absent:	Robert C. Walters
Staff	Kelly Gottschalk, Josh Mond, Kent F. Custer, Brenda K. Barnes, John Holt, Damion Hervey, Cynthia Thomas, Ryan Wagner, Greg Irlbeck, Milissa Romero
Others	Deborah Brigham, Jeff Williams, Leandro Festino, Roberto Obregon, Chuck Campbell (by phone), Kenneth Sprecher, Janis Elliston, David Elliston, Thomas Moorman, Tom Moore, Kenneth Haben, Julian Bernal, Thomas White, Daryl Wachsman, Jerry Rhodes, Floyd D. Brown, Daniel Wojick, Michael Edwards, Zaman Hemani

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The meeting was called to order and recessed at 8:31 a.m.

The meeting was reconvened at 9:56 a.m.

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A. MOMENT OF SILENCE

The Board observed a moment of silence in memory of retired police officers John T. Waterson, James C. Bowles, Dicky M. Hickman, Robert J. McGovern, Robert L. Maxam, Gwendolyn Sargent, and retired firefighters Kelvin D. Baker, J. E. Tuma, James R. Hall.

A. MOMENT OF SILENCE (continued)

No motion was made.

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B. CONSENT AGENDA

1. **Approval of Minutes**

   Regular meeting of August 9, 2018

2. **Approval of Refunds of Contributions for the Month of August 2018**

3. **Approval of Activity in the Deferred Retirement Option Plan (DROP) for September 2018**

4. **Approval of Estate Settlements**

5. **Approval of Survivor Benefits**

6. **Approval of Service Retirements**

7. **Approval of Alternate Payee Benefits**

After discussion, Mr. Friar made a motion to approve the minutes of the meeting of August 9, 2018. Mr. Dickens seconded the motion, which was unanimously approved by the Board. Mr. Garcia was not present for the vote.

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. Youngblood seconded the motion, which was unanimously approved by the Board. Mr. Garcia was not present for the vote.

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C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. **January 1, 2018 Actuarial Valuation**

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION (continued)

Deborah Brigham and Jeff Williams of Segal Consulting, DPFP's actuarial firm, presented the results of the January 1, 2018 actuarial valuation report, including the GASB No. 67 actuarial valuation.

After discussion, Mr. Nixon made a motion to approve issuance of the January 1, 2018 actuarial valuation report, subject to final review and approval by the Executive Director. Ms. Hernandez Patterson seconded the motion, which was unanimously approved by the Board. Mr. Garcia was not present for the vote.

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2. Projected Change in Net Position Bridge Chart

On a quarterly basis staff presents a Change in Net Position Bridge chart based on actual historical data as part of the quarterly financial statement reporting. The Board requested that the same type of information be presented based on projected data.

Staff presented similar information contained in the Change in Net Position Bridge chart based on projected data from the January 1, 2018 Actuarial Valuation report.

No motion was made.

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3. Asset Allocation

Meketa representatives Leandro Festino, Managing Principal and Roberto Obregon, Vice President Macro Research & Modeling, DPFP's investment consultants, discussed their asset allocation policy review and risk analysis. The analysis included multiple asset allocation approaches targeting a 7.25% return based upon Meketa's asset class assumptions. A key difference between the mixes are a risk tradeoff between volatility and illiquidity. The Board provided feedback for further review that will help guide the final asset allocation recommendation, which is expected to be presented at the October board meeting.

No motion was made.

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4. Second Quarter 2018 Investment Performance Analysis and First Quarter 2018 Private Markets & Real Assets Review

Meketa representatives Leandro Festino, Managing Principal and Roberto Obregon, Vice President Macro Research & Modeling, DPFP's investment consultants, reviewed the fund's performance.

No motion was made.

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5. Portfolio Update

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

No motion was made.

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6. Investment Advisory Committee

The Board discussed the three candidates and confirmed fiduciary status of members of the Investment Advisory Committee.

After discussion, Mr. Youngblood made a motion to appoint McCall Cravens, Scott Dennis, and Scott M. Freeman as members of the Investment Advisory Committee. Mr. Garcia seconded the motion, which was unanimously approved by the Board.

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7. Lone Star Investment Advisors Extension Request and Update

The Lone Star Growth Capital fund term expires in October 2018. The General Partner has requested a one-year extension to the fund term. Staff updated the Board on the situation and recommended that the Board authorize the executive director, as she deemed advisable, to either enter into an extension of up to one year at a fee not to exceed $200,000 annualized on the Lone Star Growth Capital fund to allow the fund to terminate.

After discussion, Mr. Garcia made a motion to authorize the Executive Director, subject to certain conditions being resolved to her satisfaction, to extend the fund term until April 2019 with no fee. Mr. Youngblood seconded the motion, which was unanimously approved by the Board.

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8. 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 approval of settlement in pay lawsuit cases, Eddington et al. v. DPFP et al., Degan et al. v. DPFP et al., USERRA contributions owed by the City of Dallas and potential claims against fiduciaries and other third party advisors including engaging counsel with respect thereto, settlement offers, 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.

The Board went into a closed executive session – legal at 12:04 p.m.

The meeting was reopened at 12:49 p.m.

Ms. Hernandez Patterson made a motion to approve the settlement agreement in the pay lawsuit cases and authorize the Executive Director to execute the settlement agreement. Mr. Nixon seconded the motion, which was unanimously approved by the Board.

Mr. Youngblood made a motion to authorize the Executive Director and General Counsel to engage Reynolds Frizzell LLP to bring any claims, including filing suit, against any entity and individuals involving actuarial services provided to DPFP, that Reynolds Frizzell with the approval of the Executive Director and General Counsel deems appropriate. Mr. Nixon seconded the motion. Mr. Garcia stated that he believed DPFP would be better served by hiring the Buzbee Law Firm who had offered to represent DPFP on a full contingency basis as opposed to Reynolds Frizzell which is requiring DPFP bear up to $500,000 of out of pocket expenses. Mr. Garcia provided the Board with information concerning Mr. Buzbee's accomplishments in gaining good results for his clients, which information is made a part of the minutes. Mr. Quinn stated that staff had talked to a number of firms and believed staff's recommendation was based upon a number of significant factors, cost only being one of them. Mr. Dickens stated that he would like the Board to interview Reynolds Frizzell and The Buzbee Law Firm. After further discussion, the motion passed by the following vote:
For: Youngblood, Nixon, Quinn, Merrick, Friar, Hernandez Patterson, Schutz
Against: Dickens, Rowe, Garcia were all opposed.

Tony Buzbee

Notable cases

2016

- In representing former Texas Governor Rick Perry on an indictment over abuse of power, Buzbee successfully brought the charges to be dismissed after Texas' highest criminal court ordered that they be dropped. The Court of Criminal Appeals also upheld a lower court's ruling dismissing the other charge against Perry. The case against the longest-serving governor in Texas history centered on a threat to veto $7.5 million in state funds for the public integrity unit of the Travis County district attorney's office, and questions about whether he abused his authority — allegations that he had called a "baseless political attack." The unit was charged with investigating and prosecuting state corruption. After Travis County District Attorney Rosemary Lehmberg was arrested and pleaded guilty to driving while intoxicated in 2013, Perry threatened to veto state funding for the integrity unit unless she first resigned. She refused to step down, and Perry vetoed the funding. The Texas Court of Criminal Appeals ruled that courts could not limit veto power and that prosecuting Perry over his action violates "the separation of powers provision of the Texas Constitution" and infringed on his First Amendment right to freedom of speech.[10][11]
- In a case over breaches of fiduciary duty owed to Rafael Ortega, owner of the grocer chain La Michoacana Meat Market, Buzbee secured a nearly $55 million jury verdict. The trial took 3 weeks and concluded with a 49-page jury charge. This was the second trial Buzbee represented Ortega.[12]

2015

- Representing the parents of Jose Flores, who died as a result of a brown recluse spider bite while working aboard a ship, Buzbee sought damages and punitive damages from the ship's operator for negligence as well as claims of unseaworthiness and maintenance and cure benefits under provisions of U.S. General Maritime Law. After a 6-day trial, a jury verdict of $41 million was awarded against the company that operated the ship.[13][14]
- Buzbee filed suit against several companies related to an accident at a Valero refinery in Memphis, TN that killed one man and injured several others. Although most of the defendants in the case opted to settle, the one remaining defendant, Critical Path Resources, was found partially negligent in causing the accident, awarding the plaintiffs in the case a total of $159 million for their mental anguish, pain, disfigurement, impairment and medical expenses.[15]
- In his first case representing Rafael Ortega, owner of the grocer chain La Michoacana Meat Market, Buzbee secured a $35 million jury verdict against multiple defendants violating a non-compete agreement.[16]
- Buzbee represented the family of Garland "Rickie" Kelley, 38, who died after a lithium thionyl chloride battery exploded at a Professional Directional Enterprises, Inc. facility in Montgomery County. According to OSHA records, Kelley was testing a battery used for power drilling tools in oil fields and the battery exploded. After a day of deliberations, the Harris County state court jury awarded $4 million in compensatory damages and $25 million in punitive damages.[17]

2012

- Buzbee filed suit on behalf of ten boys against famed Cadillac Ranch creator and owner Stanley Marsh 3.[18][19] After much media attention and a feature in Texas Monthly,[20] a special prosecutor was appointed and Marsh was arrested. Marsh was later indicted on twelve counts.[21] Less than six months after the cases were filed, Buzbee and Marsh's attorneys announced a settlement.[22] The statement given at the time of settlement read as follows: "The Plaintiffs and the Marsh entities in this case, to include Gwendolyn Marsh as Guardian for Stanley Marsh 3, have resolved all of their differences. None of the Parties is authorized to comment on the nature or amount of the settlement. The Parties agree that Stanley Marsh 3 does not own the Cadillac Ranch. The Parties will have no further comment."[23]
- Buzbee, along with Oakland attorney John Burris, filed suit on behalf of more than ten thousand Richmond, California residents against Chevron for a fire that allegedly sent thousands to the hospital to be treated for smoke inhalation.[24][25][26]

2010/2011

- In 2011 Buzbee was retained by the Friendswood, Texas family of Craig Salerno, who was killed when a modified competition plane crashed into spectators at the Reno Air Races.[27] Buzbee, who represented 18 individuals killed or injured at the incident, later questioned the safety of the air races. Buzbee filed the first Air Races lawsuit in the United States. Buzbee was instrumental in setting up a claims resolution facility currently being administered by Kenneth Feinberg.[28]
- Also that year, former University of Pittsburgh football coach Michael Haywood, retained Buzbee following his dismissal from the position. Buzbee initially requested a university investigation of the firing and then sued, alleging breach of contract, among other claims. The university countersued the coach early in 2012.[29][30]
- In 2010, Buzbee's clients were part of a $190 million settlement involving about 2,400 property owner claims against the Texas Windstorm Insurance Association related to Hurricane Ike which struck the Texas coast in 2008. Buzbee served as class counsel in the case.[31][32]
- Also that year, Buzbee obtained the largest verdict for workplace negligence in Texas--$30 million.

2006

- Buzbee obtained the first verdict, $16.6 million, against Ford Motor Company challenging the stability of the Ford Explorer.[33]

2001

- Buzbee filed an antitrust suit on behalf of a class of offshore workers who claimed that their wages were suppressed. The case settled for $75 million.[34]

Cases against BP

- In 2009, a federal jury in Galveston awarded $100 million to ten Buzbee clients who alleged toxic exposure related to a chemical discharge at the BP Texas City plant. The record verdict later was overturned, and Buzbee said BP had won a "free pass" to commit "gross negligence." This is the largest verdict ever recorded against BP.[35]
- In a related 2010 case, Buzbee filed suit on behalf of residents from Texas City, Texas and LaMarque, Texas related to an emission event that occurred at the same BP Texas City refinery. It has been reported that Buzbee now represents more than 47,000 people in the lawsuit = currently on file in Galveston, Texas.[36][37] Buzbee is the appointed Liaison Counsel.
- Buzbee said clients' settlements related to the 2010 BP Deepwater Horizon rig explosion and oil spill in the Gulf of Mexico exceeded $150 million. Buzbee represented 19 rig workers, the last of whom settled her injury claims 22 months after the accident. In 2011, Buzbee alleged that rig managers were aware of serious problems before the explosion and that Transocean forced rig workers to sign statements before they were rescued. Buzbee questioned company claims about safety test records lost when the rig went down. Buzbee currently represents thousands of claimants, including hotel and resort owners and fishermen, who allege spill-related property damage and lost revenue.[38][39]
- Buzbee represented more than 150 people with personal injury or property damage claims related to the March 2005 explosion at the BP Texas City refinery which killed 15 workers and injured at least 170 others. In October 2006, Buzbee reached agreements to settle 114 BP cases. Days before, Buzbee had sought and received a court ordering the deposition testimony of former BP chairman Lord John Browne. It has been reported that the settlement total exceeded $250 million.

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

No discussion was held, and no motion was made regarding Trustee education and 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 Monitor (August 2018)

b. Staffing Update
c. Audit Update

The Executive Director's report was presented. No motion was made.

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Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Youngblood and a second by Mr. Garcia, the meeting was adjourned at 12:50 p.m.

/s/ William F. Quinn

William F. Quinn
Chairman

ATTEST:

/s/ Kelly Gottschalk

Kelly Gottschalk
Secretary

AGENDA

Date: September 7, 2018

The regular meeting of the Dallas Police and Fire Pension System Board of Trustees will be held at **8:30 a.m. on Thursday, September 13, 2018, 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 August 9, 2018

2. Approval of Refunds of Contributions for the Month of August 2018

3. **Approval of Activity in the Deferred Retirement Option Plan (DROP) for September 2018**

4. **Approval of Estate Settlements**

5. **Approval of Survivor Benefits**

6. **Approval of Service Retirements**

7. **Approval of Alternate Payee Benefits**

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. **January 1, 2018 Actuarial Valuation**

2. **Projected Change in Net Position Bridge Chart**

3. **Asset Allocation**

4. **Second Quarter 2018 Investment Performance Analysis and First Quarter 2018 Private Markets & Real Assets Review**

5. Portfolio Update

6. Investment Advisory Committee

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.074 of the Texas Government Code.

7. Lone Star Investment Advisors Extension Request and Update

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.

8. 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 approval of settlement in pay lawsuit cases, Eddington et al. v. DPFP et al., Degan et al. v. DPFP et al., USERRA contributions owed by the City of Dallas and potential claims against fiduciaries and other third party advisors including engaging counsel with respect thereto, settlement offers, 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.

9. Board approval of Trustee education and travel

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

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 (August 2018)

b. Staffing Update
c. Audit Update

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.

DALLAS POLICE & FIRE PENSION SYSTEM

ITEM #A

MOMENT OF SILENCE

In memory of our Members and Pensioners who recently passed away

(July 26, 2018 – September 1, 2018)

NAME	ACTIVE/ RETIRED	DEPARTMENT	DATE OF DEATH
John T. Waterson	Retired	Police	Jul. 26, 2018
Kelvin D. Baker	Retired	Fire	Aug. 3, 2018
James C. Bowles	Retired	Police	Aug. 11, 2018
J. E. Tuma	Retired	Fire	Aug. 14, 2018
Dicky M. Hickman	Retired	Police	Aug. 16, 2018
Robert J. McGovern	Retired	Police	Aug 19, 2018
Robert L. Maxam	Retired	Police	Aug. 20, 2018
Gwendolyn Sargent	Retired	Police	Aug. 21, 2018
James R. Hall	Retired	Fire	Sept. 1, 2018

Regular Board Meeting – Thursday, September 13, 2018

Dallas Police and Fire Pension System
Thursday, August 9, 2018
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, Nicholas A. Merrick, Samuel L. Friar, Gilbert A. Garcia, Tina Hernandez Patterson, Robert C. Walters, Joseph P. Schutz, Kneeland Youngblood (by phone)
Present at 8:36 a.m.	Frederick E. Rowe
Present at 8:40 a.m.	Blaine Dickens
Absent:	Ray Nixon
Staff	Kelly Gottschalk, Josh Mond, Kent F. Custer, Brenda K. Barnes, John Holt, Damion Hervey, Cynthia Thomas, Ryan Wagner, Milissa Romero, Greg Irlbeck, Carol Huffman
Others	Chuck Campbell (by phone), Leandro Festino, Alexandra Wallace. Aaron Lally, Arthur Hollingsworth, Eric Juers, Rick Salinas, Daniel Wojcik, A.G. Tarves, Zaman Hemani

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

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A. WELCOME CHIEF FINANCIAL OFFICER

The Board welcomed Brenda K. Barnes, Chief Financial Officer.

No motion was made.

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Regular Board Meeting
Thursday, August 9, 2018

B. MOMENT OF SILENCE

The Board observed a moment of silence in memory of active police officers Tyrone D. Andrews, Earl J. Givens, III, retired police officers Richard L. Benton, Lawrence E. Sellers, and retired firefighters Kenneth L. Parker, Dennis E. Page.

No motion was made.

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C. CONSENT AGENDA

1. **Approval of Minutes**

   Regular meeting of July 12, 2018

2. **Approval of Refunds of Contributions for the Month of July 2018**

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 DROP Revocation Contributions**

After discussion, Mr. Garcia made a motion to approve the minutes of the meeting of July 12, 2018. Ms. Hernandez Patterson seconded the motion, which was unanimously approved by the Board.

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

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Regular Board Meeting
Thursday, August 9, 2018

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. Meketa: Initial Fund Review

Meketa representatives Leandro Festino, Managing Principal, Alexandra Wallace, Principal, and Aaron Lally, Executive Vice President, provided the results of their initial fund review. Major topics of this review included Investment Philosophy, Governance, Asset Allocation, and Operations. Action items were identified to address areas of potential improvement and prioritized based on the expected implementation timeframe.

No motion was made.

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2. Lone Star Investment Advisors Extension Request and Update

The Lone Star Growth Capital fund term expires in October 2018. The General Partner has requested a one-year extension to the fund term. Staff briefed the Board on a recommended course of action regarding the extension, as well as provided an update on two other funds managed by Lone Star Investment Advisors.

Arthur Hollingsworth, Managing Partner of Lone Star Investment Advisors responded to questions from the Board.

No motion was made.

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3. Securities Lending Investment Guidelines

As part of the DPFP securities lending review, staff examined the cash collateral investment guidelines, which were last updated in 2002. Staff compared DPFP guidelines to the JPMorgan securities lending cash collateral money market fund and the JPMorgan standard collateral pool investment guidelines.

After discussion, Ms. Hernandez Patterson made a motion to approve the proposed changes to the collateral investment guidelines and authorize the Executive Director to execute documentation and perform all necessary acts and exercise all appropriate discretion to facilitate these changes. Mr. Garcia seconded the motion, which was unanimously approved by the Board. Mr. Walters was not present for the vote.

Regular Board Meeting
Thursday, August 9, 2018

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4. Investment Advisory Committee

The Board discussed the fiduciary status of members of the Investment Advisory Committee.

No motion was made.

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5. Portfolio Update

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

No motion was made.

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6. 2018 Mid-Year Budget Review

The Chief Financial Officer discussed the 2018 Operating Expense Budget detailing expenses for the first six months of the calendar year.

No motion was made.

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7. Second Quarter 2018 Financial Statements

The Chief Financial Officer presented the second quarter 2018 financial statements.

No motion was made.

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Regular Board Meeting
Thursday, August 9, 2018

8. **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 Eddington et al. v. DPFP et al., Degan et al. v. DPFP et al., Dan Lowe v. Michael Ebert et al. and potential claims against fiduciaries and other third party advisors, settlement offers, 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.**

   The Board went into a closed executive session – legal at 11:57 a.m.

   The meeting was reopened at 12:46 p.m.

   No motion was made.

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Mr. Walters left the meeting at 12:36 p.m.

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9. **Closed Session - Board serving as Medical Committee**

   Disability recall

   The Board went into a closed executive session – medical at 11:43 a.m.

   The meeting was reopened at 11:50 p.m.

   After discussion, Ms. Hernandez Patterson made a motion to approve continuance of this On-duty disability, Combined Pension Plan, Group B disability benefit with no further recalls. Mr. Garcia seconded the motion, which was unanimously approved by the Board.

* * * * * * * *

Regular Board Meeting
Thursday, August 9, 2018

10. Benefit Overpayment

The Board went into a closed executive session – legal at 11:57 a.m.

The meeting was reopened at 12:46 p.m.

Staff briefed the Board on a benefits overpayment situation related to one member.

No motion was made.

* * * * * * * *

11. Board approval of Trustee education and travel

No discussion was held, and no motion was made regarding Trustee education and travel.

* * * * * * * *

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.

* * * * * * * *

2. Executive Director's report

a. Associations' newsletters
- NCPERS PERSist (Summer 2018)

b. Employee Service Awards
c. Financial Audit Update

The Executive Director's report was presented. No motion was made.

* * * * * * * *

Regular Board Meeting
Thursday, August 9, 2018

Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Garcia and a second by Mr. Schutz, the meeting was adjourned at 12:50 p.m.

____
William F. Quinn
Chairman

ATTEST:

____
Kelly Gottschalk
Secretary

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C1

Topic: **January 1, 2018 Actuarial Valuation**

Attendees: Deborah Brigham, Senior Vice President and Consulting Actuary, Segal Consulting
Jeff Williams, Vice President and Consulting Actuary, Segal Consulting

Discussion: Deborah Brigham and Jeff Williams of Segal Consulting, DPFP's actuarial firm, will be present to discuss results of the January 1, 2018 actuarial valuation report, including the GASB No. 67 actuarial valuation.

Staff Recommendation: **Approve** issuance of the January 1, 2018 actuarial valuation report, subject to final review and approval by the Executive Director.

ANNUAL VALUATION SUMMARY AS OF JANUARY 1, 2018

Board of Trustees Meeting

September 13, 2018

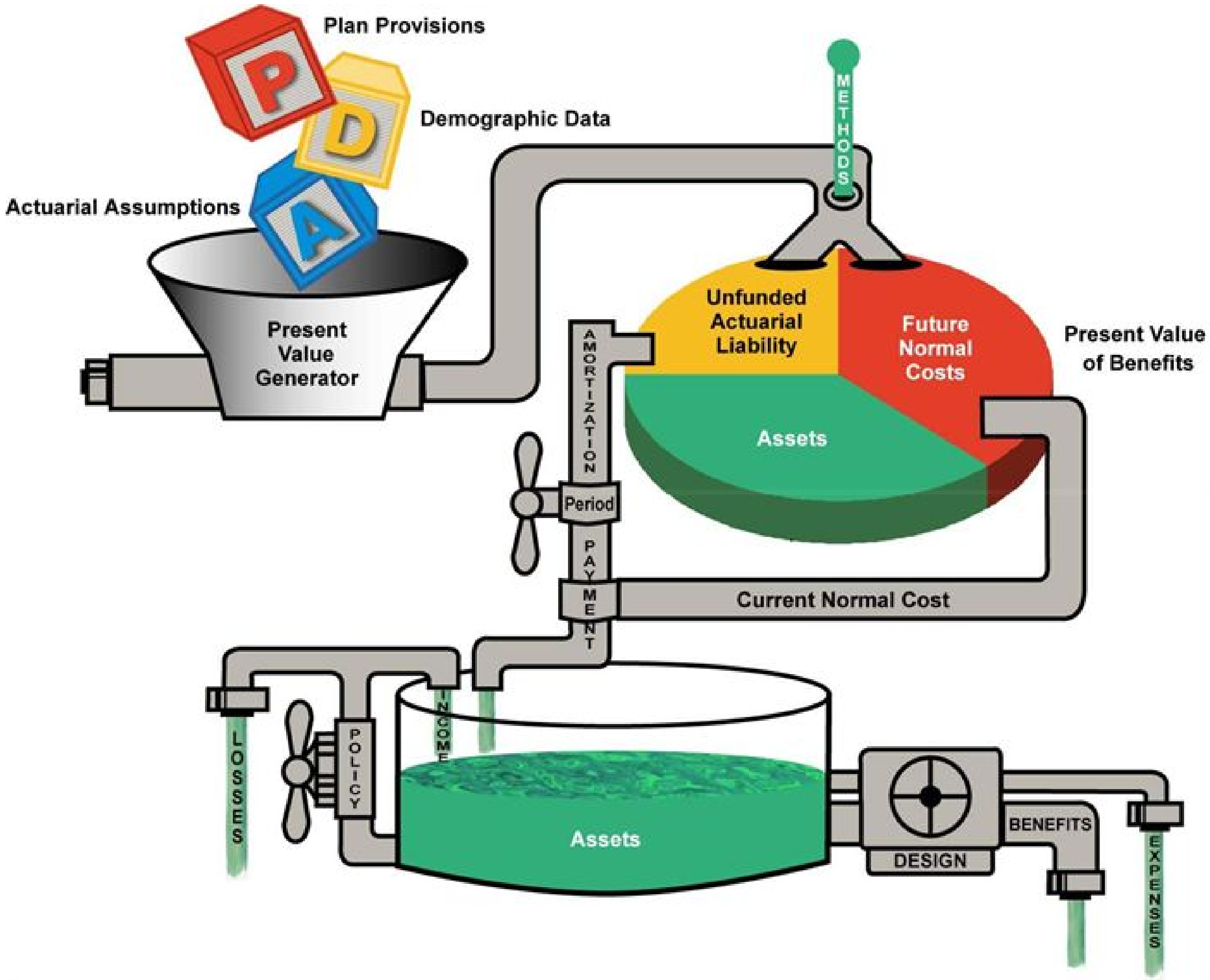
Dallas Police and Fire Pension System

Segal Consulting

Agenda

1. Portrait of a Pension Valuation
2. Summary of January 1, 2018 Actuarial Valuation Results
3. Summary of Data
4. Historical Results
5. Solvency Projection
6. Importance of Accurate Payroll Projections
7. GASB Accounting Disclosures
8. Supplemental Plan Results

Portrait of a Pension Valuation



COMBINED PLAN RESULTS

Summary of 2018 Actuarial Valuation Results

- The plan changes implemented by HB 3158, which was passed on May 31, 2017, are now fully recognized in the System's actuarial results.
  - The valuation includes the impact of participants who were allowed to revoke their DROP between Sept. 1, 2017 and Feb. 28, 2018
- The following assumption changes are included in this valuation:
  - Interest rate assumption on DROP balances as of Sept. 1, 2017 for future retirees is increased from 2.75% to 3.00%
  - Ad-hoc COLA now assumed to begin Oct. 1, 2053; last year it was assumed to begin Oct. 1, 2049
  - Administrative expense assumption was lowered from $10 million to $8.5 million
- Actuarially determined employer contribution (ADEC) based on a 30-year amortization of the System's unfunded actuarial accrued liability, in accordance with Texas Code Section 802.101
  - Actual City contributions expected to be less than the ADEC
  - Unfunded liability is projected to be paid off in 45 years, based on City's Hiring Plan payroll projections

Summary of 2018 Actuarial Valuation Results

- City's ADEC for 2018 is $157.1 million (45.40% of computation pay)
  - Decrease from $168.9 million (47.25% of pay) in 2017, because the members are paying more than last year (now 13.50% of pay)
  - Actual City contribution for 2018 expected to be $151.9 million ($5.344 million for 26 pay periods, plus $13 million)
- Actuarial value of assets remained level at $2.2 billion from last year to this year; market value declined by about $46 million
  - Assumed rate of return is 7.25%
  - Actual market return was 4.74%
  - Actuarial return was 6.63%
  - Actuarial value is 102.3% of market on the valuation date

- The funded ratio decreased from 2017 to 2018:
  - From 49.4% to 47.7% on an actuarial basis
  - From 49.2% to 46.7% on a market basis
  - Ratio is projected to decrease further before beginning to rise

Summary of 2018 Actuarial Valuation Results

- Reconciliation of the City's ADEC (30-year amortization), shown below:
  - 2017 ADEC — **$168.9M**, or **47.25%** of pay
  - 2018 ADEC, prior to any changes — **$173.2M,** or **50.04%** of pay
  - 2018 ADEC, reflecting 13.50% member contrib. rate for full year — **$158.3M**, or **45.76%** of pay
  - 2018 ADEC, after DROP revocations — **$160.0M**, or **46.23%** of pay
  - 2018 ADEC, after assumption changes — **$157.1M**, or **45.40%** of pay

Note: Pay shown is computation pay, as provided in the System's valuation data

Summary of 2018 Actuarial Valuation Results

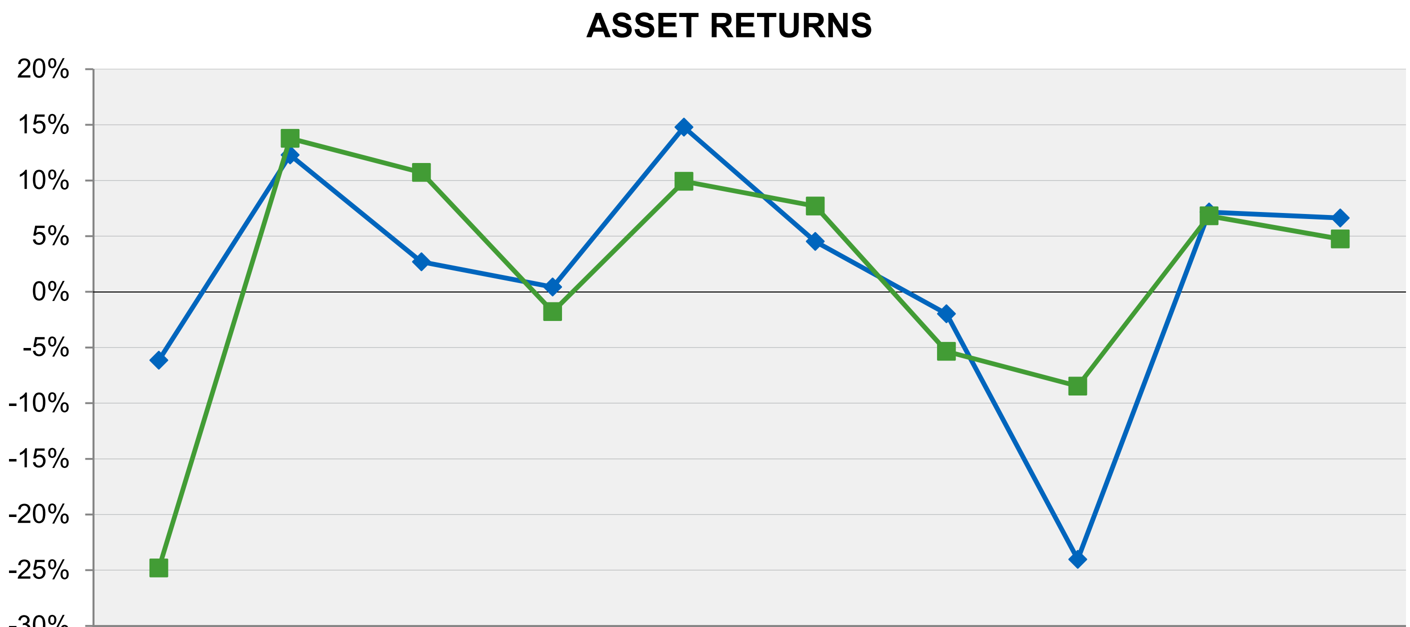
	As of 1/1/2018	As of 1/1/2017
Total Normal Cost, Including Administrative Expenses	$61,892,453	$68,422,682
Expected Member Contributions	-46,714,953	-33,475,626
Employer Normal Cost	$15,177,500	$34,947,056
Total Normal Cost as a % of Computation Pay	17.89%	19.14%
Employer Normal Cost as a % of Computation Pay	4.39%	9.78%
Actuarial Accrued Liability	$4,505,437,185	$4,367,180,454
Actuarial Value of Assets	-2,151,039,343	-2,157,799,730
Unfunded Liability	$2,354,397,842	$2,209,380,724
Funded Ratio	47.74%	49.41%
Computation Payroll	$346,036,690	$357,414,472
Actuarially Determined Employer Contribution, in dollars	**$157,100,128**	**$168,865,484**
Actuarially Determined Employer Contribution, as a percentage of computation pay	**45.40%**	**47.25%**
100% Projected Funded Status Year, based on City's Hiring Plan Payroll	**2063**	**2061**

Summary of Data

	Years Ended December 31,		
	2017	**2016**	**Change**
Active Members			
Number	4,952	5,104	-152 members
Average Age	40.6	41.4	-0.8 years
Average Service	13.4	14.3	-0.9 years
Average Computation Pay	$69,878	$70,026	-0.2%
Number in DROP	626	1,102	-476 members
Total DROP Accounts	$241.4M	$356.4M	-$115.0M
Retirees and Beneficiaries			
Number[1]	4,748	4,456	+292 members
Average Monthly Payment[2]	$4,171	$4,102	+1.7%
Terminated Vested Members			
Number	226	215	+11 members

[1]Includes beneficiaries with DROP accounts only
[2]Includes benefit supplement

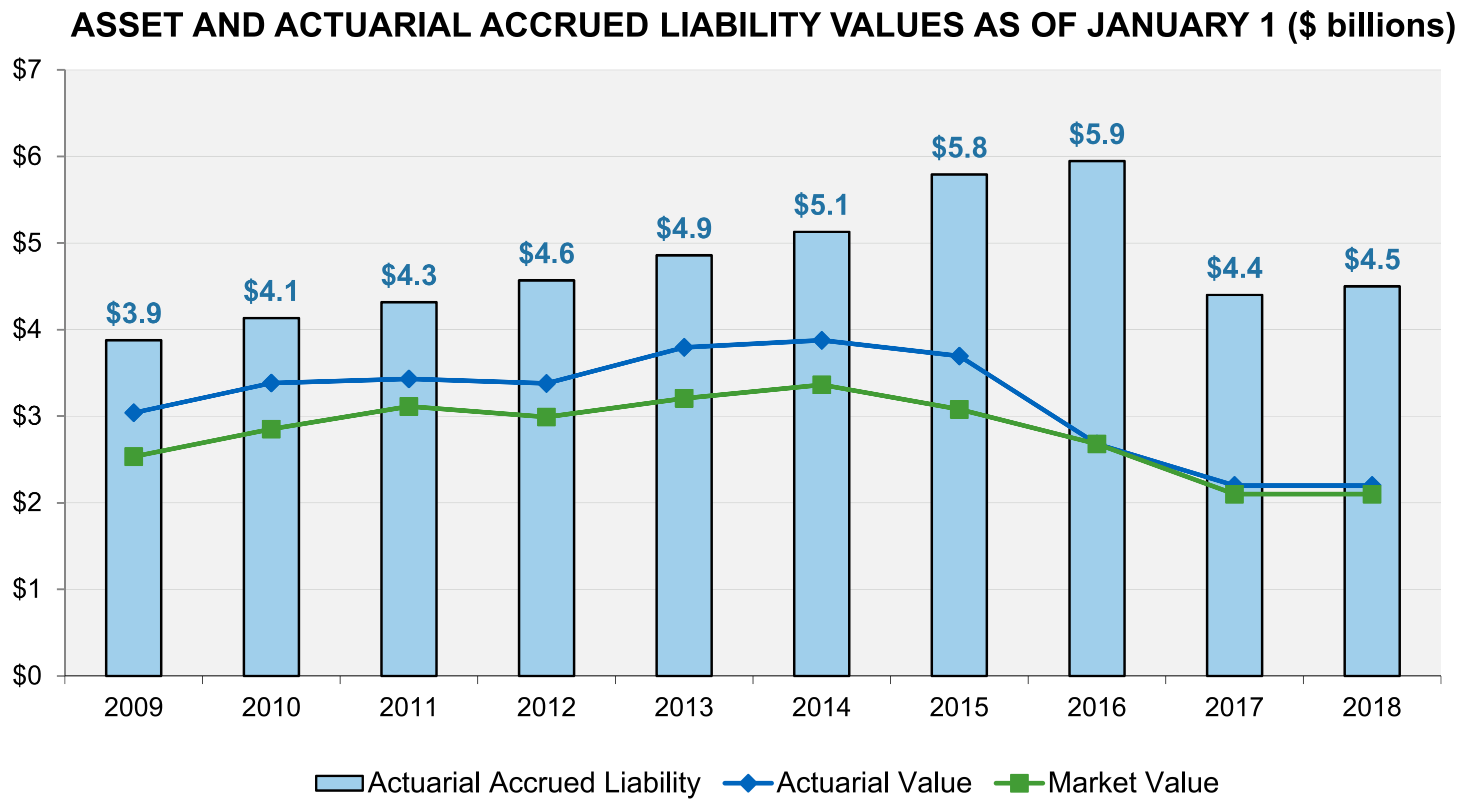
Historical Results



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Actuarial Value	-6.14%	12.29%	2.69%	0.43%	14.79%	4.52%	-1.98%	-24.03%	7.16%	6.63%
Market Value	-24.80%	13.78%	10.72%	-1.78%	9.92%	7.70%	-5.35%	-8.47%	6.82%	4.74%

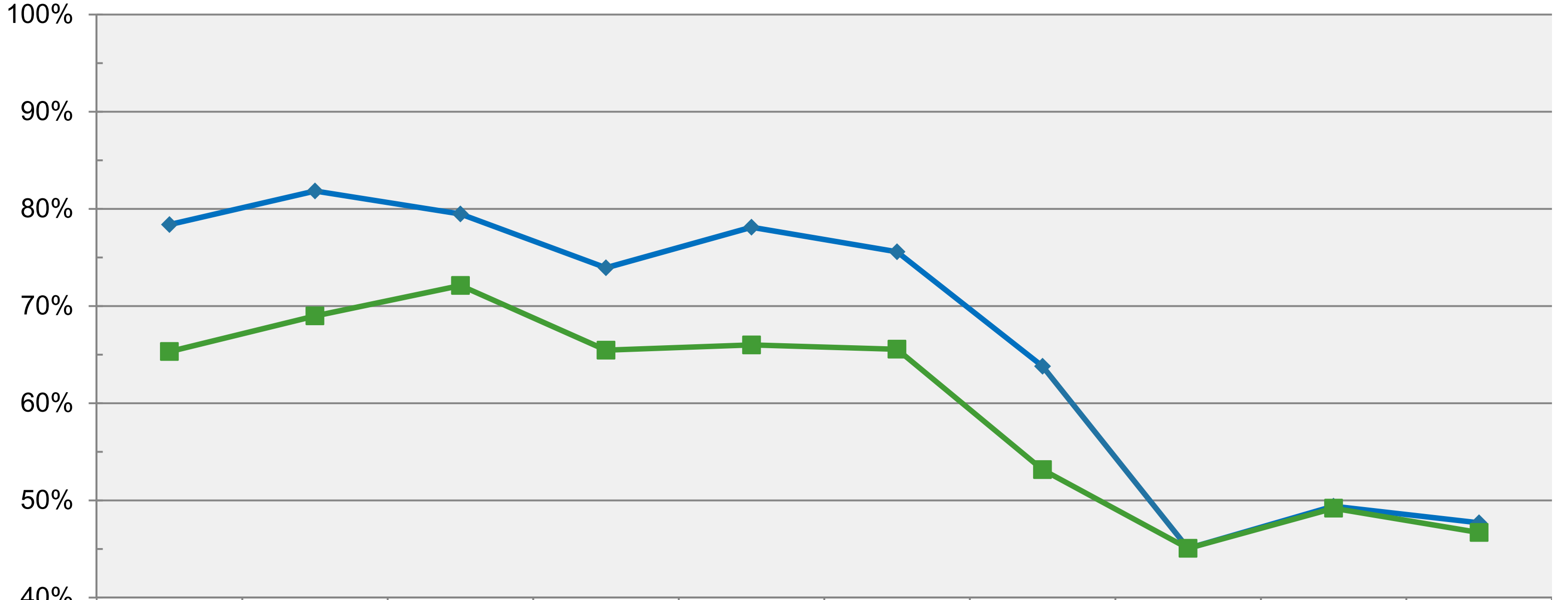
<u>Note</u>: The actuarial returns for 2012 and 2015 include the effects of changes in asset method

Historical Results



Historical Results

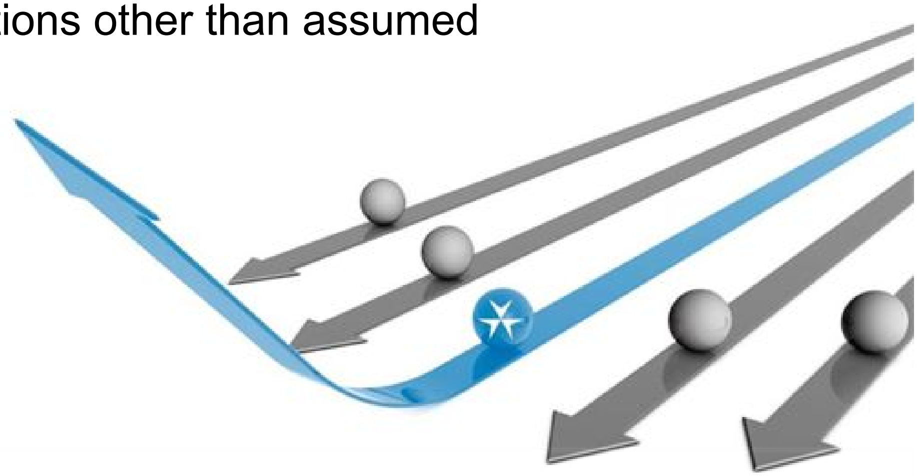
FUNDED PERCENTAGE AS OF JANUARY 1



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
AVA	78.4%	81.8%	79.5%	73.9%	78.1%	75.6%	63.8%	45.1%	49.4%	47.7%
MVA	65.3%	69.0%	72.1%	65.5%	66.0%	65.6%	53.2%	45.1%	49.2%	46.7%

The Importance of Accurate Payroll Projections

- Segal Consulting ("Segal") strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability.
- Payments should be enough to cover normal cost, interest on the unfunded actuarial accrued liability and, ultimately, the principal balance.
- The funding policy adopted by the State in HB 3158 meets this standard, **<u>if</u>** the City's Hiring Plan payroll projections come to fruition.
- Assuming the City's Hiring Plan payroll projection is met, the expected full-funding date is 2063.
  - Full-funding date may vary on an annual basis due to demographic experience, economic experience, and contributions other than assumed



The Importance of Accurate Payroll Projections, contd.

- Through the first two years of the policy (2017 and 2018), valuation payroll based on participant data is cumulatively $32.5 million less than the City's projections
- City's long-term contribution rate is scheduled to be 34.50% of computation pay
  - Through 2024 there is a floor on the City's contribution levels
  - Beginning in 2025, City expected to contribute based solely on pay
  - City's plan reflects significant growth in payroll over 20 years, from $372 million in 2017 to $684 million in 2037 (average annual growth of 3.1%)
  - Differences between actual payroll and City's Hiring Plan payroll will have an impact on when the System is projected to become fully funded
  - If payroll growth is more modest, or if there is adverse experience in the System that leads to losses, the period required to achieve 100% funding could be significantly longer.
  - **If the City's Hiring Plan projections are not met and instead the current valuation payroll of $346.0 million increases by the assumed payroll growth of 2.75% each year ongoing, and if City and member contributions are based on this projected payroll beginning in 2025, the System is projected to be only 33% funded in 2063, rather than 100%.**

City's Hiring Plan Payroll vs. Projected Valuation Payroll

Year	City's Hiring Plan Payroll	Projected Valuation Payroll	$ Difference
2017	$372,000,000	$357,414,472	-$14,585,528
2018	364,000,000	346,036,690	-17,963,310
2019	383,000,000	355,552,699	-27,447,301
2020	396,000,000	365,330,398	-30,669,602
2021	408,000,000	375,376,984	-32,623,016
2022	422,000,000	385,699,851	-36,300,149
2023	438,000,000	396,306,597	-41,693,403
2024	454,000,000	407,205,029	-46,794,971
2025	471,000,000	418,403,167	-52,596,833
2026	488,000,000	429,909,254	-58,090,746
2027	507,000,000	441,731,758	-65,268,242
2028	525,000,000	453,879,382	-71,120,618
2029	545,000,000	466,361,065	-78,638,935
2030	565,000,000	479,185,994	-85,814,006
2031	581,000,000	492,363,609	-88,636,391
2032	597,000,000	505,903,608	-91,096,392
2033	614,000,000	519,815,957	-94,184,043
2034	631,000,000	534,110,896	-96,889,104
2035	648,000,000	548,798,946	-99,201,054
2036	666,000,000	563,890,917	-102,109,083
2037	684,000,000	579,397,917	-104,602,083
			-$1,336,324,810

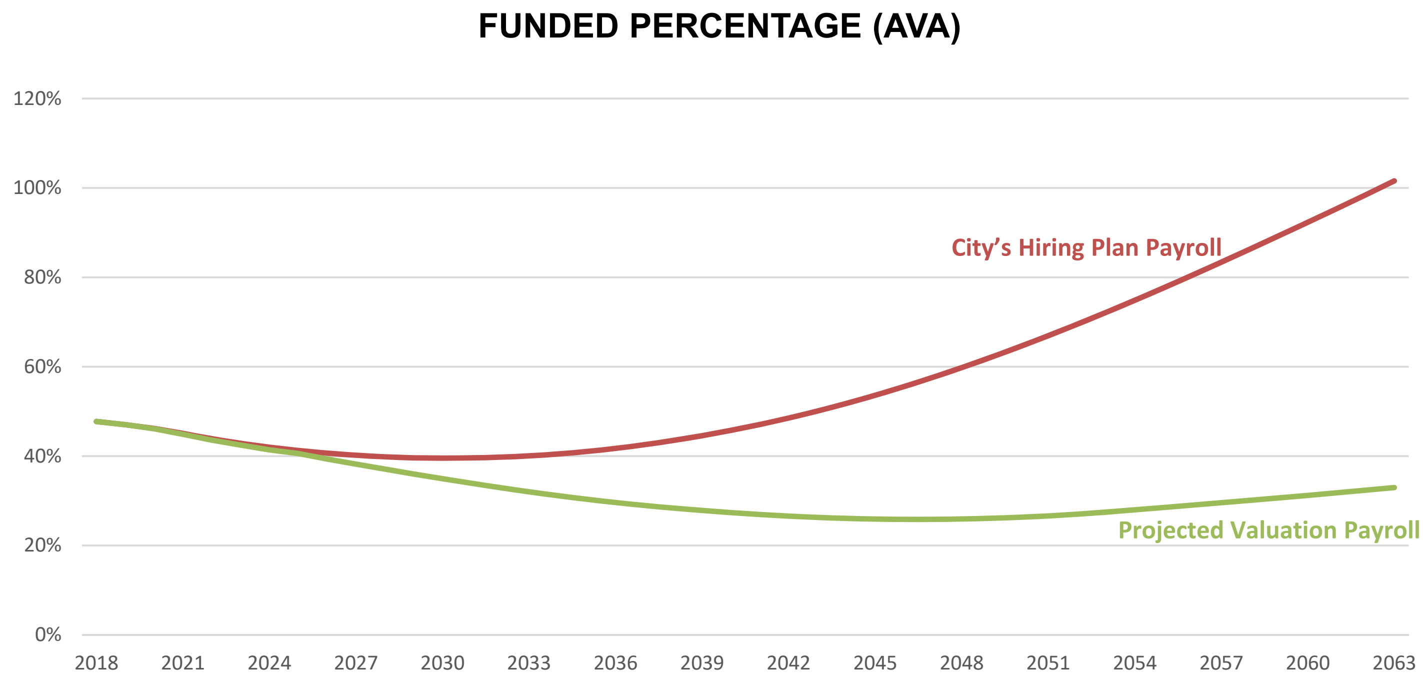
Assumptions:

- Valuation payroll projected at 2.75% per year
- Beginning in 2025, the statutory contributions cease and City contributions equal 34.5% of actual computation pay
- Member contributions: 13.5% of computation pay

Findings:

- Total City and Member contributions between 2025 and 2037, based on the City's Hiring Plan payroll projections: **$3.611 Billion**
- Total City and Member contributions between 2025 and 2037, based on projected valuation payroll: **$3.088 Billion**
- Difference in total contributions based on these two projections, just for the period of 2025 through 2037: **$523 Million**

Funded Percentage Projection



The projection above anticipates that all actuarial assumptions are met in the future and all contributions are made as expected. Projections are based on the City's Hiring Plan payroll projections through 2037 for the "City's Hiring Plan Payroll" projection. The "Projected Valuation Payroll" uses the actual January 1, 2018 payroll projected forward each year at the 2.75% growth assumption.

Based on the City's Hiring Plan payroll projections, 100% funding is projected by January 1, 2063. Based on the projected valuation payroll, the funded percent is projected to be 33% on January 1, 2063.

GASB 67 Accounting Disclosures – Net Pension Liability

- The Pension System is required to provide disclosures under GASB Statement 67. The components of the net pension liability are as follows:

	Year Ended December 31, 2017	Year Ended December 31, 2016
Total Pension Liability	$4.50 billion	$8.45 billion
Plan Fiduciary Net Position	$2.10 billion	$2.15 billion
City's Net Pension Liability	$2.40 billion	$6.30 billion
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	46.77%	25.45%

- Total Pension Liability as of December 31, 2017 includes the plan changes effective September 1, 2017, but does not include the DROP revocations between September 1, 2017 and February 28, 2018.
- In the event that a pension plan has a projected insolvency date, GASB requires that the unfunded benefits be discounted using a 20-year, tax-exempt general obligation bonds rate rather than the Plan's funding rate.
- Based on HB 3158 contribution requirements and the City's Hiring Plan (90% of which was used for projecting computation pay for GASB purposes), City and member contributions are projected be able to pay the benefits of current members. Therefore, GASB liabilities as of December 31, 2017 are determined using the valuation discount rate of 7.25%. (The rate was 4.12% as of December 31, 2016).

SUPPLEMENTAL PLAN RESULTS

Segal Consulting 18

Supplemental Plan Results

- City of Dallas contributes to the Supplemental Plan each year based on the normal cost (net of member contributions) and a ten-year amortization of the unfunded actuarial accrued liability
- Same assumption changes implemented for the Combined Pension Plan apply to the Supplemental Plan, with the exception of administrative expenses
- Total recommended contribution for the Supplemental Plan increased from $2.13 million in 2017 to $2.41 million in 2018
  - City's portion increased from $2.09 million to $2.27 million
- Supplemental Plan net assets increased from $17.7 million to $17.8 million
- Funded ratio decreased from 52.9% to 51.5%
- Number of active members decreased from 47 to 44
- Number of annuitants increased from 128 to 140
- GASB net pension liability (NPL) is determined using the valuation discount rate of 7.25%, up from the blended rate of 7.10% last year
  - NPL decreased from $23.0 million last year to $15.9 million

Caveats

- This presentation is intended for the use of the Board of Trustees for the Dallas Police and Fire Pension System, and is a supplement to Segal Consulting's full valuation reports for the System as of January 1, 2018.
- Please refer to the full valuation reports for a description of assumptions and plan provisions reflected in the results shown in this presentation. The reports also include more comprehensive information regarding the System's membership, assets, and experience during the most recent plan year.
- Projections, by their nature, are not a guarantee of future results. They are intended to serve as estimates of future financial outcomes that are based on assumptions about future experience and the information available to us at the time the modeling is undertaken and completed. The projected future results included in this presentation show how the System would be affected if specific investment return, salary, mortality, turnover, disability and retirement assumptions are met. Actual results may differ due to such variables as demographic experience, the economy, contribution patterns, stock market performance and the regulatory environment.
- The calculations included in this presentation were completed under the supervision of Jeffrey S. Williams, FCA, ASA, MAAA, EA, and Deborah K. Brigham, FCA, ASA, MAAA, EA.

Questions?

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Dallas Police and Fire Pension System

Actuarial Valuation and Review as of January 1, 2018

This report has been prepared at the request of the Board of Trustees to assist in administering the System. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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T 678.306.3100 www.segalco.com

September 10, 2018

Board of Trustees
Dallas Police and Fire Pension System
4100 Harry Hines Blvd., Suite 100
Dallas, TX 75219-3207

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of January 1, 2018. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the actuarially determined funding requirements for fiscal 2018; actual funding is determined by State law.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement System. The census information on which our calculations were based was prepared by the System's IT department, under the supervision of John Holt, and the financial information was provided by the System's Finance Department. That assistance is gratefully acknowledged.

The actuarial calculations were directed under our supervision. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the System with the presumption that appropriate action is taken to address the System's funding issues.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Jeffrey S. Williams, FCA, ASA, MAAA, EA
Vice President and Consulting Actuary

Deborah K. Brigham

Deborah K. Brigham, FCA, ASA, MAAA, EA
Senior Vice President and Consulting Actuary

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Section 1: Actuarial Valuation Summary

Purpose and Basis

This report was prepared by Segal Consulting to present a valuation of the Dallas Police and Fire Pension System as of January 1, 2018. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to provide information for required disclosures under Governmental Accounting Standards Board (GASB) Statement No. 67. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: 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; and changes in plan provisions or applicable law.

Certain disclosure information required by GASB Statement No. 68 as of September 30, 2018 for the City will be provided in a separate report.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension System, as administered by the Board;
- The characteristics of covered active members, inactive vested members and inactive members due a refund of contributions, and retired members and beneficiaries as of December 31, 2017, provided by the System's IT Department;
- The unaudited assets of the Plan as of December 31, 2017, provided by the System's Finance Department;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. and
- The requirements of House Bill 3158 (HB 3158), signed into law by the Governor of Texas on May 31, 2017.

The majority of the assumptions and methods used to value the Plan were set by the Board based on recommendations made by Segal Consulting following a five-year experience study for the period ended December 31, 2014. Additional assumption changes were made as part of the plan changes effective September 1, 2017, as well as the Meet and Confer Agreement for salary scale purposes through 2019. Assumptions are reviewed and updated annually as needed.

Significant Issues

1. Segal Consulting ("Segal") strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance. The funding policy adopted by the State in HB 3158 meets this standard, if the City's Hiring Plan payroll projections come to fruition. Assuming the City's Hiring Plan payroll projection materializes, the expected full-funding date is 2063 (last year's projected date was 2061). The City's Hiring Plan payroll projections are shown in Exhibit I of Section 4 of this report. Through the first two years of the policy (2017 and 2018), valuation payroll based on participant data is cumulatively $32.5 million less than the City's projections. This is an area of concern that needs to be carefully monitored.
2. The total contributions made during the plan year ending December 31, 2017 were insufficient to reduce the unfunded actuarial accrued liability. The unfunded actuarial accrued liability on the valuation date is $2.35 billion, which is an increase of $0.15 billion since the prior valuation. This increase is not unexpected, although the increase is greater than had been expected; based on the 2017 valuation, the unfunded actuarial accrued liability had been projected to be $2.30 billion as of January 1, 2018. The Board was advised last year that, because the funding policy contributions result in a long effective amortization period, it could be 20 years before the unfunded liability starts to decline and the funded ratio (the ratio of assets to actuarial accrued liability) begins to rise.
3. The funded ratio on an actuarial basis is 47.7%, compared to the prior year funded ratio of 49.4%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets the funded ratio is 46.7%, compared to 49.2% as of the prior valuation date. Based on the 2017 valuation, the funded ratio had been projected to be 48.4% on an actuarial value basis and 47.3% on a market value basis.
4. The projected year of full funding is 2063, but this may vary on an annual basis due to demographic experience, economic experience, and contributions other than assumed. Through 2024 there is a floor on the City's contribution levels, which is expected to override the long-term contribution rate of 34.50% of computation pay. Beginning in 2025, when the City is expected to contribute based solely on computation pay, differences between actual payroll and the City's Hiring Plan payroll will have an impact on when the System is projected to become fully funded. The City's plan reflects significant growth in payroll over 20 years, from $372 million in 2017 to $684 million in 2037. The average annual growth in the City's payroll projections is 3.09%, compared to the valuation assumption of 2.75%. If payroll growth is more modest, or if there is adverse experience in the System that leads to losses, the period required to achieve 100% funding could be significantly longer.
5. If the City's Hiring Plan projections are not met and instead the current valuation payroll of $346.0 million increases by the assumed payroll growth of 2.75% each year ongoing, and if City and member contributions are based on this projected payroll beginning in 2025, the System is projected to be only 33% funded in 2063, rather than 100% funded.

6. Although it is important for the System to meet its 7.25% rate of return assumption on an annual basis, the assets currently cover a relatively low percentage of the liabilities and investment returns alone cannot close the funding gap. It is therefore also vital that Dallas' payroll projections are accurate, or that the long-term level of contributions is at least 34.50% of those payroll projections, if the System is ever to achieve full funding.
7. Texas Code Section 802.101 requires the actuarial valuations of public retirement systems to include a recommended contribution rate based on an amortization period that does not exceed 30 years. The City's actuarially determined contribution for the 2018 plan year, based on a 30-year amortization of the unfunded actuarial accrued liability, is $157.1 million, a decrease of $11.8 million from last year. The contribution as a percentage of payroll decreased from 47.25% of computation pay to 45.40% of computation pay. This decrease is the result of increased member contributions effective September 1, 2017.
8. Actual contributions made by the City during the plan year ended December 31, 2017 were $126.3 million, 74.8% of the actuarially determined contribution. In 2016, prior to plan changes under HB 3158, actual contributions were $119.4 million, 45.6% of that year's actuarially determined contribution.
9. The System's normal cost plus expenses total 17.89% of computation pay, and members contribute 13.50% of computation pay. The City's contributions cover the balance; all remaining funding from the City is allocated toward the unfunded actuarial accrued liability.
10. There was a net experience loss for the year of $64.7 million, or 1.4% of actuarial accrued liability. The majority of this loss resulted from a greater number of retirements than anticipated by the actuarial assumptions, and investment returns less than the 7.25% assumption. The magnitude of the loss as a percentage of total plan liability is not considered significant for actuarial purposes.
11. The rate of return on the market value of assets was 4.74% for the 2017 plan year. This return was on target with short-term expectations as the System works to rebalance its investment portfolio, but was roughly one-third of that of other large municipal retirement systems in Texas. As shown in Exhibit E of Section 3 of this report, the System reduced the percentage of the invested portfolio exposed to real assets from 58% to 40% over the last year. The reduction of the invested portfolio exposed to real assets and the deployment of excess cash roughly tripled the equity exposure, to 24% of the total holdings. The return on the actuarial value of assets was 6.63% for 2017. The 6.63% actuarial return resulted in a loss when measured against the assumed rate of return of 7.25%, and this actuarial investment loss increased the average employer contribution rate by 0.22% of pay. Based on the System's investment targets, Segal continues to support 7.25% as a reasonable long-term net investment return assumption. However, we will continue to monitor actual and anticipated returns.
12. The following actuarial assumptions were changed with this valuation:
    - The interest rate assumption payable upon retirement on DROP accounts as of September 1, 2017 was increased from 2.75% to 3.00%.
    - The ad-hoc COLA assumption was updated to begin October 1, 2053 based on the updated projection of the unfunded actuarial accrued liability; last year's assumption was that the COLA would begin October 1, 2049.
    - The administrative expense assumption was decreased from $10,000,000 to $8,500,000.

As a result of these assumption changes, the total normal cost decreased by $0.8 million and the actuarial accrued liability decreased by $8.8 million. The total impact was a decrease in the actuarially determined contribution of $1.4 million, or 0.39% of payroll.

13. Active members who elected DROP prior to June 1, 2017 were eligible to revoke the DROP election during the period from September 1, 2017 to February 28, 2018. This plan change is included for the first time in this valuation, and it resulted in a normal cost increase of $0.6 million and an increase in actuarial accrued liability of $20.6 million. The total impact was an increase in the actuarially determined contribution of $1.6 million, or 0.47% of payroll.
14. This actuarial report as of January 1, 2018 is based on financial and demographic data as of December 31, 2017, plus the impact of DROP revocations that occurred between January 1, 2018 and February 28, 2018. Subsequent changes are not reflected and will affect future actuarial costs of the plan.
15. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined employer contribution (ADEC) under the Plan's funding policy. The information contained in Section 5 provides the accounting information for Governmental Accounting Standards Board (GASB) Statement No. 67, for inclusion in the plan and employer's financial statements as of December 31, 2017. The Net Pension Liability (NPL) and Pension Expense under Governmental Accounting Standards Board (GASB) Statement No. 68, for inclusion in the plan and employer's financial statements as of September 30, 2018, will be provided separately.
16. The Net Pension Liability (NPL) is equal to the difference between the Total Pension Liability (TPL) and the Plan's fiduciary net position (equal to the market value of assets). The NPL as of December 31, 2017 is $2.4 billion, a decrease from $6.3 billion as of December 31, 2016. Most of this $3.9 billion decrease is the result of: (1) the reflection of the plan changes under HB 3158, and (2) a higher discount rate used to value the TPL. Because the City and member contributions are now projected to be sufficient to cover the future benefit payments of current plan members, the long-term expected funding rate of 7.25% is used for the December 31, 2017 disclosure. Last year's discount rate was 4.12%.
17. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. In addition to those described above, we have included a discussion of various risks that may affect the System in Section 2 on page 28.

Summary of Key Valuation Results

		2018	2017
Contributions for plan year beginning January 1, adjusted for timing:	• Total actuarially determined contribution (City and member)	$205,478,870	$203,533,370
	• Expected member contributions	48,378,742	34,667,886
	• City's actuarially determined contribution (ADEC)	157,100,128	168,865,484
	• City's ADEC as a percentage of computation pay	45.40%	47.25%
	• Actual City contributions	- -	126,318,005
	• Amortization period for determination of ADEC	30 years	30 years
Actuarial accrued liability for plan year beginning January 1:	• Retired members and beneficiaries	$2,989,814,931	$2,707,966,011
	• Inactive vested participants	27,386,552	25,700,499
	• Active participants	1,487,227,604	1,632,343,097
	• Inactive participants due a refund of member contributions	1,008,098	1,170,847
	• Total	4,505,437,185	4,367,180,454
	• Employer normal cost including administrative expenses	15,177,500	34,947,056
Assets for plan year beginning January 1:	• Market value of assets (MVA)	$2,103,345,471	$2,149,836,260
	• Actuarial value of assets (AVA)	2,151,039,343	2,157,799,730
	• Actuarial value of assets as a percentage of market value of assets	102.27%	100.37%
Funded status for plan year beginning January 1:	• Unfunded actuarial accrued liability on market value of assets	$2,402,091,714	$2,217,344,194
	• Funded percentage on MVA basis	46.68%	49.23%
	• Unfunded actuarial accrued liability on actuarial value of assets	$2,354,397,842	$2,209,380,724
	• Funded percentage on AVA basis	47.74%	49.41%
	• Projected year of full funding based on City's Hiring Plan payroll projections	2063	2061
Key assumptions:	• Net investment return	7.25%	7.25%
	• Inflation rate	2.75%	2.75%
	• Payroll increase	2.75%	2.75%
GASB information:	• Discount rate	7.25%	4.12%
	• Total pension liability	$4,497,347,017	$8,450,280,896
	• Plan fiduciary net position	2,103,345,471	2,150,661,803
	• Net pension liability	2,394,001,546	6,299,619,093
	• Plan fiduciary net position as a percentage of total pension liability	46.77%	25.45%
Demographic data for plan year beginning January 1:	• Number of retired members and beneficiaries	4,748	4,456
	• Number of inactive vested members	226	215
	• Number of active members	4,952	5,104
	• Number of inactive participants entitled to a refund of member contributions	399	295
	• Total computation pay	$346,036,690	$357,414,472
	• Average computation pay	69,878	70,026

Important Information About Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

Plan of benefits	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Participant data	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.
Assets	The valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial assumptions	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Board. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the System will be determined by the actual benefits and expenses paid and the actual investment experience of the System.
- Actuarial results in this report are not rounded, but that does not imply precision.
- If the Board is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

Section 2: Actuarial Valuation Results

Member Data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive vested members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups. As can be seen below, the number of active members has decreased by nearly 10% and the number of retired members is up by almost 17% since the end of 2014.

More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A, B,* and *C*.

MEMBER POPULATION: 2008 – 2017

Year Ended December 31	Active Members	Inactive Vested Members[1]	Retired Members and Beneficiaries	Total Non-Actives	Ratio of Non-Actives to Actives
2008	5,235	151	3,375	3,526	0.67
2009	5,476	144	3,450	3,594	0.66
2010	5,482	135	3,535	3,670	0.67
2011	5,376	128	3,669	3,797	0.71
2012	5,400	96	3,783	3,879	0.72
2013	5,397	122	3,890	4,012	0.74
2014	5,487	157	4,069	4,226	0.77
2015	5,415	200	4,230	4,430	0.82
2016	5,104	215	4,456	4,671	0.92
2017	4,952	226	4,748	4,974	1.00

[1]Excludes terminated members due a refund of member contributions

Active Members

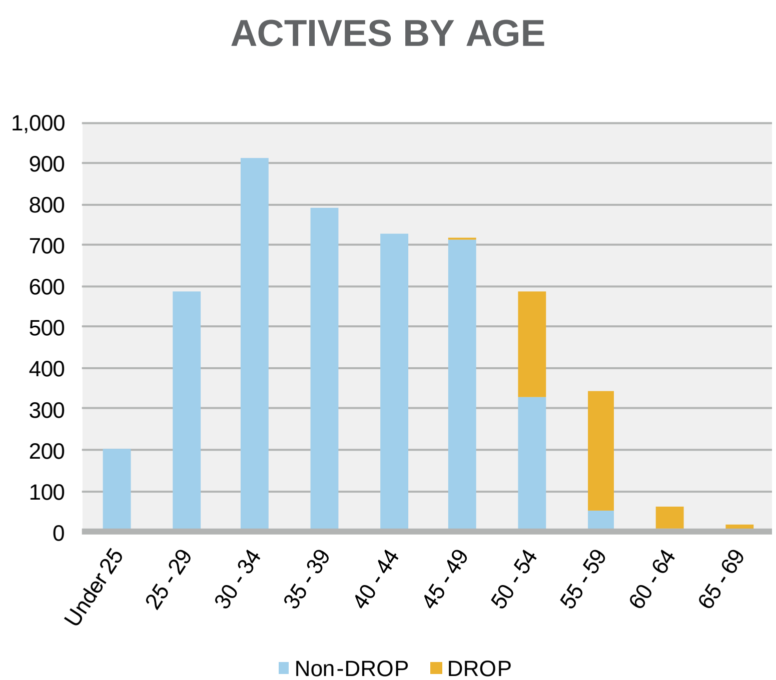
Plan costs are affected by the age, years of service and covered compensation of active members. In this year's valuation, there were 4,952 active members with an average age of 40.6, average years of service of 13.4 years and average computation pay of $69,878. The 5,104 active members in the prior valuation had an average age of 41.4, average service of 14.3 years and average computation pay of $70,026.

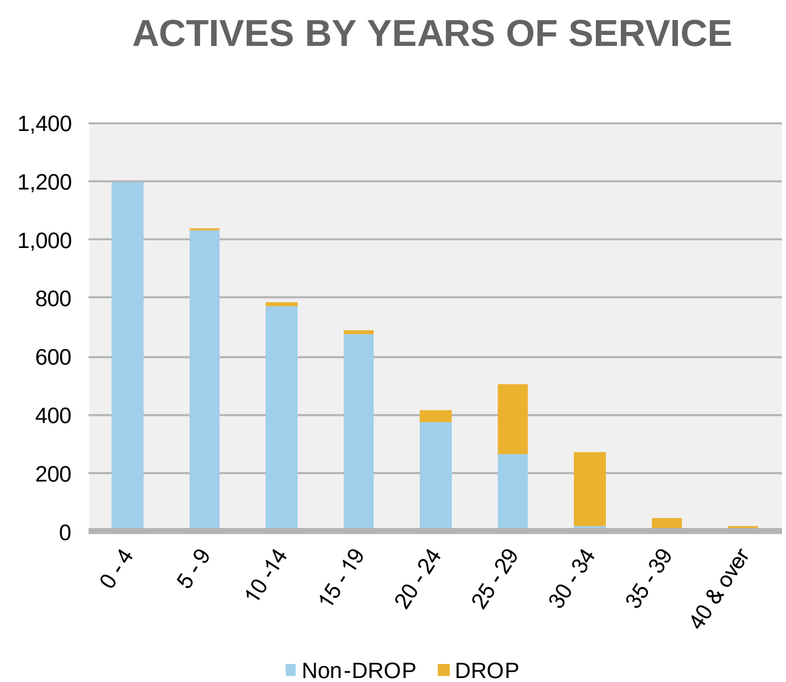
The number of active Firefighters increased from 1,849 to 1,884 as of December 31, 2017. The average age of this group is 40.5, the average years of service is 13.0, and the average computation pay is $70,049. Last year these averages were 41.7, 14.4 and $70,703, respectively.

The number of active Police Officers decreased from 3,255 to 3,068 as of December 31, 2017. The average age of this group decreased from 41.2 to 40.7, and the average years of service decreased from 14.1 to 13.6. The average computation pay increased from $69,642 to $69,773.

The number of active participants participating in DROP decreased significantly, from 1,102 at the end of 2016 to 626 at the end of 2017.

Distribution of Active Participants as of December 31, 2017





Inactive Members

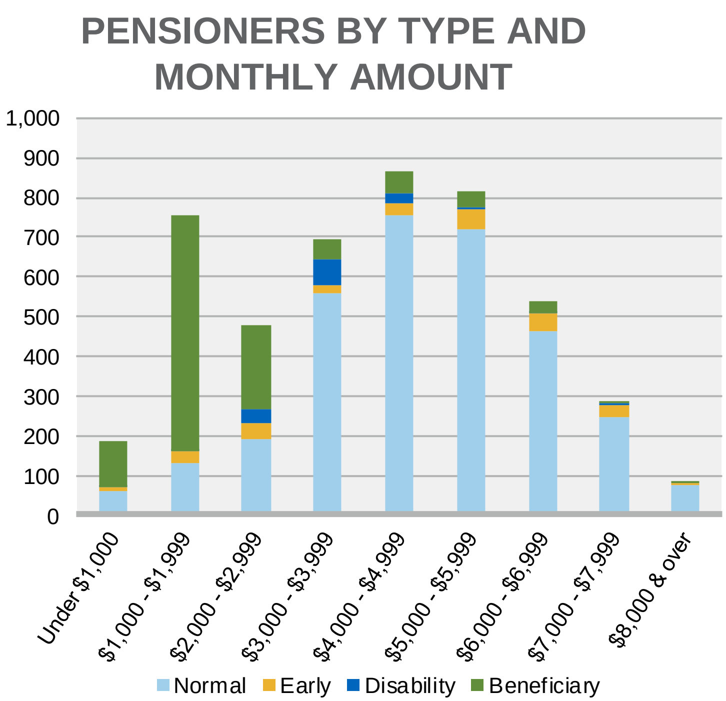
In this year's valuation, there were 226 members with a vested right to a deferred or immediate vested benefit. In addition, there were 399 members entitled to a return of their member contributions.

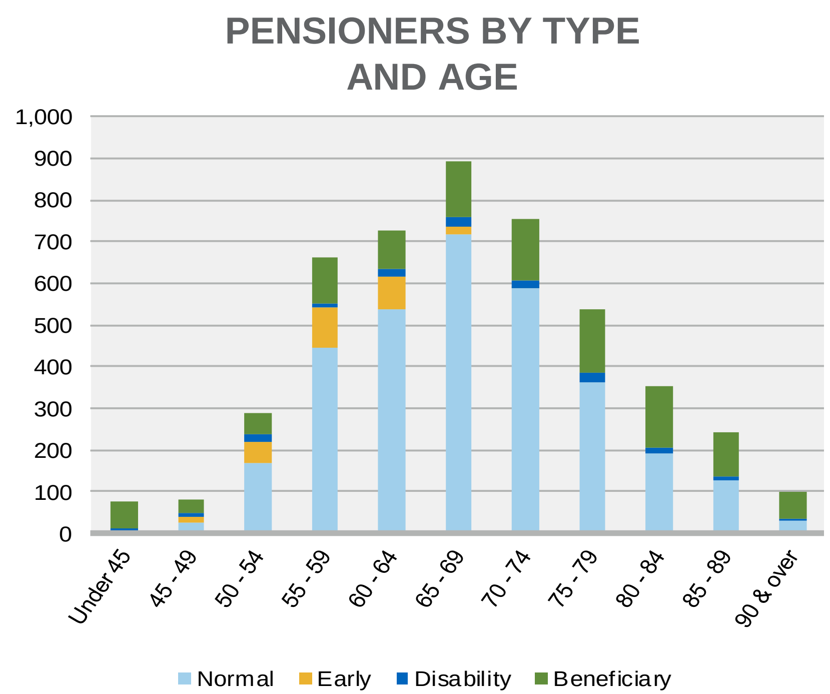
Retired Members and Beneficiaries

As of December 31, 2017, 3,598 retired members and 1,108 beneficiaries were receiving total monthly benefits of $19,629,490. For comparison, in the previous valuation, there were 3,338 retired members and 1,077 beneficiaries receiving monthly benefits of $18,104,251.

As of December 31, 2017, the average monthly benefit for retired members is $4,171, compared to $4,102 in the previous valuation. The average age for retired members is 67.7 in the current valuation, compared with 67.7 in the prior valuation. There are also 42 beneficiaries with annuitized DROP accounts only and no lifetime annuity compared to 41 beneficiaries with DROP balances only last year prior to the required annuitization.

Distribution of Pensioners as of December 31, 2017





Historical Plan Population

The chart below demonstrates the progression of the active population over the last ten years. The chart also shows the changes among the retired population over the same time period.

MEMBER DATA STATISTICS: 2008 – 2017

	Active Participants			Retired Members and Beneficiaries		
Year Ended December 31	Count	Average Age	Average Service	Count	Average Age[1]	Average Monthly Amount[2]
2008	5,235	41.2	14.7	3,375	--	$3,010
2009	5,476	40.9	14.3	3,450	--	3,137
2010	5,482	41.1	14.4	3,535	--	3,251
2011	5,376	41.3	14.5	3,669	--	3,380
2012	5,400	41.3	14.5	3,783	--	3,429
2013	5,397	41.3	14.4	3,890	--	3,543
2014	5,487	41.2	14.2	4,069	68.8	3,699
2015	5,415	41.4	14.3	4,182	69.0	3,826
2016	5,104	41.4	13.0	4,414	68.7	4,102
2017	4,952	40.6	13.4	4,706	67.7	4,171

[1]Information for December 31, 2013 and earlier is not available

[2]Average benefits for December 31, 2013 and earlier include terminated vested members; average benefits for December 31, 2014 and later include the benefit supplement.

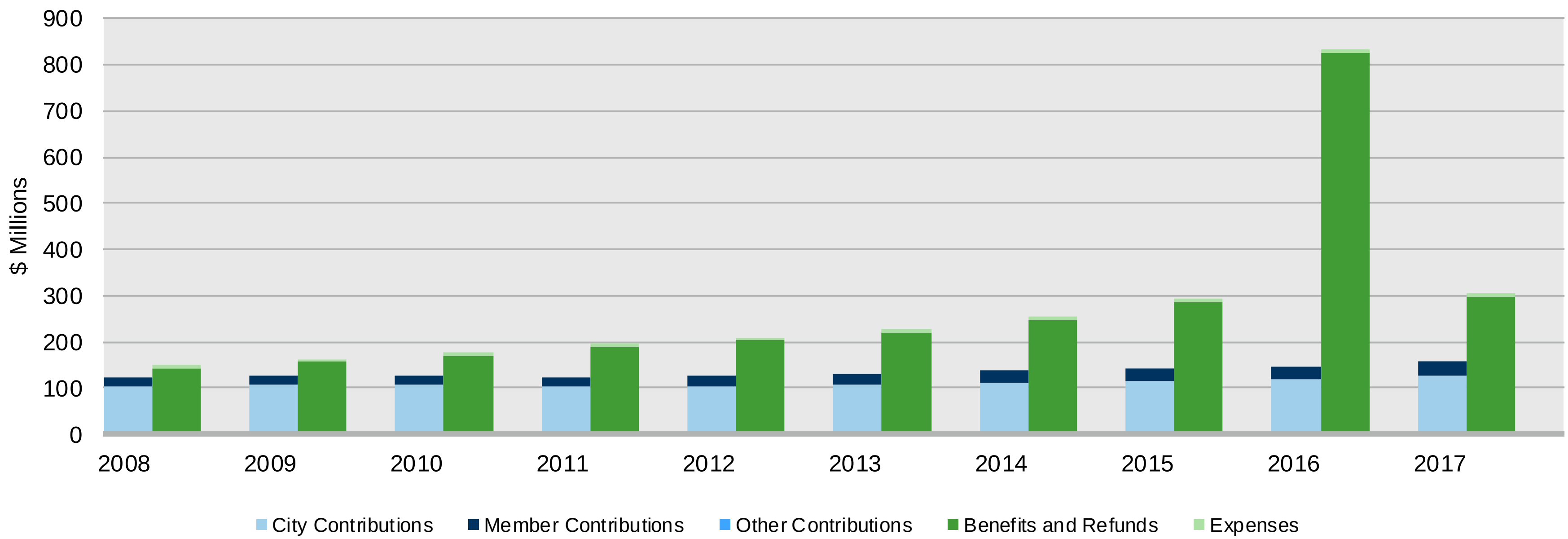
Financial Information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

Benefit payments in 2016 totaled $825.1 million, of which $606.3 million were DROP lump sum payments. This was a one-time event, as members reacted to pending changes in the plan provisions. DROP balances have been annuitized, which should result in more predictable benefit payment levels in the future.

Additional financial information, including a summary of transactions for the valuation year, is presented in *Section 3, Exhibits D, E* and *F*.

COMPARISON OF CONTRIBUTIONS MADE WITH BENEFITS AND EXPENSES PAID FOR YEARS ENDED DECEMBER 31, 2008 – 2017



The Board has approved an asset valuation method that gradually adjusts to market value. 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 as of December 31, 2015, with future gains and losses after that date amortized on a straight-line basis over five years.

DETERMINATION OF ACTUARIAL VALUE OF ASSETS FOR YEAR ENDED DECEMBER 31, 2017

		Original Amount[1]	Percent Deferred	Unrecognized Amount[2]	
1.	Market value of assets, December 31, 2017				$2,103,345,471
2.	Calculation of unrecognized return				
(a)	Year ended December 31, 2017	-$52,151,589	80%	-$41,721,271	
(b)	Year ended December 31, 2016	-9,954,337	60	-5,972,601	
(c)	Total unrecognized return				-47,693,872
3.	Preliminary actuarial value: **(1) - (2c)**				$2,151,039,343
4.	Adjustment to be within 20% corridor				0
5.	Final actuarial value of assets as of December 31, 2017: **(3) + (4)**				2,151,039,343
6.	Actuarial value as a percentage of market value: **(5) ÷ (1)**				102.3%
7.	Amount deferred for future recognition[3]: **(1) - (5)**				-$47,693,872

[1]Total return minus expected return on a market value basis

[2]Recognition at 20% per year over five years

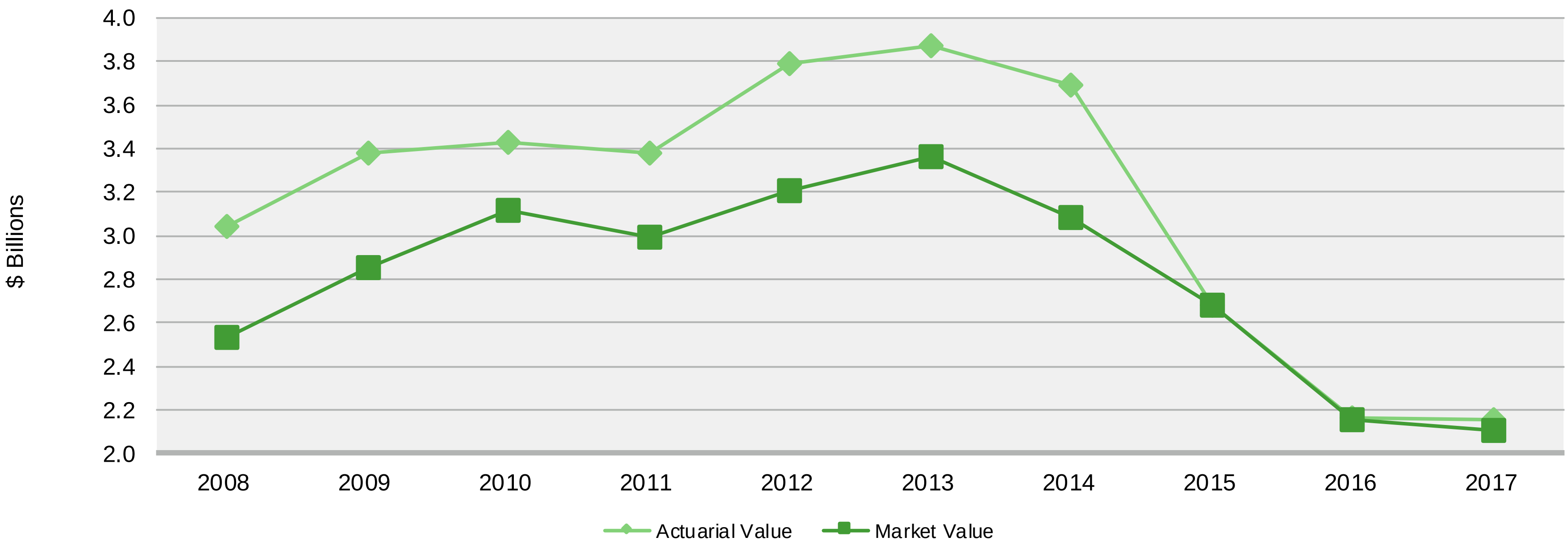
[3]Deferred return as of December 31, 2017 recognized in each of the next four years:

(a) Amount recognized on December 31, 2018	-$12,421,185
(b) Amount recognized on December 31, 2019	-12,421,185
(c) Amount recognized on December 31, 2020	-12,421,185
(d) Amount recognized on December 31, 2021	-10,430,317

Both the actuarial value and market value of assets are representations of the Plan's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Plan's liabilities are compared to these assets to determine what portion, if any, remains unfunded.

The decline in asset values from 2013 to 2015 was primarily the result of significant write-downs in the System's asset holdings. The decline from 2015 to 2016 reflects the unusually large number of DROP payments made in 2016.

ACTUARIAL VALUE OF ASSETS VS. MARKET VALUE OF ASSETS AS OF DECEMBER 31, 2008 – 2017



Actuarial Experience

To calculate any actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), any contribution requirement will decrease from the previous year. On the other hand, any contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss is $64,704,517, which includes $12,998,539 from investment losses and $51,705,978 in losses from all other sources. The net experience variation from individual sources other than investments was 1.2% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

ACTUARIAL EXPERIENCE FOR YEAR ENDED DECEMBER 31, 2017

1	Net loss from investments[1]	-$12,998,539
2	Net gain from administrative expenses	1,978,457
3	Net loss from other experience	-53,684,435
4	Net experience loss: 1 + 2 + 3	-$64,704,517

[1]Details on next page.

Investment Experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Plan's investment policy. The rate of return on the market value of assets was 4.74% for the year ended December 31, 2017.

For valuation purposes, the assumed rate of return on the actuarial value of assets is 7.25%. The actual rate of return on an actuarial basis for the 2017 plan year was 6.63%. Since the actual return for the year was less than the assumed return, the Plan experienced an actuarial loss during the year ended December 31, 2017 with regard to its investments.

INVESTMENT EXPERIENCE

		Year Ended December 31, 2017		Year Ended December 31, 2016	
		Market Value	Actuarial Value	Market Value	Actuarial Value
1	Net investment income	$98,457,176	$138,187,578	$159,355,111	$167,318,581
2	Average value of assets	2,077,362,278	2,085,325,748	2,335,302,726	2,335,302,726
3	Rate of return: 1 ÷ 2	4.74%	6.63%	6.82%	7.16%
4	Assumed rate of return	7.25%	7.25%	7.25%	7.25%
5	Expected investment income: 2 x 4	150,608,765	151,186,117	169,309,448	169,309,448
6	Actuarial gain/(loss): 1 – 5	-$52,151,589	-$12,998,539	-$9,954,337	-$1,990,867

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the actual market value investment return for the last ten years, including averages over select time periods.

INVESTMENT RETURN – ACTUARIAL VALUE VS. MARKET VALUE: 2008 - 2017

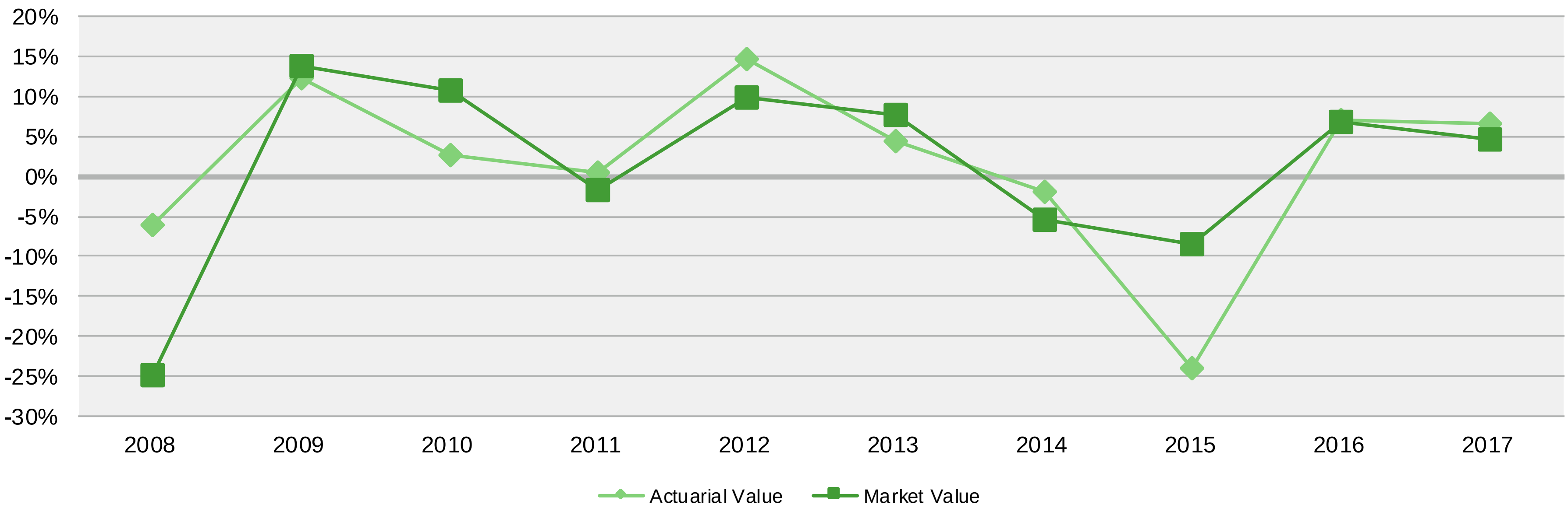
	Actuarial Value Investment Return		Market Value Investment Return	
Year Ended December 31	Amount[1]	Percent	Amount[2]	Percent
2008	-$199,538,242	-6.14%	-$838,497,127	-24.80%
2009	371,704,709	12.29	347,054,071	13.78
2010	90,332,398	2.69	303,461,949	10.72
2011	14,561,313	0.43	-54,844,275	-1.78
2012	493,841,725	14.79	292,719,981	9.92
2013	169,425,156	4.52	243,514,011	7.70
2014	-75,632,075	-1.98	-176,940,296	-5.35
2015	-1,406,733,309	-24.03	-254,829,470	-8.47
2016	167,318,581	7.16	159,355,111	6.82
2017	138,187,578	6.63	98,457,176	4.74
Total	-$236,532,166		$119,451,131	
Most recent five-year average return		-6.70%		0.50%
Most recent ten-year average return		-0.79%		0.42%

Note: Each year's yield is weighted by the average asset value in that year.

[1]Includes a change in asset method for plan years 2012 and 2015
[2]Return for years 2014 and 2015 include significant write-downs of the Plan's assets

As described earlier in this section, the actuarial asset valuation method gradually recognizes fluctuations in the market value rate of return.

MARKET AND ACTUARIAL RATES OF RETURN FOR YEARS ENDED DECEMBER 31, 2008 - 2017



Administrative Expenses

Administrative expenses for the year ended December 31, 2017 totaled $8,089,584 compared to the assumption of $10,000,000, payable monthly. This resulted in a gain of $1,978,457 for the year, when adjusted for timing. Because it is expected that these expenses will continue at this level, we have changed the assumption from $10,000,000 to $8,500,000, payable monthly, for the current year.

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among participants,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected), and
- salary increases (greater or smaller than projected).

The net loss from this other experience for the year ended December 31, 2017 amounted to $53,684,435, which is 1.2% of the actuarial accrued liability. The majority of this is the result of retirement experience.

Changes in the Actuarial Accrued Liability

The actuarial accrued liability as of January 1, 2018 is $4,505,437,185, an increase of $138,256,731, or 3.2%, from the actuarial accrued liability as of the prior valuation date. The liability is expected to grow each year with normal cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed in the previous subsection).

Actuarial Assumptions

The assumption changes reflected in this report are:

- The DROP account interest rate assumption for the annuitization of September 1, 2017 DROP balances was increased from 2.75% to 3.00%.
- The COLA is assumed to begin October 1, 2053 based on the year the System is projected to be 70% funded on a market value basis; last year's assumption was that the COLA would begin October 1, 2049.
- Administrative expenses decreased from $10,000,000 to $8,500,000, or 1% of computation pay if greater, for the year beginning January 1, 2018.
- These changes decreased the actuarial accrued liability by 0.20% and decreased the normal cost by 1.47%.
- Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

Plan Provisions

The plan change reflected in this report is:

- Members who entered DROP before June 1, 2017 were allowed to revoke the DROP election during the period from September 1, 2017 through February 28, 2018. The valuation reflects these DROP revocations.
- This change increased the actuarial accrued liability by 0.46% and increased the normal cost by 0.66%.
- A summary of plan provisions is in *Section 4, Exhibit II*.

Development of Unfunded Actuarial Accrued Liability

DEVELOPMENT FOR YEAR ENDED DECEMBER 31, 2017

1	Unfunded actuarial accrued liability at beginning of year		$2,209,380,724
2	Normal cost at beginning of year		68,422,682
3	Total contributions		-159,295,430
4	Interest		
	• For whole year on 1 + 2	$165,140,747	
	• For half year on 3	-5,706,869	
	Total interest		159,433,878
5	Expected unfunded actuarial accrued liability		$2,277,941,854
6	Changes due to:		
	• Net experience loss	$64,704,517	
	• Plan provisions	20,584,848	
	• Assumptions	-8,833,377	
	Total changes		$76,455,988
7	Unfunded actuarial accrued liability at end of year		$2,354,397,842

Actuarially Determined Contribution

The actuarially determined contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. As of January 1, 2018, the actuarially determined contribution is $157,100,128, or 45.40% of computation pay.

Texas Code Section 802.101 requires the actuarial valuations of public retirement systems to include a recommended contribution rate based on an amortization period that does not exceed 30 years. On this basis, the actuarially determined employer contribution is 45.40% of computation pay. Under the provisions of HB 3158, the City contributes mandated biweekly amounts through 2024 (but no less than 34.50% of computation pay), plus $13 million per year. Beginning January 1, 2025, the City will contribute 34.50% of computation pay. The effective amortization period, based on the City's payroll projections, is 45 years.

The contribution requirement as of January 1, 2018 are based on the data previously described, the actuarial assumptions and Plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

ACTUARIALLY DETERMINED CONTRIBUTION FOR YEAR BEGINNING JANUARY 1

		2018		2017	
		Amount	% of Total Computation Pay	Amount	% of Total Computation Pay
1.	Total normal cost	$53,684,776	15.52%	$58,766,591	16.44%
2.	Assumed administrative expenses	8,207,677	2.37%	9,656,091	2.70%
3.	Expected member contributions	-46,714,953	-13.50%	-33,475,626	-9.36%
4.	Employer normal cost: (1) + (2) - (3)	$15,177,500	4.39%	$34,947,056	9.78%
5.	Actuarial accrued liability	$4,505,437,185		$4,367,180,454	
6.	Actuarial value of assets	2,151,039,343		2,157,799,730	
7.	Unfunded actuarial accrued liability: (5) - (6)	$2,354,397,842		$2,209,380,724	
8.	Payment on unfunded actuarial accrued liability, 30-year amortization	136,519,813	39.45%	128,110,992	35.84%
9.	Adjustment for timing[1]	5,402,815	1.56%	5,807,436	1.63%
10.	Actuarially determined employer contribution: (4) + (8) + (9)	$157,100,128	45.40%	$168,865,484	47.25%
11.	Total computation pay	$346,036,690		$357,414,472	

[1]Actuarially determined contributions are assumed to be paid at the middle of every year.

Reconciliation of Actuarially Determined Contribution

The chart below details the changes in the actuarially determined contribution from the prior valuation to the current year's valuation.

RECONCILIATION OF ACTUARIALLY DETERMINED CONTRIBUTION FROM JANUARY 1, 2017 TO JANUARY 1, 2018

	Amount
Actuarially Determined Contribution as of January 1, 2017	$168,865,484
• Effect of expected change in amortization payment due to payroll growth	3,648,528
• Effect of contributions less than actuarially determined contribution	2,795,874
• Effect of DROP revocations	1,608,171
• Effect of investment loss	793,845
• Effect of maintaining 30-year amortization period	-2,393,398
• Effect of change in administrative expense assumption	-1,500,000
• Effect of other changes in actuarial assumptions	-1,357,915
• Effect of other gains and losses on accrued liability	3,157,781
• Net effect of other changes, including composition and number of participants	-18,518,242
Total change	-$11,765,356
Actuarially Determined Contribution as of January 1, 2018	$157,100,128

History of Employer Contributions

A history of the most recent years of contributions is shown below.

HISTORY OF EMPLOYER CONTRIBUTIONS: 2016 – 2018

Fiscal Year Ended December 31	Actuarially Determined Employer Contribution (ADEC) Amount	Actuarially Determined Employer Contribution (ADEC) Percentage of Covered Compensation	Actual Employer Contribution Amount	Actual Employer Contribution Percentage of Covered Compensation	Percent Contributed
2016	$261,859,079	71.70%	$119,423,106	32.70%	45.61%
2017	168,865,484	47.25%	126,318,005	35.34%	74.80%
2018	157,100,128	45.40%	N/A	N/A	N/A

Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a brief discussion of some risks that may affect the System. Upon request, a more detailed assessment of the risks can be provided to enable a better understanding of the risks specific to your Plan.

- **Investment Risk** (the risk that returns will be different than expected)

  The System has experienced first-hand some of the challenges associated with investment risk, and has had to write down the value of its assets significantly in recent years. Recognized market returns have been well below the long-term assumption as the System rebalances the investment portfolio, and are expected to continue to be below average in the short-term.

  The market value rate of return over the last ten years has ranged from a low of -24.80% to a high of 13.78%

- **Contribution Risk** (the risk that actual contributions will be different from expected)

  Plan contributions are set by statute. Periodic projections are prepared by the actuary to determine if expected statutory contributions are sufficient to fund the System and ensure the payment of promised benefits.

  Although State law establishes minimums on the City contributions through 2024, the contribution is scheduled to be a flat 34.50% of computation pay beginning in 2025. If the payroll growth matches the City's Hiring Plan projections, and if all other assumptions are met, the System should be fully funded by 2063. The City's plan reflects significant growth in payroll over 20 years, from $372 million in 2017 to $684 million in 2037. The annual average growth in this plan is 3.09%, compared to the valuations assumption of 2.75%. If payroll growth is more modest, or if there is adverse experience in the System that leads to losses, the period required to achieve 100% funding could be significantly longer.

  Through the first two years of the policy (2017 and 2018), valuation payroll based on participant data is cumulatively $32.5 million less than the City's projections. If the City's Hiring Plan projections are not met and instead the current valuation payroll of $346.0 million increases by the assumed payroll growth of 2.75% each year ongoing, and if City and member contributions are based on this projected payroll beginning in 2025, the System is projected to be only 33% funded in 2063, rather than 100% funded.

- **Longevity Risk** (the risk that mortality experience will be different than expected)

  The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

- **Demographic Risk** (the risk that participant experience will be different than assumed)

  Examples of this risk include:

  - Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
  - More or less active participant turnover than assumed.

- **Actual Experience** Over the Last Ten Years and Implications for the Future

  Past experience can help demonstrate the sensitivity of key results to the System's actual experience. Over the past ten years:

  - The annual investment experience has ranged from a loss of $1.1 billion (including write-downs) to a gain of $0.1 billion. If all investment returns had equaled the assumed rates of return over the last ten years, the market value of assets as of December 31, 2017 would be approximately $3.8 billion as opposed to the actual value of $2.1 billion.
  - The funded percentage on the actuarial value of assets has ranged from a high of 81.9% to a low of 45.1% since 2009.

- **Maturity Measures**

  As pension plans mature, the cash need to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities.

  Currently the Plan has a non-active to active participant ratio of 1.00. For the prior year benefits paid were $136.9 million more than contributions received. As the Plan matures, more cash will be needed from the investment portfolio to meet benefit payments.

GFOA Solvency Test

The Actuarial Accrued Liability represents the present value of benefits earned, calculated using the plan's actuarial cost method. The Actuarial Value of Assets reflects the financial resources available to liquidate the liability. The portion of the liability covered by assets reflects the extent to which accumulated plan assets are sufficient to pay future benefits, and is shown for liabilities associated with member contributions, pensioner liabilities, and other liabilities.

The Government Finance Officers Association (GFOA) recommends that the funding policy aim to achieve a funded ratio of 100 percent. As noted previously, the funding policy adopted by the State in HB 3158 meets this standard, with full funding in 2063, if the City's Hiring Plan payroll projections come to fruition. City and member contributions, as well as investment returns, will be necessary to increase the assets sufficiently to cover the System's liabilities.

GFOA SOLVENCY TEST AS OF DECEMBER 31

	2018	2017
Actuarial accrued liability (AAL)		
• Active member contributions	$280,965,388	$284,870,633
• Retirees and beneficiaries	2,989,814,931	2,707,966,011
• Active and inactive members (employer-financed)	1,234,656,866	1,374,343,810
Total	$4,505,437,185	$4,367,180,454
Actuarial value of assets	$2,151,039,343	$2,157,799,730
Cumulative portion of AAL covered		
• Active member contributions	100.00%	100.00%
• Retirees and beneficiaries	62.55%	69.16%
• Active and inactive members (employer-financed)	0.00%	0.00%

Actuarial Balance Sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current participants is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the "liability" of the Plan.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

ACTUARIAL BALANCE SHEET

	Year Ended	
	December 31, 2017	**December 31, 2016**
Liabilities		
• Present value of benefits for retired members and beneficiaries (non-DROP)	$2,180,228,938	$2,010,892,885
• Present value of benefits for retired members and beneficiaries (DROP)	809,585,993	697,073,126
• Present value of benefits for inactive vested members	28,394,650	26,871,346
• Present value of benefits for active members	1,972,348,070	2,124,349,682
Total liabilities	**$4,990,557,651**	**$4,859,187,039**
Assets		
• Total valuation value of assets	$2,151,039,343	$2,157,799,730
• Present value of future contributions by members	416,859,565	394,435,090
• Present value of future employer contributions for:		
» Entry age cost	68,260,901	97,571,495
» Unfunded actuarial accrued liability	2,354,397,842	2,209,380,724
Total of current and future assets	**$4,990,557,651**	**$4,859,187,039**

Section 3: Supplemental Information

EXHIBIT A – TABLE OF PLAN COVERAGE

Category	Year Ended December 31		Change From Prior Year
	2017	2016	
Total active members in valuation:			
• Number	4,952	5,104	-3.0%
• Average age	40.6	41.4	-0.8
• Average years of service	13.4	14.3	-0.9
• Total computation pay	$346,036,690	$357,414,472	-3.2%
• Average computation pay	69,878	70,026	-0.2%
• Accumulated contribution balances	280,965,388	284,870,633	-1.4%
• Total active vested members	3,757	3,978	-5.6%
Active members (excluding DROP):			
• Number	4,326	4,002	8.1%
• Average age	38.3	37.6	0.7
• Average years of service	11.0	10.3	0.7
• Total computation pay	$292,533,861	$262,030,358	11.6%
• Average computation pay	67,622	65,475	3.3%
Active members (DROP only):			
• Number	626	1,102	-43.2%
• Average age	56.1	55.1	1.0
• Average years of service	29.7	28.3	1.4
• Total computation pay	$53,502,829	$95,384,114	-43.9%
• Average computation pay	85,468	86,555	-1.3%
• DROP account balances	241,364,638	356,421,938	-32.3%
Inactive vested members:			
• Number	226	215	5.1%
• Average age	39.8	39.4	0.4%
• Average monthly benefit	$1,164	$1,125	3.5%
Terminated members due a refund of contributions:			
• Number	399	295	35.3%
• Accumulated contribution balance	$1,008,098	$1,170,846	-13.9%

Category	Year Ended December 31 2017	2016	Change From Prior Year
Retired members:			
• Number in pay status	3,455	3,189	8.3%
• Average age	67.1	67.6	-0.5
• Average monthly benefit	$4,831	$4,793	0.8%
Disabled members:			
• Number in pay status	143	149	-4.0%
• Average age	66.8	67.2	-0.4
• Average monthly benefit	$3,570	$3,550	0.6%
Beneficiaries:			
• Number in pay status	1,108	1,077	2.9%
• Average age	72.5	72.2	0.3
• Average monthly benefit	$2,191	$2,126	3.1%
Beneficiaries with DROP only:			
• Number	42	41	2.4%

EXHIBIT B-1 – TOTAL MEMBERS IN ACTIVE SERVICE AS OF DECEMBER 31, 2017
BY AGE, YEARS OF SERVICE, AND AVERAGE COVERED COMPENSATION

		Years of Service								
Age	Total	0 - 4	5 - 9	10 -14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	200	200	- -	- -	- -	- -	- -	- -	- -	- -
	$48,612	$48,612	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	590	486	104	- -	- -	- -	- -	- -	- -	- -
	53,893	52,519	$60,310	- -	- -	- -	- -	- -	- -	- -
30 - 34	913	318	473	122	- -	- -	- -	- -	- -	- -
	59,784	53,021	62,695	$66,124	- -	- -	- -	- -	- -	- -
35 - 39	789	126	269	308	86	- -	- -	- -	- -	- -
	65,185	53,241	62,526	68,799	$78,056	- -	- -	- -	- -	- -
40 - 44	730	34	132	193	315	56	- -	- -	- -	- -
	74,091	53,180	61,746	70,513	81,265	$87,867	- -	- -	- -	- -
45 - 49	716	15	45	95	214	235	112	- -	- -	- -
	81,615	53,045	62,178	70,806	81,354	88,315	$88,862	- -	- -	- -
50 - 54	588	4	15	30	58	108	274	99	- -	- -
	84,738	58,242	62,629	73,476	79,533	86,495	86,916	$87,672	- -	- -
55 - 59	345	2	3	19	22	21	105	139	34	- -
	84,512	41,174	61,833	71,467	78,834	82,320	84,939	87,626	$87,330	- -
60 - 64	59	- -	3	3	1	5	12	20	11	4
	85,132	- -	73,406	71,635	73,160	92,587	83,907	85,254	89,227	$89,534
65 - 69	18	- -	- -	3	- -	- -	3	3	2	7
	86,134	- -	- -	68,389	- -	- -	92,479	85,442	82,956	92,224
70 & over	4	- -	- -	- -	- -	- -	1	- -	- -	3
	106,307	- -	- -	- -	- -	- -	94,547	- -	- -	110,227
Total	4,952	1,185	1,044	773	696	425	507	261	47	14
	$69,878	$52,097	$62,299	$69,308	$80,663	$87,547	$86,914	$87,437	$87,588	$95,313

EXHIBIT B-2 – POLICE MEMBERS IN ACTIVE SERVICE AS OF DECEMBER 31, 2017
BY AGE, YEARS OF SERVICE, AND AVERAGE PAYROLL

		Years of Service								
Age	Total	0 - 4	5 - 9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	131	131	- -	- -	- -	- -	- -	- -	- -	- -
	$48,492	$48,492	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	366	300	66	- -	- -	- -	- -	- -	- -	- -
	53,783	52,617	$59,081	- -	- -	- -	- -	- -	- -	- -
30 - 34	538	168	279	91	- -	- -	- -	- -	- -	- -
	59,995	53,112	61,794	$67,186	- -	- -	- -	- -	- -	- -
35 - 39	478	53	151	213	61	- -	- -	- -	- -	- -
	66,036	51,804	62,302	69,100	$76,942	- -	- -	- -	- -	- -
40 - 44	435	26	73	113	186	37	- -	- -	- -	- -
	72,863	53,547	60,687	70,184	79,058	$87,497	- -	- -	- -	- -
45 - 49	492	12	43	66	124	151	96	- -	- -	- -
	80,400	52,752	62,142	71,328	79,063	87,846	$88,287	- -	- -	- -
50 - 54	393	1	15	19	35	67	212	44	- -	- -
	84,116	59,514	62,629	72,661	78,220	86,359	86,498	$86,743	- -	- -
55 - 59	198	- -	3	10	19	13	76	58	19	- -
	84,419	- -	61,833	71,798	78,675	84,862	84,439	88,566	$87,333	- -
60 - 64	26	- -	3	2	1	3	8	5	2	2
	84,844	- -	73,406	74,025	73,160	85,891	86,233	87,089	97,941	$92,821
65 - 69	9	- -	- -	2	- -	- -	1	2	1	3
	83,258	- -	- -	69,175	- -	- -	100,829	89,231	82,654	83,009
70 & over	2	- -	- -	- -	- -	- -	1	- -	- -	1
	102,774	- -	- -	- -	- -	- -	94,547	- -	- -	111,001
Total	3,068	691	633	516	426	271	394	109	22	6
	$69,773	$51,940	$61,603	$69,488	$78,657	$87,266	$86,588	$87,775	$88,084	$90,945

EXHIBIT B-3– FIRE MEMBERS IN ACTIVE SERVICE AS OF DECEMBER 31, 2017
BY AGE, YEARS OF SERVICE, AND AVERAGE PAYROLL

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	69	69	- -	- -	- -	- -	- -	- -	- -	- -
	$48,839	$48,839	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	224	186	38	- -	- -	- -	- -	- -	- -	- -
	54,072	52,362	$62,443	- -	- -	- -	- -	- -	- -	- -
30 - 34	375	150	194	31	- -	- -	- -	- -	- -	- -
	59,481	52,920	63,992	$63,005	- -	- -	- -	- -	- -	- -
35 - 39	311	73	118	95	25	- -	- -	- -	- -	- -
	63,878	54,284	62,813	68,126	$80,773	- -	- -	- -	- -	- -
40 - 44	295	8	59	80	129	19	- -	- -	- -	- -
	75,903	51,989	63,058	70,977	84,448	$88,588	- -	- -	- -	- -
45 - 49	224	3	2	29	90	84	16	- -	- -	- -
	84,284	54,216	62,955	69,617	84,510	89,157	$92,312	- -	- -	- -
50 - 54	195	3	- -	11	23	41	62	55	- -	- -
	85,991	57,817	- -	74,885	81,532	86,715	88,349	$88,415	- -	- -
55 - 59	147	2	- -	9	3	8	29	81	15	- -
	84,637	41,174	- -	71,099	79,840	78,191	86,251	86,952	$87,328	- -
60 - 64	33	- -	- -	1	- -	2	4	15	9	2
	85,360	- -	- -	66,857	- -	102,632	79,254	84,643	87,291	$86,247
65 - 69	9	- -	- -	1	- -	- -	2	1	1	4
	89,010	- -	- -	66,819	- -	- -	88,305	77,864	83,258	99,135
70 & over	2	- -	- -	- -	- -	- -	- -	- -	- -	2
	109,840	- -	- -	- -	- -	- -	- -	- -	- -	109,840
Total	1,884	494	411	257	270	154	113	152	25	8
	$70,049	$52,316	$63,371	$68,947	$83,829	$88,042	$88,049	$87,194	$87,152	$98,589

EXHIBIT C – RECONCILIATION OF MEMBER DATA

	Active Members	Inactive Vested Members[1]	Disableds	Retired Members	Beneficiaries[2]	Total
Number as of January 1, 2017	**5,104**	**215**	**149**	**3,189**	**1,077**	**9,734**
• New members	376	N/A	N/A	N/A	N/A	376
• Terminations – with vested rights	-48	48	0	0	0	0
• Terminations – without vested rights	-45	N/A	N/A	N/A	N/A	-45
• Retirements	-350	-7	N/A	357	N/A	0
• New disabilities	-3	0	3	N/A	N/A	0
• Return to work	7	-2	0	0	N/A	5
• Deceased	-5	0	-9	-91	-41	-146
• New beneficiaries	0	0	0	0	83	83
• Lump sum pay outs[3]	-84	-28	0	0	0	-112
• Certain period expired	N/A	N/A	0	0	-11	-11
Number as of January 1, 2018	**4,952**	**226**	**143**	**3,455**	**1,108**	**9,884**

[1]Excludes terminated members due a refund of contributions
[2]Excludes beneficiaries with a DROP only
[3]Members who terminated and requested a refund of member contributions

EXHIBIT D – SUMMARY STATEMENT OF INCOME AND EXPENSES ON A MARKET VALUE BASIS

	Year Ended December 31, 2017		Year Ended December 31, 2016	
Net assets at market value at the beginning of the year[1, 3]		**$2,149,836,260**		**$2,680,124,303**
Contribution income:				
• Employer contributions	$126,318,005		$119,423,106	
• Member contributions	32,977,425		25,518,317	
• Less administrative expenses	-8,089,584		-9,492,445	
Net contribution income		*$151,205,846*		*$135,448,978*
Investment income:				
• Interest, dividends and other income	$33,099,632		$54,956,120	
• Recognition of capital appreciation	74,836,102		120,614,404	
• Less interest expense	-1,279,517		-4,532,196	
• Adjustment to beginning of year value[2]	825,543		0	
• Less investment fees	-9,024,584		-11,683,217	
Net investment income		*$98,457,176*		*$159,355,111*
Total income available for benefits		**$249,663,022**		**$294,804,089**
Less benefit payments:				
• Benefit payments	-$292,576,281		-$821,737,799	
• Refunds	-3,577,530		-3,354,333	
Net benefit payments		*-$296,153,811*		*-$825,092,132*
Change in market value of assets		**-$46,490,789**		**-$530,288,043**
Net assets at market value at the end of the year[1, 3]		**$2,103,345,471**		**$2,149,836,260**

[1]Based on preliminary unaudited assets

[2]Adjustment from draft financial statement used in the prior valuation to the final audited statements

[3]Unaudited assets were used for the January 1, 2017 actuarial valuation. When the audited financial statements were completed, there were updates to the employer contribution and investment return amounts, resulting in a revision to the market value of assets. Thus, the amounts shown above as of December 31, 2016 differ from the System's and City's Comprehensive Annual Financial Reports. The differences are immaterial to the System's actuarial results.

EXHIBIT E – SUMMARY STATEMENT OF PLAN ASSETS

		December 31, 2017		December 31, 2016
Cash equivalents and prepaid expenses		$118,022,612		$324,575,667
Invested securities lending collateral		12,050,625		21,494,665
Capital assets		12,608,396		11,943,266
Total accounts receivable		$34,359,460		$29,150,640
Investments:				
• Real assets	$794,476,173		$1,119,263,244	
• Equity securities	466,132,328		153,397,855	
• Fixed income securities	325,258,334		267,687,478	
• Private equity	220,240,515		262,289,952	
• Alternative investments	143,709,605		133,798,219	
• Other	24,064,096		6,811,004	
Total investments at market value		$1,973,881,051		$1,943,247,752
Total assets		$2,150,922,144		$2,330,411,990
Total accounts payable		-47,576,673		-180,575,730
Net assets at market value[1]		**$2,103,345,471**		**$2,149,836,260**
Net assets at actuarial value		**$2,151,039,343**		**$2,157,799,730**

[1]Unaudited assets were used for the January 1, 2017 actuarial valuation. When the audited financial statements were completed, there were updates to the employer contribution and investment return amounts, resulting in a revision to the market value of assets. Thus, the amounts shown above as of December 31, 2016 differ from the System's and City's Comprehensive Annual Financial Reports. The differences are immaterial to the System's actuarial results.

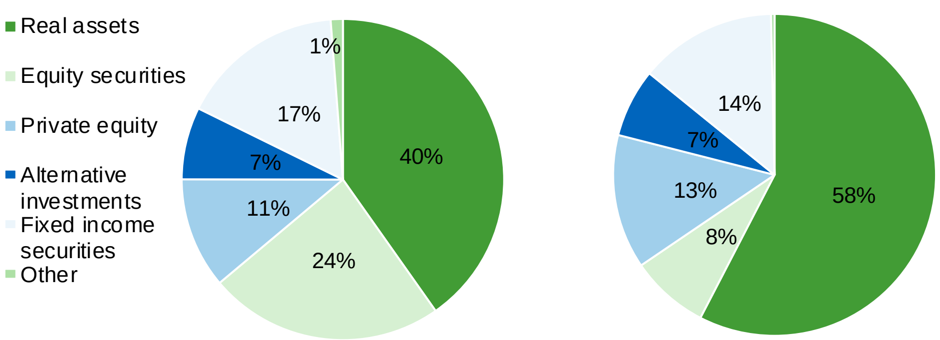


EXHIBIT F – DEVELOPMENT OF THE FUND THROUGH DECEMBER 31, 2017

Year Ended December 31	Employer Contributions	Member Contributions	Net Investment Return[1]	Admin. Expenses[2]	Benefit Payments and Refunds	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2008	$104,372,723	$18,638,767	-$838,497,127	$0	$142,433,301	$2,533,055,971	$3,039,667,165	120.0%
2009	107,699,648	19,584,241	347,054,071	0	155,747,987	2,851,645,944	3,382,907,776	118.6%
2010	108,060,956	19,790,189	303,461,949	0	170,272,496	3,112,686,542	3,430,818,823	110.2%
2011	102,437,115	19,493,460	-54,844,275	0	188,829,489	2,990,943,353	3,378,481,222	113.0%
2012	103,310,264	22,490,884	292,719,981	0	203,099,511	3,206,364,971	3,795,024,584	118.4%
2013	105,711,435	26,044,579	243,514,011	0	218,884,493	3,362,750,503	3,877,321,261	115.3%
2014	109,791,512	28,969,429	-176,940,296	0	245,176,251	3,079,394,897	3,695,273,876	120.0%
2015	114,885,723	25,676,327	-254,829,470	0	285,003,174	2,680,124,303	2,680,124,303	100.0%
2016	119,423,106[3]	25,518,317	159,355,111[3]	9,492,445	825,092,132	2,149,836,260[3]	2,157,799,730	100.4%
2017	126,318,005	32,977,425	98,457,176	8,089,584	296,153,811	2,103,345,471	2,151,039,343	102.3%

[1]On a market basis, net of investment fees

[2]Administrative expenses were subtracted from net investment return prior to the 2016 valuation

[3]Unaudited assets were used for the January 1, 2017 actuarial valuation. When the audited financial statements were completed, there were updates to the employer contribution and investment return amounts, resulting in a revision to the market value of assets. Thus, the amounts shown above as of December 31, 2016 differ from the System's and City's Comprehensive Annual Financial Reports. The differences are immaterial to the System's actuarial results.

EXHIBIT G – DEFINITION OF PENSION TERMS

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Pensioners and Beneficiaries:	The single-sum value of lifetime benefits to existing pensioners and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield in actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
Actuarially Equivalent:	Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).
Actuarial Value of Assets (AVA):	The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Fund is calculated, including: Investment return - the rate of investment yield that the Fund will earn over the long-term future; Mortality rates - the death rates of employees and pensioners; life expectancy is based on these rates; Retirement rates - the rate or probability of retirement at a given age or service; Disability rates – the probability of disability retirement at a given age; Withdrawal rates - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates - the rates of salary increase due to inflation and productivity growth.
Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.
Funded Ratio:	The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.
GASB 67 and GASB 68:	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the

	accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.
Investment Return:	The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability (NPL):	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal Cost:	That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.
Open Amortization Period:	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the actuarial assumptions are realized.
Plan Fiduciary Net Position:	Market value of assets.
Total Pension Liability (TPL):	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

EXHIBIT I – ACTUARIAL ASSUMPTIONS AND ACTUARIAL COST METHOD

Rationale for Assumptions: The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Experience Study Report for the five-year period ended December 31, 2014, with subsequent changes related to the plan changes and modifications based on the Meet and Confer Agreement.

Net Investment Return: 7.25%

The net investment return assumption was chosen by the Pension System's Board of Trustees, with input from the actuary. This assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes, as well as the System's target asset allocation.

Salary Scale:

For 2018-2019

2018 – 5% if less than 10 years, 2% if more than 10 years

2019 – 10% if less than 10 years, 7% if 10 – 11 years, 2% if more than 11 years

For 2020 and After

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

Rates above include allowance for inflation of 2.75% per year.

The salary scale assumption is based on the City's pay plan, along with analysis completed in conjunction with an Experience Study Report for the five-year period ended December 31, 2014. The salary scale for 2018-2019 is based on the Meet and Confer Agreement.

Payroll Growth: 2.75%, used to amortize the unfunded actuarial accrued liability as a level percentage of payroll.

Cost-of-Living Adjustments:	
Prior to October 1, 2053	0.00%
Beginning October 1, 2053	2.00%, on 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.
Funding Projections:	
Payroll Growth	For purposes of projecting the System's funded status in order to determine when the System will reach 70% funded on a market value basis (and therefore meet COLA requirements), City contributions beginning January 1, 2025 are assumed to be 34.50% of the City's Hiring Plan projections. Beginning in 2038, after the end of the City's Hiring Plan projections, payroll is assumed to increase by 2.75%.

City's Hiring Plan Payroll Projections (in millions)			
Year	**Payroll**	**Year**	**Payroll**
2018	$364	2028	$525
2019	$383	2029	$545
2020	$396	2030	$565
2021	$408	2031	$581
2022	$422	2032	$597
2023	$438	2033	$614
2024	$454	2034	$631
2025	$471	2035	$648
2026	$488	2036	$666
2027	$507	2037	$684

Market Value Asset Returns	4.75% in 2018, 5.00% in 2019, 5.25% in 2020, 6.25% in 2021, and 7.25% annually thereafter
Administrative Expenses:	$8,500,000 per year, payable monthly (equivalent to $8,207,677 at the beginning of the year) or 1% of computation pay, if greater

Mortality Rates:

Pre-retirement	RP-2014 Employee Mortality Table, set back two years for males, projected generationally using Scale MP-2015
Healthy annuitants	RP-2014 Blue Collar Healthy Annuitant Mortality Table, set forward two years for females, projected generationally using Scale MP-2015
Disabled annuitants	RP-2014 Disabled Retiree Mortality Table, set back three years for males and females, projected generationally using Scale MP-2015

The tables above, with adjustments as shown, reasonably reflect the mortality experience of the System as of the measurement date. The mortality tables were then generationally projected using Scale MP-2015 to anticipate future mortality improvement.

Mortality and Disability Rates Before Retirement:

	Rate (%)			
	Mortality[1]		Disability[2]	
Age	Male	Female	Male	Female
20	0.03	0.02	0.010	0.010
25	0.05	0.02	0.015	0.015
30	0.04	0.02	0.020	0.020
35	0.05	0.03	0.025	0.025
40	0.06	0.04	0.030	0.030
45	0.08	0.07	0.035	0.035
50	0.14	0.11	0.040	0.040
55	0.23	0.17	--	--
60	0.38	0.24	--	--
65	1.26	1.05	--	--
70	1.97	1.70	--	--
75	3.15	2.81	--	--
80	5.19	4.71	--	--

[1]Rates shown do not include generational projection; rates beginning at age 65 are for healthy annuitants
[2]100% of disabilities are assumed to be service-related

Withdrawal Rates Before Retirement:

Years of Service	Rate (%)	
	Police	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
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 & over	0.00	0.00

Retirement Rates:

DROP Active Members

Police	
Age	Rate (%)
Under 50	1.00
50-52	3.00
53-54	7.00
55	15.00
56-57	20.00
58-64	25.00
65-66	50.00
67	100.00

Fire	
Age	Rate (%)
Under 50	0.75
50-54	2.50
55-58	12.00
59-64	25.00
65-66	30.00
67	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

Retirement Rates (continued):

Non-DROP Active Members

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	
Age	Rate (%)	Age	Rate (%)	Age	Rate (%)
Under 50	0	Under 50	1	Under 50	1
50	10	50	20	50	5
51	5	51	10	51	5
52	5	52	10	52	5
53	5	53	10	53	5
54	5	54	20	54	10
55	15	55	40	55	20
56	10	56	50	56	30
57	5	57	50	57	40
58	60	58	60	58	50
59	50	59	60	59	50
60	50	60	60	60	50
61	50	61	60	61	50
62 & over	100	62 & over	100	62 & over	100

100% retirement rate once the sum of age plus service equals 90

Weighted Average Retirement Age: Age 56, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active participants included in the January 1, 2018 actuarial valuation.

Retirement Rates for Inactive Vested Participants:

Current terminated vested members are assumed to retire at age 50

Future terminated vested members are assumed to retire at age 58

Interest on DROP Accounts:	3.00% on account balances as of September 1, 2017, payable upon retirement 0.0% on account balances accrued after September 1, 2017
DROP Utilization:	0% of Police and Fire members are assumed to elect to enter the DROP
DROP Payment Period:	Based on expected lifetime as of the later of September 1, 2017 or retirement date. Expected lifetime determined based on an 85%/15% male/female blend of the current healthy annuitant mortality tables.
DROP Annuitization Interest:	3.00%. Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years.
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.
Family Composition:	75% of participants are assumed to be married. Females are assumed to be three years younger than males. The youngest child is assumed to be ten years old.
Benefit Election:	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.
Actuarial Value of Assets:	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the member commenced employment. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis, with Normal Cost determined as if the current benefit accrual rate had always been in effect. Actuarial Liability is allocated by salary.
Amortization Methodology:	The actuarially determined contribution is calculated using a 30-year amortization of unfunded actuarially accrued liability.
Justification for Changes in Actuarial Assumptions:	The following assumptions were updated with this valuation: › The administrative expense assumption was changed from the greater of $10 million per year or 1% of computation pay to $8.5 million per year or 1% of computation pay. › Interest payable upon retirement on DROP account balances as of September 1, 2017 increased from 2.75% to 3.00%. › Annual 2.00% COLAs are assumed to be payable beginning October 1, 2053, based on an updated projection of unfunded actuarial accrued liability. In the prior valuation these COLAs were assumed to begin October 1, 2049.

EXHIBIT II – SUMMARY OF PLAN PROVISIONS

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

MEMBERS WHOSE PARTICIPATION BEGAN BEFORE MARCH 1, 2011

Plan Year:	January 1 through December 31
Plan Status:	Ongoing
Normal Retirement:	
Benefit Earned Prior to September 1, 2017	
Age Requirement	50
Service Requirement	5
Amount	Greater of 3.0% of Average Computation Pay times years of Pension Service (maximum 96.0%) and $2,200 per month. The $2,200 per month minimum benefit is prorated if the Member retires with less than 20 years of service.
Average Computation Pay	36 consecutive months that reflect the highest civil service rank held by a member, plus Educational Incentive Pay, Longevity Pay and City Service Incentive Pay
Benefit Earned Beginning September 1, 2017	
Age Requirement	58
Service Requirement	5
Amount	Greater of 2.5% of Average Computation Pay times years of Pension Service (maximum 90.0%) and $2,200 per month. The $2,200 per month minimum benefit is prorated if the Member retires with less than 20 years of service.
Average Computation Pay	60 consecutive months that reflects the highest civil service rank held by a member, plus Educational Incentive Pay, Longevity Pay and City Service Incentive Pay

20 and Out Reduced Retirement:

If Eligible as of September 1, 2017

Age Requirement	None
Service Requirement	20 years
Amount	20 & Out Multiplier times 36-month (Table 1 Benefit) or 60-month (Table 2 Benefit) Average Computation Pay times years of Pension Service

Benefit Accrued Before September 1, 2017 20 & Out Table 1		Benefit Accrued Beginning September 1, 2017 20 & Out Table 2	
Age	20 & Out Multiplier	Age	20 & Out Multiplier
45 & under	2.00%	53 & under	2.00%
46	2.25%	54	2.10%
47	2.50%	55	2.20%
48	2.75%	56	2.30%
49	2.75%	57	2.40%
50 & above	3.00%	58 & above	2.50%

If Not Eligible as of September 1, 2017

Age Requirement	None
Service Requirement	20 years
Amount	20 & Out Multiplier times 60-month Average Computation Pay times years of Pension Service

20 & Out Table 2	
Age	20 & Out Multiplier
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

Early Retirement:	
If at least age 45 as of September 1, 2017 and less than age 50	
Age Requirement	45
Service Requirement	5
Amount	Normal pension accrued prior to September 1, 2017 plus the benefit accrued based on the 20 & Out Table 2 for service beginning September 1, 2017, reduced by 2/3 of 1% for each whole month by which the benefit commencement date precedes age 50.
Non-Service Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) not related to or incurred while in the performance of the member's job, preventing the member from performing their departmental duties.
Amount	3% of Average Computation Pay for service earned prior to September 1, 2017 and the applicable benefit multiplier from 20 & Out Table 2 times Average Computation Pay for service earned beginning September 1, 2017
Service Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) obtained while on duty in the performance of the member's job.
Amount	3% of Average Computation Pay for service earned prior to September 1, 2017 and the applicable benefit multiplier from 20 & Out Table 2 times Average Computation Pay for service earned beginning September 1, 2017; if the member has less than 20 years of service, the benefit will be calculated as if they had 20 years at the time of disability.
Benefit Supplement:	
Age Requirement	55
Service Requirement	20 years, waived if member is receiving a service-connected disability
Amount	3% of the total monthly benefit (including any applicable COLA's) payable to the Member when the Member attains age 55. The benefit supplement shall not be less than $75 per month. Beginning September 1, 2017, only those annuitants already receiving the supplement will be eligible to maintain their current supplement, which will not change ongoing; no additional retirees will be eligible for the supplement.
Termination Benefit:	
With less than five years of pension service	Upon request, the member's contributions will be returned without interest
With at least five years of pension service	The member may either withdraw contributions or leave contributions in the Plan and receive a monthly benefit to commence no earlier than the member's earliest eligibility for retirement benefits. Retirement benefit is equal to the accrued benefit as of the date of termination.

Pre-Retirement Death Benefit:	
While in active service	The greater of 50% of the Member's accrued benefit or a benefit based on 20 years of service. The benefit may not exceed 45% of Average Computation Pay.
After leaving active service, with fewer than five years	A lump sum benefit equal to the return of member contributions with interest
After leaving active service, with at least five years	50% of the Member's accrued benefit, with no early retirement reduction, or a refund of member contributions
Post-Retirement Death Benefit:	50% of the pension the Member was receiving at the time of their death
Qualified Surviving Children Benefit:	50% of the pension the Member was receiving at the time of their death, divided equally among the children, paid until the youngest child is 19 years old or for life if the child becomes handicapped prior to age 23
Minimum Survivor Benefit:	$1,100 per month, not to exceed the actual amount the Member was receiving upon their death. If there are no Qualified Surviving Children, the minimum benefit to a spouse who is a Qualified Survivor shall be $1,200 per month. If the Member had less than 20 years of Pension Service, the minimum benefit will be prorated based on actual years of Pension Service.
Special Survivor Benefit:	
Eligibility	Upon leaving active service or joining DROP: a) the Member was at least 55 years old with at least 20 years of pension service, or b) the sum of the Member's age plus Pension Service was at least 78; **and** Has no Qualified Surviving Children or handicapped children currently eligible for survivor benefits; **and** Whose Qualified Surviving Spouse is at least 55 years old. The Qualified Surviving Spouse does not have to be 55 years old at the time of the Member's death.
Amount	Once all the eligibility conditions are met, the amount the Qualified Surviving Spouse will receive increases from 50% of the Member's pension benefit to a percentage of the Member's pension benefit based on the Member's applicable benefit multiplier times the number of years of Pension Service the Member worked.
Survivor Benefit if No Qualified Surviving Spouse:	A lump sum that is the actuarial equivalent of 120 monthly payments of the greater of: 50% of the Member's pension benefit at the time of their death, or a benefit based on 20 years of the Member's service.

DROP:	
Eligibility	Members in active service who are retirement eligible may elect to enter the Deferred Retirement Option Plan (DROP).
Distribution	The DROP account balance will be paid over the expected future lifetime of annuitants.
Interest	Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years; interest rate is based on the expected lifetime of the members at the time they retire.
Cost of Living:	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%.
Member Contributions:	13.5% of computation pay for all members
City Contributions:	The City will contribute 34.5% of computation payroll each year. However, in no case shall the City's total contribution amount be less than: $5,173,000 for the biweekly pay periods beginning with the first biweekly pay period that begins after September 1, 2017 and ends on the last day of the first biweekly pay period that ends after December 31, 2017; $5,344,000 for the following 26 pay periods; $5,571,000 for the following 26 pay periods; $5,724,000 for the following 26 pay periods; $5,882,000 for the following 26 pay periods; $6,043,000 for the following 26 pay periods; $5,812,000 for the following 26 pay periods; and $6,024,000 for the following 26 pay periods. An additional 1/26th of $13 Million will be paid biweekly beginning with the first biweekly pay period that begins after September 1, 2017 and ending with the last biweekly pay period that ends after December 31, 2024.
Optional Forms of Benefits:	Life Annuity with 36 months guaranteed; 50% or 75% Husband-and-Wife Pension with Pop-Up; 66-2/3% or 100% Joint and Survivor Pension.
Changes in Plan Provisions:	Active members who elected to enter DROP prior to June 1, 2017 were eligible to revoke the DROP election during the period September 1, 2017 through February 28, 2018.

MEMBERS WHOSE PARTICIPATION BEGAN ON OR AFTER MARCH 1, 2011

Normal Retirement:	
Age Requirement	58
Service Requirement	5
Amount	2.5% of Average Computation Pay for each year of Pension Service, maximum 90%
	The minimum monthly benefit is $110 times the number of years of Pension Service at retirement, but not greater than $2,200.
Average Computation Pay	Average Computation Pay uses the 60 consecutive months that reflects the highest civil service rank held by a member plus Educational Incentive Pay plus Longevity Pay plus City Service Incentive Pay.
Early Retirement:	
Age Requirement	53
Service Requirement	5
Amount	Normal pension accrued, reduced by 2/3 of 1% for each whole month by which the benefit commencement date precedes the normal retirement date.
20 and Out Reduced Retirement:	
Age Requirement	None
Service Requirement	20 years
Amount	20 & Out Multiplier times Average Computation Pay times years of Pension Service

20 & Out Table 2	
Age	**20 & Out Multiplier**
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

Non-Service Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) not related to or incurred while in the performance of the member's job, preventing the member from performing their departmental duties.
Amount	The Member's accrued benefit, but not less than a pro-rated minimum benefit.
Service-Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) obtained while on duty in the performance of the member's job.
Amount	The greater of 50% of Average Computation Pay and the Member's accrued benefit.
Termination Benefit:	
With less than five years of service	Upon request, the member's contributions will be returned without interest.
With at least five years of service	The member may either withdraw contributions or leave contributions in the Plan and receive a monthly benefit to commence no earlier than the member's earliest eligibility for retirement benefits. Retirement benefit is equal to the accrued benefit as of the date of termination.
Pre-Retirement Death Benefit:	
While in active service	The greater of 50% of the Member's accrued benefit or a benefit based on 20 years of service. The benefit may not exceed 45% of Average Computation Pay.
After leaving active service, with less than five years	A lump sum benefit equal to the return of member contributions with interest.
After leaving active service, with at least five years	50% of the Member's accrued benefit, with no early retirement reduction, or a refund of member contributions
Post-Retirement Death Benefit:	50% of the pension the Member was receiving at the time of their death.
Qualified Surviving Children Benefit:	50% of the pension the Member was receiving at the time of their death, divided equally among the children, paid until the youngest child is 19 years old or for life if the child becomes handicapped prior to age 23
Minimum Survivor Benefit:	$1,100 per month, not to exceed the actual amount the Member was receiving upon their death. If there are no Qualified Surviving Children, the minimum benefit to a spouse who is a Qualified Survivor shall be $1,200 per month. If the Member had less than 20 years of Pension Service, the minimum benefit will be prorated based on actual years of Pension Service.

Special Survivor Benefit:	
Eligibility	Upon leaving active service or joining DROP: a) the Member was at least 55 years old with at least 20 years of pension service, or b) the sum of the Member's age plus Pension Service was at least 78; **and** Has no Qualified Surviving Children or handicapped children currently eligible for survivor benefits; **and** Whose Qualified Surviving Spouse is at least 55 years old. The Qualified Surviving Spouse does not have to be 55 years old at the time of the Member's death.
Amount	Once all the eligibility conditions are met, the amount the Qualified Surviving Spouse will receive increases from 50% of the Member's pension benefit to a percentage of the Member's pension benefit based on 2.5% times the number of years of Pension Service the Member worked.
Survivor Benefit if No Qualified Surviving Spouse:	A lump sum that is the actuarial equivalent of 120 monthly payments of the greater of: 50% of the Member's pension benefit at the time of their death, or a benefit based on 20 years of the Member's service.
DROP:	
Eligibility	Members in active service who are retirement eligible may elect to enter the Deferred Retirement Option Plan (DROP).
Distribution	The DROP account balance will be paid over the expected future lifetime of annuitants.
Interest	Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years; interest rate is based on the expected lifetime of the members at the time they retire.
Cost of Living:	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%.
Member Contributions:	13.5% of computation pay for all members
City Contributions:	The City will contribute 34.5% of computation payroll each year. However, in no case shall the City's total contribution amount be less than: $5,173,000 for the biweekly pay periods beginning with the first biweekly pay period that begins after September 1, 2017 and ends on the last day of the first biweekly pay period that ends after December 31, 2017; $5,344,000 for the following 26 pay periods; $5,571,000 for the following 26 pay periods; $5,724,000 for the following 26 pay periods; $5,882,000 for the following 26 pay periods; $6,043,000 for the following 26 pay periods; $5,812,000 for the following 26 pay periods; and $6,024,000 for the following 26 pay periods. An additional 1/26th of $13 million will be paid biweekly beginning with the first biweekly pay period that begins after September 1, 2017 and ending with the last biweekly pay period that ends after December 31, 2024.
Optional Forms of Benefits:	Life Annuity with 36 months guaranteed; 50% or 75% Husband-and-Wife Pension with Pop-Up; 66-2/3% or 100% Joint and Survivor Pension.
Changes in Plan Provisions:	Active members who elected to enter DROP prior to June 1, 2017 were eligible to revoke the DROP election during the period September 1, 2017 through February 28, 2018.

Section 5: GASB Information

EXHIBIT 1 – NET PENSION LIABILITY

The components of the net pension liability at December 31, 2017 were as follows:

Total pension liability	$4,497,347,017
Plan fiduciary net position	2,103,345,471
Net pension liability	2,394,001,546
Plan fiduciary net position as a percentage of the total pension liability	46.77%

The December 31, 2017 Total Pension Liability does not include the plan provision allowing members who entered DROP before June 1, 2017 to revoke the DROP election during the period from September 1, 2017 through February 28, 2018, since the election window closed after the measurement date.

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of January 1, 2018, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.75%
Real rate of return	4.50%
Investment rate of return	7.25%, net of pension plan investment expense, including inflation

The actuarial assumptions used in the January 1, 2018 valuation were based on the results of an experience study for the period January 1, 2010 to December 31, 2014, plus assumption changes included in the January 1, 2017 and January 1, 2018 valuations. Assumptions are detailed in Section 4, Exhibit I of this report.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2017 are summarized in the table on the following page.

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return[1]
Global Equity	20%	6.54%
Emerging Market Equity	5%	9.41%
Private Equity	5%	10.28%
Short-Term Core Bonds	2%	1.25%
Global Bonds	3%	1.63%
High Yield	5%	4.13%
Bank Loans	6%	3.46%
Structured Credit and Absolute Return	6%	5.38%
Emerging Markets Debt	6%	4.42%
Private Debt	5%	7.30%
Natural Resources	5%	7.62%
Infrastructure	5%	6.25%
Real Estate	12%	4.90%
Liquid Real Assets	3%	4.71%
Asset Allocation	10%	4.90%
Cash	2%	1.06%
Total	100%	

[1]As provided by Segal Marco Advisors, a member of The Segal Group. The real rates of return are net of inflation.

Discount rate: The discount rate used to measure the total pension liability was 7.25%. The projection of cash flows used to determine the discount rate assumed City contributions will be made in accordance with the provisions of House Bill 3158, including statutory minimums through 2024 and 34.50% of computation pay thereafter. Members are expected to contribute 13.50% of computation pay. For cash flow purposes, projected payroll is based on 90% of the City's Hiring Plan payroll projections through 2037, increasing by 2.75% per year thereafter. This payroll projection is used for cash flow purposes only and does not impact the Total Pension Liability. The normal cost rate for future members is assumed to be 14.60% for all years. Based on these assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Actuarial cost method: In accordance with GASB 67, the Total Pension Liability for active members is valued as the total present value of benefits once they enter the DROP. For the funding valuation, the liability for these members accumulates from their entry age until they are assumed to leave active service.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 7.25%, as well as what the net pension liability would be if it were calculated using a discount rate that is one percentage-point lower (6.25%) or one percentage-point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	Current Discount (7.25%)	1% Increase (8.25%)
Net pension liability	$2,886,443,863	$2,394,001,546	$1,980,919,718

EXHIBIT 2 – SCHEDULE OF CHANGES IN NET PENSION LIABILITY

	2017	2016
Total pension liability		
• Service cost	$148,551,831	$167,432,312
• Interest	348,171,140	360,567,435
• Change of benefit terms	-1,167,597,186	0
• Differences between expected and actual experience	-134,664,749	-77,462,935
• Changes of assumptions	-2,851,241,104	-712,003,982
• Benefit payments, including refunds of member contributions	-296,153,811	-825,092,132
Net change in total pension liability	**-$3,952,933,879**	**-$1,086,559,302**
Total pension liability – beginning	**8,450,280,896**	**9,536,840,198**
Total pension liability – ending (a)	**$4,497,347,017**	**$8,450,280,896**
Plan fiduciary net position		
• Contributions – employer	$126,318,005	$119,345,000
• Contributions – employee	32,977,425	25,518,317
• Net investment income	98,911,150	164,790,956
• Benefit payments, including refunds of member contributions	-296,153,811	-825,092,132
• Administrative expense	-8,089,584	-9,492,445
• Interest expense	-1,279,517	-4,532,196
Net change in plan fiduciary net position	**-$47,316,332**	**-$529,462,500**
Plan fiduciary net position – beginning	**2,150,661,803**	**2,680,124,303**
Plan fiduciary net position – ending (b)	**$2,103,345,471**	**$2,150,661,803**
Net pension liability – ending (a) – (b)	**$2,394,001,546**	**$6,299,619,093**
Plan fiduciary net position as a percentage of the total pension liability	**46.77%**	**25.45%**
Covered employee payroll	**$346,036,690**	**$357,414,472**
Net pension liability as percentage of covered employee payroll	**691.83%**	**1,762.55%**

Notes to Schedule:

Benefit changes: Plan changes effective September 1, 2017 that were signed into law May 31, 2017 as HB 3158 are reflected for the first time in the December 31, 2017 total pension liability, along with assumption changes that were implemented as part of the plan changes. These changes are summarized in Section 1 of the January 1, 2017 actuarial valuation, except that the COLA start date has been updated from October 1, 2049 to October 1, 2053 and the interest rate for the annuitization of DROP balances upon retirement has been updated from 2.75% to 3.00%.

Change of Assumptions: The blended discount rate increased from 3.95% to 4.12% as of December 31, 2016, and from 4.12% to 7.25% as of December 31, 2017. The assumption changes in 2016 also included updates to the salary scale to reflect the Meet and Confer Agreement, and a change to the expected DROP interest payable.

EXHIBIT 3 – SCHEDULE OF EMPLOYER CONTRIBUTIONS

Year Ended December 31	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions[1]	Contribution Deficiency (Excess)	Covered-Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
2015[2]	- -	$114,885,723	- -	$383,006,330	30.00%
2016	$261,859,079	119,345,000	$142,514,079	365,210,426	32.68%
2017	168,865,484	126,318,005	42,547,479	357,414,472	35.34%

[1]The City's contributions are based on statutory rates set by State law and not on Actuarially Determined Contributions.

[2]The Actuarially Determined Contribution was not directly calculated as a dollar amount by the prior actuary for the year ended 2015.

Notes to Schedule:

Methods and assumptions used to determine contribution rates for the year ended December 31, 2017:

Valuation date	Actuarially determined contribution is calculated using a January 1, 2017 valuation date as of the beginning of the year in which contributions are reported
Actuarial cost method	Entry age
Amortization method	30-year level percent of payroll, using 2.75% annual increases
Remaining amortization period	Infinite as of January 1, 2017
Asset valuation method	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the actuarial value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Investment rate of return	7.25%, including inflation, net of pension plan investment expense
Inflation rate	2.75%
Projected salary increases	Inflation plus merit increases, varying by group and service
Retirement rates	Group-specific rates based on age
Cost-of-living adjustments	2.00% simple increases starting October 1, 2049

Mortality:	
Pre-retirement	Sex-distinct RP-2014 Employee Mortality Table, set back two years for males, projected generationally using Scale MP-2015
Healthy annuitant	Sex-distinct RP-2014 Healthy Annuitant Mortality Table, set forward two years for females, projected generationally using Scale MP-2015
Disabled	Sex-distinct RP-2014 Disabled Retiree Mortality Table, set back three years for males and females, projected generationally using Scale MP-2015
Other information	See Section 4 of the January 1, 2017 actuarial valuation for a full outline of assumptions. See Exhibit 2 of this Section for the history of changes to plan provisions and assumptions over the last two years.
DROP utilization	0% of Police and Fire members are assumed to elect to enter DROP
Interest on DROP Accounts	6.00% per annum, until September 1, 2017 Beginning September 1, 2017: – 2.75% on annuitant account balances – 2.75% payable upon retirement on active account balances as of September 1, 2017 – 0.00% on active account balances accrued after September 1, 2017

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Dallas Police and Fire Pension System Supplemental Plan

Actuarial Valuation and Review as of January 1, 2018

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September 11, 2018

Board of Trustees
Dallas Police and Fire Pension System Supplemental Plan
4100 Harry Hines Blvd., Suite 100
Dallas, TX 75219-3207

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of January 1, 2018. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal 2018.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Supplemental Plan. The census information on which our calculations were based was prepared by the System’s IT Department under the supervision of John Holt, and the financial informatin was provided by the System’s Finance Department. That assistance is gratefully acknowledged.

The actuarial calculations were directed under our supervision. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan. Since the members in this Supplemental Plan are a subset of the Dallas Police and Fire Pension System Combined Pension Plan, and since the assets are invested together, the same assumptions are used for both. Changes impacting the larger plan will impact this one as well.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: Jeffrey S. Williams

Jeffrey S. Williams, FCA, ASA, MAAA, EA
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Section 1: Actuarial Valuation Summary

Purpose and Basis

This report was prepared by Segal Consulting to present a valuation of the Dallas Police and Fire Pension System Supplemental Plan as of January 1, 2018. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to provide information for required disclosures under Governmental Accounting Standards Board (GASB) Statement No. 67. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: 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; and changes in plan provisions or applicable law.

Certain disclosure information required by GASB Statement No. 68 as of September 30, 2018 for the City will be provided in a separate report.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, as administered by the Board;
- The characteristics of covered active members, inactive vested members and inactive members due a refund of contributions, and retired members and beneficiaries as of December 31, 2017, provided by the System's IT Department;
- The unaudited assets of the Plan as of December 31, 2017, provided by the System's Finance Department;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions regarding employee terminations, retirement, death, etc.

The majority of the assumptions and methods used to value the Plan were set by the Board based on recommendations made by Segal Consulting following a five-year experience study for the period ended December 31, 2014. Additional assumption changes were made as part of the plan changes effective September 1, 2017, as well as the Meet and Confer Agreement for salary scale purposes through 2019. Assumptions are reviewed and updated annually as needed.

Significant Issues

1. The City's actuarially determined contribution for the upcoming year is $2,273,581, an increase of $186,942 from last year. The contribution is based on a ten-year level percent-of-payroll amortization of the unfunded actuarial accrued liability.
2. Segal Consulting ("Segal") recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance. The funding policy for the Plan reflects an open, or rolling, ten-year amortization period. A ten-year period is relatively short compared to other systems, and as long as the City pays the contribution on this basis, the normal cost, interest, and a portion of the principal will be covered. Therefore the unfunded liability is expected to decrease if all assumptions are met. However, the unfunded liability will never be paid off in full because the remaining principal is reamortized annually. Thus, the funded ratio should approach 100% over time, but full funding will not occur unless there are experience gains from other sources.
3. The rate of return on the market value of assets was 4.24% for the 2017 plan year. This return was in line with short-term expectations, as the System works to rebalance its investment portfolio. The 4.24% return resulted in an actuarial loss of $523,509, or 1.6% of actuarial accrued liability, when measured against the assumed rate of return of 7.25%. Based on the System's investment targets, Segal continues to support 7.25% as a reasonable long-term net investment return assumption. However, we will continue to monitor actual and anticipated returns.
4. The net experience loss from sources other than investment experience was also 1.6% of liability, prior to reflection of assumption and plan changes. This loss was primarily due to a 95% increase in average supplemental computation pay. The pay is subject to significant fluctuations from year to year, due to the excess pay nature of the Supplemental Plan.
5. Actual City contributions made during the plan year ending December 31, 2017 were $2,077,059, 99.5% of the actuarially determined contribution. In the prior fiscal year, actual City contributions were $3,063,584, 100.0% of the prior year actuarially determined contribution.
6. Although the City paid almost 100% of the required contribution during the plan year ending December 31, 2017, the experience losses incurred during the year mean that the total contributions made were insufficient to reduce the unfunded actuarial accrued liability. The unfunded actuarial accrued liability as of the valuation date is $16,744,953, which is an increase of $1,024,658 since the prior valuation.
7. The funded ratio (the ratio of assets to actuarial accrued liability) is 51.5%, compared to the prior year funded ratio of 52.9%. This ratio is one measure of funding status, and its history is a measure of funding progress. This measurement is not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions.

8. The following actuarial assumptions were changed with this valuation:
   - The administrative expense assumption was increased from $60,000 to $65,000.
   - The interest rate assumption payable upon retirement on DROP accounts as of September 1, 2017 was increased from 2.75% to 3.00%.
   - The ad-hoc COLA assumption was updated to begin October 1, 2053 based on the updated projection of the unfunded actuarial accrued liability of the main plan; last year's assumption was that the COLA would begin October 1, 2049.

   As a result of these assumption changes, the total normal cost decreased by $1,182 and the actuarial accrued liability decreased by $17,284. The total impact was a decrease in the actuarially determined contribution of $3,378.
9. Active members who elected DROP prior to June 1, 2017 were eligible to revoke the DROP election during the period from September 1, 2017 to February 28, 2018. This plan change is included for the first time in this valuation, and it resulted in a normal cost increase of $12,032 and an increase in actuarial accrued liability of $897,084. The total impact was an increase in the actuarially determined contribution of $123,041.
10. This actuarial report as of January 1, 2018 is based on financial and demographic data as of December 31, 2017, plus the impact of DROP revocations that occurred between January 1, 2018 and February 28, 2018. Subsequent changes are not reflected and will affect future actuarial costs of the plan.
11. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined employer contribution under (ADEC) the Plan's funding policy and measuring the progress of that funding policy. The information contained in Section 5 provides the accounting information for Governmental Accounting Standards Board (GASB) Statement No. 67, for inclusion in the plan and employer's financial statements as of December 31, 2017. The Net Pension Liability (NPL) and Pension Expense under Governmental Accounting Standards Board (GASB) Statement No. 68, for inclusion in the plan and employer's financial statements as of September 30, 2018, will be provided separately.
12. The Net Pension Liability (NPL) is equal to the difference between the Total Pension Liability (TPL) and the Plan's fiduciary net position (equal to the market value of assets). The NPL as of December 31, 2017 is $15.9 million, a decrease from $23.0 million as of December 31, 2016.
13. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions.

Summary of Key Valuation Results

		2018	2017
Contributions for plan year beginning January 1, adjusted for timing:	• Total actuarially determined contribution (City and Member)	$2,407,912	$2,132,808
	• Expected member contributions	134,331	46,169
	• City's actuarially determined employer contribution (ADEC)	2,273,581	2,086,639
	• Actual City contributions	--	$2,077,059
	• Amortization period for determination of ADEC	10 years	10 years
Actuarial accrued liability for plan year beginning January 1:	• Retired members and beneficiaries	$30,668,245	$30,160,174
	• Inactive vested participants	11,861	- -
	• Active participants	3,870,000	3,223,660
	• Total	34,550,106	33,383,834
	• Employer normal cost including administrative expenses	179,963	122,779
Assets for plan year beginning January 1:	• Actuarial (Market) value of assets	$17,805,153	$17,663,539
Funded status for plan year beginning January 1:	• Unfunded actuarial accrued liability	$16,744,953	$15,720,295
	• Funded percentage	51.53%	52.91%
Key assumptions:	• Net investment return	7.25%	7.25%
	• Inflation rate	2.75%	2.75%
	• Payroll increase	2.75%	2.75%
GASB information:	• Discount rate	7.25%	7.10%
	• Total pension liability	$33,670,180	$40,647,671
	• Plan fiduciary net position	17,805,153	17,670,327
	• Net pension liability	15,865,027	22,977,344
	• Plan fiduciary net position as a percentage of total pension liability	52.88%	43.47%
Demographic data for plan year beginning January 1:	• Number of retired members and beneficiaries	140	128
	• Number of inactive vested members	1	- -
	• Number of active members	44	47
	• Total supplemental computation pay	$960,825	$525,048
	• Average supplemental computation pay	21,837	11,171

Important Information About Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

Plan of benefits	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Participant data	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.
Assets	The valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial assumptions	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Board. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Actuarial results in this report are not rounded, but that does not imply precision.
- If the Board is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

Section 2: Actuarial Valuation Results

Member Data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive vested members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A, B,* and *C*.

MEMBER POPULATION: 2008 – 2017

Year Ended December 31	Active Members	Inactive Vested Members	Retired Members and Beneficiaries	Total Non-Actives	Ratio of Non-Actives to Actives
2008	41	- -	112	112	2.73
2009	40	- -	112	112	2.80
2010	39	- -	113	113	2.90
2011	37	- -	113	113	3.05
2012	39	- -	120	120	3.08
2013	38	- -	120	120	3.16
2014	39	- -	122	122	3.13
2015	45	- -	124	124	2.76
2016	47	- -	128	128	2.72
2017	44	1	140	141	3.20

Active Members

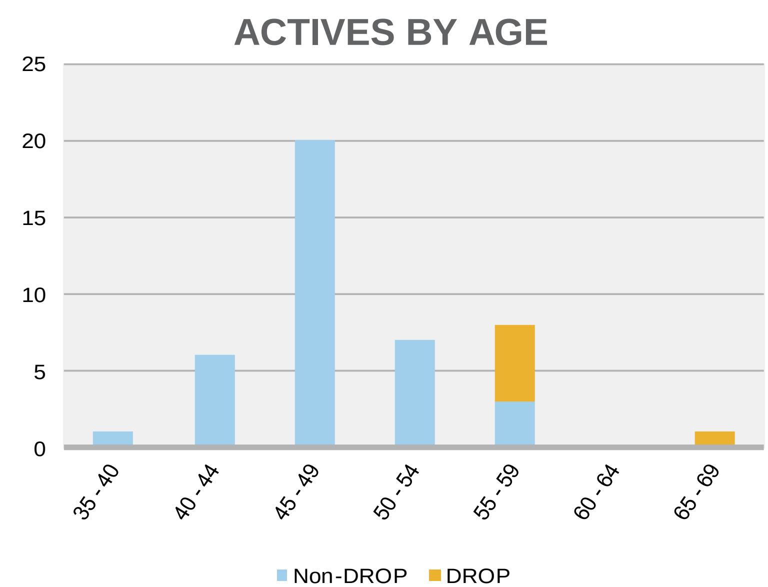
Plan costs are affected by the age, years of service and supplemental computation pay of active members. In this year's valuation, there were 44 active members with an average age of 49.8, average years of service of 24.3 years and average supplemental computation pay of $21,837. The 47 active members in the prior valuation had an average age of 50.1, average service of 26.4 years and average supplemental computation pay of $11,171.

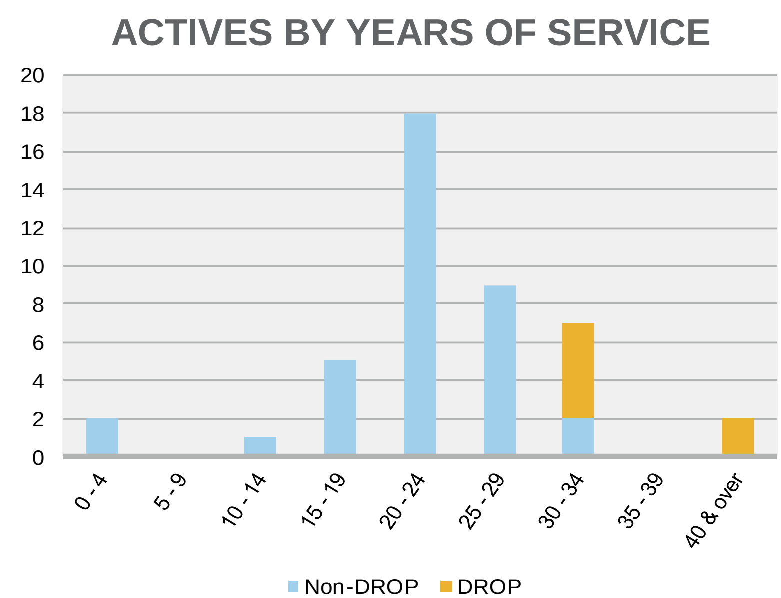
The number of active Firefighters increased from 15 to 17 as of December 31, 2017. The average age of this group is 49.8, the average years of service is 22.8, and the average supplemental computation pay is $24,106. Last year these averages were 50.8, 26.6 and $7,330, respectively.

The number of active Police Officers decreased from 32 to 27 as of December 31, 2017. The average age of this group decreased from 49.8 to 49.7, and the average years of service decreased from 26.2 to 25.2. The average supplemental computation pay increased from $12,972 to $20,408.

The number of active participants participating in DROP decreased significantly, from 16 at the end of 2016 to 7 at the end of 2017.

Distribution of Active Participants as of December 31, 2017





Inactive Members

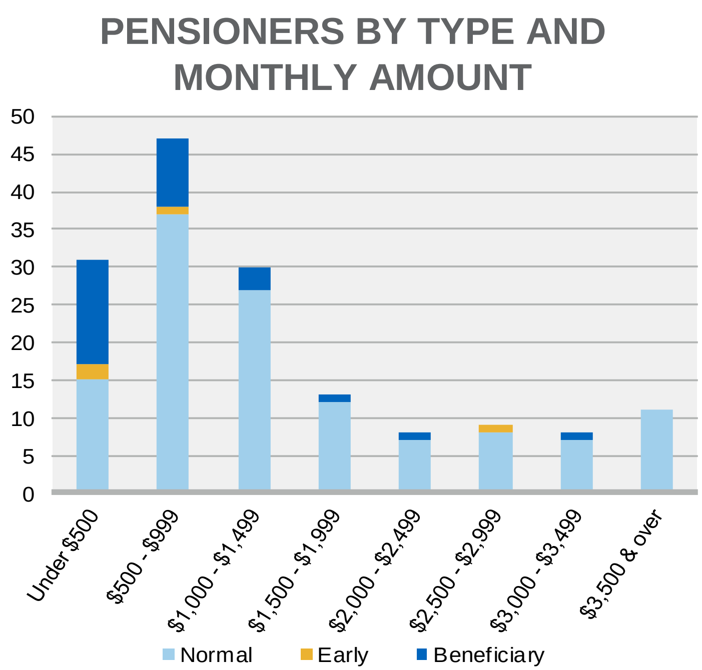
In this year's valuation, there was one member with a vested right to a deferred or immediate vested benefit, compared to none last year.

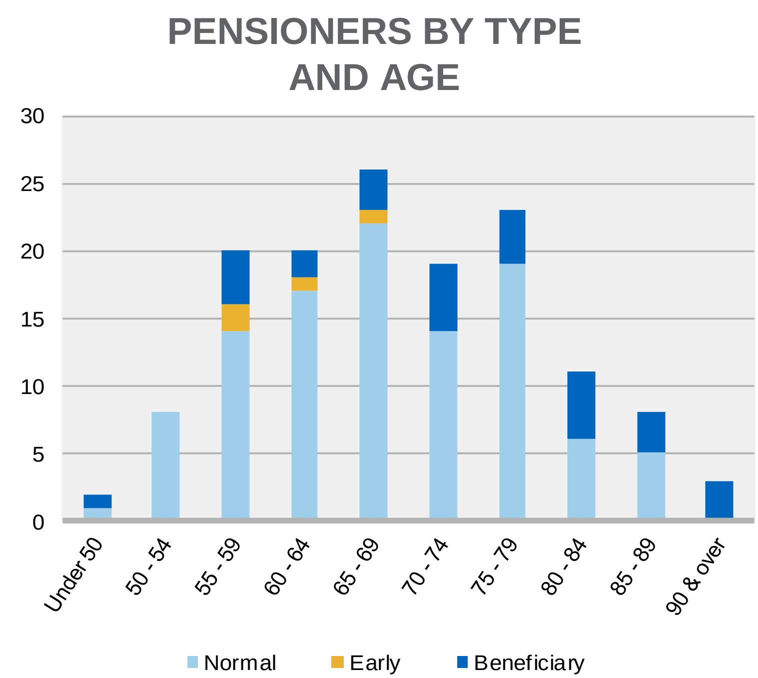
Retired Members and Beneficiaries

As of December 31, 2017, 110 retired members and 30 beneficiaries were receiving total monthly benefits of $205,026. For comparison, in the previous valuation, there were 100 retired members and 28 beneficiaries receiving monthly benefits of $198,156.

As of December 31, 2017, the average monthly benefit for retired members is $1,464, compared to $1,548 in the previous valuation. The average age for retired members is 69.5 in the current valuation, compared with 69.5 in the prior valuation.

Distribution of Pensioners as of December 31, 2017





Historical Plan Population

The chart below demonstrates the progression of the active population over the last ten years. The chart also shows the growth among the retired population over the same time period.

MEMBER DATA STATISTICS: 2008 – 2017

	Active Participants			Retired Members and Beneficiaries		
Year Ended December 31	Count	Average Age	Average Service	Count	Average Age[1]	Average Monthly Amount
2008	41	51.5	25.9	112	--	$1,228
2009	40	51.7	26.6	112	--	1,264
2010	39	52.1	27.5	113	--	1,331
2011	37	53.1	29.0	113	--	1,384
2012	39	49.9	24.2	120	--	1,381
2013	38	49.6	26.0	120	--	1,402
2014	39	50.2	26.6	122	--	1,406
2015	45	50.5	26.7	124	69.3	1,452
2016	47	50.1	26.4	128	69.5	1,548
2017	44	49.8	24.3	140	69.5	1,464

[1]Information for December 31, 2014 and earlier is not available.

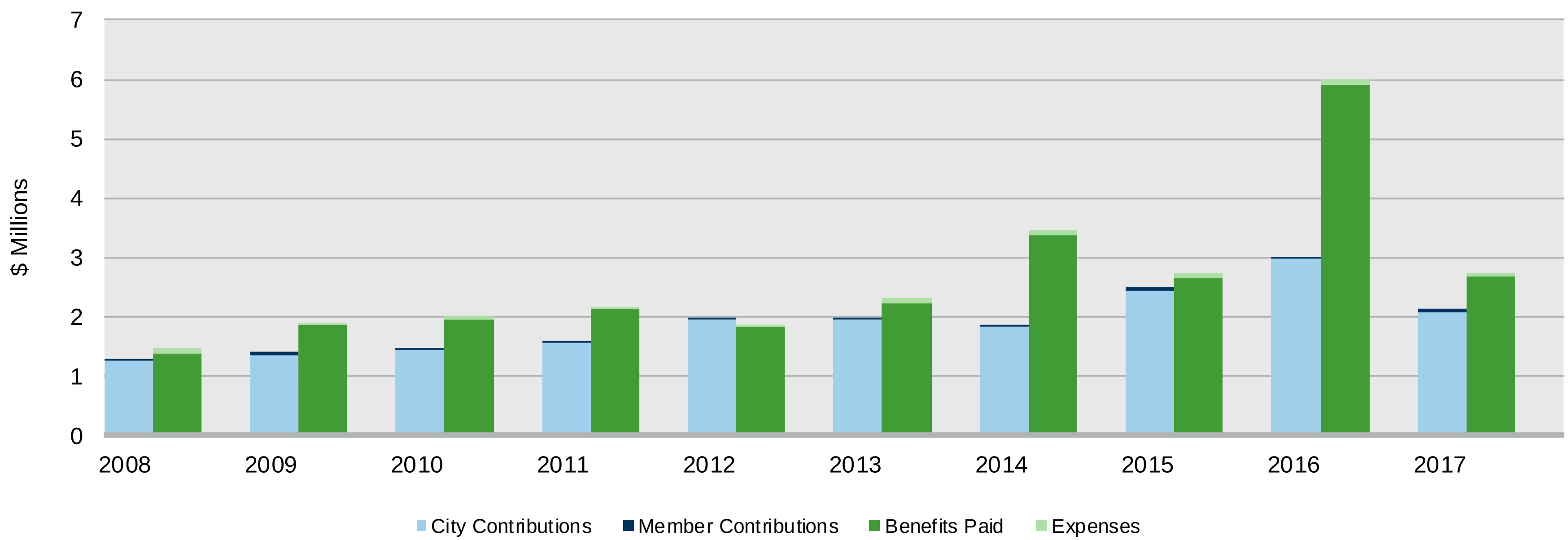
Financial Information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

Benefit payments in 2016 totaled $5.9 million, of which $3.8 million were DROP lump sum payments. This was a one-time event, as members reacted to pending changes in the plan provisions. DROP balances have been annuitized, which should result in more predictable benefit payment levels in the future.

Additional financial information, including a summary of transactions for the valuation year, is presented in *Section 3*, *Exhibits D*, *E* and *F*.

COMPARISON OF CONTRIBUTIONS MADE WITH BENEFITS AND EXPENSES PAID
FOR YEARS ENDED DECEMBER 31, 2008 – 2017



It is desirable to have level and predictable plan costs from one year to the next. However, the Board has approved an asset valuation method that uses market value. Under this valuation method, the full value of market fluctuation is recognized in a single year and, as a result, the asset value and the plan costs are relatively volatile. The Supplemental Plan is small compared to the Combined Pension Plan, and City contributions to this plan are less than 2% of the total amount that the City contributes to the System. Thus, some volatility can be withstood.

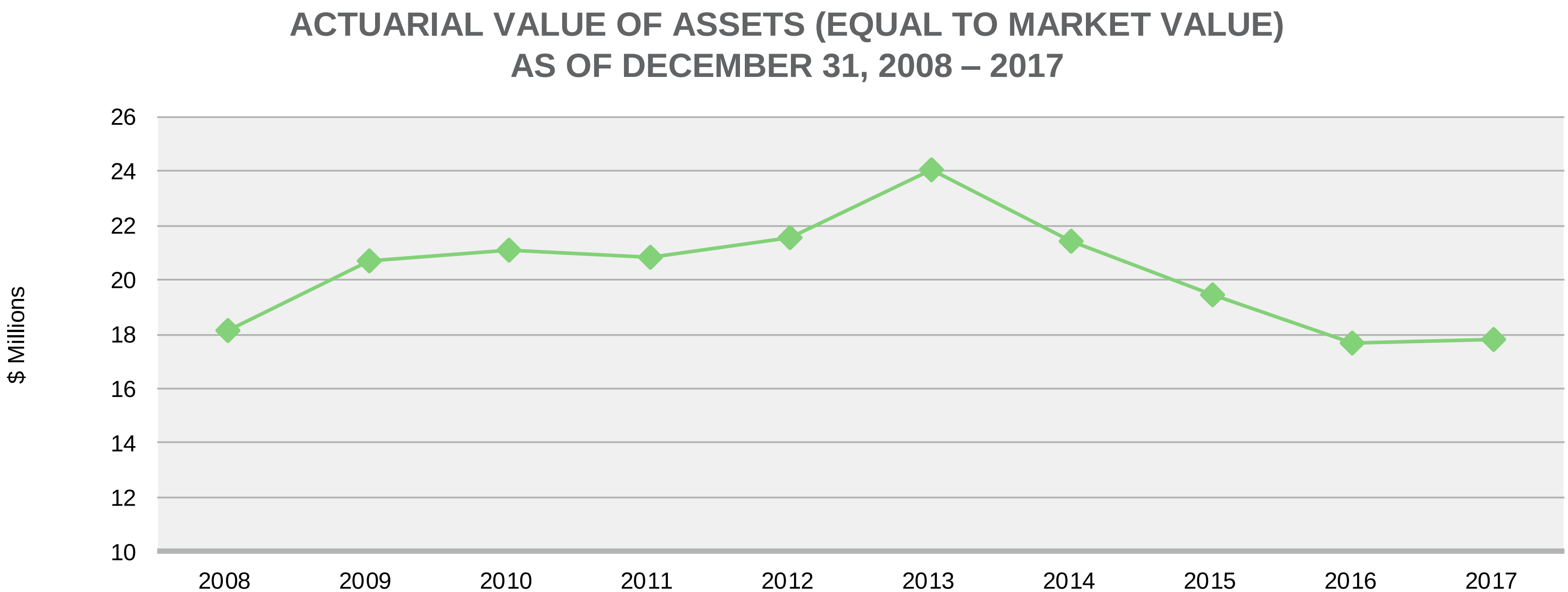
The Board has the option to adopt an asset "smoothing" method in the future should they decide the current method (using market value) is producing undesirable fluctuations.

DETERMINATION OF ACTUARIAL VALUE OF ASSETS FOR YEAR ENDED DECEMBER 31, 2017

1.	Actuarial value of assets = Market value of assets	$17,805,153

The actuarial value (equal to the market value of assets) is a representation of the Plan's financial status. The actuarial asset value is significant because the Plan’s liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

The decline in asset values from 2013 to 2015 was primarily the result of significant write-downs in the Plan’s asset holdings. The decline from 2015 to 2016 reflects the unusually large number of DROP payments made in 2016.



Actuarial Experience

To calculate any actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), any contribution requirement will decrease from the previous year. On the other hand, any contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss is $1,045,579, which includes $523,509 from investment losses and $522,070 in losses from all other sources. The net experience variation from individual sources other than investments was 1.6% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

ACTUARIAL EXPERIENCE FOR YEAR ENDED DECEMBER 31, 2017

1	Net loss from investments[1]	-$523,509
2	Net loss from administrative expenses	-8,832
3	Net loss from other experience	-513,238
4	Net experience loss: **1 + 2 + 3**	-$1,045,579

[1] Details on next page.

Investment Experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Plan's investment policy.

For valuation purposes, the assumed rate of return on the actuarial value of assets is 7.25%. The actual rate of return on an actuarial basis for the 2017 plan year was 4.24%. Since the actual return for the year was less than the assumed return, the Plan experienced an actuarial loss during the year ended December 31, 2017 with regard to its investments.

INVESTMENT EXPERIENCE

		Year Ended December 31, 2017	Year Ended December 31, 2016
		Actuarial (Market) Value	Actuarial (Market) Value
1	Net investment income	$735,567	$1,176,323
2	Average value of assets	17,366,563	17,971,961
3	Rate of return: 1 ÷ 2	4.24%	6.55%
4	Assumed rate of return	7.25%	7.25%
5	Expected investment income: 2 x 4	1,259,076	1,302,967
6	Actuarial gain/(loss): 1 – 5	-$523,509	-$126,644

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis for the last ten years, including averages over select time periods.

INVESTMENT RETURN – ACTUARIAL VALUE OF ASSETS (EQUAL TO MARKET VALUE): 2008 - 2017

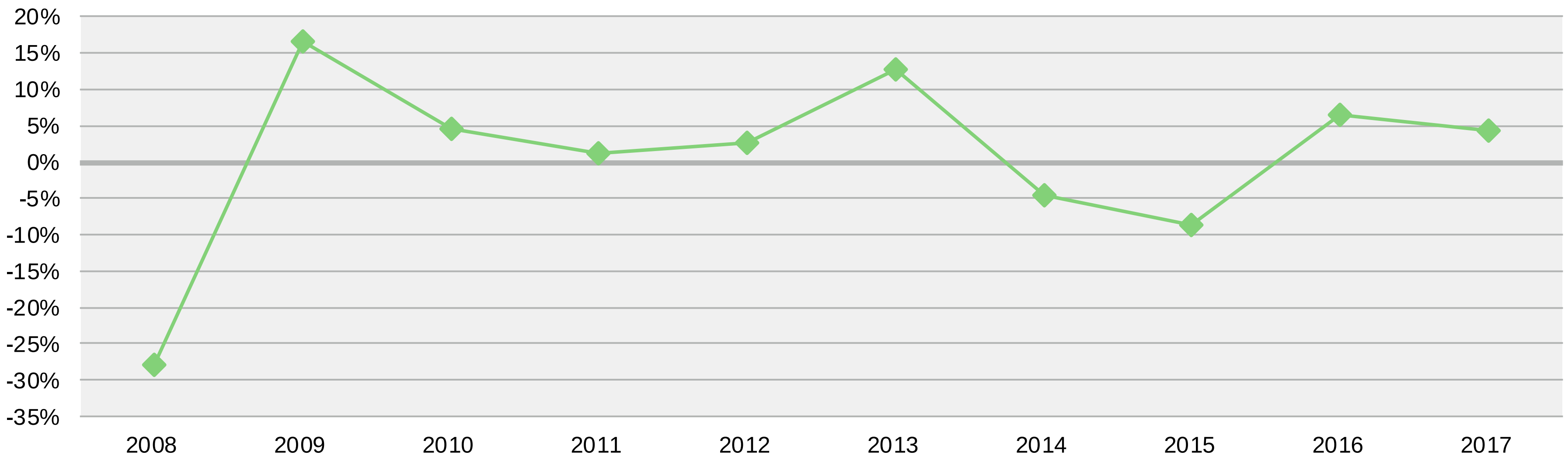
	Actuarial (Market) Value Investment Return[1]	
Year Ended December 31	Amount	Percent
2008	-$7,039,494	-27.92%
2009	2,985,884	16.66
2010	924,634	4.52
2011	252,054	1.21
2012	578,432	2.77
2013	2,712,000	12.65
2014	-1,091,374	-4.69
2015	-1,828,695	-8.56
2016	1,176,323	6.55
2017	735,567	4.24
Total	-$594,669	
Most recent five-year average return		1.68%
Most recent ten-year average return		-0.29%

Note: Each year's yield is weighted by the average asset value in that year.

[1]Returns for years 2014 and 2015 include significant write-downs of the Plan's assets.

The actuarial value of assets has been equal to market value for the last ten years. This, combined with recent asset write-downs, has resulted in relatively volatile actuarial rates of return and pension plan cost.

ACTUARIAL RATES OF RETURN (EQUAL TO MARKET VALUE RATES OF RETURN) FOR YEARS ENDED DECEMBER 31, 2008 - 2017



Administrative Expenses

Administrative expenses for the year ended December 31, 2017 totaled $68,528 compared to the assumption of $60,000, payable monthly. This resulted in a loss of $8,832 for the year, when adjusted for timing. We have increased the assumption from $60,000 to $65,000, payable monthly, for the current year.

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among participants,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected), and
- salary increases (greater or smaller than projected).

The net loss from this other experience for the year ended December 31, 2017 amounted to $513,238, which is 1.6% of the actuarial accrued liability. This loss was primarily due to a 95% increase in average supplemental computation pay. The excess pay nature of the Supplemental Plan lends itself to potentially significant gains and losses in a single year.

Changes in the Actuarial Accrued Liability

The actuarial accrued liability as of January 1, 2018 is $34,550,106, an increase of $1,166,272, or 3.5%, from the actuarial accrued liability as of the prior valuation date. The liability is expected to grow each year with normal cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed in the previous subsection).

Actuarial Assumptions

The assumption changes reflected in this report are:

- The DROP account interest rate assumption for the annuitization of September 31, 2017 DROP balances was increased from 2.75% to 3.00%.
- The COLA is assumed to begin October 1, 2053 based on the year the System is projected to be 70% funded on a market value basis; last year's assumption was that the COLA would begin October 1, 2049.
- Administrative expenses increased from $60,000 to $65,000 for the year beginning January 1, 2018.
- These changes decreased the actuarial accrued liability by 0.05% and decreased the normal cost by 0.48%.
- Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

Plan Provisions

The plan change reflected in this report is:

- Members who entered DROP before June 1, 2017 were allowed to revoke the DROP election during the period from September 1, 2017 through February 28, 2018. The valuation reflects these DROP revocations.
- These changes increased the actuarial accrued liability by 2.66% and increased the normal cost by 5.10%.
- A summary of plan provisions is in Section 4, Exhibit II.

Development of Unfunded Actuarial Accrued Liability

DEVELOPMENT FOR YEAR ENDED DECEMBER 31, 2017

1	Unfunded actuarial accrued liability at beginning of year		$15,720,295
2	Normal cost at beginning of year		167,359
3	Total contributions		-2,143,154
4	Interest		
	• For whole year on 1 + 2	$1,151,855	
	• For half year on 3	-76,781	
	Total interest		1,075,074
5	Expected unfunded actuarial accrued liability		$14,819,574
6	Changes due to:		
	• Net experience loss	$1,045,579	
	• Plan provisions	897,084	
	• Assumptions	-17,284	
	Total changes		$1,925,379
7	Unfunded actuarial accrued liability at end of year		$16,744,953

Actuarially Determined Contribution

The actuarially determined contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. As of January 1, 2018, the actuarially determined contribution is $2,273,581.

The funding policy used to calculate the actuarially determined contribution is based on an open amortization period of ten years. The payment on the unfunded actuarial accrued liability accounts for nearly 92% of the City's recommended contribution.

The contribution requirement as of January 1, 2018 are based on the data previously described, the actuarial assumptions and Plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

ACTUARIALLY DETERMINED CONTRIBUTION FOR YEAR BEGINNING JANUARY 1

		2018	2017
1.	Total normal cost	$246,909	$109,422
2.	Assumed administrative expenses	62,765	57,937
3.	Expected member contributions	-129,711	-44,580
4.	Employer normal cost: (1) + (2) - (3)	$179,963	$122,779
5.	Actuarial accrued liability	$34,550,106	$33,383,834
6.	Actuarial value of assets	17,805,153	17,663,539
7.	Unfunded actuarial accrued liability: (5) - (6)	$16,744,953	$15,720,295
8.	Payment on unfunded actuarial accrued liability	2,015,427	1,892,099
9.	Adjustment for timing[1]	78,190	71,761
10.	Actuarially determined employer contribution: (4) + (8) + (9)	$2,273,581	$2,086,639
11.	Total supplemental computation pay	$960,825	$525,048

[1]Actuarially determined contributions are assumed to be paid at the middle of every year.

Reconciliation of Actuarially Determined Contribution

The chart below details the changes in the actuarially determined contribution from the prior valuation to the current year's valuation.

RECONCILIATION OF ACTUARIALLY DETERMINED CONTRIBUTION FROM JANUARY 1, 2017 TO JANUARY 1, 2018

	Amount
Actuarially Determined Contribution as of January 1, 2017	$2,086,639
• Effect of maintaining ten-year amortization period	-176,258
• Effect of DROP revocations	118,041
• Effect of investment loss	71,070
• Effect of expected change in amortization payment due to payroll growth	53,886
• Effect of change in administrative expense assumption	5,000
• Effect of other changes in actuarial assumptions	-3,378
• Effect of contributions more than actuarially determined contribution	-1,516
• Effect of other gains and losses on accrued liability	70,875
• Net effect of other changes, including composition and number of participants	49,222
Total change	$186,942
Actuarially Determined Contribution as of January 1, 2018	$2,273,581

History of Employer Contributions

A history of the most recent years of contributions is shown below.

HISTORY OF EMPLOYER CONTRIBUTIONS: 2011 – 2018

Fiscal Year Ended December 31	Actuarially Determined Employer Contribution (ADEC)[1]	Actual Employer Contribution	Percent Contributed
2011	$1,543,717	$1,543,717	100.00%
2012	1,954,022	1,954,022	100.00%
2013	1,935,588	1,935,588	100.00%
2014	1,817,136	1,817,136	100.00%
2015	2,442,790	2,442,790	100.00%
2016	3,063,584	3,063,584	100.00%
2017	2,086,639	2,077,059	99.54%
2018	2,273,581	N/A	N/A

[1]Prior to 2015, this amount was the Annual Required Contribution (ARC).

Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

The contributions of this Plan can fluctuate significantly from year to year, due to its nature as an excess pay plan and the fact that the covered population is small, The assets are likely to fluctuate considerably from year to year as well, since there is no smoothing method in place. As mentioned previously, City contributions to this Plan are less than 2% of the total amount that the City contributes to the System, and therefore some volatility can be withstood.

This report does not contain a detailed analysis of the potential range of future measurements; the Combined Plan valuation report includes a discussion of risk factors that may impact the System, and as a result, this Plan. Upon request, a more detailed assessment can be provided to enable a better understanding of the specific risks.

GFOA Solvency Test

The Actuarial Accrued Liability represents the present value of benefits earned, calculated using the plan's actuarial cost method. The Actuarial Value of Assets reflects the financial resources available to liquidate the liability. The portion of the liability covered by assets reflects the extent to which accumulated plan assets are sufficient to pay future benefits, and is shown for liabilities associated with employee contributions, pensioner liabilities, and other liabilities.

The Government Finance Officers Association (GFOA) recommends that the funding policy aim to achieve a funded ratio of 100 percent. As noted previously, the use of a rolling ten-year amortization period means the unfunded actuarial accrued liability is projected to decline each year, but will never fully be paid off.

GFOA SOLVENCY TEST AS OF DECEMBER 31

	2018	2017
Actuarial accrued liability (AAL)		
• Active member contributions	$170,398	$106,211
• Retirees and beneficiaries	30,668,245	30,160,174
• Active and inactive members (employer-financed)	3,711,463	3,117,449
Total	$34,550,106	$33,383,834
Actuarial value of assets	$17,805,153	$17,663,539
Cumulative portion of AAL covered		
• Active member contributions	100.00%	100.00%
• Retirees and beneficiaries	57.50%	58.21%
• Active and inactive members (employer-financed)	0.00%	0.00%

Actuarial Balance Sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current participants is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the "liability" of the Plan.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

ACTUARIAL BALANCE SHEET

	Year Ended	
	December 31, 2017	**December 31, 2016**
Liabilities		
• Present value of benefits for retired members and beneficiaries (non-DROP)	$23,148,147	$22,900,929
• Present value of benefits for retired members and beneficiaries (DROP)	7,520,098	7,259,245
• Present value of benefits for inactive vested members	11,861	0
• Present value of benefits for active members	4,925,368	3,591,198
Total liabilities	**$35,605,474**	**$33,751,372**
Assets		
• Total valuation value of assets	$17,805,153	$17,663,539
• Present value of future contributions by members	547,393	181,906
• Present value of future employer contributions for:		
» Entry age cost	507,975	185,632
» Unfunded actuarial accrued liability	16,744,953	15,720,295
Total of current and future assets	**$35,605,474**	**$33,751,372**

Section 3: Supplemental Information

EXHIBIT A – TABLE OF PLAN COVERAGE

Category	Year Ended December 31 2017	Year Ended December 31 2016	Change From Prior Year
Total active members in valuation:			
• Number	44	47	-6.4%
• Average age	49.8	50.1	-0.3
• Average years of service	24.3	26.4	-2.1
• Total supplemental computation pay	$960,825	$525,048	83.0%
• Average supplemental computation pay	21,837	11,171	95.5%
• Accumulated contribution balances	170,398	106,211	60.4%
• Total active vested members	42	47	-10.6%
Active members (excluding DROP):			
• Number	37	31	19.4%
• Average age	47.8	46.5	1.3%
• Average years of service	21.8	22.2	-0.4%
• Total supplemental computation pay	$856,055	$231,730	269.4%
• Average supplemental computation pay	23,137	7,475	209.5%
Active members (DROP only):			
• Number	7	16	-56.3%
• Average age	60.3	57.2	3.1
• Average years of service	37.1	34.3	2.8
• Total supplemental computation pay	$104,770	$293,318	-64.3%
• Average supplemental computation pay	14,967	18,332	-18.4%
• DROP account balances	589,633	757,045	-22.1%
Inactive vested members:			
• Number	1	0	N/A
• Average age	47.0	N/A	N/A
• Average monthly benefit	$95	N/A	N/A

Category	Year Ended December 31		Change From Prior Year
	2017	2016	
Retired members:			
• Number in pay status	110	100	10.0%
• Average age	67.9	68.9	-1.0
• Average monthly benefit	$1,633	$1,752	-6.8%
Beneficiaries:			
• Number in pay status	30	28	7.1%
• Average age	75.3	74.3	1.0
• Average monthly benefit	$846	$822	2.9%

EXHIBIT B-1 – TOTAL PARTICIPANTS IN ACTIVE SERVICE AS OF DECEMBER 31, 2017 BY AGE, YEARS OF SERVICE, AND AVERAGE SUPPLEMENTAL COMPUTATION PAY

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
35 - 39	1	- -	- -	1	- -	- -	- -	- -	- -	- -
	$2,737	- -	- -	$2,737	- -	- -	- -	- -	- -	- -
40 - 44	6	- -	- -	- -	3	3	- -	- -	- -	- -
	7,459	- -	- -	- -	$10,975	$3,942	- -	- -	- -	- -
45 - 49	20	1	- -	- -	1	14	4	- -	- -	- -
	20,021	$216,120	- -	- -	10,100	9,228	$11,251	- -	- -	- -
50 - 54	7	- -	- -	- -	- -	3	3	1	- -	- -
	24,208	- -	- -	- -	- -	13,702	28,018	$44,299	- -	- -
55 - 59	8	1	- -	- -	1	1	- -	5	- -	- -
	42,211	198,411	- -	- -	32,656	7,625	- -	19,799	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	5,777	- -	- -	- -	- -	- -	- -	- -	- -	$5,777
70 & over	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	44	2	- -	1	5	21	7	6	- -	2
	$21,837	$207,266	- -	$2,737	$15,137	$9,036	$18,437	$23,882	- -	$2,889

Note: Chart includes members eligible for supplemental benefits based on prior supplemental computation pay but with zero excess supplemental computation pay in 2017.

EXHIBIT B-2 – POLICE PARTICIPANTS IN ACTIVE SERVICE AS OF DECEMBER 31, 2017 BY AGE, YEARS OF SERVICE, AND AVERAGE SUPPLEMENTAL COMPUTATION PAY

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
35 - 39	1	- -	- -	1	- -	- -	- -	- -	- -	- -
	$2,737	- -	- -	$2,737	- -	- -	- -	- -	- -	- -
40 - 44	3	- -	- -	- -	- -	3	- -	- -	- -	- -
	3,942	- -	- -	- -	- -	$3,942	- -	- -	- -	- -
45 - 49	12	1	- -	- -	- -	7	4	- -	- -	- -
	25,948	$216,120	- -	- -	- -	7,179	$11,251	- -	- -	- -
50 - 54	6	- -	- -	- -	- -	2	3	1	- -	- -
	26,530	- -	- -	- -	- -	15,414	28,018	$44,299	- -	- -
55 - 59	4	- -	- -	- -	- -	1	- -	3	- -	- -
	16,477	- -	- -	- -	- -	7,625	- -	19,428	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	27	1	- -	1	- -	13	7	4	- -	1
	$20,408	$216,120	- -	$2,737	- -	$7,733	$18,437	$25,645	- -	- -

Note: Chart includes members eligible for supplemental benefits based on prior supplemental computation pay but with zero excess supplemental computation pay in 2017.

EXHIBIT B-3 – FIRE PARTICIPANTS IN ACTIVE SERVICE AS OF DECEMBER 31, 2017 BY AGE, YEARS OF SERVICE, AND AVERAGE SUPPLEMENTAL COMPUTATION PAY

		Years of Service								
Age	Total	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
40 - 44	3	- -	- -	- -	3		- -	- -	- -	- -
	$10,975	- -	- -	- -	$10,975		- -	- -	- -	- -
45 - 49	8		- -	- -	1	7	- -	- -	- -	- -
	11,130		- -	- -	10,100	$11,277	- -	- -	- -	- -
50 - 54	1	- -	- -	- -	- -	1	- -	- -	- -	- -
	10,276	- -	- -	- -	- -	10,276	- -	- -	- -	- -
55 - 59	4	1	- -	- -	1	- -	- -	2	- -	- -
	67,944	$198,411	- -	- -	32,656	- -	- -	$20,355	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	5,777	- -	- -	- -	- -	- -	- -	- -	- -	$5,777
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	17	1	- -	- -	5	8	- -	2	- -	1
	$24,106	$198,411	- -	- -	$15,137	$11,152	- -	$20,355	- -	$5,777

Note: Chart includes members eligible for supplemental benefits based on prior supplemental computation pay but with zero excess supplemental computation pay in 2017.

EXHIBIT C – RECONCILIATION OF MEMBER DATA

	Active Members	Inactive Vested Members	Retired Members	Beneficiaries	Total
Number as of January 1, 2017	**47**	**0**	**100**	**28**	**175**
• New members	9	N/A	N/A	N/A	9
• Terminations – with vested rights	-1	1	0	0	0
• Terminations – without vested rights	0	N/A	N/A	N/A	0
• Retirements	-11	0	11	N/A	0
• Return to work	0	0	0	N/A	0
• Deceased	0	0	-2	-1	-3
• New beneficiaries	0	0	0	3	3
• Certain period expired	N/A	N/A	0	0	0
• Data adjustments	0	0	1	0	1
Number as of January 1, 2018	**44**	**1**	**110**	**30**	**185**

EXHIBIT D – SUMMARY STATEMENT OF INCOME AND EXPENSES ON A MARKET VALUE BASIS

	Year Ended December 31, 2017		Year Ended December 31, 2016	
Net assets at market value at the beginning of the year[1,3]		$17,663,539		$19,456,706
Contribution income:				
• Employer contributions	$2,077,059		$2,985,478	
• Member contributions	66,095		34,612	
• Less administrative expenses	-68,528		-78,047	
Net contribution income		*$2,074,626*		*$2,942,043*
Investment income:				
• Interest, dividends and other income	$280,393		$451,851	
• Asset appreciation	535,462		857,796	
• Less interest expense	-10,839		-37,264	
• Adjustment to beginning of year value[2]	6,788		0	
• Less investment fees	-76,449		-96,060	
Net investment income		*$735,567*		*$1,176,323*
Total income available for benefits		**$2,810,193**		**$4,118,366**
Less benefit payments		-$2,668,579		-$5,911,533
Change in market value of assets		**$141,614**		**-$1,793,167**
Net assets at market value at the end of the year[1,3]		**$17,805,153**		**$17,663,539**

[1]Based on preliminary unaudited assets

[2]Adjustment from draft financial statement used in the prior valuation to the final audited statements

[3]Unaudited assets were used for the January 1, 2017 actuarial valuation. When the audited financial statements were completed, there were updates to the employer contribution and investment return amounts, resulting in a revision to the market value of assets. Thus, the amounts shown above as of December 31, 2016 differ from the System's and City's Comprehensive Annual Financial Reports. The differences are immaterial to the System's actuarial results.

EXHIBIT E – SUMMARY STATEMENT OF PLAN ASSETS

	December 31, 2017		December 31, 2016	
Cash equivalents and prepaid expenses		$999,789		$2,668,669
Invested securities lending collateral		$102,083		$176,730
Capital assets		$106,808		$98,198
Total accounts receivable		$269,604		$227,216
Investments:				
• Real assets	$6,730,133		$9,202,606	
• Equity securities	3,948,680		1,261,240	
• Fixed income securities	2,755,315		2,200,932	
• Private equity	1,865,692		2,156,553	
• Alternative investments	1,217,387		1,100,092	
• Other	203,850		56,000	
Total investments at market value		$16,721,057		$15,977,423
Total assets		$18,199,341		$19,148,236
Total accounts payable		-394,188		-1,484,697
Net assets at market value[1]		**$17,805,153**		**$17,663,539**
Net assets at actuarial value		**$17,805,153**		**$17,663,539**

[1]Unaudited assets were used for the January 1, 2017 actuarial valuation. When the audited financial statements were completed, there were updates to the employer contribution and investment return amounts, resulting in a revision to the market value of assets. Thus, the amounts shown above as of December 31, 2016 differ from the System's and City's Comprehensive Annual Financial Reports. The differences are immaterial to the System's actuarial results.

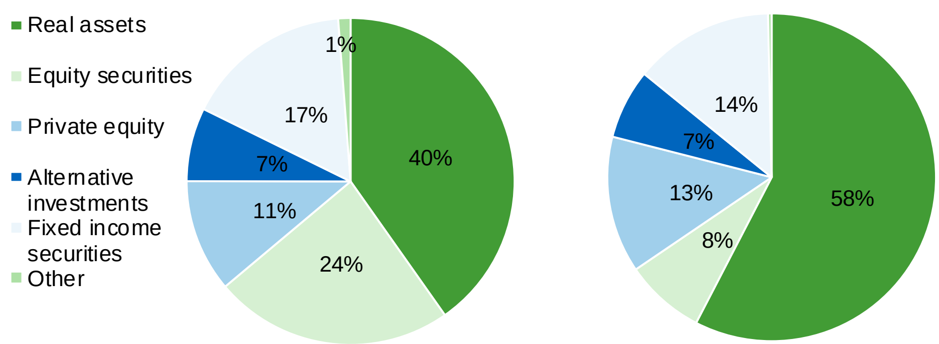


EXHIBIT F – DEVELOPMENT OF THE FUND THROUGH DECEMBER 31, 2017

Year Ended December 31	Employer Contributions	Member Contributions	Net Investment Return[1]	Administrative Expenses[2]	Benefit Payments	Actuarial (Market) Value of Assets at Year-End
2008	$1,243,717	$45,468	-$7,039,494	$0	$1,363,912	$18,139,795
2009	1,343,717	56,261	2,985,884	0	1,844,905	20,680,752
2010	1,443,717	34,355	924,634	0	1,964,422	21,119,036
2011	1,543,717	26,791	252,054	0	2,119,029	20,822,569
2012	1,954,022	26,688	578,432	0	1,819,155	21,562,556
2013	1,935,588	34,039	2,712,000	0	2,207,338	24,036,845
2014	1,817,136	49,104	-1,091,374	0	3,372,841	21,438,870
2015	2,442,790	43,358	-1,828,695	0	2,639,617	19,456,706
2016	2,985,478[3]	34,612	1,176,323	78,047	5,911,533	17,663,539[3]
2017	2,077,059	66,095	735,567	68,528	2,668,579	17,805,153

[1]Net of investment fees and administrative expenses prior to 2016; net of investment fees only beginning in 2016. Returns for years ended 2008-2014 were estimated based on prior actuarial valuations.

[2]Administrative expenses were subtracted from net investment return prior to the 2016 valuation.

[3]Unaudited assets were used for the January 1, 2017 actuarial valuation. When the audited financial statements were completed, there were updates to the employer contribution and investment return amounts, resulting in a revision to the market value of assets. Thus, the amounts shown above as of December 31, 2016 differ from the System's and City's Comprehensive Annual Financial Reports. The differences are immaterial to the System's actuarial results.

EXHIBIT G – DEFINITION OF PENSION TERMS

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Pensioners and Beneficiaries:	The single-sum value of lifetime benefits to existing pensioners and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield in actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
Actuarially Equivalent:	Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).
Actuarial Value of Assets (AVA):	The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Fund is calculated, including: Investment return - the rate of investment yield that the Fund will earn over the long-term future; Mortality rates - the death rates of employees and pensioners; life expectancy is based on these rates; Retirement rates - the rate or probability of retirement at a given age or service; Disability rates – the probability of disability retirement at a given age; Withdrawal rates - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates - the rates of salary increase due to inflation and productivity growth.
Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.
Funded Ratio:	The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

GASB 67 and GASB 68:	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.
Investment Return:	The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability (NPL):	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal Cost:	That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.
Open Amortization Period:	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the actuarial assumptions are realized.
Plan Fiduciary Net Position:	Market value of assets.
Total Pension Liability (TPL):	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

Section 4: Actuarial Valuation Basis

EXHIBIT I – ACTUARIAL ASSUMPTIONS AND ACTUARIAL COST METHOD

Rationale for Assumptions:

The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Experience Study Report for the five-year period ended December 31, 2014, with subsequent changes related to the plan changes and modifications based on the Meet and Confer Agreement.

Net Investment Return:

7.25%

The net investment return assumption was chosen by the Pension System's Board of Trustees, with input from the actuary. This assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes, as well as the System's target asset allocation.

Salary Scale:

For 2018-2019

2018 – 5% if less than 10 years, 2% if more than 10 years

2019 – 10% if less than 10 years, 7% if 10 – 11 years, 2% if more than 11 years

For 2020 and After

Years of Service	Rate (%)	
	Police	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

Years of Service	Rate (%)	
	Police	Fire
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 & over	3.00	3.00

Rates above include allowance for inflation of 2.75% per year.

The salary scale assumption is based on the City's pay plan, along with analysis completed in conjunction with an Experience Study Report for the five-year period ended December 31, 2014. The salary scale for 2018-2019 is based on the Meet and Confer Agreement.

Payroll Growth:

2.75%, used to amortize the unfunded actuarial accrued liability as a level percentage of payroll.

Cost-of-Living Adjustments:	
Prior to October 1, 2053	0.00%
Beginning October 1, 2053	2.00%, on 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.
Mortality Rates:	
Pre-retirement:	RP-2014 Employee Mortality Table, set back two years for males, projected generationally using Scale MP-2015
Healthy annuitants:	RP-2014 Blue Collar Healthy Annuitant Mortality Table, set forward two years for females, projected generationally using Scale MP-2015
Disabled annuitants:	RP-2014 Disabled Retiree Mortality Table, set back three years for males and females, projected generationally using Scale MP-2015
	The tables above, with adjustments as shown, reasonably reflect the mortality experience of the System as of the measurement date. The mortality tables were then generationally projected using Scale MP-2015 to anticipate future mortality improvement.

Mortality and Disability Rates Before Retirement:

	Rate (%)			
	Mortality[1]		Disability[2]	
Age	Male	Female	Male	Female
20	0.03	0.02	0.010	0.010
25	0.05	0.02	0.015	0.015
30	0.04	0.02	0.020	0.020
35	0.05	0.03	0.025	0.025
40	0.06	0.04	0.030	0.030
45	0.08	0.07	0.035	0.035
50	0.14	0.11	0.040	0.040
55	0.23	0.17	--	--
60	0.38	0.24	--	--
65	1.26	1.05	--	--
70	1.97	1.70	--	--
75	3.15	2.81	--	--
80	5.19	4.71	--	--

[1]*Rates shown do not include generational projection; rates beginning at age 65 are for healthy annuitants*
[2]*100% of disabilities are assumed to be service-related*

Withdrawal Rates Before Retirement:

Years of Service	Rate (%)	
	Police	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
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 & over	0.00	0.00

Retirement Rates:

DROP Active Members

Police	
Age	Rate (%)
Under 50	1.00
50-52	3.00
53-54	7.00
55	15.00
56-57	20.00
58-64	25.00
65-66	50.00
67	100.00

Fire	
Age	Rate (%)
Under 50	0.75
50-54	2.50
55-58	12.00
59-64	25.00
65-66	30.00
67	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

Retirement Rates (continued):

Non-DROP Active Members

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	
Age	Rate (%)	Age	Rate (%)	Age	Rate (%)
Under 50	0	Under 50	1	Under 50	1
50	10	50	20	50	5
51	5	51	10	51	5
52	5	52	10	52	5
53	5	53	10	53	5
54	5	54	20	54	10
55	15	55	40	55	20
56	10	56	50	56	30
57	5	57	50	57	40
58	60	58	60	58	50
59	50	59	60	59	50
60	50	60	60	60	50
61	50	61	60	61	50
62 & over	100	62 & over	100	62 & over	100

100% retirement rate once the sum of age plus service equals 90

Weighted Average Retirement Age: Age 55, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active participants included in the January 1, 2018 actuarial valuation.

Retirement Rates for Inactive Vested Participants:

Current terminated vested members are assumed to retire at age 50

Future terminated vested members are assumed to retire at age 58

Interest on DROP Accounts:	3.00% on account balances as of September 1, 2017, payable upon retirement 0.0% on account balances accrued after September 1, 2017
DROP Utilization:	0% of Police and Fire members are assumed to elect to enter the DROP
DROP Payment Period:	Based on expected lifetime as of the later of September 1, 2017 or retirement date. Expected lifetime determined based on an 85%/15% male/female blend of the current healthy annuitant mortality tables.
DROP Annuitization Interest:	3.00%. Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years.
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.
Family Composition:	75% of participants are assumed to be married. Females are assumed to be three years younger than males. The youngest child is assumed to be ten years old.
Benefit Election:	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.
Administrative Expenses:	$65,000 per year, payable monthly (equivalent to $62,765 at the beginning of the year)
Actuarial Value of Assets:	Market value of assets
Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the member commenced employment. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis, with Normal Cost determined as if the current benefit accrual rate had always been in effect. Actuarial Liability is allocated by salary.
Amortization Methodology	The actuarially determined contribution is calculated using a rolling 10-year amortization of unfunded actuarially accrued liability.
Justification for Change in Actuarial Assumptions:	The following assumptions were updated with this valuation: ➤ The administrative expense assumption was changed from $60,000 per year to $65,000 per year. ➤ Interest payable upon retirement on DROP account balances as of September 1, 2017 increased from 2.75% to 3.00%. ➤ Annual 2.00% COLAs are assumed to be payable beginning October 1, 2053, based on an updated projection of unfunded actuarial accrued liability. In the prior valuation these COLAs were assumed to begin October 1, 2049.

EXHIBIT II – SUMMARY OF PLAN PROVISIONS

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

MEMBERS WHOSE PARTICIPATION BEGAN BEFORE MARCH 1, 2011

Plan Year:	January 1 through December 31
Plan Status:	Ongoing
Normal Retirement:	
Benefit Earned Prior to September 1, 2017	
Age Requirement	50
Service Requirement	5
Amount	The greater of 3% of Average Supplemental Computation Pay times years of Pension Service (maximum 96.0%).
Average Supplemental Computation Pay	Supplemental Computation Pay is the current rate of pay received by the member, minus the rate of pay the member would receive for the highest civil service rank the member held. Average Supplemental Computation Pay is determined based on the highest 36 consecutive months of Supplemental Computation Pay.
Benefit Earned Beginning September 1, 2017	
Age Requirement	58
Service Requirement	5
Amount	The greater of 2.5% of Average Supplemental Computation Pay times years of Pension Service (maximum 90.0%).
Average Supplemental Computation Pay	Supplemental Computation Pay is the current rate of pay received by the member, minus the rate of pay the member would receive for the highest civil service rank the member held. Average Supplemental Computation Pay is determined based on the highest 60 consecutive months of Supplemental Computation Pay.

20 and Out Reduced Retirement:	
If Eligible as of September 1, 2017	
Age Requirement	None
Service Requirement	20 years
Amount	20 & Out Multiplier times 36-month (Table 1 Benefit) or 60-month (Table 2 Benefit) Average Supplemental Computation Pay times years of Pension Service

Benefit Accrued by September 1, 2017 20 & Out Table 1	
Age	**20 & Out Multiplier**
45 & under	2.00%
46	2.25%
47	2.50%
48	2.75%
49	2.75%
50 & above	3.00%

Benefit Accrued by September 1, 2017 20 & Out Table 2	
Age	**20 & Out Multiplier**
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

If Not Eligible as of September 1, 2017	
Age Requirement	None
Service Requirement	20 years
Amount	20 & Out Multiplier times 60-month Average Supplemental Computation Pay times years of Pension Service

20 & Out Table 2	
Age	**20 & Out Multiplier**
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

Early Retirement:	
If at least age 45 as of September 1, 2017 and less than age 50	
Age Requirement	45
Service Requirement	5
Amount	Normal pension accrued prior to September 1, 2017 plus the benefit accrued based on the 20 & Out Table 2 for service beginning September 1, 2017, reduced by 2/3 of 1% for each whole month by which the benefit commencement date precedes age 50.
Non-Service Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) not related to or incurred while in the performance of the member's job, preventing the member from performing their departmental duties.
Amount	3% of Average Computation Pay for service earned prior to September 1, 2017 and the applicable benefit multiplier from 20 & Out Table 2 times Average Supplemental Computation Pay for service earned beginning September 1, 2017
Service-Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) obtained while on duty in the performance of the member's job.
Amount	3% of Average Computation Pay for service earned prior to September 1, 2017 and the applicable benefit multiplier from 20 & Out Table 2 times Average Supplemental Computation Pay for service earned beginning September 1, 2017; if the member has less than 20 years of service, the benefit will be calculated as if they had 20 years at the time of disability.
Benefit Supplement:	
Age Requirement	55
Service Requirement	20 years, waived if member is receiving a service-connected disability
Amount	3% of the total monthly benefit (including any applicable COLAs) payable to the Member when the Member attains age 55. The benefit supplement shall not be less than $75 per month. Beginning September 1, 2017, only those annuitants already receiving the supplement will be eligible to maintain their current supplement, which will not change ongoing; no additional retirees will be eligible for the supplement.
Termination Benefit:	
With less than five years of pension service	Upon request, the member's contributions will be returned without interest.
With at least five years of pension service	The member may either withdraw contributions or leave contributions in the Plan and receive a monthly benefit to commence no earlier than the member's earliest eligibility for retirement benefits. Retirement benefit is equal to the accrued benefit as of the date of termination.

Pre-Retirement Death Benefit:	
While in active service	The greater of 50% of the Member's accrued benefit or a benefit based on 20 years of service. The benefit may not exceed 45% of Average Supplemental Computation Pay.
After leaving active service, with fewer than five years	A lump sum benefit equal to the return of member contributions with interest.
After leaving active service, with at least five years	50% of the Member's accrued benefit, with no early retirement reduction, or a refund of member contributions
Post-Retirement Death Benefit:	50% of the pension the Member was receiving at the time of their death.
Qualified Surviving Children Benefit:	50% of the pension the Member was receiving at the time of their death, divided equally among the children, paid until the youngest child is 19 years old or for life if the child becomes handicapped prior to age 23
Special Survivor Benefit:	
Eligibility	Upon leaving active service or joining DROP: a) the Member was at least 55 years old with at least 20 years of pension service, or b) the sum of the Member's age plus Pension Service was at least 78; **and** Has no Qualified Surviving Children or handicapped children currently eligible for survivor benefits; **and** Whose Qualified Surviving Spouse is at least 55 years old. The Qualified Surviving Spouse does not have to be 55 years old at the time of the Member's death.
Amount	Once all the eligibility conditions are met, the amount the Qualified Surviving Spouse will receive increases from 50% of the Member's pension benefit to a percentage of the Member's pension benefit based on 3% times the number of years of Pension Service the Member worked.
Survivor Benefit if No Qualified Surviving Spouse:	A lump sum that is the actuarial equivalent of 120 monthly payments of the greater of: 50% of the Member's pension benefit at the time of their death, or a benefit based on 20 years of the Member's service.

DROP:	
Eligibility	Members in active service who are retirement eligible may elect to enter the Deferred Retirement Option Plan (DROP).
Distribution	The DROP account balance will be paid over the expected future lifetime of annuitants.
Interest	Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years; interest rate is based on the expected lifetime of the members at the time they retire.
Cost of Living:	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%.
Member Contributions:	13.5% of supplemental computation pay for all members
City Contributions:	The City will contribute the Actuarially Determined Employer Contribution based on a 10-year rolling amortization period.
Optional Forms of Benefits:	Life Annuity with 36 months guaranteed; 50% or 75% Husband-and-Wife Pension with Pop-Up; 66-2/3% or 100% Joint and Survivor Pension.
Changes in Plan Provisions:	Active members who elected to enter DROP prior to June 1, 2017 were eligible to revoke the DROP election during the period September 1, 2017 through February 28, 2018.

MEMBERS WHOSE PARTICIPATION BEGAN ON OR AFTER MARCH 1, 2011

Normal Retirement:	
Age Requirement	58
Service Requirement	5
Amount	2.5% of Average Supplemental Computation Pay for each year of Pension Service, maximum 90%
Average Supplemental Computation Pay	Supplemental Computation Pay is the current rate of pay received by the member, minus the rate of pay the member would receive for the highest civil service rank the member held. Average Supplemental Computation Pay is determined based on the highest 60 consecutive months of Supplemental Computation Pay
Early Retirement:	
Age Requirement	53
Service Requirement	5
Amount	Normal pension accrued, reduced by 2/3 of 1% for each whole month by which the benefit commencement date precedes the normal retirement date.
20 and Out Reduced Retirement:	
Requirement	None
Service Requirement	20 years
Amount	20 & Out Multiplier times Average Supplemental Computation Pay times years of Pension Service

20 & Out Table 2

Age	20 & Out Multiplier
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

Non-Service Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) not related to or incurred while in the performance of the member's job, preventing the member from performing their departmental duties.
Amount	The Member's accrued benefit, but not less than a pro-rated minimum benefit.
Service-Connected Disability:	
Eligibility	Injury or illness (lasting more than 90 days) obtained while on duty in the performance of the member's job.
Amount	The greater of 50% of Average Supplemental Computation Pay and the Member's accrued benefit.
Termination Benefit:	
With less than five years of service	Upon request, the member's contributions will be returned without interest.
With at least five years of service	The member may either withdraw contributions or leave contributions in the Plan and receive a monthly benefit to commence no earlier than the member's earliest eligibility for retirement benefits. Retirement benefit is equal to the accrued benefit as of the date of termination.
Pre-Retirement Death Benefit:	
While in active service	The greater of 50% of the Member's accrued benefit or a benefit based on 20 years of service. The benefit may not exceed 45% of Average Supplemental Computation Pay.
After leaving active service, with less than five years	A lump sum benefit equal to the return of member contributions with interest.
After leaving active service, with at least five years	50% of the Member's accrued benefit, with no early retirement reduction, or a refund of member contributions
Post-Retirement Death Benefit:	50% of the pension the Member was receiving at the time of their death.
Qualified Surviving Children Benefit:	50% of the pension the Member was receiving at the time of their death, divided equally among the children, paid until the youngest child is 19 years old or for life if the child becomes handicapped prior to age 23
Special Survivor Benefit:	
Eligibility	Upon leaving active service or joining DROP: a) the Member was at least 55 years old with at least 20 years of pension service, or b) the sum of the Member's age plus Pension Service was at least 78; **and** Has no Qualified Surviving Children or handicapped children currently eligible for survivor benefits; **and** Whose Qualified Surviving Spouse is at least 55 years old. The Qualified Surviving Spouse does not have to be 55 years old at the time of the Member's death.
Amount	Once all the eligibility conditions are met, the amount the Qualified Surviving Spouse will receive increases from 50% of the Member's pension benefit to a percentage of the Member's pension benefit based on the Member's applicable benefit multiplier times the number of years of Pension Service the Member worked.

Survivor Benefit if No Qualified Surviving Spouse:	A lump sum that is the actuarial equivalent of 120 monthly payments of the greater of: 50% of the Member's pension benefit at the time of their death, or a benefit based on 20 years of the Member's service.
DROP:	
Eligibility	Members in active service who are retirement eligible may elect to enter the Deferred Retirement Option Plan (DROP).
Distribution	The DROP account balance will be paid over the expected future lifetime of annuitants.
Interest	Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years; interest rate is based on the expected lifetime of the members at the time they retire.
Cost of Living:	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%.
Member Contributions:	13.5% of supplemental computation pay for all members
City Contributions:	The City will contribute the Actuarially Determined Employer Contribution based on a 10-year rolling amortization period.
Optional Forms of Benefits:	Life Annuity with 36 months guaranteed; 50% or 75% Husband-and-Wife Pension with Pop-Up; 66-2/3% or 100% Joint and Survivor Pension.
Changes in Plan Provisions:	Active DROP members who entered the DROP prior to June 1, 2017 were eligible to revoke the DROP election during the period from September 1, 2017 through February 28, 2018.

EXHIBIT 1 – NET PENSION LIABILITY

The components of the net pension liability at December 31, 2017 were as follows:

Total pension liability	$33,670,180
Plan fiduciary net position	17,805,153
Net pension liability	15,865,027
Plan fiduciary net position as a percentage of the total pension liability	52.88%

The December 31, 2017 Total Pension Liability does not include the plan provision allowing members who entered DROP before June 1, 2017 to revoke the DROP election during the period from September 1, 2017 through February 28, 2018, since the election window closed after the measurement date.

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of January 1, 2018, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.75%
Real rate of return	4.50%
Investment rate of return	7.25%, net of pension plan investment expense, including inflation

The actuarial assumptions used in the January 1, 2018 valuation were based on the results of an experience study for the period January 1, 2010 to December 31, 2014, plus assumption changes included in the January 1, 2017 and January 1, 2018 valuations. Assumptions are detailed in Section 4, Exhibit I of this report.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2017 are summarized in the table on the following page.

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return[1]
Global Equity	20%	6.54%
Emerging Market Equity	5%	9.41%
Private Equity	5%	10.28%
Short-Term Core Bongs	2%	1.25%
Global Bonds	3%	1.63%
High Yield	5%	4.13%
Bank Loans	6%	3.46%
Structured Credit and Absolute Return	6%	5.38%
Emerging Markets Debt	6%	4.42%
Private Debt	5%	7.30%
Natural Resources	5%	7.62%
Infrastructure	5%	6.25%
Real Estate	12%	4.90%
Liquid Real Assets	3%	4.71%
Asset Allocation	10%	4.90%
Cash	2%	1.06%
Total	100%	

[1]As provided by Segal Marco Advisors, a member of The Segal Group. The real rates of return are net of inflation.

Discount rate: The discount rate used to measure the total pension liability was 7.25%. The projection of cash flows used to determine the discount rate assume that City contributions will equal the employer's normal cost plus a ten-year amortization payment on the unfunded actuarial accrued liability and member contributions will equal 13.50% of supplemental computation pay. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Actuarial cost method: In accordance with GASB 67, the Total Pension Liability for active members is valued as the total present value of benefits once they enter the DROP. For the funding valuation, the liability for these members accumulates from their entry age until they are assumed to leave active service.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 7.25%, as well as what the net pension liability would be if it were calculated using a discount rate that is one percentage-point lower (6.25%) or one percentage-point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	Current Discount (7.25%)	1% Increase (8.25%)
Net pension liability	$18,826,159	$15,865,027	$13,316,450

EXHIBIT 2 – SCHEDULE OF CHANGES IN NET PENSION LIABILITY

	2017	2016
Total pension liability		
• Service cost	$111,485	$70,220
• Interest	2,799,166	2,910,845
• Change of benefit terms	-5,305,618	0
• Differences between expected and actual experience	-1,434,786	1,105,788
• Changes of assumptions	-479,159	-916,752
• Benefit payments, including refunds of employee contributions	-2,668,579	-5,911,533
Net change in total pension liability	**-$6,977,491**	**-$2,741,432**
Total pension liability – beginning	**40,647,671**	**43,389,103**
Total pension liability – ending (a)	**$33,670,180**	**$40,647,671**
Plan fiduciary net position		
• Contributions – employer	$2,077,059	$3,063,584
• Contributions – employee	66,095	34,612
• Net investment income	739,618	1,142,269
• Benefit payments, including refunds of employee contributions	-2,668,579	-5,911,533
• Administrative expense	-68,528	-78,047
• Interest expense	-10,839	-37,264
Net change in plan fiduciary net position	**$134,826**	**-$1,786,379**
Plan fiduciary net position – beginning	**17,670,327**	**19,456,706**
Plan fiduciary net position – ending (b)	**$17,805,153**	**$17,670,327**
Net pension liability – ending (a) – (b)	**$15,865,027**	**$22,977,344**
Plan fiduciary net position as a percentage of the total pension liability	**52.88%**	**43.47%**
Covered employee payroll	**$916,199**	**$525,048**
Net pension liability as percentage of covered employee payroll	**1,731.61%**	**4,376,24%**

Notes to Schedule:

Benefit changes: Plan changes effective September 1, 2017 that were signed into law May 31, 2017 as HB 3158 are reflected for the first time in the December 31, 2017 total pension liability, along with assumption changes that were implemented as part of the plan changes. These changes are summarized in Section 1 of the January 1, 2017 actuarial valuation, except that the COLA start date has been updated from October 1, 2049 to October 1, 2053 and the interest rate for the annuitization of DROP balances upon retirement has been updated from 2.75% to 3.00%.

Change of Assumptions: The blended discount rate increased from 7.19% to 7.10% as of December 31, 2016, and from 7.10% to 7.25% as of December 31, 2017. The assumption changes in 2016 also included updates to the salary scale to reflect the Meet and Confer Agreement, and a change to the expected DROP interest payable.

EXHIBIT 3 – SCHEDULE OF EMPLOYER CONTRIBUTIONS

Year Ended December 31	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered-Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
2015	$2,442,790	$2,442,790	$0	$556,725	438.78%
2016	3,063,584	3,063,584	0	724,503	422.85%
2017	2,086,639	2,077,059	9,580	525,048	395.59%

The contribution deficiency for calendar year 2017 represents contributions directed to the Excess Benefit Plan and Trust.

Notes to Schedule:

Methods and assumptions used to determine contribution rates for the year ended December 31, 2017:

Valuation date	Actuarially determined contribution is calculated as of January 1, 2017, the beginning of the fiscal year in which contributions are reported
Actuarial cost method	Entry age
Amortization method	10-year level percent of payroll, using 2.75% annual increases
Remaining amortization period	10 years, open
Asset valuation method	Market value
Investment rate of return	7.25%, including inflation, net of pension plan investment expenses
Inflation rate	2.75%
Projected salary increases	Inflation plus merit increases, varying by group and service
Retirement rates	Group specific rates based on age
Cost of living adjustments:	2.00% simple increases starting October 1, 2049

Mortality:	
Pre-retirement	Sex-distinct RP-2014 Employee Mortality Table, set back two years for males, projected generationally using Scale MP-2015
Healthy annuitant	Sex-distinct RP-2014 Healthy Annuitant Mortality Table, set forward two years for females, projected generationally using Scale MP-2015
Disabled	Sex-distinct RP-2014 Disabled Retiree Mortality Table, set back three years for males and females, projected generationally using Scale MP-2015
Other information	See Section 4 of the January 1, 2017 actuarial valuation for a full outline of assumptions. See Exhibit 2 of this Section for the history of changes to plan provisions and assumptions.
DROP utilization	0% of Police and Fire members are assumed to elect to enter DROP
Interest on DROP Accounts	6.00% per annum, until September 1, 2017 Beginning September 1, 2017: – 2.75% on annuitant account balances – 2.75% payable upon retirement on active account balances as of September 1, 2017 0.00% on active account balances accrued after September 1, 2017

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DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C2

Topic: **Projected Change in Net Position Bridge Chart**

Discussion: On a quarterly basis staff presents a Change in Net Position Bridge chart based on actual historical data as part of the quarterly financial statement reporting. The Board requested that the same type of information be presented based on projected data. Staff will present similar information contained in the Change in Net Position Bridge chart based on projected data from the January 1, 2018 Actuarial Valuation report.

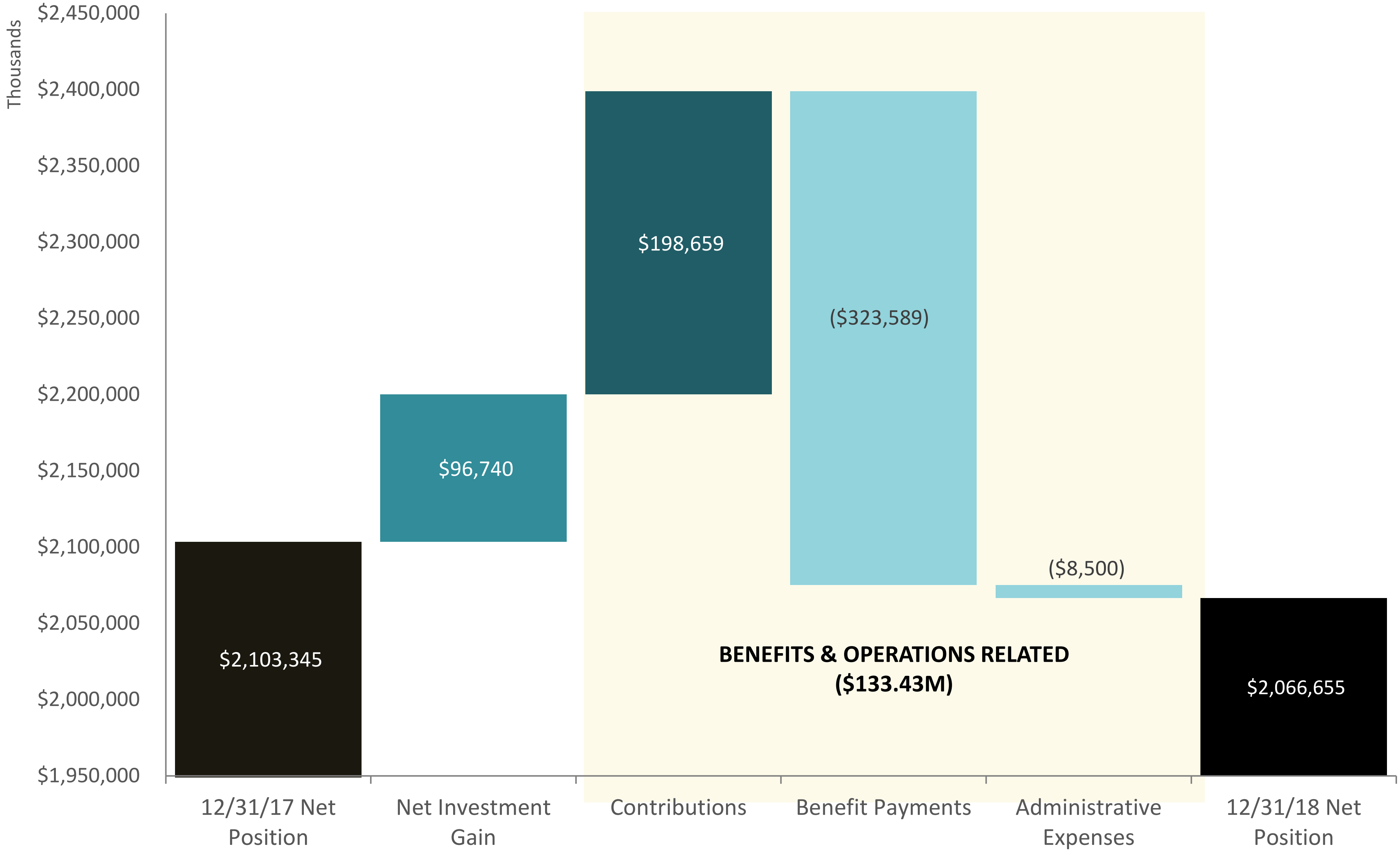
DALLAS POLICE & FIRE PENSION SYSTEM

Projected Change in Net Position Bridge Chart

September 13, 2018

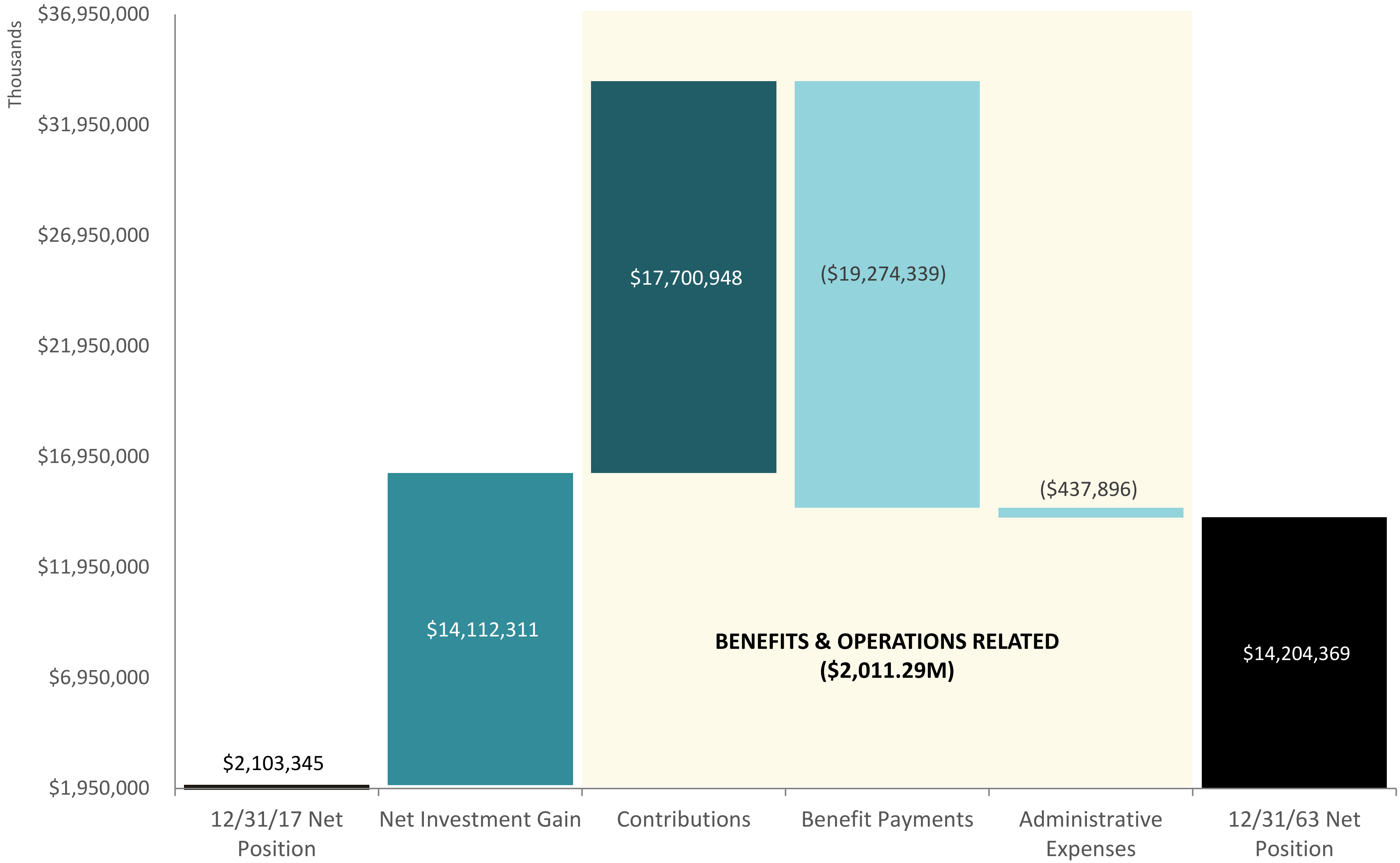
2018 Projected Change in Net Fiduciary Position

December 31, 2017 – December 31, 2018 – Hiring Plan



Projected Change in Net Fiduciary Position – 45 Years

December 31, 2017 – December 31, 2063 – Hiring Plan



Projected Change in Net Fiduciary Position "Bridge Chart" based on 1-1-2018 Actuarial Valuation Data

	Net Position	Investment Related	Benefits & Operations Related			Net Position
Year	Beginning	Net Investment Gain	Contributions	Benefit Payments	Administration Expenses[1]	Ending
2018	2,103,345,471	96,739,940	198,658,953	(323,589,275)	(8,500,000)	2,066,655,089
2019	2,066,655,089	100,045,274	205,845,614	(328,844,819)	(8,500,000)	2,035,201,158
2020	2,035,201,158	103,298,419	215,284,000	(342,008,466)	(8,500,000)	2,003,275,111
2021	2,003,275,111	120,932,830	221,012,000	(349,211,676)	(8,500,000)	1,987,508,265
2022	1,987,508,265	139,144,542	227,088,000	(355,134,394)	(8,500,000)	1,990,106,413
2023	1,990,106,413	139,021,025	223,242,000	(359,892,065)	(8,500,000)	1,983,977,373
2024	1,983,977,373	138,772,161	230,920,000	(362,177,212)	(8,500,000)	1,982,992,322
2025	1,982,992,322	138,438,783	226,080,000	(364,563,720)	(8,500,000)	1,974,447,385
2026	1,974,447,385	138,060,185	234,240,000	(366,077,941)	(8,500,000)	1,972,169,629
2027	1,972,169,629	138,174,149	243,360,000	(367,498,602)	(8,500,000)	1,977,705,176
2028	1,977,705,176	138,836,826	252,000,000	(368,928,932)	(8,500,000)	1,991,113,070
2029	1,991,113,070	140,115,044	261,600,000	(370,083,557)	(8,500,000)	2,014,244,557
2030	2,014,244,557	142,083,819	271,200,000	(371,635,497)	(8,500,000)	2,047,392,879
2031	2,047,392,879	144,657,922	278,880,000	(374,602,393)	(8,500,000)	2,087,828,408
2032	2,087,828,408	147,804,230	286,560,000	(376,358,743)	(8,500,000)	2,137,333,895
2033	2,137,333,895	151,617,252	294,720,000	(378,342,903)	(8,500,000)	2,196,828,244
2034	2,196,828,244	156,206,927	302,880,000	(378,879,882)	(8,500,000)	2,268,535,289
2035	2,268,535,289	161,754,545	311,040,000	(377,416,232)	(8,500,000)	2,355,413,602
2036	2,355,413,602	168,229,609	319,680,000	(381,190,394)	(8,500,000)	2,453,632,817
2037	2,453,632,817	175,525,521	328,320,000	(385,002,298)	(8,500,000)	2,563,976,040

[1] Administration expenses are the greater of $8.5 million or 1% of Computation Pay

Table Continued

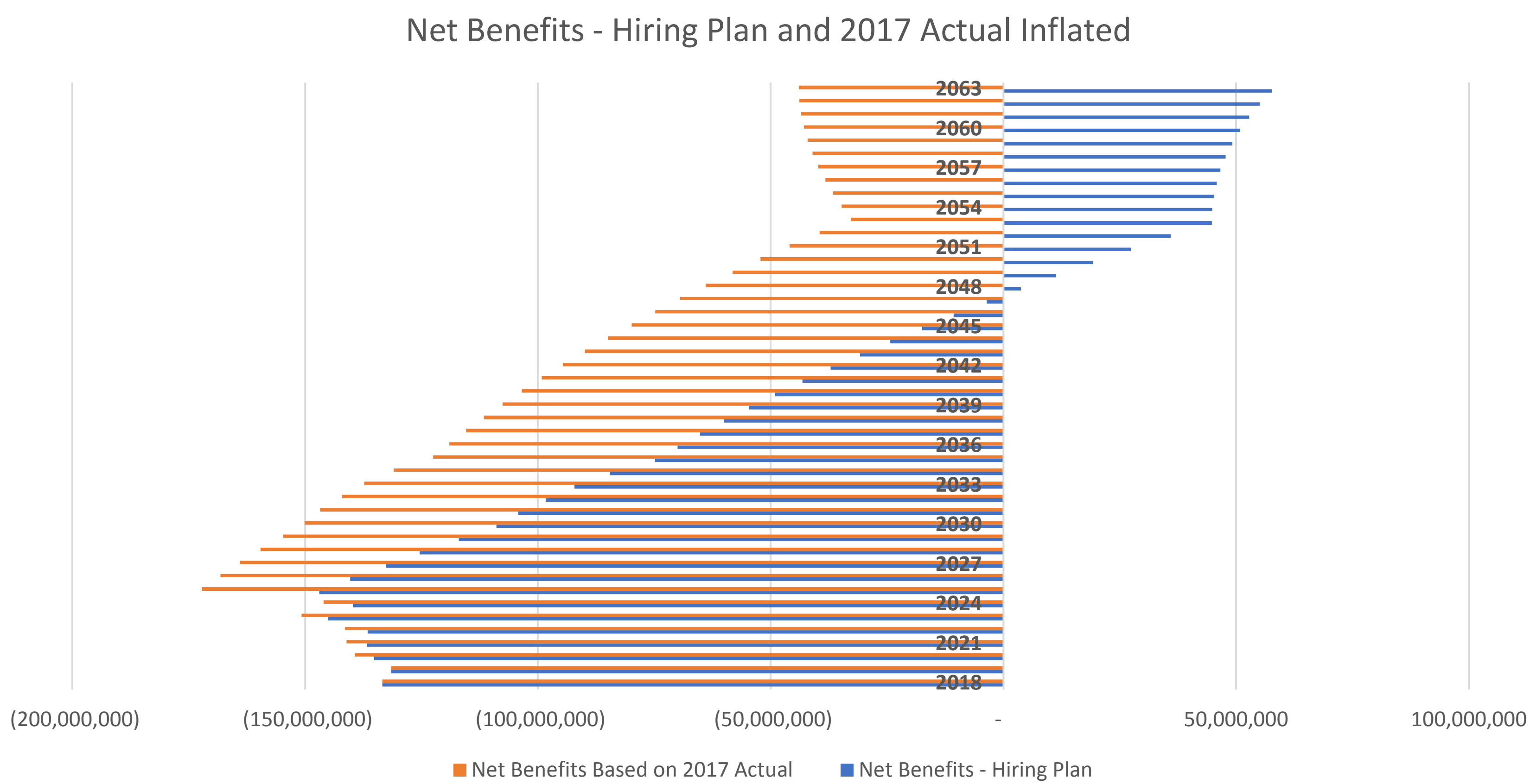
Year	Beginning	Net Investment Gain	Contributions	Benefit Payments	Administration Expenses [1]	Ending
2038	2,563,976,040	183,713,135	337,348,800	(388,852,321)	(8,500,000)	2,687,685,655
2039	2,687,685,655	192,877,418	346,625,892	(392,740,844)	(8,500,000)	2,825,948,121
2040	2,825,948,121	203,104,621	356,158,104	(396,668,253)	(8,500,000)	2,980,042,592
2041	2,980,042,592	214,487,723	365,952,452	(400,634,935)	(8,500,000)	3,151,347,832
2042	3,151,347,832	227,126,931	376,016,145	(404,641,285)	(8,500,000)	3,341,349,623
2043	3,341,349,623	241,130,220	386,356,588	(408,687,698)	(8,500,000)	3,551,648,734
2044	3,551,648,734	256,613,905	396,981,394	(412,774,575)	(8,500,000)	3,783,969,458
2045	3,783,969,458	273,703,268	407,898,383	(416,902,320)	(8,500,000)	4,040,168,790
2046	4,040,168,790	292,524,822	419,115,588	(421,071,344)	(8,731,575)	4,322,006,280
2047	4,322,006,280	313,214,503	430,641,267	(425,282,057)	(8,971,693)	4,631,608,301
2048	4,631,608,301	335,926,836	442,483,901	(429,534,878)	(9,218,415)	4,971,265,746
2049	4,971,265,746	360,828,206	454,652,209	(433,830,226)	(9,471,921)	5,343,444,014
2050	5,343,444,014	388,097,656	467,155,145	(438,168,529)	(9,732,399)	5,750,795,887
2051	5,750,795,887	417,927,824	480,001,912	(442,550,214)	(10,000,040)	6,196,175,369
2052	6,196,175,369	450,525,946	493,201,964	(446,975,716)	(10,275,041)	6,682,652,522
2053	6,682,652,522	486,114,928	506,765,018	(451,445,473)	(10,557,605)	7,213,529,391
2054	7,213,529,391	524,607,211	520,701,056	(464,988,837)	(10,847,939)	7,783,000,882
2055	7,783,000,882	565,906,298	535,020,335	(478,667,635)	(11,146,257)	8,394,113,623
2056	8,394,113,623	610,233,393	549,733,394	(492,483,221)	(11,452,779)	9,050,144,410
2057	9,050,144,410	657,826,401	564,851,062	(506,436,963)	(11,767,730)	9,754,617,180
2058	9,754,617,180	708,941,150	580,384,466	(520,530,242)	(12,091,343)	10,511,321,211
2059	10,511,321,211	763,852,719	596,345,039	(534,764,454)	(12,423,855)	11,324,330,661
2060	11,324,330,661	822,856,851	612,744,529	(549,141,008)	(12,765,511)	12,198,025,521
2061	12,198,025,521	886,271,471	629,595,003	(563,661,327)	(13,116,563)	13,137,114,105
2062	13,137,114,105	954,438,320	646,908,865	(578,326,850)	(13,477,268)	14,146,657,172
2063	14,146,657,172	-	664,698,859	(593,139,028)	(13,847,893)	14,204,369,110

[1] Administration expenses are the greater of $8.5 million or 1% of Computation Pay

Based on the City Hiring Plan - Benefit Payments are projected to Exceed Contributions until 2047

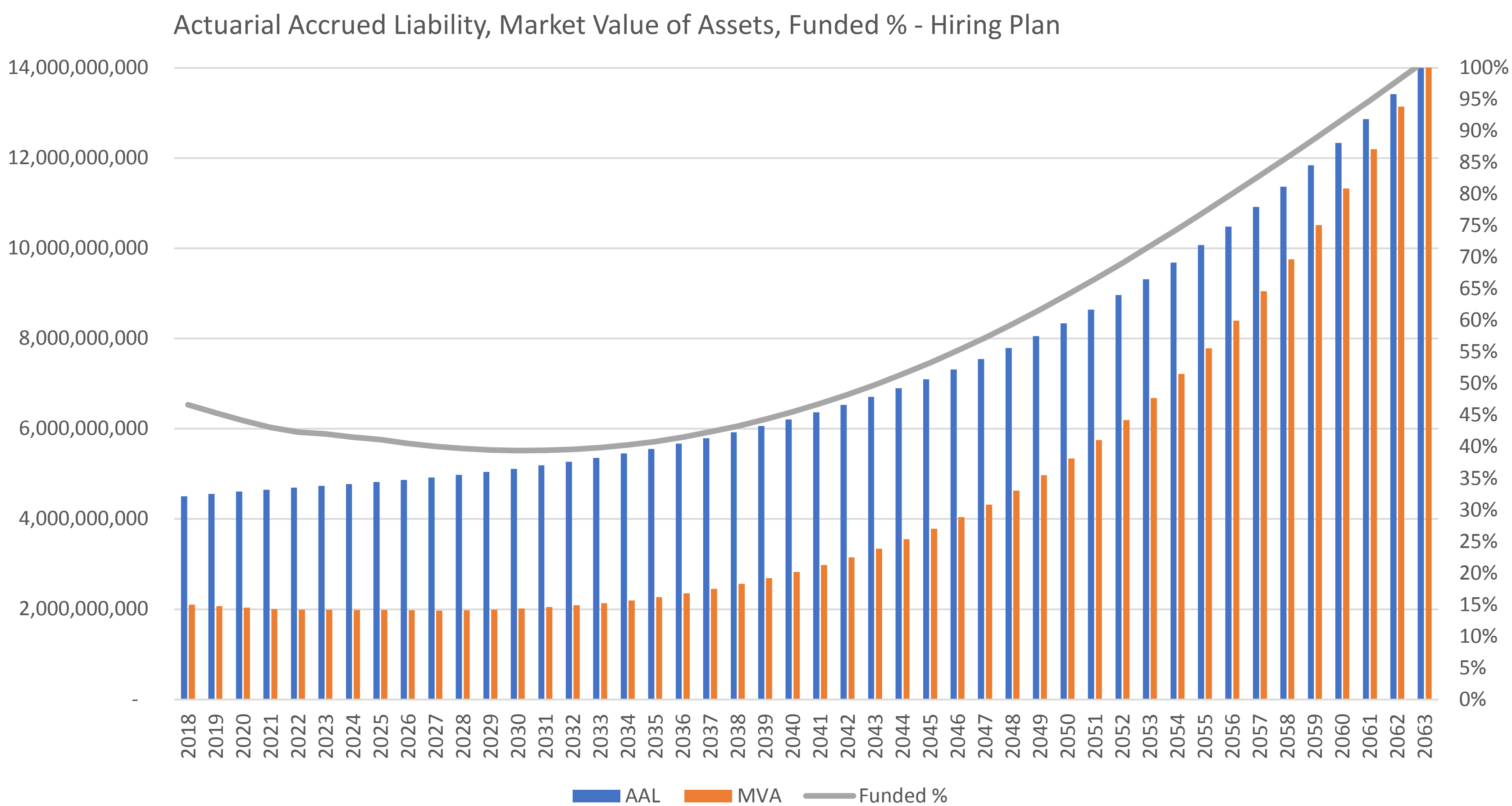
Note: Benefit Payments include administration expenses

Net Benefit Payments Based on the City's Hiring Plan Compared to the Net Benefit Payments using the 1-1-2018 Valuation Payroll Inflated by the Growth Rate Assumption.

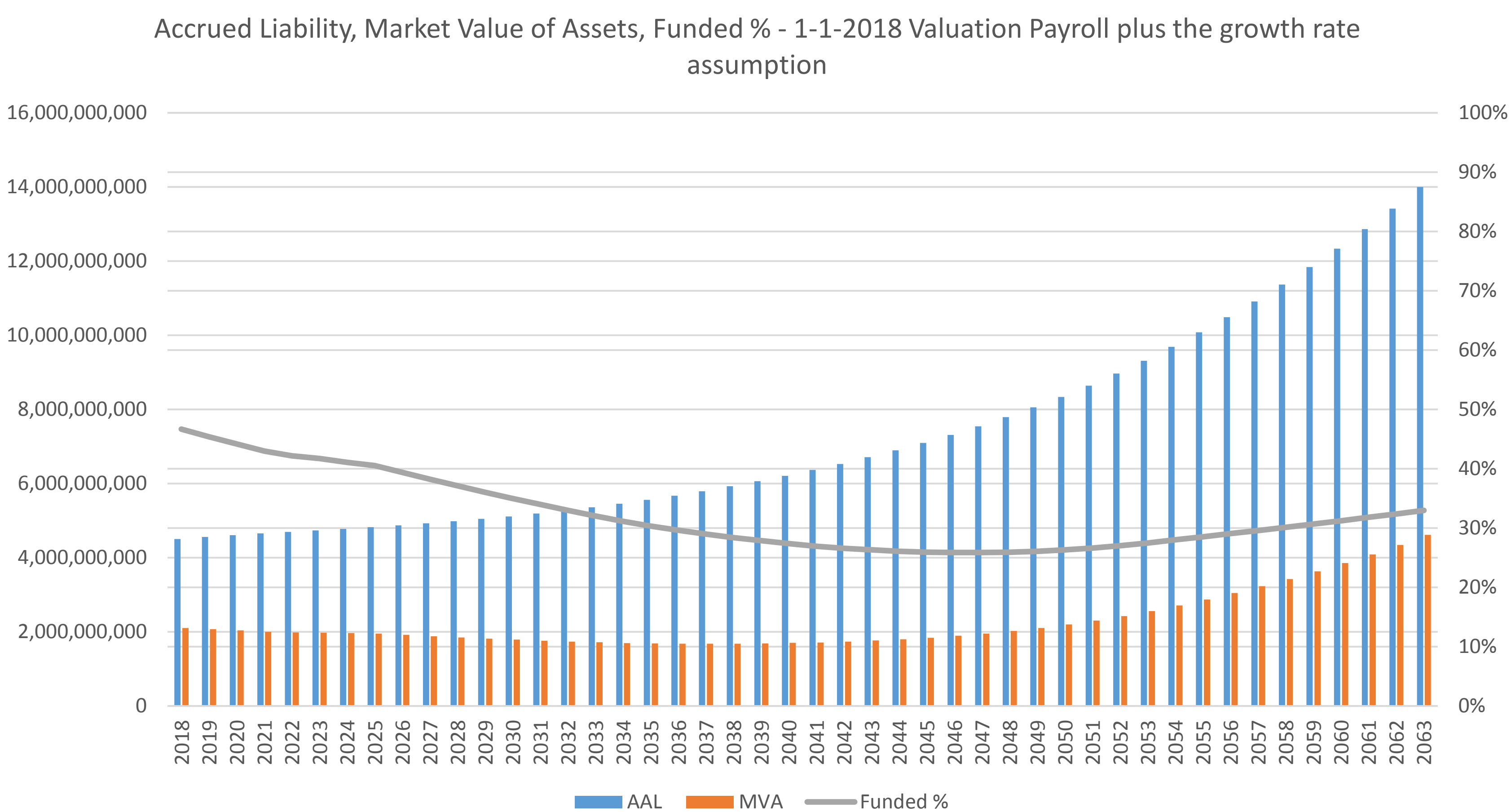


Note: Benefit Payments include administration expenses

Actuarial Accrued Liability, Market Value of Assets and Funded % Based on City Hiring Plan.



Actuarial Accrued Liability, Market Value of Assets and Funded % Based on 1-1-2018 Valuation Payroll Inflated by the Payroll Growth Rate Assumption



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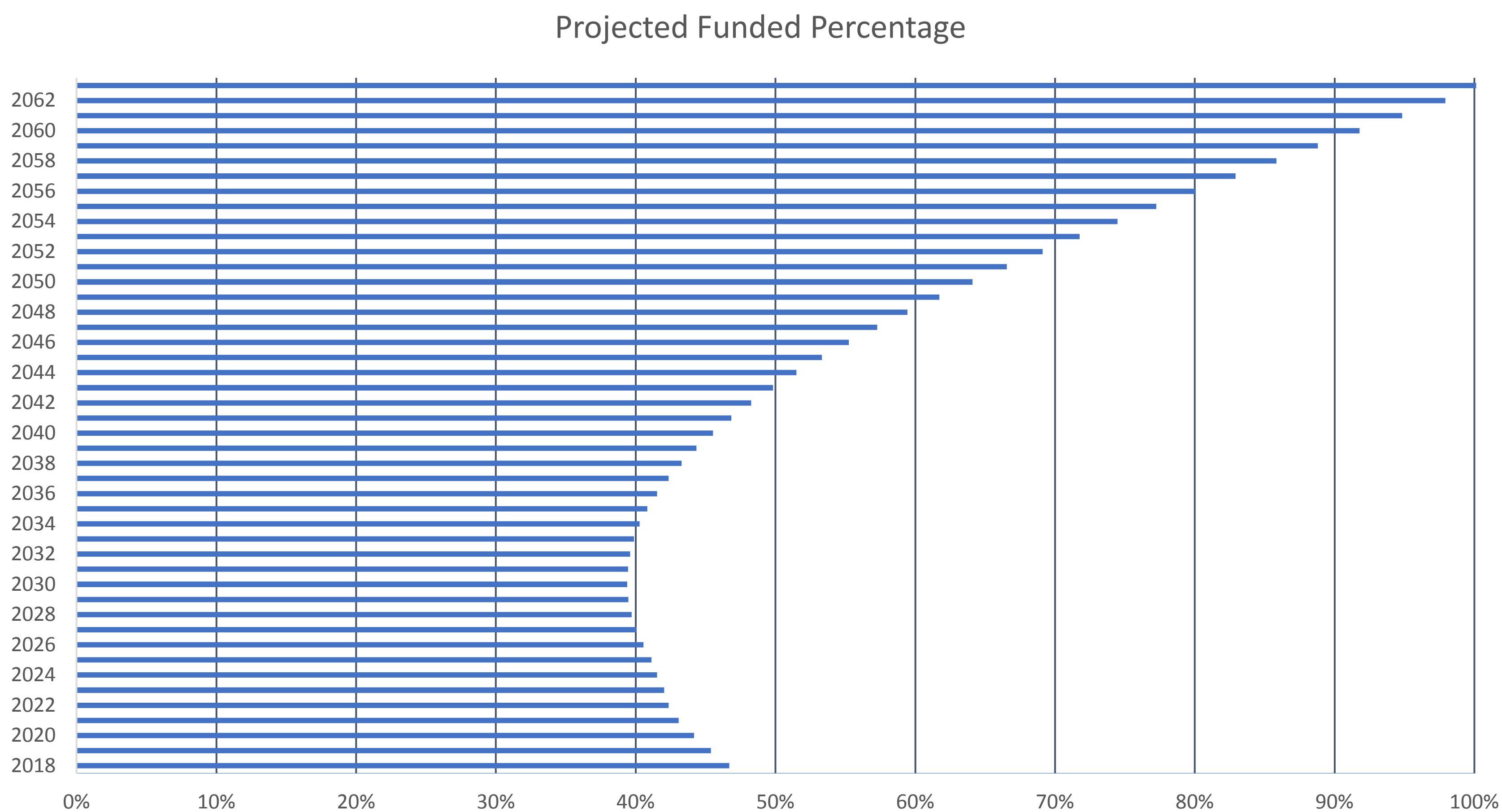
Projected Funded Percentage – City Hiring Plan



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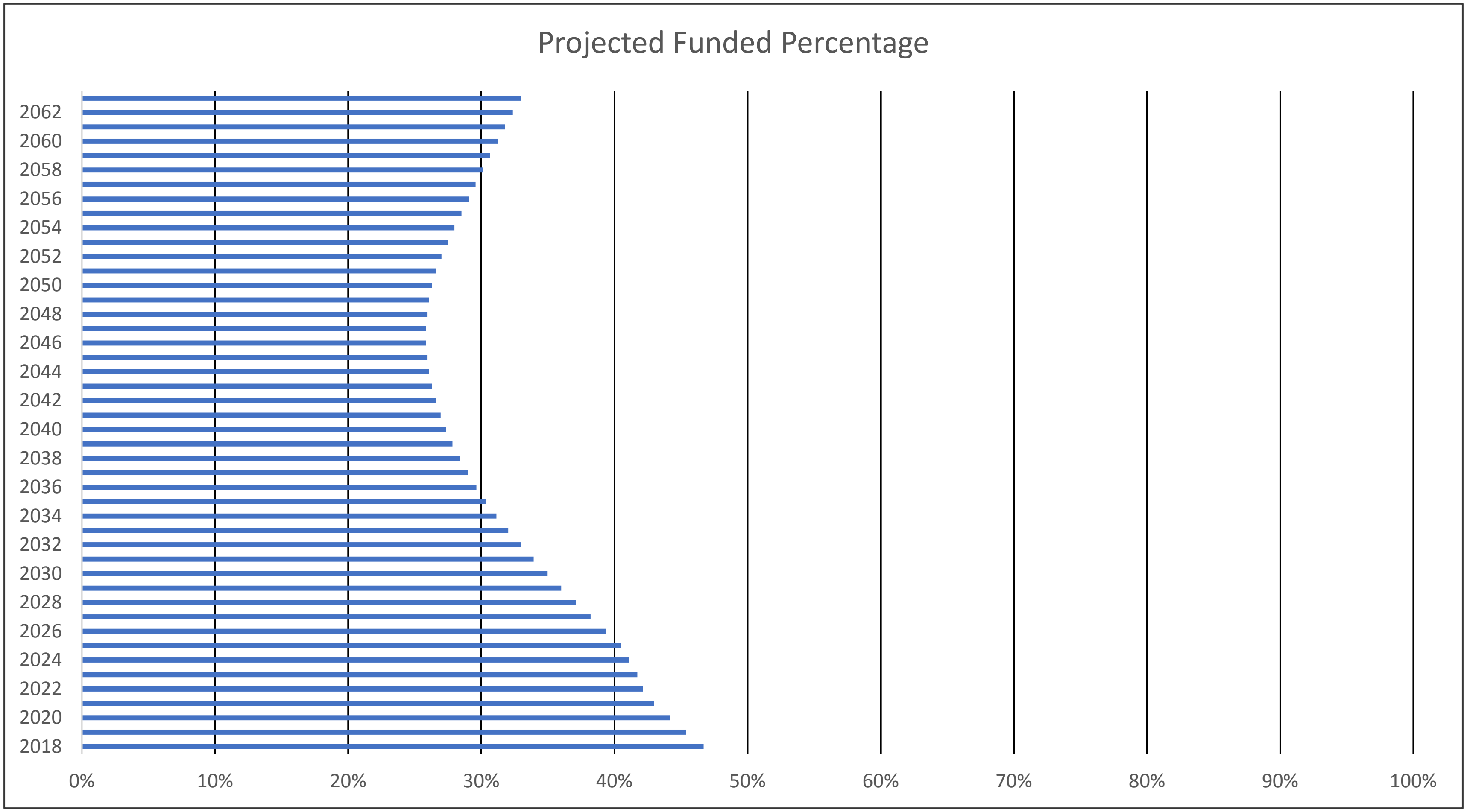
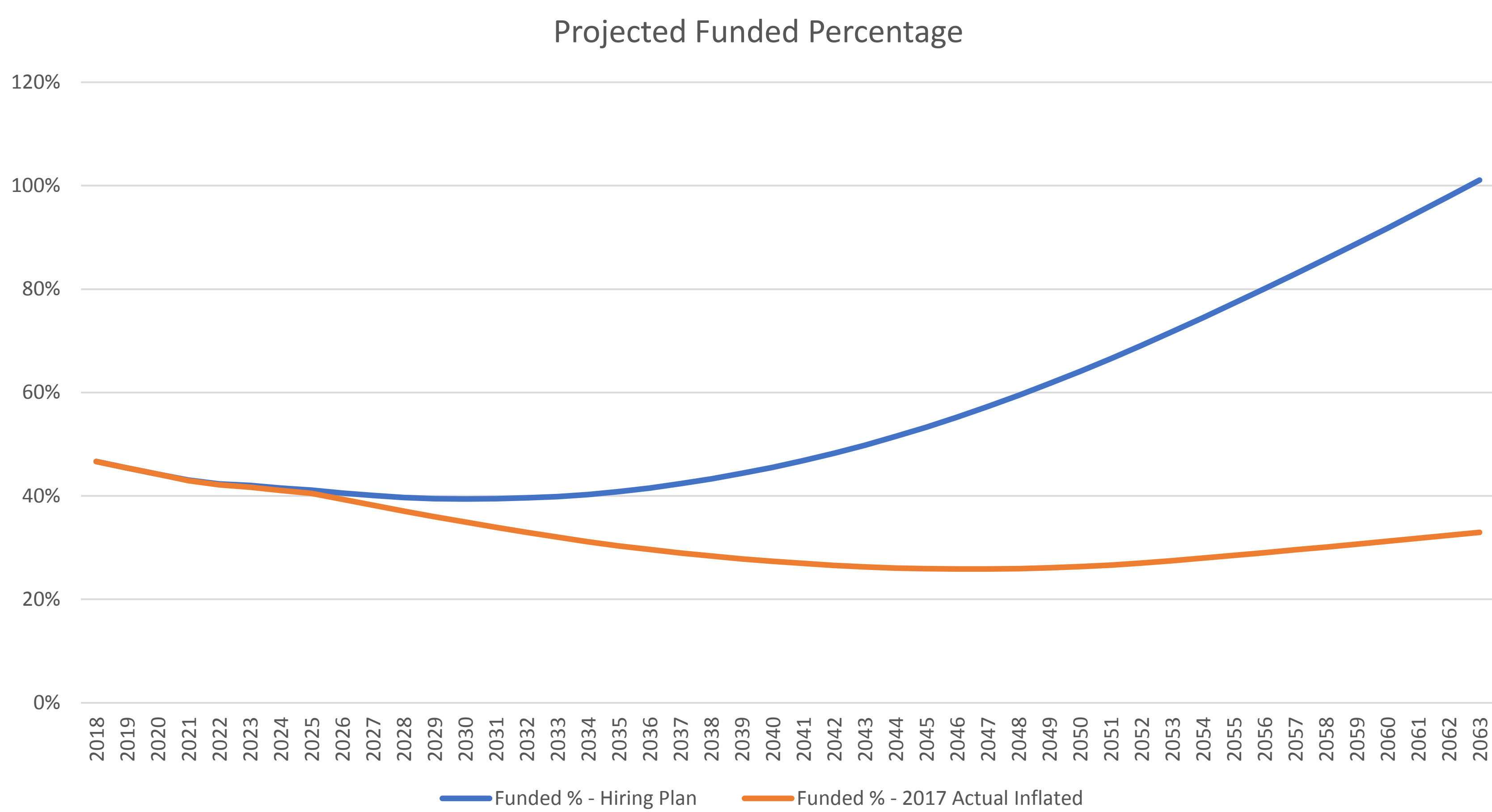
Projected Funded Percentage – 1-1-2018 Valuation Payroll Inflated by the Payroll Growth Rate Assumption



Projected Funded Percentage based on the City's Hiring Plan compared to 1-1-2018 Valuation Payroll Inflated by the Payroll Growth Rate Assumption.



Conclusion

- The Projected Change in Net Position Charts and Tables are based on the 1-1-2018 Actuarial Valuation and assumes all assumptions are met.
  - Even if all assumptions are achieved the funding level of the Plan is fragile.
  - The funded percentage is projected to decline for the next 15 years before it begins to increase.
  - The funded percentage is projected to be below 40% for 6 years and below 50% for 26 years.
- If the City does not meet the Hiring Plan projections, and remains on the same hiring path (1-1-2018 Valuation Payroll inflated by the 2.75% payroll growth assumption) the projected results are as follows:
  - The funded percentage is projected to drop below 40% funded in 2026.
  - The funded percentage is projected to be below 40% for 38 years.
  - The funded percentage is projected to be below 30% for 22 years.
  - The funded percentage is projected to drop to a low of 25.85% in 2047 before it begins to increase to a 33% funded level in 2063.
- Takeaway: As we knew when HB 3158 was passed, HB 3158 created a path to solvency but the path is narrow with many risks and little room for error. Any early disruption in achieving the assumptions (both investment returns as well as hiring projections) could have a catastrophic impact on the funding of the plan.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C3

Topic: **Asset Allocation**

Attendees: Leandro Festino, Managing Principal - Meketa Investment Group
Roberto Obregon, Vice President Macro Research & Modeling - Meketa Investment Group

Discussion: Meketa will discuss their asset allocation policy review and risk analysis. The analysis includes multiple asset allocation approaches targeting a 7.25% return based upon Meketa's asset class assumptions. A key difference between the mixes is a risk tradeoff between volatility and illiquidity. Feedback from the Board will help guide the final asset allocation recommendation, which is expected to be presented at the October board meeting.

Dallas Police and Fire Pension System

Asset Allocation Policy Review
and Risk Analysis

M E K E T A   I N V E S T M E N T   G R O U P
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Introduction

Today's Goals

- Describe the Meketa Investment Group asset modeling process.
- Discuss the challenges of reaching 7.25%.
- Identify the starting point – where is DPFP today.
- Present the trade-offs (i.e. risks) of a variety of asset allocation mixes that are expected to earn 7.25%.
- Solicit feedback from Trustees.

Future Goals

- Present one recommended allocation that is amenable to the majority of the Trustees' beliefs.
- Build a glide-path plan bridging the gap between today and the long-term policy.
- Present an implementation plan.

Introduction

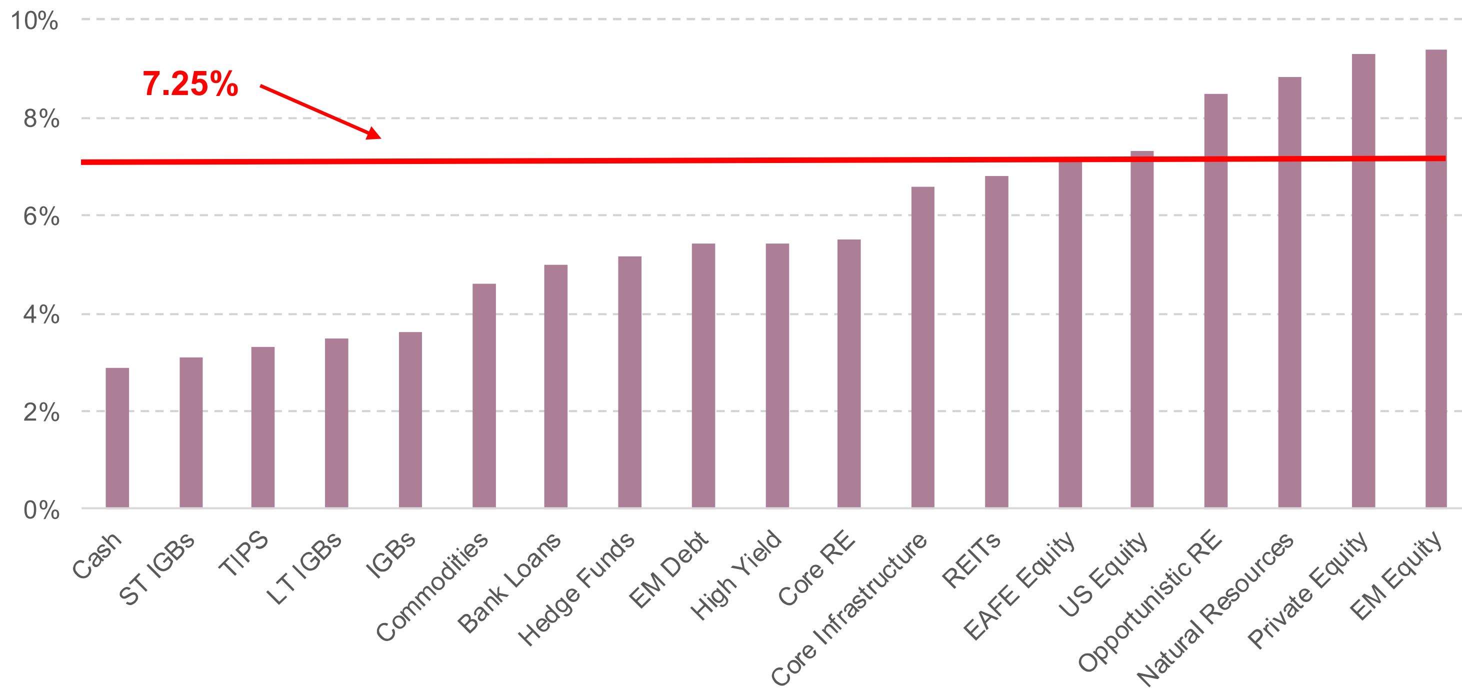
- The starting point of nearly all asset allocation reviews is based on a modeling technique called Mean Variance Optimization (MVO).
- MVO analysis seeks to predict what the long term expected return will be based on a selected asset mix.
- The inputs into the analysis (asset class return forecasts, asset class risk forecasts, asset class correlation forecasts) are quite important.
- In the first quarter of each year, Meketa Investment Group typically reviews these inputs with each client as part of its Annual Asset Study.
- These inputs/forecasts are 20-year projections so they typically only change marginally year-over-year.
- Since MVO does not paint a complete picture, we look at the risk/reward of the asset allocation decision through a variety of other lenses as well (liquidity, historical scenarios, stress testing, liability analysis, etc).

Meketa Investment Group's Annual Asset Study

- Each year Meketa Investment Group conducts an Asset Study to attempt to forecast future expected returns, future expected risk and correlation measures for over 65 asset classes and sub-asset classes.
- The process relies on both quantitative and qualitative methodologies.
- First, we employ a large set of quantitative models to arrive at a set of baseline expected ten-year annualized returns for major asset classes.
- These models attempt to forecast a gross "beta" return for each *public market* asset class; that is, we specifically do not model "alpha," nor do we apply an estimate for management fees or other operational expenses[1].
- Our models are fundamentally based (based on some theoretically defined return relationship with current observable factors).
- Some of these models are more predictive than others. For this reason, we overlay a qualitative analysis, which takes the form of a data-driven deliberation among the research team and our Investment Policy Committee.
- Return assumptions for hard-to-predict asset classes as well as those with limited data will be influenced more heavily by our qualitative analysis.
- As a result of this process, we form our ten-year annualized return expectations, which serve as the primary foundation of our longer-term, twenty-year expectations.
- We form our twenty-year annualized return expectations by systematically considering historical returns on an asset class by asset class level. Qualitative assessments are made on the value of the historical data and the confidence we have (or lack thereof) that the historical average return is representative of future returns.

[1] Our expectations are net of fees where passive management is not available (e.g., private markets and hedge funds).

Meketa's Long-Term Projections[1]



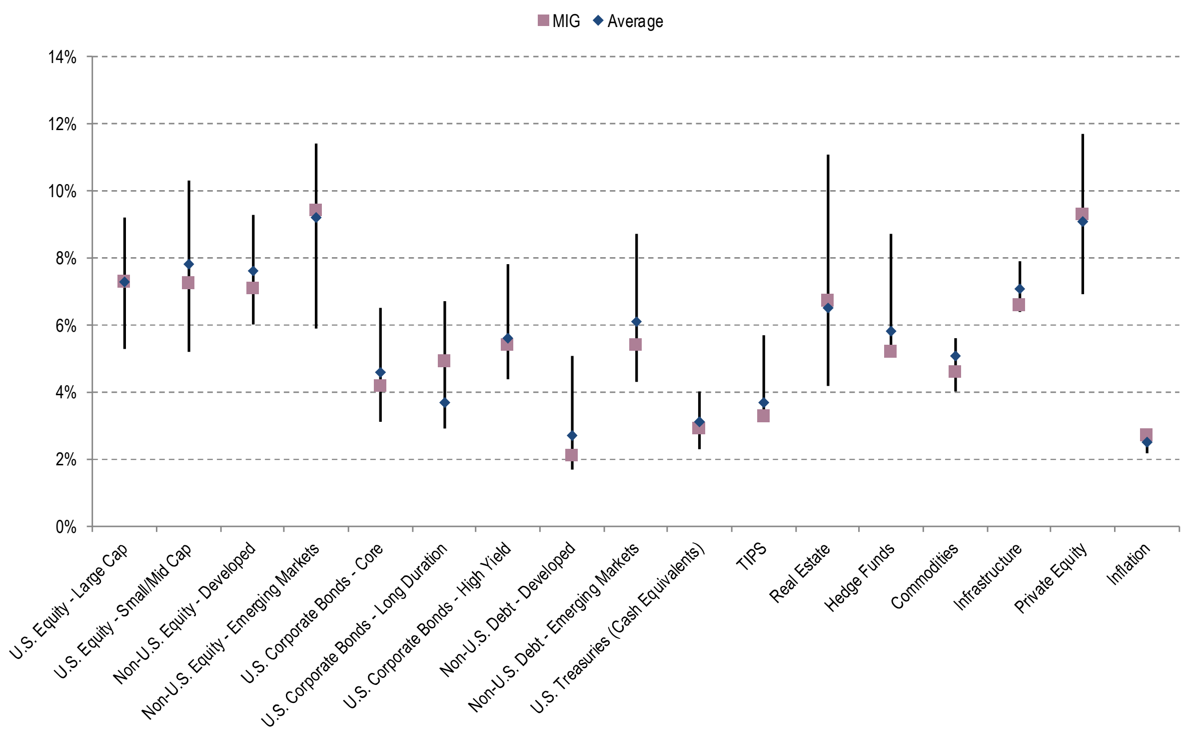
- Based on Meketa Investment Group's long-term expectations, only a handful of asset classes are priced to produce returns above 7.25% per year. These asset classes incorporate a high degree of volatility (and some, illiquidity) and generally have a high degree of correlation with one another.

[1] Twenty-year expected returns based upon Meketa Investment Group's 2018 Annual Asset Study.

Peer Industry Review

- Annually the Horizon Actuarial Survey compares asset class assumptions for over 30 investment consulting firms. The analysis is a good "sanity-check" to compare Meketa Investment Group's asset class forecasts to the forecasts of our industry peers.

Meketa 2018 Asset Study vs. Horizon 2018 Survey



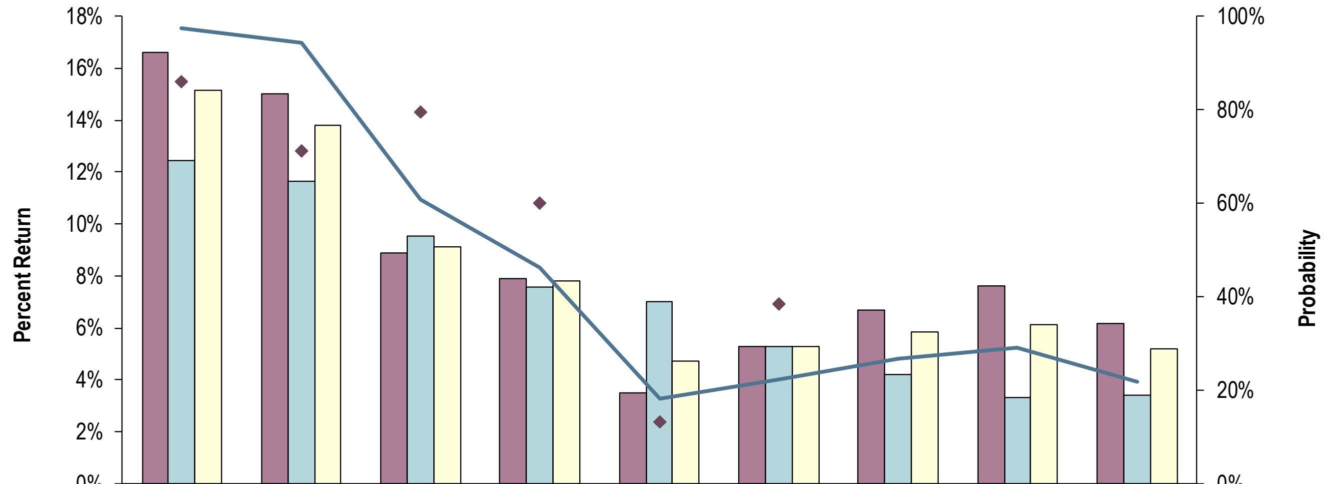
Horizon Survey Participants

Arthur J. Gallagher & Co. Alan D. Biller and Associates AndCo Consulting, LLC Aon Hewitt The Atlanta Consulting Group Bank of New York Mellon BlackRock Callan Associates Cambridge Associates CapTrust Ellwood Associates Envestnet Goldman Sachs Asset Management Graystone Consulting Investment Performance Services, LLC (IPS) Janney Montgomery Scott J.P. Morgan Asset Management	Marquette Associates **Meketa Investment Group** Merrill Lynch Global Institutional Consulting Morgan Stanley Wealth Management New England Pension Consultants (NEPC) Pavilion Advisory Group Pension Consulting Alliance PFM Asset Management RVK Segal Marco Advisors SEI Sellwood Consulting UBS Verus Voya Investment Management Willis Towers Watson

- All of the firms listed above participated in the 2018 Horizon Survey.

The Challenge of Earning 7.25% Today

The Secular Decline in Investment Returns[1]

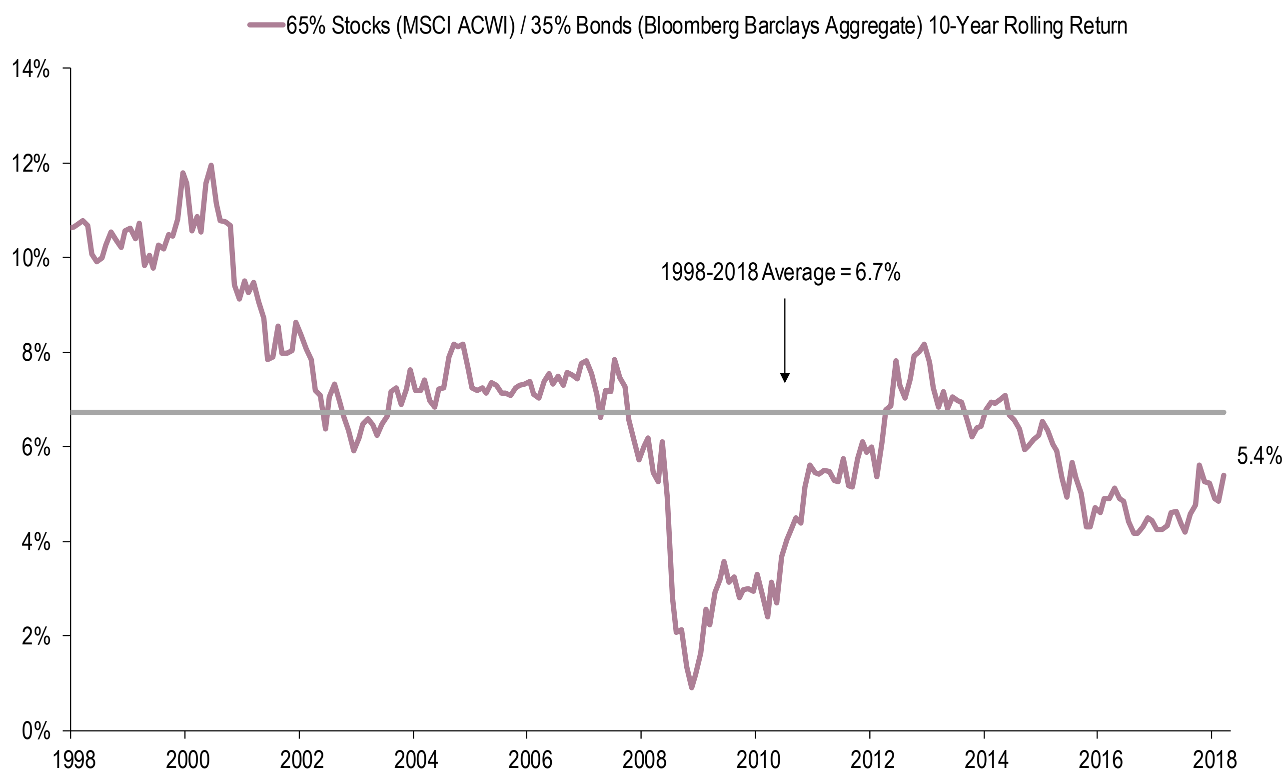


	1980	1985	1990	1995	2000	2005	2010	2015	2018
Equity Expected Return	16.6%	15.0%	8.9%	7.9%	3.5%	5.30%	6.7%	7.6%	6.2%
Bond Expected Return	12.4%	11.6%	9.6%	7.6%	7.0%	5.29%	4.2%	3.3%	3.4%
65/35 Eq/Bond Exp. Ret.	15.1%	13.8%	9.1%	7.8%	4.7%	5.3%	5.8%	6.1%	5.2%
Actual 10-year Return	15.5%	12.8%	14.3%	10.8%	2.4%	6.9%			
Probability of earning 7.5%	97%	94%	61%	46%	18%	22%	27%	29%	22%

- The chart above illustrates that a portfolio comprising of 65% domestic stocks and 35% investment grade bonds has produced diminishing expected returns as well as actual returns over the past 30 years.

[1] Expected return assumptions for 1) Bonds equals the yield of the ten-year Treasury plus 100 basis points, and 2) Equities equals the dividend yield plus the earnings yield of the S&P 500 index (using the inflation-adjusted trailing 10-year earnings). Probability calculation is for the subsequent ten years.

Rolling Ten-Year Returns: 65% Stocks and 35% Bonds[1]



- The twenty-year average return for a 65%/35% stock and bond portfolio has been 6.7%. The most recent ten-year rolling return has been 5.4%.

[1] Source: InvestorForce.

Bond Yields are Low

- As of July 16, the ten-year Treasury yield was 2.8%, which is below the post-WWII average but above the 2.3% level of one year ago.

U.S. Equities are Expensive

- The cyclically adjusted P/E ratio[1] for the S&P 500 is 31.8x, which is above its historical average of 16.9x.
- Non-U.S. equities (both developed and emerging market equities) are currently priced cheaper. Developed international equities (non-U.S.) have a cyclically adjusted P/E ratio of 20.1x (vs. a historical average of 22.2x). Emerging market equities have a P/E ratio of 14.8x (vs. a historical average of 18.1x).

[1] Source: Robert Shiller and Yale University. Data for all P/E statistics is from January 31, 1881 to July 16, 2018.

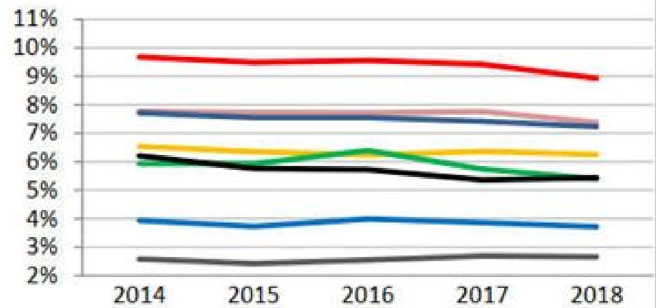
Less Return for the Same or More Risk[1]

- A positive relationship exists between long-term return expectations and the level of risk accepted.
- The efficient frontier has shifted down and to the right. Relative to ten years ago, investors have been forced into taking on more risk to earn the same (or less) return than in the past.

[1] Expected return and standard deviation are based upon Meketa Investment Group's Annual Asset Study.

Industry Return Expectations have Decreased across the Board

Average Expected Returns: 2014 - 2018



	2014	2015	2016	2017	2018
Private Equity	9.7%	9.5%	9.6%	9.4%	8.9%
Non-US Eq. (Dev)	7.8%	7.7%	7.7%	7.8%	7.4%
US Eq. (Large Cap)	7.7%	7.5%	7.5%	7.4%	7.2%
Real Estate	6.5%	6.4%	6.2%	6.4%	6.2%
US Bonds (HY)	5.9%	5.9%	6.4%	5.7%	5.4%
Hedge Funds	6.2%	5.8%	5.7%	5.4%	5.4%
US Bonds (Core)	3.9%	3.7%	4.0%	3.9%	3.7%
US Treasuries	2.6%	2.4%	2.5%	2.7%	2.7%

Figures are average geometric returns for selected asset classes for the 22 advisors who participated in each of the surveys from 2014 through 2018.

- The previously cited Horizon Survey addressed this trend in their 2018 report, noting the change in predictions across the 22 advisors that have submitted capital market expectations the last five years.
- Every asset class cited except for U.S. Treasuries has seen a decrease in expected return.

Probability of Earning 7.25%[1]

U.S. Only Portfolio

	50% Stocks/50% Bonds	60% Stocks/40% Bonds	70% Stocks/30% Bonds	80% Stocks/20% Bonds
Probability of 7.25%	25.8%	34.3%	40.9%	45.8%
Expected Return	5.9	6.3	6.6	7.0
Expected Risk	9.3	11.0	12.7	14.5
One Year Worst Case Return	-15.5	-18.4	-21.3	-24.2

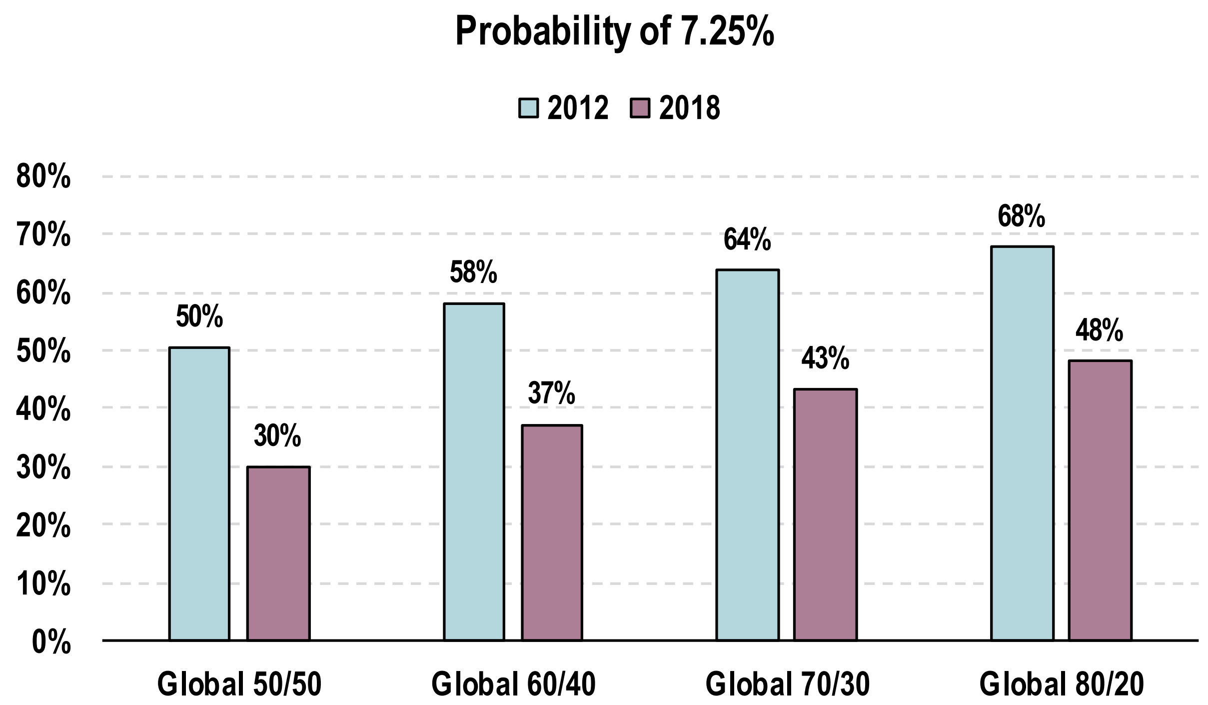
Global Portfolio

	50% Stocks/50% Bonds	60% Stocks/40% Bonds	70% Stocks/30% Bonds	80% Stocks/20% Bonds
Probability of 7.25%	29.9%	37.2%	43.2%	48.0%
Expected Return	5.9	6.4	6.8	7.1
Expected Risk	11.4	12.8	14.3	15.9
One Year Worst Case Return	-19.5	-21.8	-24.1	-26.4

- An asset allocation consisting of only stocks and bonds has less than a 50% chance of earning 7.25%.
- A global portfolio has slightly higher expected return (relative to the U.S. only portfolio) but comes with higher expected volatility.

[1] Twenty-year expected return and standard deviation are based upon Meketa Investment Group's Annual Asset Study.

Return Expectations: Past vs. Present[1]



- The probability of a global stock/bond portfolio achieving a long term 7.25% return has been lowered by approximately 20 percentage points since Meketa's 2012 Annual Asset Study.
- A similar size decrease is observed if you looked at a U.S. only portfolio as well.

[1] Twenty-year return expectations are based upon Meketa Investment Group's Annual Asset Study.

What Have Investors Done to Earn More Return?

- DPFP has already explored many of the steps pension plans have taken to earn more returns.
- Some have worked and others have not.
- In nearly all cases, the investor is forced to accept more risk.
- Common steps institutional investors have taken to increase returns:
  - Added to Alternative Investments, such as hedge funds and private equity.
  - Sacrificed liquidity.
  - Used more active management.
  - Attempted to be tactical/opportunistic.
  - Accepted short-term volatility for the benefit of long-term returns.

Determining DPFP's Objectives and Constraints

Determining Investment Objectives

Long-term return objectives

- All of the following return objectives are important in our view:
  - Improve funded status and solvency.
  - Meet or exceed actuarial assumed rate of return of 7.25%.
  - Exceed policy benchmark.
  - Keep investment fees at a minimum.

Long-Term risk tolerance objectives

- Common risk minimization objectives include:
  - Minimize the risk of permanent capital impairment.
  - Minimize volatility in asset values and contribution levels from year to year.
  - Limit the risk and/or extent of short-term losses.

Managing Investment Constraints

What is the overall time horizon for DPFP?

- On-going concern, with long-term time horizon for majority of assets.

What are the liquidity needs of the DPFP?

- Net cash outflows of approximately $125 million per year (approximately 6% of assets).

What is the Funded Status of DPFP?

- Approximately 50% funded.

What are the legal and regulatory constraints under which DPFP operates?

- Texas state laws.

Are there any other considerations that must be evaluated?

- Significant illiquidity in current portfolio. Staff/Trustees would prefer a more liquid portfolio.
- 25% legacy[1] assets.
- Lower than projected contributions entering DPFP.
- Roughly equal ratio of active to retired participants.
- Pension reform passed in 2017.

[1] Assets defined as “legacy” were identified by DPFP staff as those assets with limited/no liquidity and expectations for low returns and high volatility.

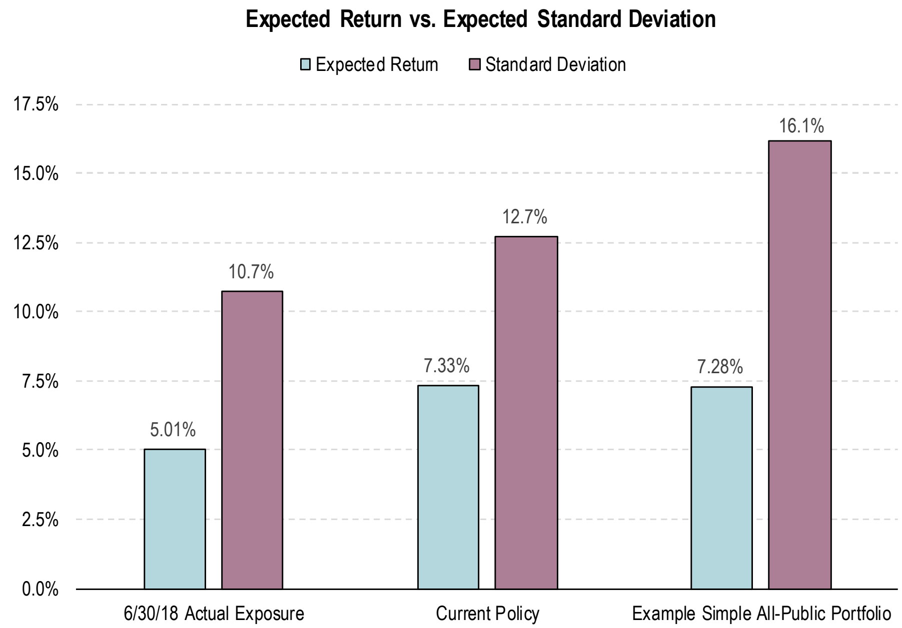
Caveats of MVO

- MVO is the traditional starting point for determining asset allocation but has its flaws[1], which is why we look at return and risk through a variety of different tools.
- MVO mathematically determines an "efficient frontier" of policy portfolios with the highest risk-adjusted returns.
- All asset classes exhibit only three characteristics, which serve as inputs to the model:
  - Expected return.
  - Expected volatility.
  - Expected covariance with all other assets.
- The model assumes:
  - Normal return distribution.
  - Stable volatility and covariances over time.
  - Returns are not serially correlated.
- The MVO model tends to underestimate the risks of large negative events and some of the simplistic assumptions identified directly above have not been reflective of real world experiences (e.g. non-normal return distributions with fat tails and changing volatility and covariances have occurred more than MVO would suggest).
- Meketa Investment Group (and the industry at large) use MVO as a starting point but look at return and risk through a variety of different approaches that seek to compensate for the known flows in MVO analysis.

[1] Non-normal distribution of returns, volatility and covariances may not be constant, returns may be serially correlated, etc.

Proposed Policy Options

Starting Point[1]



	6/30/18 Actual Exposure (%)	Current Policy (%)	Example Simple All Public Portfolio (%)
Sharpe Ratio	0.20	0.35	0.27
% in Private Markets[2]	49	32	0
% in Foreign[3]	23	32	43
Probability of 7.25%	17	51	50

[1] Expected return and standard deviation are based upon Meketa Investment Group's 2018 Annual Asset Study. Throughout this document, returns for periods longer than one year are annualized.
[2] Private equity, private real estate, private debt, private infrastructure and legacy assets.
[3] Half of the global equity allocation, emerging market equity, emerging market debt, foreign bonds and half of the infrastructure and private natural resources for the current exposure.

Starting Point[1]

	6/30/18 Actual Exposure (%)	Current Policy (%)	Example Simple All- Public Portfolio (%)
Equities	**23**	**30**	**85**
Global Equity	21	20	85
Emerging Market Equity	2	5	0
Private Equity	0	5	0
Safety Reserve and Fixed Income	**29**	**35**	**15**
Cash Equivalents	3	2	3
Short-term Investment Grade Bonds	12	2	12
TIPS	0	0	0
High Yield Bonds	4	5	0
Bank Loans	5	6	0
Private Debt Composite	1	5	0
Fixed Income/Long-Short Credit	0	6	0
Global Bonds	3	3	0
Emerging Market Bonds (50/50)	1	6	0
Real Assets	**22**	**25**	**0**
Private Real Estate	11	12	0
REITs	0	1.5	0
Natural Resources (Private)	9	5	0
Infrastructure (Public)	0	1.5	0
Private Non-Core Infrastructure	2	5	0
GAA	**0**	**10**	**0**
Global Macro	0	2	0
Risk Parity	0	5	0
Tactical Asset Allocation	0	3	0
Legacy Assets[2]	**26**	**0**	**0**
Expected Return (20 years)	*5.0*	*7.33*	*7.28*
Standard Deviation	*10.7*	*12.7*	*16.1*
Probability of Achieving 7.25% over 20 Years	*17%*	*51%*	*50%*

1 Expected return and standard deviation are based upon Meketa Investment Group's 2018 Annual Asset Study. Throughout this document, returns for periods longer than one year are annualized.

2 Assets defined as "legacy" were identified by DPFP staff as those assets with limited/no liquidity and expectations for low returns and high volatility. Legacy assets we modeled an expected return of 0% but a standard deviation of 25% (our same standard deviation assumption for opportunistic real estate/private equity).

Observations

- A simple public-only asset mix must accept tremendous amounts of public equity risk in order to reach a 7.25% expected return and is not something we recommend doing.
- The current allocation has less than a 20% probability of earning a long term 7.25%. The Board, Staff and Consultant understand the situation and recognize change is needed.
- The current policy is reasonable but very far from the current reality of the DPFP Fund.
- The current policy targets more than 30% in private market investments, which may be high given the Fund's circumstances (illiquidity concerns, funded status, headline risk, etc.).

Introduction to Different Investment Options

- We have prepared a few asset mixes that seek to identify the tradeoff between illiquidity and volatility (as measured by standard deviation).
- Each is designed to hit a target return of 7.25%.
- Since each proposed mix has less exposure to private markets and GAA strategies (relative to the current policy), each proposed mix could be implemented at a much lower cost than the current policy.
- Regardless of which policy is preferred, it will still take significant time to reach the desired exposure as the legacy assets are unwound.

Investment Options[1]

	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
Equities	**62**	**54**	**41**	**39**
Global Equity	50	42	28	25
Emerging Market Equity	12	7	8	6
Private Equity	0	5	5	8
Safety Reserve and Fixed Income	**31**	**34**	**42**	**43**
Cash Equivalents	3	3	3	3
Short-term Investment Grade Bonds	12	12	12	12
TIPS	5	0	5	5
High Yield Bonds	4	5	7	6
Bank Loans	4	7	7	6
Private Debt Composite	0	0	0	4
Global Bonds	0	3	0	0
Emerging Market Bonds (50/50)	3	4	8	7
Real Assets	**7**	**12**	**17**	**18**
Private Real Estate	0	3	5	8
REITs	4	4	2	0
Private Natural Resources	0	2	5	5
Infrastructure (Public)	3	3	0	0
Private Infrastructure	0	0	5	5
Expected Return (20 years)	*7.25*	*7.25*	*7.25*	*7.25*
Standard Deviation	*14.5*	*13.9*	*12.7*	*12.4*
Sharpe Ratio	*0.30*	*0.31*	*0.34*	*0.35*
Probability of Achieving 7.25% over 20 Years	*49%*	*49%*	*49%*	*49%*

[1] Expected return and standard deviation are based upon Meketa Investment Group's 2018 Annual Asset Study. Throughout this document, returns for periods longer than one year are annualized. "Private" is defined by all asset classes not traded on public exchange or broker to broker. Specifically: private equity, private debt, private real estate, natural resources (private) and private infrastructure.

Investment Options (Reorganized by Functional Group)[1]

	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
Growth	**62**	**54**	**41**	**39**
Global Equity	50	42	28	25
Emerging Market Equity	12	7	8	6
Private Equity	0	5	5	8
Risk Mitigation	**15**	**15**	**15**	**15**
Cash Equivalents	3	3	3	3
Short-term Investment Grade Bonds	12	12	12	12
Real Assets/Inflation Hedges	**12**	**12**	**22**	**23**
TIPS	5	0	5	5
Private Real Estate	0	3	5	8
REITs	4	4	2	0
Private Natural Resources	0	2	5	5
Infrastructure (Public)	3	3	0	0
Private Infrastructure	0	0	5	5
Credit	**11**	**19**	**22**	**23**
Global Bonds	0	3	0	0
Private Debt Composite	0	0	0	4
High Yield Bonds	4	5	7	6
Bank Loans	4	7	7	6
Emerging Market Bonds (50/50)	3	4	8	7
Expected Return (20 years)	*7.25*	*7.25*	*7.25*	*7.25*
Standard Deviation	*14.5*	*13.9*	*12.7*	*12.4*
Sharpe Ratio	*0.30*	*0.31*	*0.34*	*0.35*
Probability of Achieving 7.25% over 20 Years	*49%*	*49%*	*49%*	*49%*

1 Expected return and standard deviation are based upon Meketa Investment Group's 2018 Annual Asset Study. Throughout this document, returns for periods longer than one year are annualized. "Private" is defined by all asset classes not traded on public exchange or broker to broker. Specifically: private equity, private debt, private real estate, natural resources (private) and private infrastructure.

Relative Change vs. Current Allocation

	6/30/18 Actual Exposure (%)	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
Equities	**23**	**+39**	**+31**	**+18**	**+16**
Global Equity	21	+29	+21	+7	+4
Emerging Market Equity	2	+10	+5	+6	+4
Private Equity	0	0	+5	+5	+8
Safety Reserve and Fixed Income	**29**	**+2**	**+5**	**+13**	**+14**
Cash Equivalents	3	0	0	0	0
Short-term Investment Grade Bonds	12	0	0	0	0
TIPS	0	+5	0	+5	+5
High Yield Bonds	4	0	+1	+3	+2
Bank Loans	5	-1	+2	+2	+1
Private Debt Composite	1	-1	-1	-1	+3
Global Bonds	3	-3	0	-3	-3
Emerging Market Bonds (50/50)	1	+2	+3	+7	+6
Real Assets	**22**	**-15**	**-10**	**-5**	**-4**
Private Real Estate	11	-11	-8	-6	-3
REITs	0	+4	+4	+2	0
Private Natural Resources	9	-9	-7	-4	-4
Infrastructure (Public)	0	+3	+3	0	0
Private Infrastructure	2	-2	-2	+3	+3
Legacy Assets[1]	**26**	**-26**	**-26**	**-26**	**-26**
Expected Return (20 years)	*5.0*	*+2.3*	*+2.3*	*+2.3*	*+2.3*
Standard Deviation	*10.7*	*+3.8*	*+3.2*	*+2.0*	*+1.7*
Sharpe Ratio	*0.20*	*+0.10*	*+0.11*	*+0.14*	*+0.15*
Probability of Achieving 7.25% over 20 Years	*17%*	*+32%*	*+32%*	*+32%*	*+32%*

[1] Assets defined as "legacy" were identified by DPFP staff as those assets with limited/no liquidity and expectations for low returns and high volatility. Legacy assets we modeled an expected return of 0% but a standard deviation of 25% (our same standard deviation assumption for opportunistic real estate/private equity).

Implementation – Impact on Manager Roster

	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
Legacy Assets[1]	**Full liquidation**	**Full liquidation**	**Full liquidation**	**Full liquidation**
Equities	**+39**	**+31**	**+18**	**+16**
Global Equity	Manager Search(es)	Manager Search(es)	Manager Search(es)	Rebalancing
Emerging Market Equity	Manager Search(es)	Manager Search(es)	Manager Search(es)	Manager Search(es)
Private Equity	-	$100+ mm in commitments	$100+ mm in commitments	$150+ mm in commitments
Safety Reserve and Fixed Income	**+2**	**+5**	**+13**	**+14**
Cash Equivalents	-	-	-	-
ST Investment Grade Bonds	-	-	-	-
TIPS	Hire Index Fund	-	Hire Index Fund	Hire Index Fund
High Yield Bonds	-	Rebalancing	Rebalancing	Rebalancing
Bank Loans	Rebalancing	Rebalancing	Rebalancing	Rebalancing
Private Debt Composite	-	-	-	$50+ mm in commitments
Global Bonds	Termination	-	Termination	Termination
Emerging Market Bonds (50/50)	Rebalancing	Rebalancing	Manager Search (+7%)	Manager Search (+6%)
Real Assets	**-15**	**-10**	**-5**	**-4**
Private Real Estate	Full liquidation	Partial Liquidation	Partial Liquidation	Partial Liquidation
REITs	Manager Search	Manager Search	Manager Search	-
Private Natural Resources	Full liquidation	Partial Liquidation	Partial Liquidation	Partial Liquidation
Infrastructure (Public)	Manager Search	Manager Search	-	-
Private Infrastructure	Full liquidation	Full liquidation	Manager Search	Manager Search

[1] Assets defined as "legacy" were identified by DPFP staff as those assets with limited/no liquidity and expectations for low returns and high volatility. Legacy assets we modeled an expected return of 0% but a standard deviation of 25% (our same standard deviation assumption for opportunistic real estate/private equity).

Diversification and Risk Analysis

Diversification

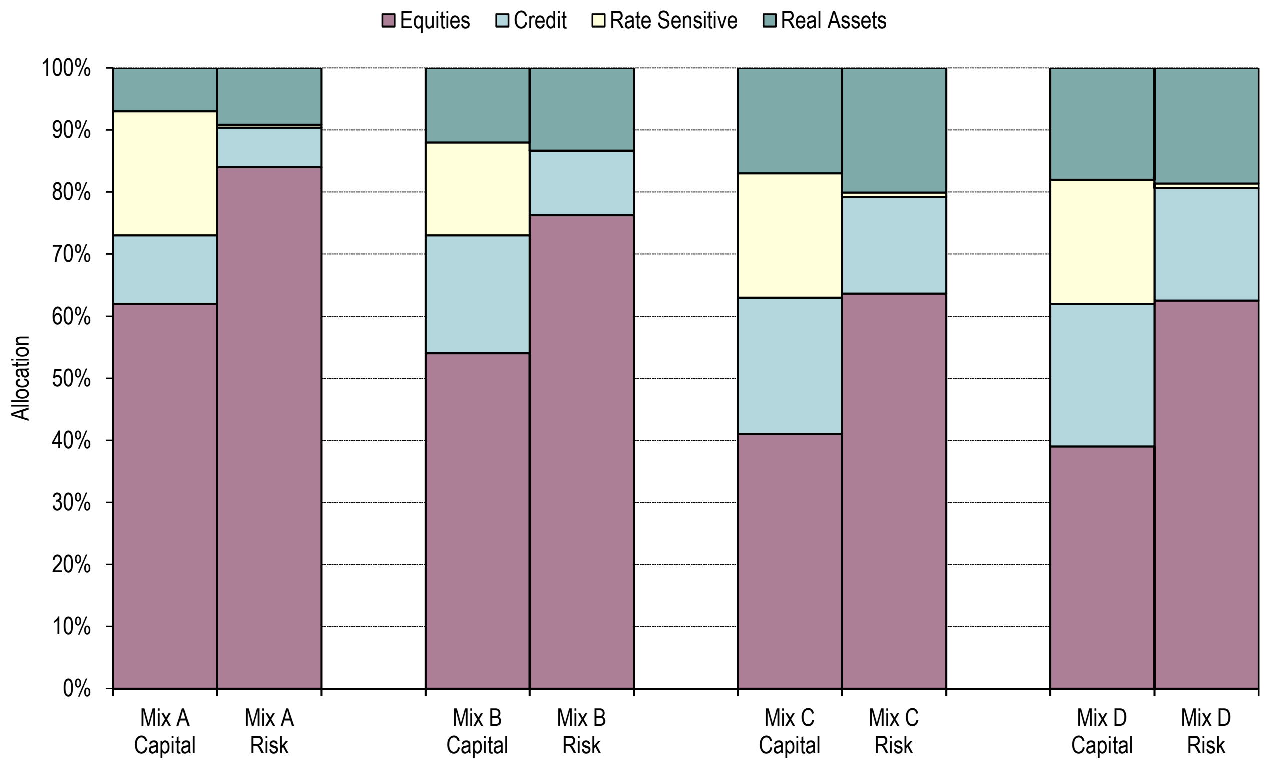
- The primary motive for diversifying a portfolio is to reduce risk.
- Diversification is the sole “free lunch” available to investors. That is, it represents the only way to reduce risk without reducing expected returns.
- Therefore, investments should be allocated across multiple classes of assets, based in part on the expected correlation of their returns.
- Within each asset type, investments should be distributed across strategies and risk factors to further reduce volatility.

Types of Risk Analysis Addressed

- Risk budgeting[1]
  - Attributes overall portfolio risks to specific asset classes
  - Highlights the source and scale of portfolio-level risk
- MVO-based risk analytics
  - Includes worst-case return expectations and Value at Risk (VaR)[2]
  - Relies on assumptions underlying MVO
- Scenario analysis
  - Stress tests policy portfolios using actual historical examples
  - Stress tests policy portfolios under specific hypothetical scenarios

1 Risk budgeting seeks to decompose the aggregate risk of a portfolio into different sources (in this case, by asset class), with risk defined as standard deviation.
2 VaR is a risk measure that estimates the maximum loss on a portfolio over a given time horizon and a given confidence level (usually 95% or 99%).

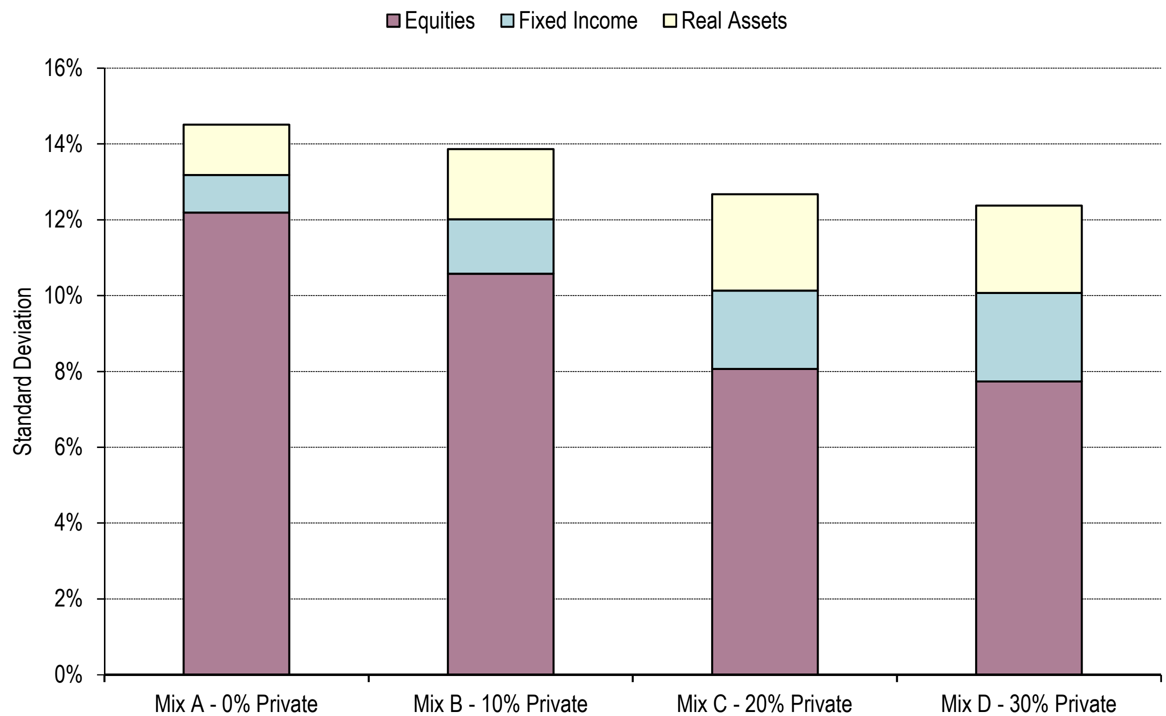
Risk Budgeting Analysis[1]
(Capital Allocation vs. Risk Allocation)



- Assets with low relative volatility, such as rate sensitive fixed income, contribute less to risk than their asset weighting implies. The mixes with lower private markets (Mix A and Mix B) take on more equity risk.

1 Other includes Hedge Funds (not applicable to DPFP). Risk allocation is calculated by multiplying the weight of the asset class by its standard deviation and its correlation with the total portfolio and then dividing this by the standard deviation of the total portfolio.

Risk Budgeting Analysis[1]
(Standard Deviation Decomposition)



- In each policy option, equity risk dominates the risk profile of the portfolio.

[1] Contribution to risk is calculated by multiplying the weight of the asset class by its standard deviation and its correlation with the total portfolio.

Value at Risk (VaR)[1]

Scenario	Mix A - 0% Private	Mix B - 10% Private	Mix C - 20% Private	Mix D - 30% Private
VaR (%):				
1 month	-9.1	-8.7	-7.9	-7.7
3 months	-14.9	-14.2	-12.8	-12.5
VaR ($ mm):				
1 month	-190	-181	-165	-161
3 months	-312	-296	-268	-261

- Value at Risk (VaR) seeks to quantify the expected loss under extreme market conditions at a given confidence interval.
- Mix A has the highest possible potential lose in a given period according to the VaR model. This is because it has the highest standard deviation.
- According to the VaR model, Mix A could lose $190 mm in a given month (based on a starting Fund value of $2.088 billion).

[1] Calculated with a 99% confidence level and based upon Meketa Investment Group's Annual Asset Study.

MVO-Based Risk Analysis

Scenario:	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
Worst Case Returns				
One Year	-24.0	-22.9	-20.7	-20.2
Three Years (annualized)	-12.1	-11.4	-9.9	-9.6
Five Years (annualized)	-8.1	-7.5	-6.3	-6.0
Ten Years (annualized)	-3.8	-3.4	-2.6	-2.3
Twenty Years (annualized)	-0.7	-0.4	0.2	0.4
Probability of Experiencing Negative Returns				
One Year	30.1	29.4	27.6	27.2
Three Years	18.3	17.4	15.2	14.6
Five Years	12.2	11.2	9.2	8.7
Ten Years	5.0	4.3	3.0	2.7
Twenty Years	1.0	0.8	0.4	0.3
Probability of Achieving at least a 7.25% Return				
One Year	49.9	49.8	49.8	49.8
Three Years	49.8	49.7	49.7	49.7
Five Years	49.7	49.6	49.6	49.6
Ten Years	49.6	49.4	49.4	49.4
Twenty Years	49.4	49.1	49.2	49.2

- Mixes A and B have the highest probability of experiencing a negative return in a given year and over the long term.

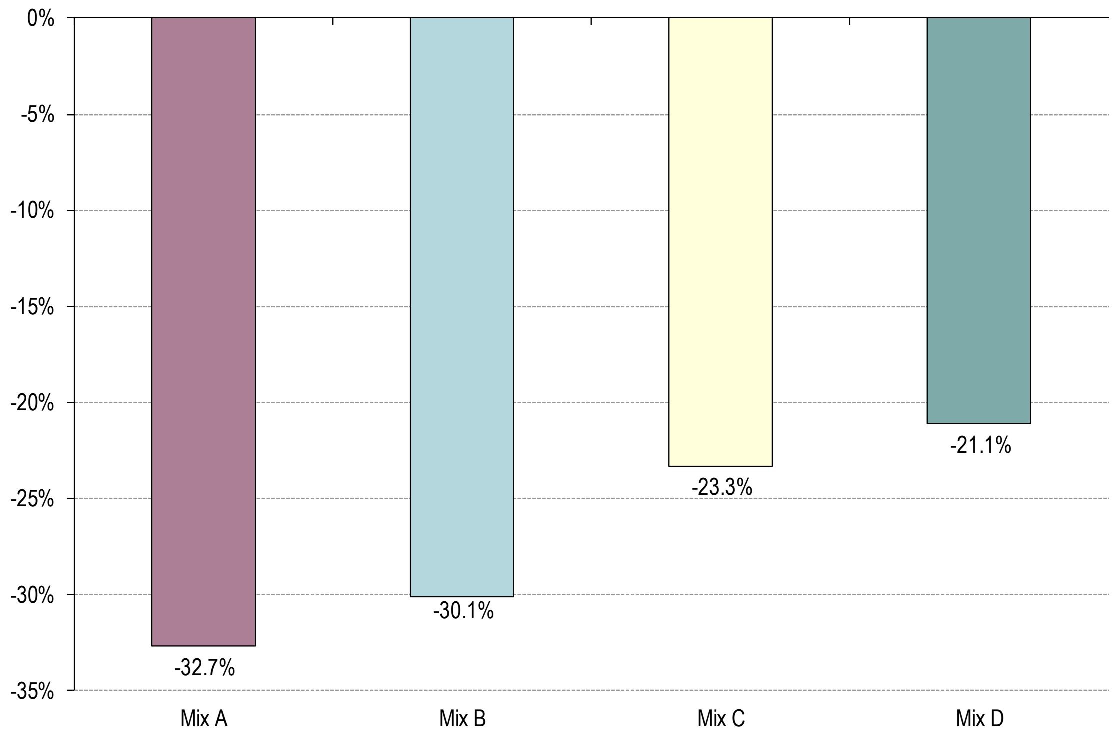
Historical Negative Scenario Analysis[1]
(*Cumulative* Return)

Scenarios	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
Taper Tantrum (May-Aug 2013)	-3.1	-1.9	-2.0	-0.9
Global Financial Crisis (Oct 2007 - Mar 2009)	-32.7	-30.1	-23.3	-21.1
Popping of the TMT Bubble (Apr 2000 - Sep 2002)	-22.8	-17.4	-9.3	-6.2
Asian Financial Crisis (Aug 1997 - Jan 1998)	-3.7	-0.7	-1.1	0.6
Rate spike (1994 Calendar Year)	0.7	2.5	-0.9	0.8
Crash of 1987 (Sep - Nov 1987)	-15.0	-12.5	-9.6	-7.9
Strong dollar (Jan 1981-Sep 1982)	-1.7	0.7	2.4	3.8
Volcker Recession (Jan - Mar 1980)	-4.8	-4.0	-3.6	-3.1
Stagflation (Jan 1973- Sep 1974)	-27.3	-23.5	-17.9	-15.7

- Mixes C and D would have performed better in environments of declining equity markets, due to their larger positioning in private market assets.
- Mix B would have fared better during periods of rising rates. It has the lowest allocation to interest rate sensitive bonds.

[1] See the Appendix for our scenario inputs. In periods where the ideal benchmark was not yet available we used the next closest benchmark(s) as a proxy.

Global Financial Crisis Repeat[1] (Oct 2007 - Mar 2009)



- Mixes A and B will likely perform worse in a repeat of the Global Financial Crisis because they have the highest allocation to public equities.

1 See the Appendix for our scenario inputs. In periods where the ideal benchmark was not yet available we used the next closest benchmark(s) as a proxy.

Historical Positive Scenario Analysis[1]
(Cumulative Return)

Scenarios	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
Global Financial Crisis Recovery (Mar 2009 - Nov 2009)	74.3	71.1	67.7	64.9
Best of Great Moderation (Apr 2003 -Feb 2004)	67.7	65.4	63.4	62.1
Peak of the TMT Bubble (Oct 1998 - Mar 2000)	69.8	68.1	67.3	67.4
Plummeting Dollar (Jan 1986 - Aug 1987)	87.4	82.5	76.5	73.4
Volcker Recovery (Aug 1982 - Apr 1983)	66.2	64.6	62.2	60.7
Bretton Wood Recovery (Oct 1974 - Jun 1975)	65.6	63.8	61.0	59.7

- Mixes A and B would have been the better options for capturing most of the upside in strongly positive markets.

1 See the Appendix for our scenario inputs. In periods where the ideal benchmark was not yet available we used the next closest benchmark(s) as a proxy.

Negative Stress Testing: Impact of Market Movements
(Expected Return under Negative Conditions)[1]

Scenarios	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
10-year Treasury Bond rates rise 100 bps	5.6	5.7	5.5	5.7
10-year Treasury Bond rates rise 200 bps	5.0	4.7	4.3	4.4
10-year Treasury Bond rates rise 300 bps	3.4	3.1	2.5	2.8
Baa Spreads widen by 50 bps, High Yield by 200 bps	-2.8	-2.0	-1.4	-0.7
Baa Spreads widen by 300 bps, High Yield by 1000 bps	-25.3	-23.7	-20.1	-18.6
Trade Weighted Dollar gains 10%	-2.0	-1.7	-0.9	-0.5
Trade Weighted Dollar gains 20%	-6.3	-5.6	-5.2	-4.1
U.S. Equities decline 10%	-6.9	-6.1	-4.8	-4.3
U.S. Equities decline 25%	-18.7	-16.8	-13.9	-12.7
U.S. Equities decline 40%	-33.5	-30.3	-25.9	-23.7

- All mixes are expected to perform reasonably well in a rising interest rate environment.
- Mixes A and B have the most exposure to non-dollar assets (through the public equity exposure) and would likely fare worse in a strengthening dollar environment.
- An equity market correction remains the biggest risk with any of the mixes.

[1] Assumes that assets not directly exposed to the factor are affected nonetheless. See the Appendix for further details.

Positive Stress Testing: Impact of Market Movements
(Expected Return under Positive Conditions)[1]

Scenarios	Mix A 0% Private (%)	Mix B 10% Private (%)	Mix C 20% Private (%)	Mix D 30% Private (%)
10-year Treasury Bond rates drop 100 bps	6.1	6.2	6.0	5.9
10-year Treasury Bond rates drop 200 bps	17.0	15.8	14.1	13.3
Baa Spreads narrow by 30bps, High Yield by 100 bps	9.5	9.1	8.3	8.0
Baa Spreads narrow by 100bps, High Yield by 300 bps	20.2	18.7	17.0	15.8
Trade Weighted Dollar drops 10%	9.3	8.6	7.6	7.1
Trade Weighted Dollar drops 20%	20.0	18.3	16.1	15.4
U.S. Equities rise 10%	8.2	7.8	6.9	6.6
U.S. Equities rise 30%	20.2	18.9	16.2	15.0

- The higher the private market exposure, the lower the sensitivity (participation) in most positive market events.

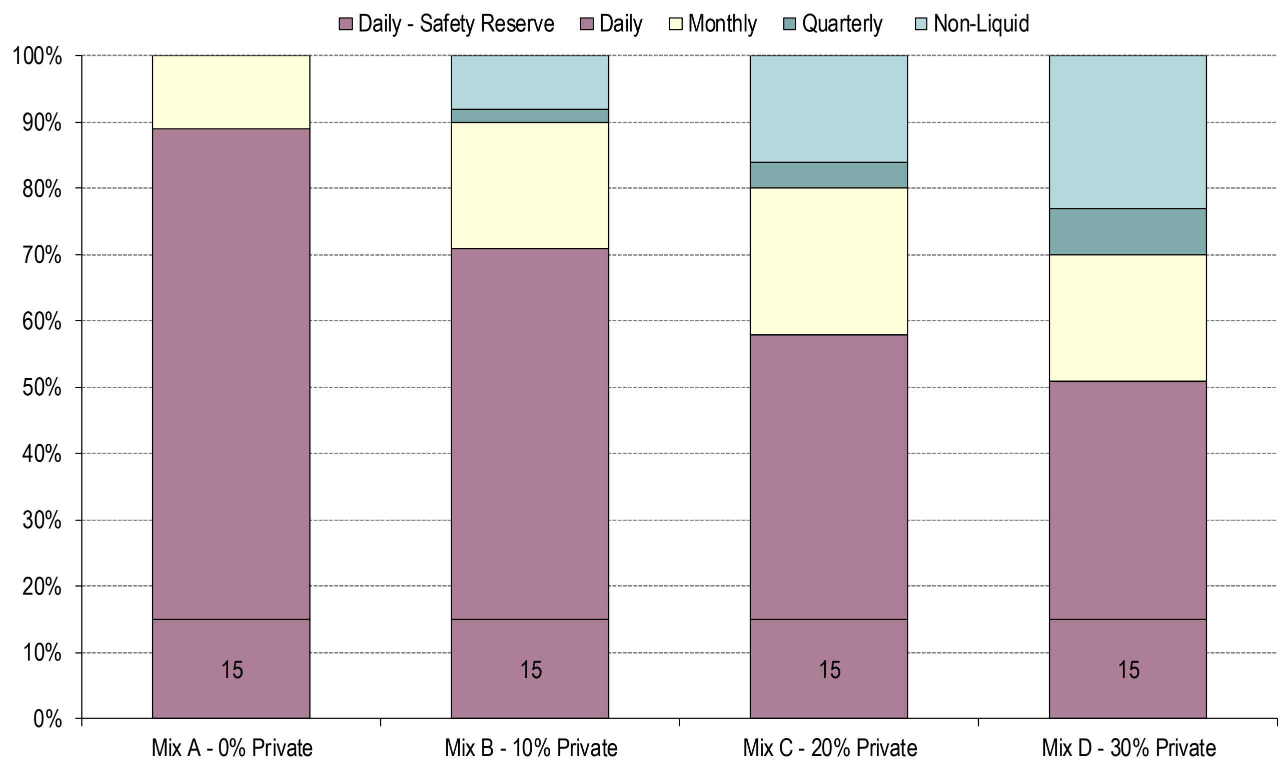
1 Assumes that assets not directly exposed to the factor are affected nonetheless. See the Appendix for further details.

Liquidity Analysis

Liquidity Analysis

- Liquidity risk is a meaningful risk that is generally not captured in traditional asset allocation processes.
- Pension plans must maintain adequate liquidity to satisfy benefit payments and to avoid having to sell illiquid assets at distressed prices if possible.
- DPFP has addressed this concern with the creation of the Safety Reserve.
- The Safety Reserve is a 15% allocation to high quality very liquid investments (12% short duration bonds and 3% cash equivalents) designed such that ongoing DPFP expenses and benefit payments could be met for the next 2.5 years (estimated $315 million) without needing to liquidate any other assets at potentially inopportune time/price during a market correction.

Liquidity Profile[1]



- Even with Mix D, we expect 77% of DPFP would be invested in strategies with quarterly or better liquidity
- All four mixes maintain a 15% target to Safety Reserve assets.

[1] For this analysis, we assume that emerging market debt, global bonds, high yield bonds and bank loans provide monthly liquidity. We assume core real estate and core infrastructure provide quarterly liquidity. We assume closed-end private real estate, private natural resources, private equity and private debt are non-liquid.

Summary

Summary

- Each proposed asset mix seeks to identify the tradeoff between illiquidity and public market volatility.
- Each policy mix is expected to reach 7.25% over 20 years.
- Since each proposed mix has less exposure to private markets and GAA strategies (relative to the current policy), each proposed mix could be implemented at a much lower cost than the current policy.
- Regardless which policy is preferred, it will still take significant time to reach the desired exposure as the legacy assets are unwound.

Appendices

Notes and Disclaimers

[1] The returns shown in the Policy Options and Risk Analysis sections rely on estimates of expected return, standard deviation, and correlation developed by Meketa Investment Group. To the extent that actual return patterns to the asset classes differ from our expectations, the results in the table will be incorrect. However, our inputs represent our best unbiased estimates of these simple parameters.

[2] The returns shown in the Policy Options and Risk Analysis sections use a lognormal distribution, which may or may not be an accurate representation of each asset classes' future return distribution. To the extent that it is not accurate in whole or in part, the probabilities listed in the table will be incorrect. As an example, if some asset classes' actual distributions are even more right-skewed than the lognormal distribution (i.e., more frequent low returns and less frequent high returns), then the probability of the portfolio hitting a given annual return will be lower than that stated in the table.

[3] The standard deviation bars in the chart in the Risk Analysis section do not indicate the likelihood of a 1, 2, or 3 standard deviation event—they simply indicate the return we expect if such an event occurs. Since the likelihood of such an event is the same across allocations regardless of the underlying distribution, a relative comparison across policy choices remains valid.

Scenario Return Inputs

Asset Class	Benchmark Used
Investment Grade Bonds	Barclays Aggregate
TIPS	Barclays U.S. TIPS
Intermediate-term Government Bonds	Barclays Treasury Intermediate
Long-term Government Bonds	Barclays Long U.S. Treasury
EM Bonds (local)	JPM GBI-EM Global Diversified Composite
Bank Loans	CSFB Leveraged Loan
High Yield Bonds	Barclays High Yield
Direct Lending - First Lien	Cliffwater Direct Lending Index
Direct Lending - Second Lien	Cliffwater Direct Lending Index
Mezzanine Debt	Cambridge Associates Mezzanine
Distressed Debt	Cambridge Associates Distressed Debt Index
Core Real Estate	NCREIF Property
Value-Added RE	NCREIF Townsend Value Added
Opportunistic RE	NCREIF Townsend Opportunistic
REITs	NAREIT Equity
Infrastructure (private)	S&P Global Infrastructure
Natural Resources (private)	S&P Global Natural Resources
Timber	NCREIF Timberland
Commodities	Bloomberg Commodity Index
U.S. Equity	Russell 3000
Public Foreign Equity (Developed)	MSCI EAFE
Public Foreign Equity (Emerging)	MSCI Emerging Markets
Private Equity	Cambridge Associates Private Equity Composite
Long-short Equity	HFRI Equity Hedge
Global Macro	HFRI Macro
Hedge Funds	HFRI Fund Weighted Composite
Private Debt	Weighted average of Distressed Debt, Mezzanine Debt and Direct Lending (2nd Lien)

Negative Historical Scenario Returns - Sample Inputs

	Taper Tantrum (May - Aug 2013)	Global Financial Crisis (Oct 2007 - Mar 2009)	2008 Calendar Year	Popping of the TMT Bubble (Apr 2000 - Sep 2002)	LTCM (Jul - Aug 1998)	Asian Financial Crisis (Aug 1997 - Jan 1998)	Rate spike (1994 Calendar Year)	Crash of 1987 (Sep - Nov 1987)	Strong dollar (Jan 1981 - Sep 1982)	Stagflation (Jan - Mar 1980)	Stagflation (Jan 1973 - Sep 1974)
Cash Equivalents	0.0	3.1	1.7	9.9	0.8	2.4	3.9	1.4	24.4	2.9	13.5
Short-term Investment Grade Bonds	-0.1	8.7	5.0	21.9	1.6	3.5	0.5	2.3	29.9	-2.6	4.3
Investment Grade Bonds	-3.7	9.3	5.2	28.6	1.8	4.9	-2.9	2.2	29.9	-8.7	7.9
Long-term Corporate Bonds	-9.3	-9.4	-5.2	26.9	-0.6	5.4	-5.8	1.5	29.6	-14.1	-12.0
Long-term Government Bonds	-11.6	24.5	24.0	35.5	4.1	8.6	-7.6	2.6	28.4	-13.6	-1.8
TIPS	-8.5	9.6	-2.4	37.4	0.7	2.0	-7.5	2.8	15.6	-7.8	4.3
Global ILBs	-7.4	-1.5	-7.7	39.7	0.7	2.2	-7.9	2.9	16.5	-8.3	4.5
High Yield Bonds	-2.0	-20.7	-26.2	-6.3	-5.0	5.6	-1.0	-3.6	6.9	-2.3	-15.5
Bank Loans	0.8	-22.5	-28.8	6.3	0.7	3.3	10.3	-1.7	3.3	-1.1	-7.5
Direct Lending - First Lien	3.4	-2.1	-5.8	-0.7	-0.7	1.7	0.7	-0.2	2.0	-0.6	-4.4
Direct Lending - Second Lien	4.6	-2.9	-7.8	-1.0	-0.9	2.3	1.0	-0.3	2.6	-0.8	-5.9
Foreign Bonds	-3.2	5.3	4.4	8.5	3.5	3.3	5.3	-0.3	34.8	-6.5	-1.4
Mezzanine Debt	4.6	-25.5	-25.9	-2.0	-2.6	10.3	7.6	0.4	3.2	-1.0	-7.2
Distressed Debt	4.6	-25.5	-25.9	-2.0	-2.6	10.3	7.6	0.4	3.2	-1.0	-7.2
Emerging Market Bonds (major)	-11.5	-2.7	-9.7	6.3	-28.2	-1.8	-18.9	-9.2	-1.6	-2.6	-20.2
Emerging Market Bonds (local)	-14.3	-2.3	-5.2	7.2	-34.1	-2.4	-22.8	-11.0	-2.0	-3.2	-23.9
US Equity	3.0	-43.8	-37.0	-43.8	-15.4	3.6	1.3	-29.5	-2.3	-4.1	-42.6
Developed Market Equity (non-US)	-2.2	-49.6	-43.4	-46.7	-11.5	-5.8	7.8	-14.5	-18.0	-7.0	-36.3
Emerging Market Equity	-9.4	-45.8	-53.3	-43.9	-26.7	-31.8	-7.3	-25.3	-12.1	-6.6	-44.2
Global Equity	-0.7	-46.6	-42.2	-46.7	-14.0	-3.2	5.0	-21.5	-11.2	-5.8	-39.3
Private Equity/Debt	5.7	-25.6	-27.2	-23.4	-3.2	15.7	13.2	0.6	-2.7	-2.5	-18.2
Private Equity	5.8	-25.8	-27.6	-26.0	-3.3	16.7	14.2	0.6	-3.9	-2.7	-20.1
Private Debt Composite	4.6	-21.3	-22.5	-1.7	-2.3	8.7	6.2	0.2	3.0	-1.0	-6.9
REITs	-13.3	-61.3	-37.7	45.4	-15.3	9.8	-3.5	-19.5	2.5	-3.6	-33.9
Core Private Real Estate	3.6	-7.3	-6.5	23.6	2.3	8.5	6.4	0.7	23.9	5.5	-4.4
Value-Added Real Estate	3.8	-18.0	-13.4	177.0	1.8	11.4	11.2	1.2	44.2	9.6	-7.6
Opportunistic Real Estate	4.0	-24.7	-21.8	21.4	1.5	20.0	18.8	0.9	30.7	7.0	-5.6
Natural Resources (Private)	2.5	-26.2	-34.1	-3.9	-16.9	-7.8	12.6	-10.8	-9.4	-9.2	19.3
Timberland	1.3	25.4	9.5	-1.5	0.5	12.0	15.4	3.8	23.6	-7.4	5.5
Farmland	3.3	30.2	15.8	11.4	0.8	3.9	9.4	2.2	13.3	-4.2	3.1
Commodities (naïve)	-2.4	-31.8	-35.6	18.5	-12.0	-6.2	16.6	1.8	-16.0	-9.6	139.5
Core Infrastructure	3.7	0.2	-0.6	24.8	-0.3	6.1	-11.5	0.0	-0.2	-0.1	-0.5
Hedge Funds	-0.4	-15.6	-19.0	-2.1	-9.4	1.7	4.1	-7.8	-3.8	-1.9	-15.7
Long-Short	1.0	-24.0	-26.6	-8.8	-8.3	7.9	2.6	-10.0	-4.9	-2.5	-19.8
Hedge Fund of Funds	-0.5	-17.8	-21.4	-0.4	-7.7	0.5	-3.5	-5.7	-2.7	-1.4	-11.5

Positive Historical Scenario Returns - Sample Inputs

	Global Financial Crisis Recovery (Mar 2009 – Nov 2009)	Best of Great Moderation (Apr 2003 – Feb 2004)	Peak of the TMT Bubble (Oct 1998 - Mar 2000)	Pre-Recession (Jun - Oct 1990)	Plummeting Dollar (Jan 1986 – Aug 1987)	Volcker Recovery (Aug 1982 – Apr 1983)	Bretton Wood Recovery (Oct 1974 - Jun 1975)
Cash Equivalents	0.1	0.9	6.7	3.3	10.0	6.0	4.5
Short-term Investment Grade Bonds	4.3	2.8	5.3	4.5	13.2	15.4	5.0
Investment Grade Bonds	9.0	4.6	1.7	3.8	14.4	26.4	9.2
Long-term Corporate Bonds	28.8	11.3	-3.1	1.5	15.9	42.1	17.5
Long-term Government Bonds	2.0	4.9	-2.3	2.4	15.4	33.6	11.8
TIPS	14.3	9.1	6.3	2.2	10.2	11.5	4.1
Global ILBs	24.7	9.6	6.6	2.3	10.8	12.1	4.3
High Yield Bonds	49.1	21.8	2.1	-12.9	24.9	23.3	19.3
Bank Loans	32.9	10.1	6.1	-6.1	11.1	10.4	8.7
Direct Lending - First Lien	10.6	5.7	1.1	-1.9	5.8	5.0	5.1
Direct Lending - Second Lien	14.3	7.7	1.4	-2.5	7.8	6.7	6.8
Foreign Bonds	23.4	15.2	-7.0	15.8	44.5	32.3	17.9
Mezzanine Debt	30.8	23.7	26.8	0.7	5.4	8.2	8.3
Distressed Debt	30.8	23.7	26.8	0.7	5.4	8.2	8.3
Emerging Market Bonds (major)	27.0	20.6	49.0	-8.7	38.9	21.6	21.0
Emerging Market Bonds (local)	37.5	25.2	61.0	-10.5	48.4	26.5	25.7
US Equity	51.6	37.2	50.2	-14.7	64.8	59.3	55.1
Developed Market Equity (non-US)	60.5	56.7	53.0	-9.7	140.0	29.6	34.6
Emerging Market Equity	94.6	79.4	101.3	-15.9	126.5	52.1	53.4
Global Equity	59.9	46.2	54.8	-11.1	108.4	43.0	44.6
Private Equity/Debt	15.4	23.3	84.6	4.6	19.1	13.7	18.4
Private Equity	13.0	23.7	92.1	5.5	21.7	14.8	20.2
Private Debt Composite	27.5	20.4	21.4	0.1	5.9	7.9	8.0
REITs	82.5	44.6	-5.2	-15.6	51.8	47.4	42.5
Core Private Real Estate	-16.4	9.0	18.1	1.9	13.1	6.8	4.5
Value-Added Real Estate	-32.7	11.4	19.6	3.2	23.6	11.9	7.8
Opportunistic Real Estate	-19.0	13.6	27.9	0.4	16.7	8.6	5.7
Natural Resources (Private)	57.8	36.1	22.2	6.0	78.3	30.2	14.8
Timberland	-3.3	8.5	20.5	5.7	28.6	20.0	8.7
Farmland	5.4	9.6	10.4	3.3	15.9	11.3	5.0
Commodities (naïve)	28.9	30.6	17.1	43.5	27.6	6.2	-20.2
Core Infrastructure	2.1	8.5	33.0	0.0	1.4	0.6	0.6
Hedge Funds	20.1	22.4	52.8	-1.9	30.6	13.8	14.5
Long-Short	25.9	25.3	81.4	5.1	40.8	18.0	18.9
Hedge Fund of Funds	10.3	13.3	36.8	11.9	21.3	9.7	10.3

'Anti' Stress Test Return Assumptions - Sample Inputs[1]

	10-year Treasury Bond rates drop 100 bps	10-year Treasury Bond rates drop 200 bps	Baa Spreads narrow by 30bps, High Yield by 100 bps	Baa Spreads narrow by 100bps, High Yield by 300 bps	Trade Weighted Dollar drops 10%	Trade Weighted Dollar drops 20%	U.S. Equities rise 10%	U.S. Equities rise 30%
Cash Equivalents	0.7	0.8	0.2	0.2	1.3	2.7	1.2	1.7
Short-term Investment Grade Bonds	3.4	5.3	1.1	2.6	2.5	3.6	1.7	3.1
Investment Grade Bonds	8.5	14.4	2.7	5.0	3.4	6.6	2.3	4.6
Long-term Corporate Bonds	18.4	32.3	7.1	16.5	6.2	10.6	3.8	8.2
Long-term Government Bonds	20.5	38.0	3.4	0.5	5.1	13.0	2.8	6.9
TIPS	7.1	12.0	3.3	7.0	4.6	4.1	2.2	4.3
Global ILBs	3.1	3.0	4.5	8.5	6.5	3.9	2.7	5.8
High Yield Bonds	9.2	13.1	8.9	27.5	4.7	5.1	6.0	13.7
Bank Loans	4.4	2.2	5.0	17.5	1.9	1.3	3.7	8.6
Direct Lending - First Lien	3.2	2.0	7.6	9.4	0.7	7.7	2.9	5.0
Direct Lending - Second Lien	3.6	2.4	10.2	12.7	0.8	11.0	4.1	7.1
Foreign Bonds	8.6	16.4	4.5	9.0	11.1	12.3	3.3	7.8
Mezzanine Debt	5.8	7.2	9.8	18.5	4.5	13.1	6.6	9.9
Distressed Debt	5.8	7.4	9.9	18.9	4.8	15.2	7.2	11.2
Emerging Market Bonds (major)	7.9	12.0	8.0	17.8	6.8	12.1	6.0	12.8
Emerging Market Bonds (local)	9.1	10.0	7.3	19.6	9.0	14.9	7.1	16.0
US Equity	8.9	22.7	11.2	16.8	5.4	21.5	10.0	30.0
Developed Market Equity (non-US)	3.9	21.4	12.5	19.9	15.9	28.2	8.3	20.2
Emerging Market Equity	5.8	21.1	13.2	37.8	16.6	33.5	13.0	27.8
Global Equity	6.5	21.9	12.0	22.1	11.3	26.3	10.0	26.1
Private Equity/Debt	7.3	12.3	10.7	13.2	6.6	19.5	9.0	19.0
Private Equity	7.7	14.1	10.9	13.1	6.9	20.7	9.5	21.5
Private Debt Composite	5.4	6.3	9.9	17.5	3.9	13.5	6.3	9.8
REITs	9.0	20.4	13.6	27.4	7.9	24.0	12.2	31.7
Core Private Real Estate	5.6	8.5	5.1	8.4	3.1	10.3	3.0	3.4
Value-Added Real Estate	8.0	15.0	5.0	10.3	4.6	16.4	4.3	6.5
Opportunistic Real Estate	8.0	15.0	3.6	8.7	2.7	18.2	4.0	5.5
Natural Resources (Private)	4.0	17.9	11.6	13.7	11.4	15.5	9.4	20.7
Timberland	6.0	15.5	3.8	5.5	4.6	15.4	4.8	5.8
Farmland	5.0	9.4	8.1	8.3	4.1	13.4	4.3	5.6
Commodities (naïve)	1.5	4.0	4.4	9.2	8.6	5.4	3.6	6.4
Core Infrastructure	5.0	6.0	6.9	4.0	4.8	11.2	2.6	4.3
Hedge Funds	8.2	11.8	5.7	11.9	4.6	7.8	6.0	11.9
Long-Short	8.3	13.0	6.2	12.8	5.8	12.4	7.1	15.0
Hedge Fund of Funds	6.6	10.0	4.3	10.1	3.2	6.2	4.5	10.2

1 Assumptions are based on performance for each asset class during historical periods that resembled these situations.

Stress Test Return Assumptions - Sample Inputs[1]

	10-year Treasury Bond rates rise 100 bps	10-year Treasury Bond rates rise 200 bps	10-year Treasury Bond rates rise 300 bps	Baa Spreads widen by 50 bps, High Yield by 200 bps	Baa Spreads widen by 300 bps, High Yield by 1000 bps	Trade Weighted Dollar gains 10%	Trade Weighted Dollar gains 20%	U.S. Equities decline 10%	U.S. Equities decline 25%	U.S. Equities decline 40%
Cash Equivalents	0.3	0.2	0.0	1.8	0.9	4.5	0.2	1.4	1.2	0.0
Short-term Investment Grade Bonds	-0.5	-2.4	-4.3	3.0	2.3	5.9	0.8	1.8	1.7	0.6
Investment Grade Bonds	-3.3	-9.2	-15.0	3.5	-0.5	6.5	2.6	2.1	1.6	1.0
Long-term Corporate Bonds	-9.3	-23.0	-36.7	1.5	-11.5	5.0	1.7	0.2	-5.2	-13.5
Long-term Government Bonds	-14.4	-31.7	-49.0	5.7	8.1	8.8	12.3	6.0	8.5	17.2
TIPS	-2.7	-7.5	-12.4	2.6	1.0	2.9	-2.6	1.7	0.4	-8.8
Global ILBs	-1.3	-3.9	-12.4	1.8	-11.4	1.4	-6.7	1.3	-1.7	-14.4
High Yield Bonds	1.6	-2.2	-6.1	-2.6	-22.9	0.3	-5.8	-3.1	-10.4	-20.5
Bank Loans	5.4	5.6	7.5	-1.3	-18.8	-0.2	-1.9	-2.0	-6.6	-13.7
Direct Lending - First Lien	4.9	6.0	7.5	0.3	-7.8	1.0	3.3	-1.8	-4.7	-5.0
Direct Lending - Second Lien	6.0	7.2	9.0	0.3	-11.1	1.3	4.1	-2.7	-6.8	-7.2
Foreign Bonds	-7.1	-14.9	-22.7	3.0	-2.8	-8.0	-16.0	1.3	-2.1	-8.3
Mezzanine Debt	7.2	7.0	8.0	-0.4	-20.6	-1.1	-1.3	-4.0	-11.0	-16.5
Distressed Debt	7.2	7.0	10.0	-0.7	-22.7	-1.5	-2.2	-4.7	-12.9	-18.5
Emerging Market Bonds (major)	1.3	-1.6	-3.2	0.9	-13.4	2.9	-5.3	-2.5	-9.1	-17.5
Emerging Market Bonds (local)	-1.2	-1.9	-3.8	-0.1	-12.9	-9.0	-18.9	-3.0	-11.4	-22.5
US Equity	8.8	6.3	7.5	-1.9	-28.4	0.3	2.0	-10.0	-25.0	-40.0
Developed Market Equity (non-US)	8.0	8.7	6.0	-5.6	-33.5	-6.7	-9.8	-9.3	-23.6	-43.5
Emerging Market Equity	8.0	10.9	7.0	-7.7	-40.4	-7.4	-18.5	-11.2	-29.7	-50.2
Global Equity	8.4	8.1	6.9	-4.3	-32.6	-3.7	-6.2	-10.0	-25.4	-43.3
Private Equity/Debt	10.1	6.0	4.0	1.3	-22.8	-0.7	-1.1	-6.4	-15.9	-20.8
Private Equity	11.0	5.9	3.2	1.9	-23.2	-0.5	-1.6	-6.8	-16.8	-21.7
Private Debt Composite	7.0	7.0	9.0	-0.4	-19.5	-0.8	-0.6	-4.0	-10.9	-15.4
REITs	5.0	4.5	5.2	-4.8	-39.1	-0.6	-0.1	-9.2	-26.8	-55.9
Core Private Real Estate	7.0	8.0	9.0	3.2	-7.5	6.4	8.2	0.3	-2.1	-14.3
Value-Added Real Estate	8.0	11.0	10.0	5.0	-13.7	4.0	11.0	-0.5	-3.5	-22.2
Opportunistic Real Estate	8.0	11.0	10.0	5.0	-21.0	3.1	20.0	-1.3	-6.2	-24.5
Natural Resources (Private)	15.5	10.9	7.1	-2.8	-21.7	-4.9	-17.8	-4.7	-14.6	-29.2
Timberland	7.1	5.5	4.0	5.0	6.5	3.0	10.0	2.0	2.9	1.7
Farmland	6.8	3.4	3.0	5.7	11.1	3.0	11.5	2.0	3.4	6.4
Commodities (naïve)	13.0	9.6	4.0	-3.8	-22.8	-7.1	-29.1	1.0	-4.8	-27.5
Core Infrastructure	6.0	5.0	4.0	4.8	-0.5	1.6	2.0	-0.1	-2.7	-9.6
Hedge Funds	6.0	5.0	3.0	0.6	-12.7	1.0	-1.3	-2.9	-8.3	-13.4
Long-Short	5.0	5.0	3.0	1.6	-18.6	0.7	-3.3	-4.7	-12.2	-20.6
Hedge Fund of Funds	4.5	3.6	1.7	-0.6	-14.0	-0.2	-2.5	-4.0	-10.0	-16.0

[1] Assumptions are based on performance for each asset class during historical periods that resembled these situations.

Meketa Investment Group 2018 Annual Asset Study
Twenty-Year Annualized Return and Volatility Expectations for Major Asset Classes

Asset Class	Annualized Compounded Return (%)	Annualized Standard Deviation (%)
Rate Sensitive		
Cash Equivalents	2.9	1.0
Investment Grade Bonds	3.6	4.0
Long-term Government Bonds	3.5	13.0
TIPS	3.3	7.5
Credit		
High Yield Bonds	5.4	12.5
Bank Loans	5.0	10.0
Emerging Market Bonds (major; unhedged)	4.9	11.5
Emerging Market Bonds (local; unhedged)	5.4	14.5
Direct Lending - First Lien	5.7	11.0
Direct Lending - Second Lien	7.3	16.0
Mezzanine Debt	6.6	17.0
Distressed Debt	6.6	22.0
Equities		
Public U.S. Equity	7.3	18.0
Public Developed Market Equity	7.1	20.0
Public Emerging Market Equity	9.4	25.0
Private Equity Composite	9.3	27.0
Real Assets		
REITs	6.8	28.5
Core Private Real Estate	5.5	12.0
Value Added Real Estate	6.9	19.0
Opportunistic Real Estate	8.5	25.0
High Yield Real Estate Debt	6.4	23.0
Natural Resources (Private)	8.8	23.0
Commodities	4.6	18.0
Infrastructure (Core)	6.6	15.0
Infrastructure (Non-Core)	8.5	23.0
Other		
Hedge Funds	5.2	8.5

Meketa Investment Group 2018 Annual Asset Study: Correlation Expectations

	TIPS	Investment Grade Bonds	High Yield Bonds	U.S. Equity	Developed Market Equity	Emerging Market Equity	Private Equity	Real Estate	Natural Resources (private)	Commodities	Core Infrastructure (private)	Hedge Funds
TIPS	1.00											
Investment Grade Bonds	0.80	1.00										
High Yield Bonds	0.30	0.20	1.00									
U.S. Equity	0.00	0.05	0.70	1.00								
Developed Market Equity	0.15	0.05	0.70	0.90	1.00							
Emerging Market Equity	0.15	0.05	0.70	0.80	0.90	1.00						
Private Equity	0.05	0.05	0.65	0.85	0.80	0.75	1.00					
Real Estate	0.10	0.20	0.50	0.50	0.45	0.40	0.45	1.00				
Natural Resources (private)	0.10	0.10	0.45	0.65	0.60	0.60	0.55	0.45	1.00			
Commodities	0.35	0.05	0.40	0.35	0.55	0.60	0.30	0.15	0.65	1.00		
Core Infrastructure (private)	0.30	0.30	0.60	0.55	0.55	0.50	0.45	0.60	0.60	0.40	1.00	
Hedge Funds	0.20	0.05	0.70	0.80	0.85	0.85	0.65	0.45	0.65	0.35	0.60	1.00

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C4

Topic: **Second Quarter 2018 Investment Performance Analysis and First Quarter 2018 Private Markets & Real Assets Review**

Attendees: Leandro Festino, Managing Principal - Meketa Investment Group
Roberto Obregon, Vice President Macro Research & Modeling - Meketa Investment Group

Discussion: Meketa, DPFP's investment consultant, will review fund performance.

Regular Board Meeting – Thursday, September 13, 2018

FUND EVALUATION REPORT

Dallas Police & Fire Pension System

Quarterly Review
As of June 30, 2018

M E K E T A   I N V E S T M E N T   G R O U P

BOSTON MASSACHUSETTS	CHICAGO ILLINOIS	MIAMI FLORIDA	PORTLAND OREGON	SAN DIEGO CALIFORNIA	LONDON UNITED KINGDOM

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DPFP 2Q18 Flash Summary

Category	Result	Notes
Total Fund Performance Return	**Negative**	-0.4%
Performance vs. Index	**Trailed**	-0.4% vs. 0.0% Policy Index
Asset Allocation vs. Targets	**Additive**	Underweight EMD and EM Equity helped
Safety Reserve Exposure	**Sufficient**	$310 million (approximately 15%)
Performance vs. Peers	**Trailed**	94th percentile in peer group in 2Q18[1]
Active Management	**Hurt**	NR, PE and RE
Compliance with Targets	**No**	Under private debt minimum

[1] InvestorForce Public DB $1-$5 billion net accounts.

DPFP Trailing One-Year Flash Summary

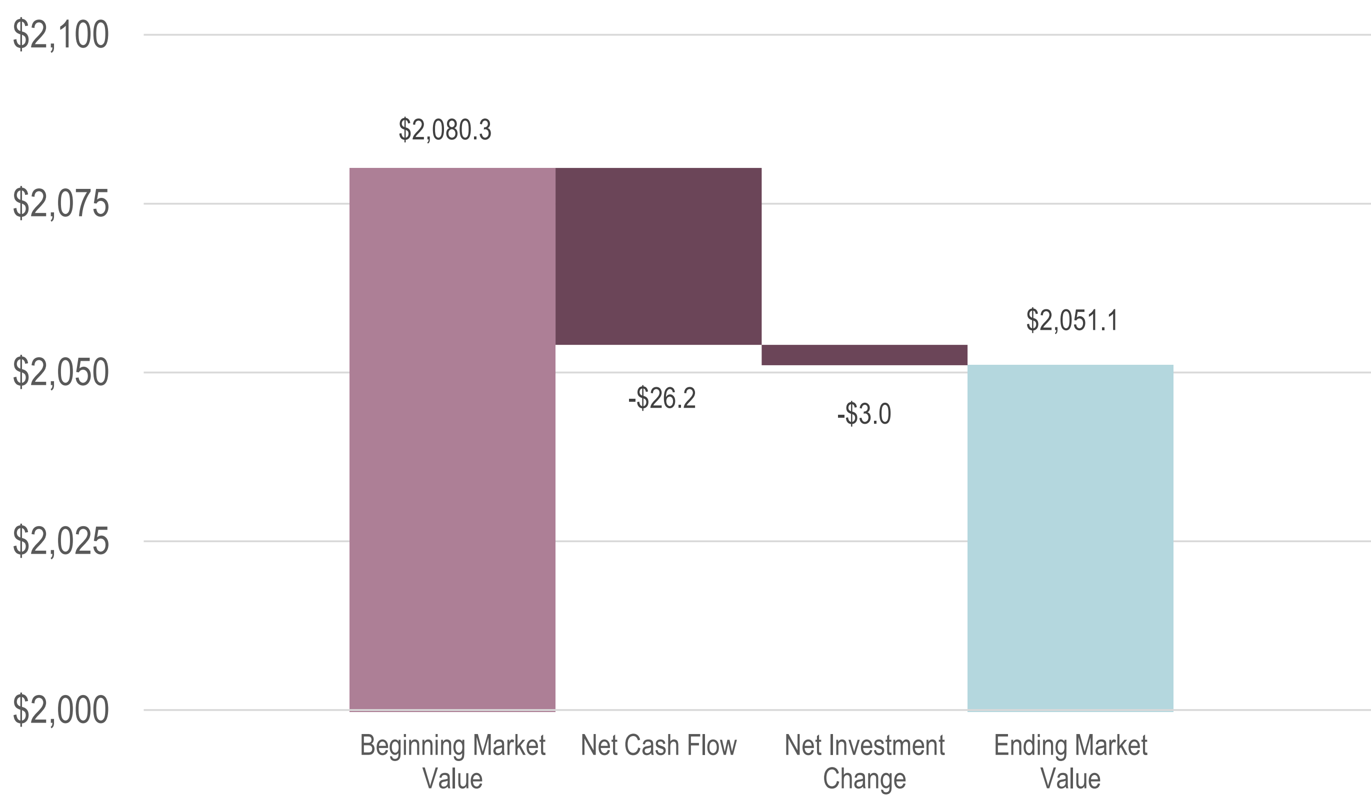
Category	Trailing 1 YR Result	1 YR Notes
Total Fund Performance Return	Positive	+1.3%
Asset Allocation vs. Targets	Additive	Underweight EMD helped
Performance vs. Index	Lagged	1.3% vs. 7.4% Policy Index
Performance vs. Peers	Lagged	99th percentile in peer group[1]
Active Management	Hurt	NR, PE and RE Negative Selection

DPFP Trailing Three-Year Flash Summary

Category	Trailing 3 YR Result	3 YR Notes
Total Fund Performance Return	Negative	-0.1%
Performance vs. Index	Lagged	-0.1%% vs. 8.7% Policy Index
Performance vs. Peers	Lagged	99th percentile in peer group[1]
Active Management	Hurt	PE, NR and RE Negative Selection

[1] InvestorForce Public DB $1-$5 billion net accounts.

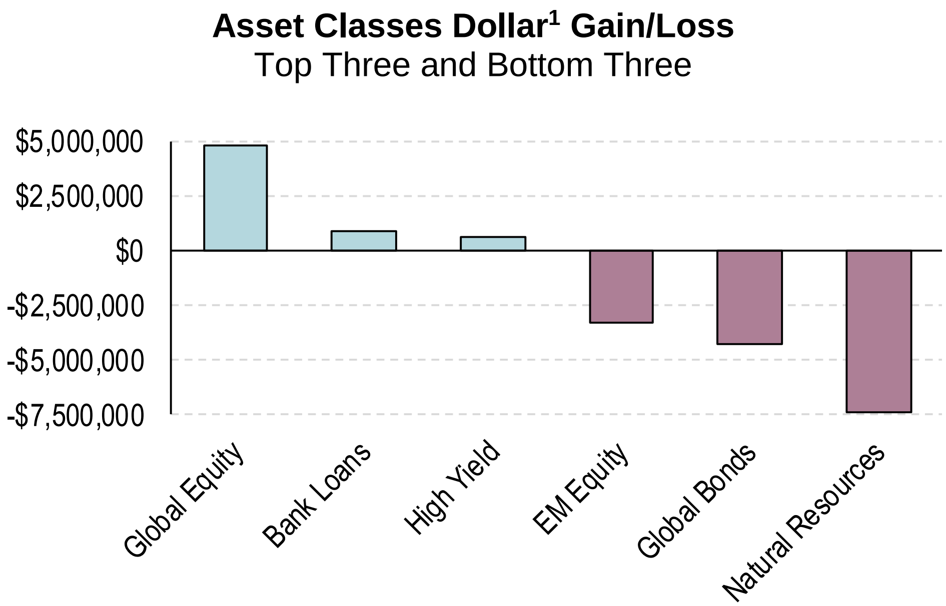
Quarterly Change in Market Value[1]

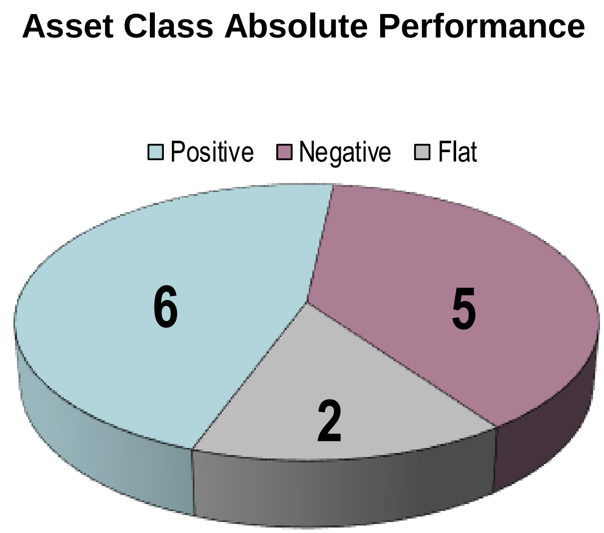


- Total market value decreased due to negative net cash outflows and negative investment performance.

[1] Beginning market value is different from the market value provided by prior consultant on its 1Q18 performance report due to the inclusion of private market valuations that were released after the delivery of prior consultant's final report.

Quarterly Absolute Performance

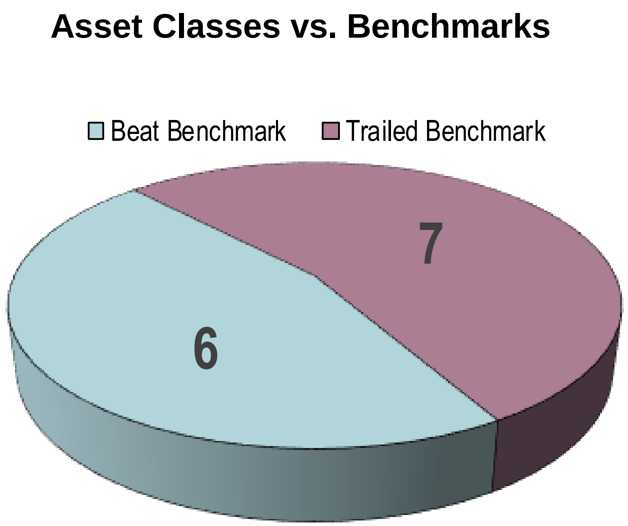


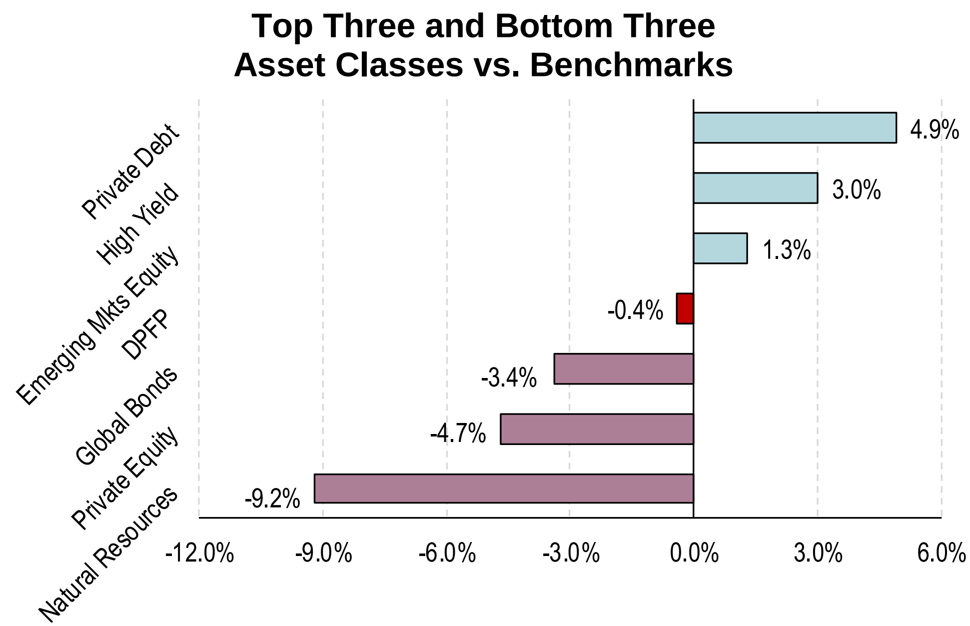


- In absolute terms, global equity appreciated the most during the quarter, adding over $4.8 million in market value to DPFP.
- Natural Resources declined the most, and lost $7.4 million in market value in the second quarter.
- In the quarter, six out of thirteen asset classes generated positive absolute performance (approximately 46%).

[1] Estimated gain calculated by multiplying beginning market value by quarterly performance.

Quarterly Relative Performance

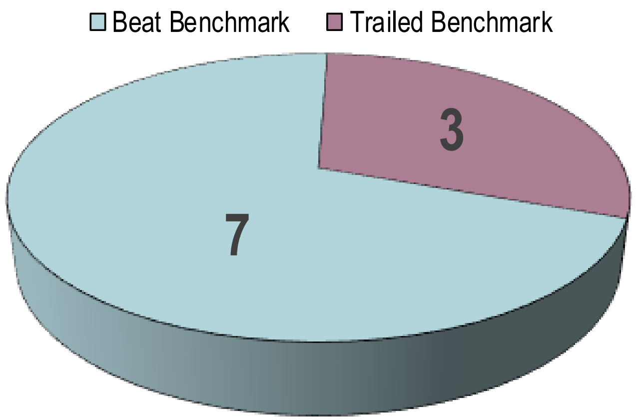




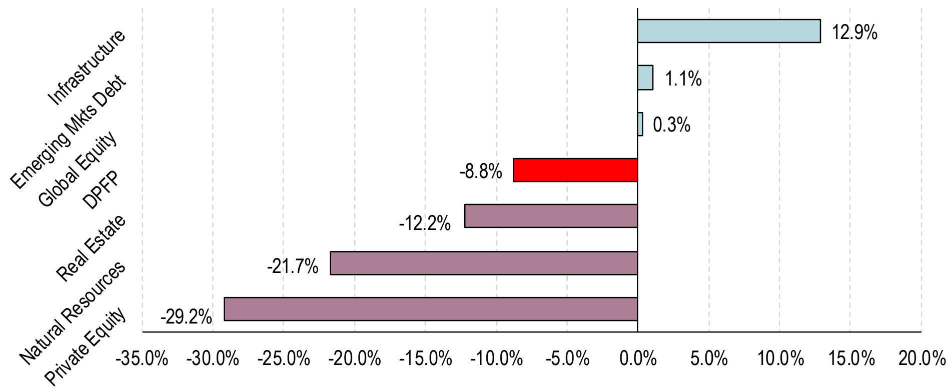
- In the quarter, the best relative performance came from private debt, high yield bonds, and emerging market equities.
- Natural resources, private equity, and global bonds had the worst relative performance in the quarter.
- Six of the thirteen asset classes (approximately 46%) delivered positive relative performance versus respective benchmarks.

Trailing Three-Year Relative Performance

Asset Classes vs. Benchmarks



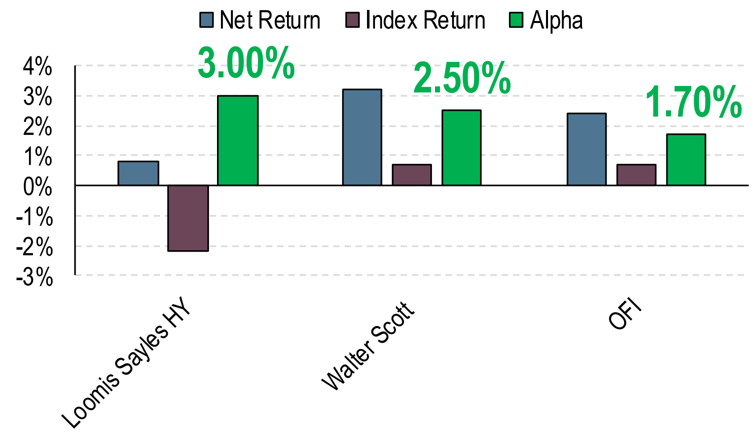
Top Three and Bottom Three Asset Classes vs. Benchmarks



- Seven of the ten asset classes with trailing three-year return history have delivered positive relative performance versus respective benchmarks.
- Over the trailing three-year period, the best relative performance came from the infrastructure and emerging markets debt asset classes.
- Private equity, natural resources, and real estate had the worst relative performance in the trailing period and have historically accounted for approximately 40-50% of DPFP's asset allocation.

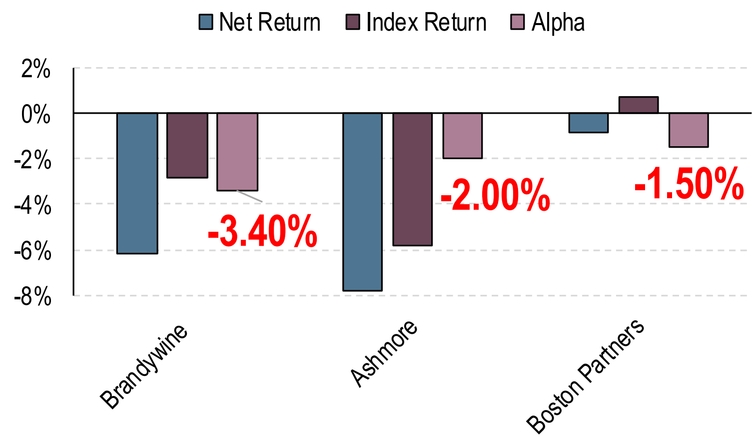
Public Manager Alpha

Top Three Outperformers in Quarter



$308 million
combined exposure

Bottom Three Underperformers in Quarter

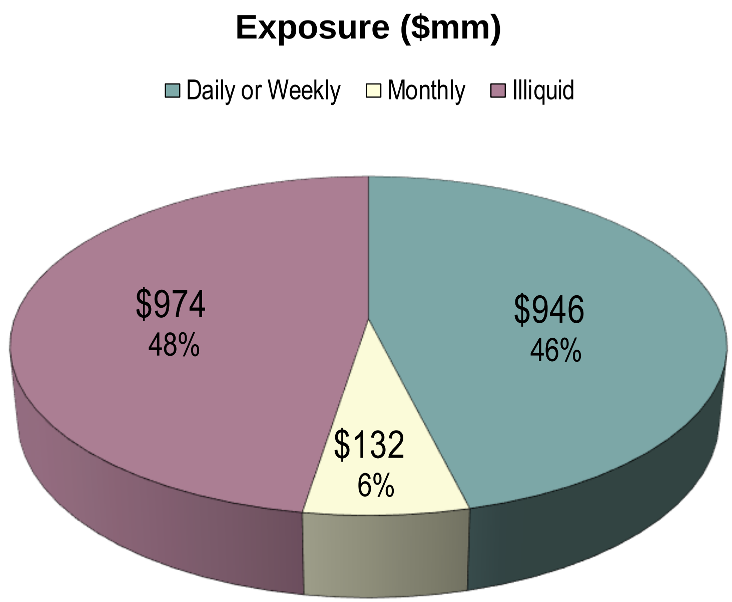


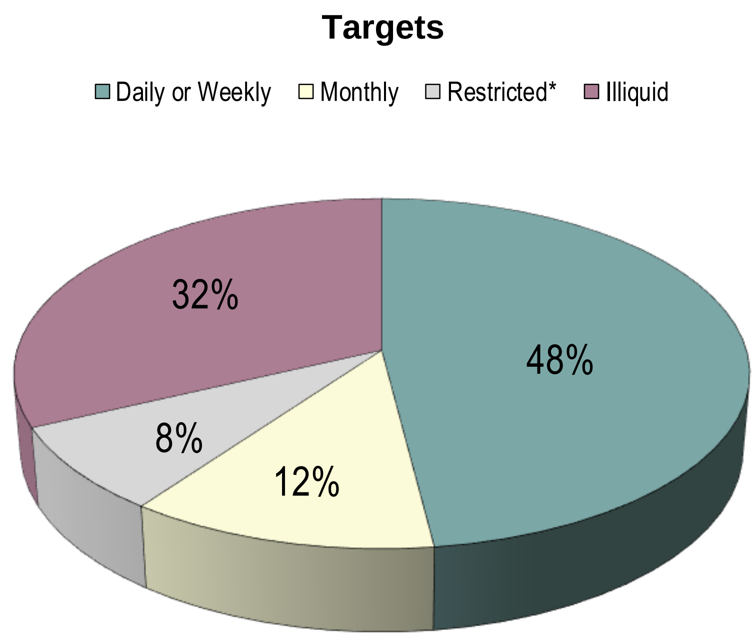
$190 million
combined exposure

- 6 out of the 11 public markets managers outperformed respective benchmarks in the quarter.

Liquidity Exposure

as of June 30, 2018

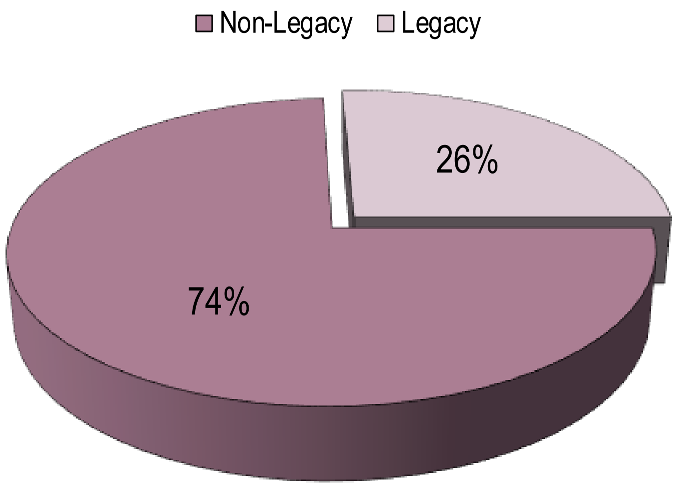




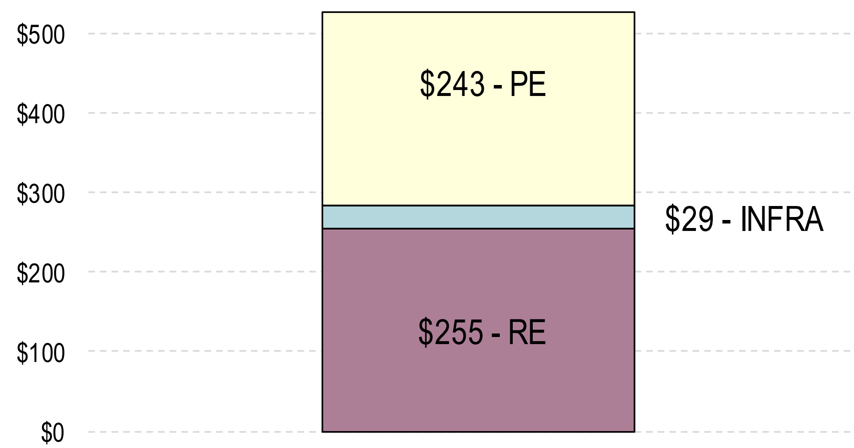
- Approximately 48% of the System's assets are illiquid versus 32% of the target allocation.

*Assets can be redeemed between monthly and annual basis often with gating, lock-ups or notice of more than 30 days required.

Legacy Assets



Exposure ($ mm)



$527 million

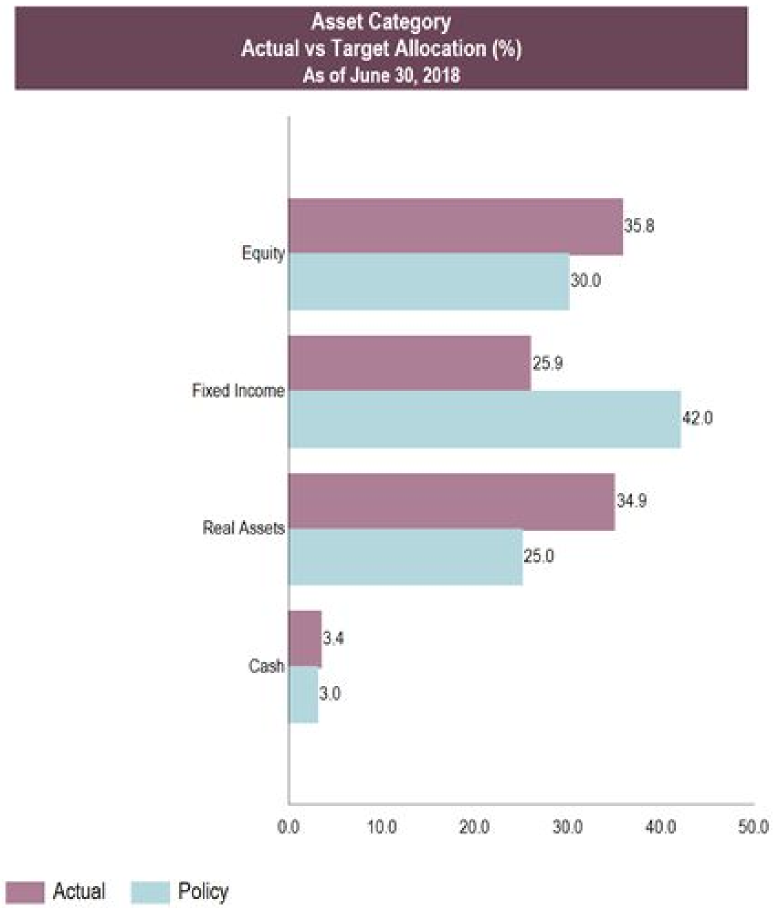
Net Asset Value of Legacy Assets

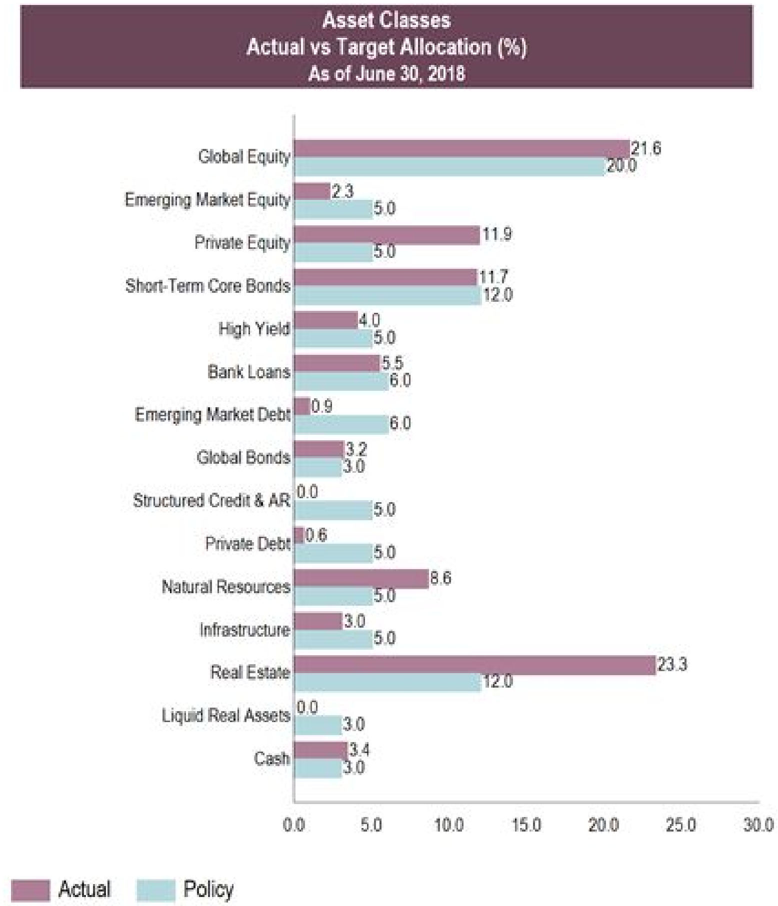
2Q18 Review

Dallas Police & Fire Pension System

DPFP

As of June 30, 2018





[1] Private market data is preliminary until valuations are finalized.[2] Please note, Policy Allocation reflects Board direction to suspend portions of the Investment Policy Statement specifically (i) to allow for the Global Asset Allocation to be fully liquidated, (ii) to allow for a 15% allocation to be invested in a combination of approximately 12% allocation to IR+M and approximately 3% allocation to cash, and (iii) to remove the authority and requirement for staff to rebalance under the Investment Policy Statement and require staff and Meketa to seek the Board's approval on any rebalancing needs, including if the Safety Reserve allocation is in excess of 15% of the portfolio, until the Board has approved new long-term strategic asset allocation targets.

oup

Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Equity	**$733,716,719**	**36%**	**30%**	**20% - 40%**	**Yes**
Global Equity	$442,312,260	22%	20%	10% - 23%	Yes
Emerging Market Equity	$46,556,928	2%	5%	0% - 8%	Yes
Private Equity	$244,847,531	12%	5%	4% - 15%	Yes
Fixed Income	**$531,428,241**	**26%**	**42%**	**25% - 48%**	**Yes**
Short-Term Core Bonds	$240,630,702	12%	12%	10% - 15%	Yes
High Yield	$82,655,463	4%	5%	2% - 8%	Yes
Bank Loans	$112,715,235	5%	6%	3% - 9%	Yes
Emerging Market Debt	$18,989,190	1%	6%	0% - 9%	Yes
Global Bonds	$64,702,703	3%	3%	0% - 6%	Yes
Private Debt	$11,734,947	1%	5%	2% - 7%	No
Structured Credit & AR	--	--	5%	0% - 9%	Yes
Real Assets	**$716,441,797**	**35%**	**25%**	**20% - 45%**	**Yes**
Real Estate	$477,386,409	23%	12%	10% - 25%	Yes
Natural Resources	$176,574,047	9%	5%	3% - 10%	Yes
Infrastructure	$62,481,341	3%	5%	3% - 10%	Yes
Liquid Real Assets	--	--	3%	0% - 6%	Yes
Cash	**$69,468,586**	**3%**	**3%**	**0% - 6%**	**Yes**
Cash	$69,468,586	3%	3%	0% - 6%	Yes
Total	**$2,051,055,342**	**100%**	**100%**		

[1]Current allocation column may not add up 100% due to rounding. Policy targets temporarily add to 101% because the approval of the Safety Reserve resulted in a 11% increase to Short-Term Core Bonds and Cash, offset by only a 10% reduction in GAA. Due to performance reporting software limitations, Fixed Income and Structured Credit & AR are showing policy targets of 42% and 5%, respectively. Actual Policy Targets are equal to 43% and 6%, respectively. Policy ranges for cash, short term core bonds, and fixed income were modified slightly to accommodate the safety reserve implementation. As of 6/30/2018, the Safety Reserve exposure was approximately $310.1 million (14.9%).

Dallas Police & Fire Pension System

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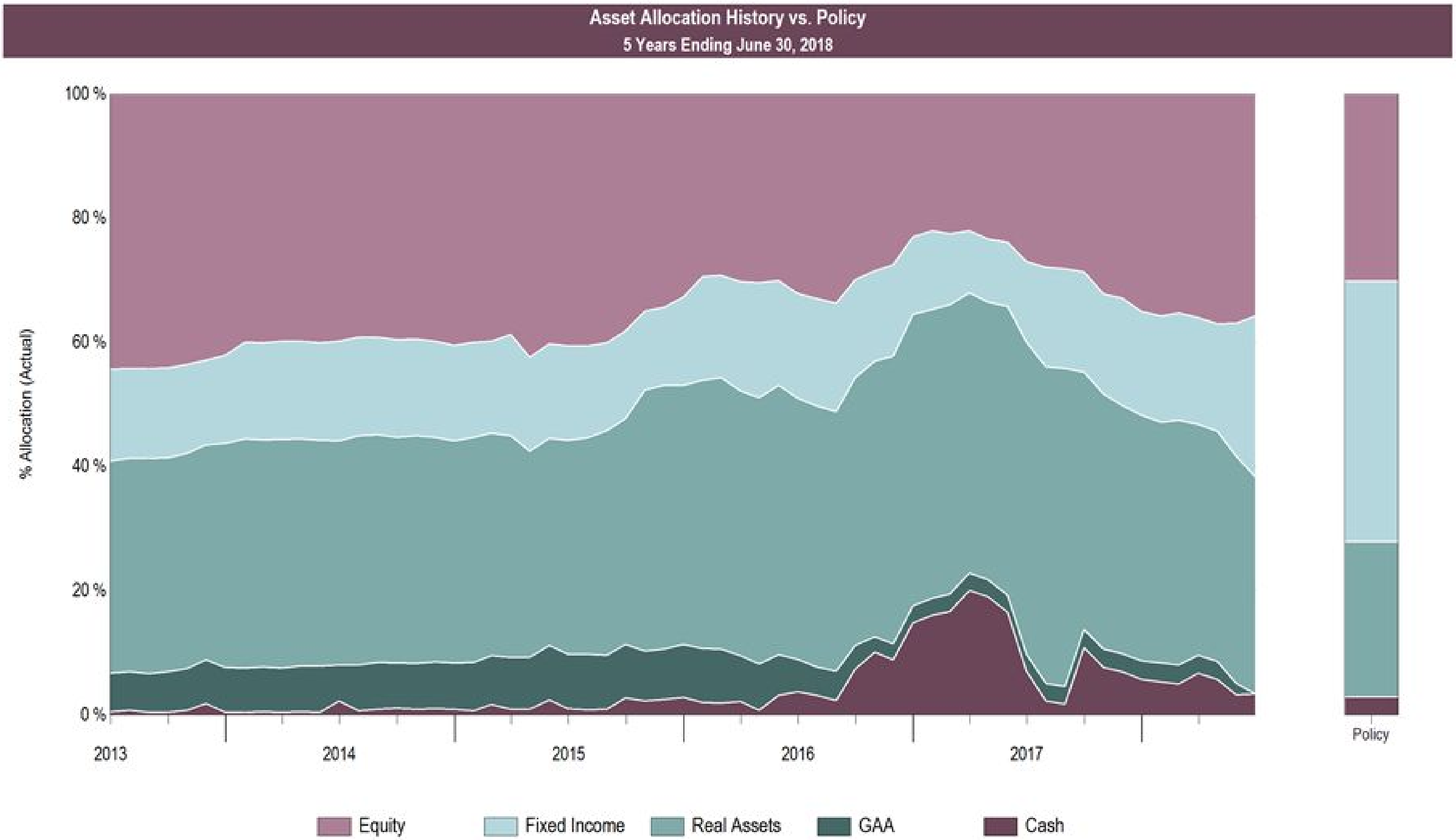
As of June 30, 2018

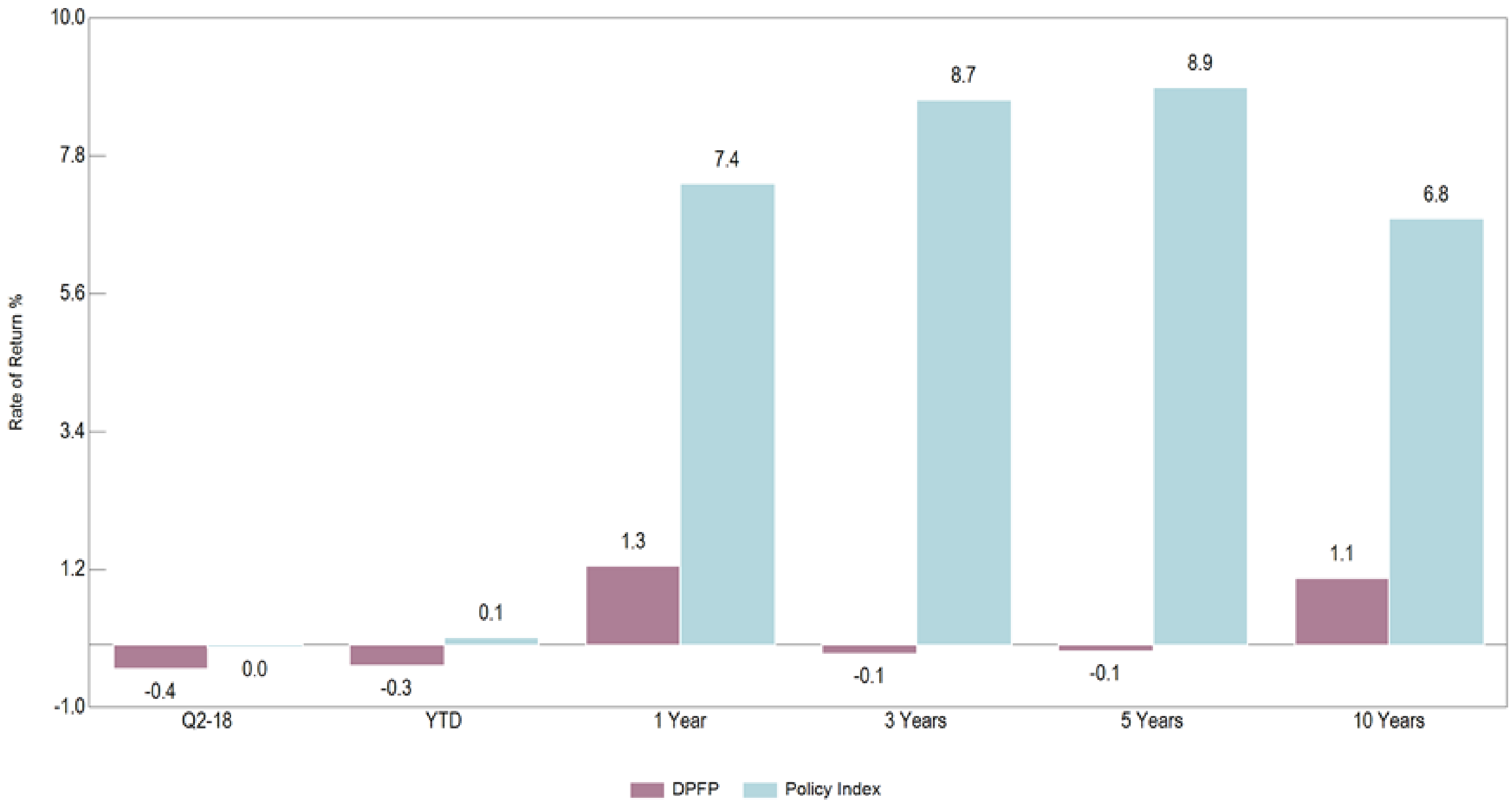


Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

Net Return Summary
Ending June 30, 2018

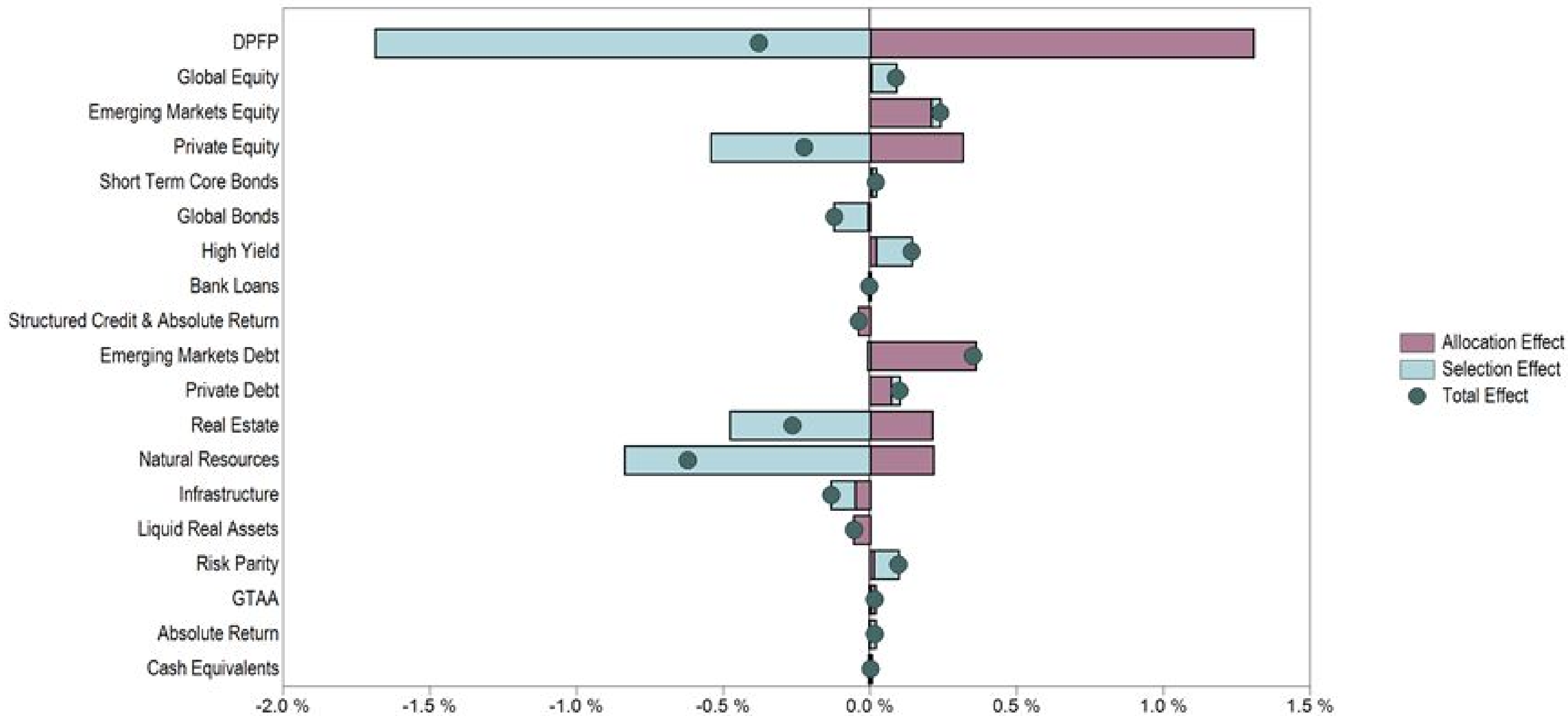


Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

Attribution Effects vs. Policy Benchmark
3 Months Ending June 30, 2018



Attribution Summary
3 Months Ending June 30, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total	**-0.4%**	**0.0%**	**-0.4%**	**-1.7%**	**1.3%**	**-0.4%**

Dallas Police & Fire Pension System

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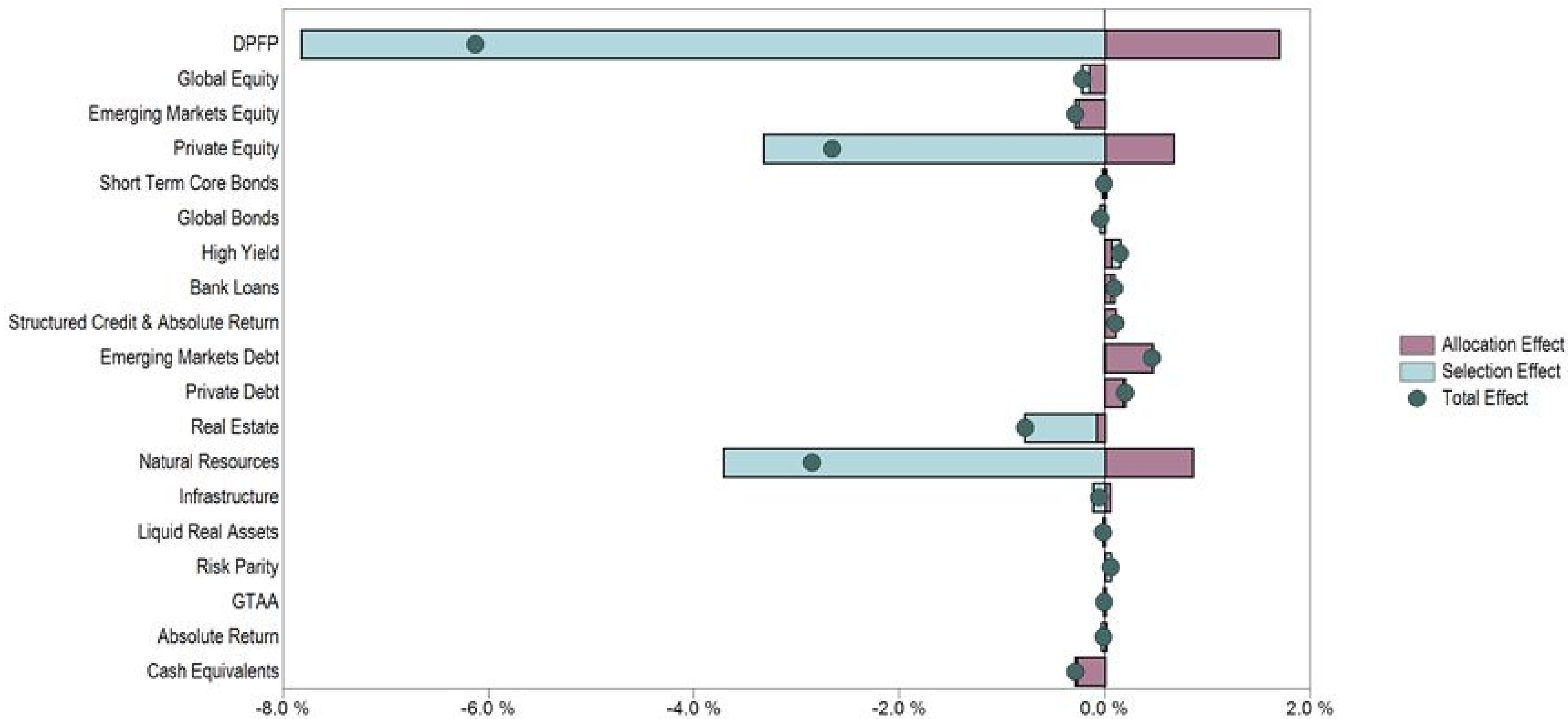
As of June 30, 2018

Attribution Effects vs. Policy Benchmark
1 Year Ending June 30, 2018

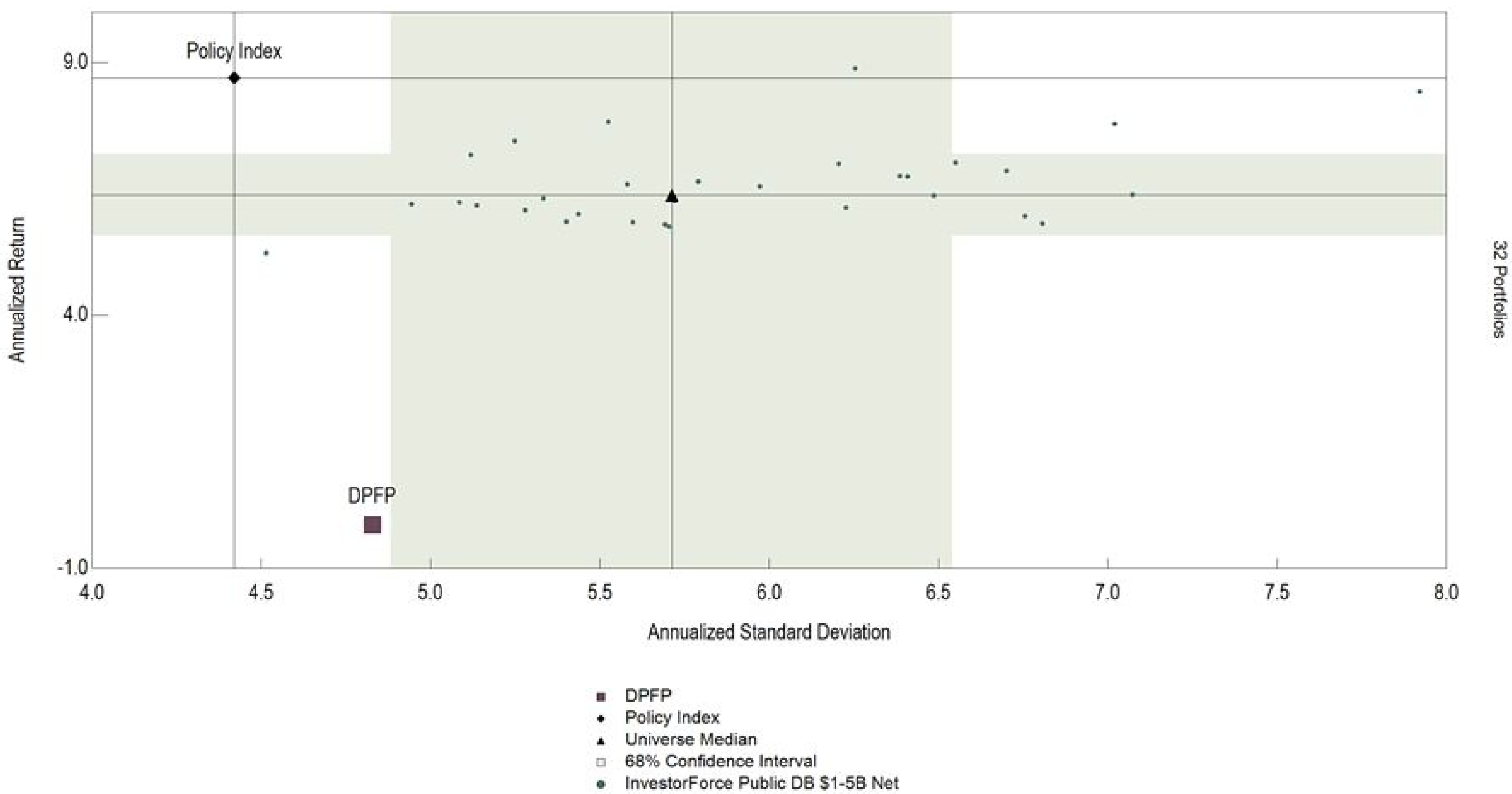


Attribution Summary
1 Year Ending June 30, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total	**1.3%**	**7.4%**	**-6.1%**	**-7.8%**	**1.7%**	**-6.1%**

Prepared by Meketa Investment Group

Net Annualized Return vs. Annualized Standard Deviation
3 Years Ending June 30, 2018

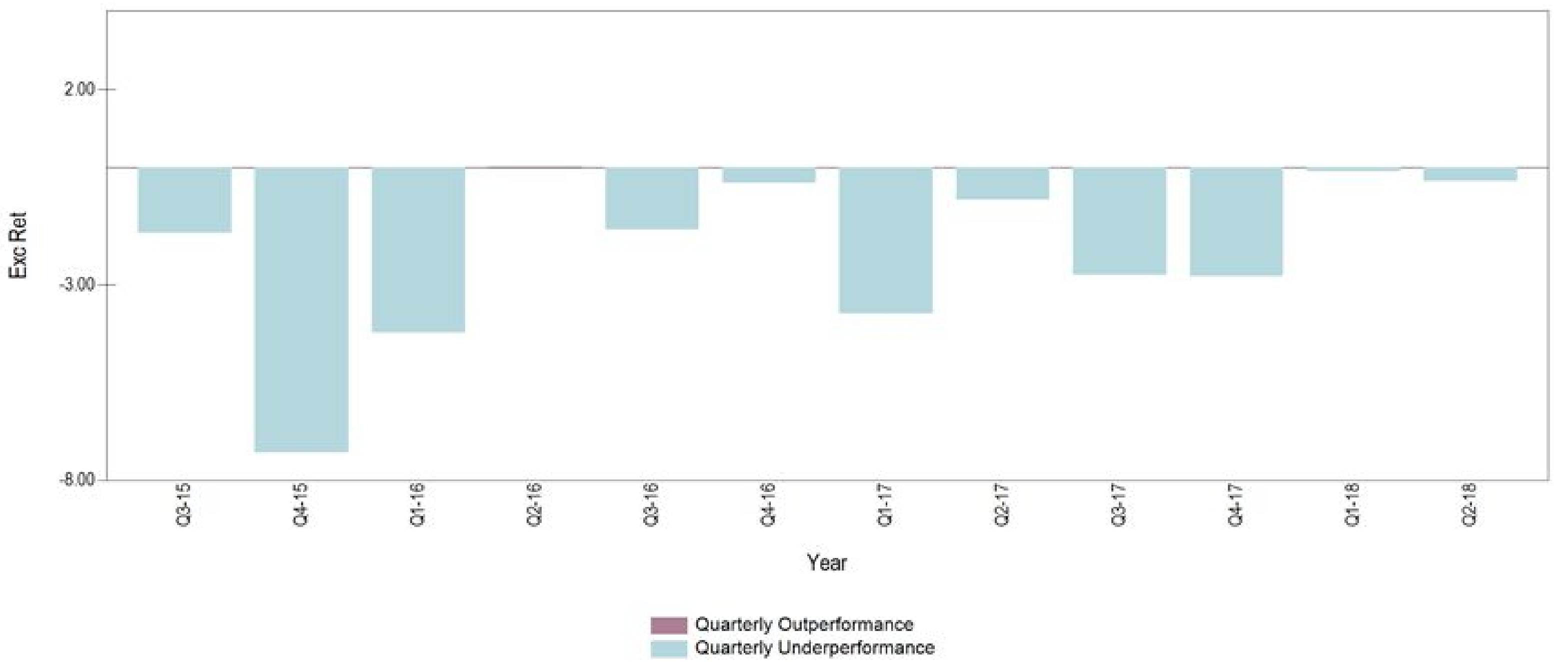


Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

Quarterly Excess Performance vs. Policy Benchmark



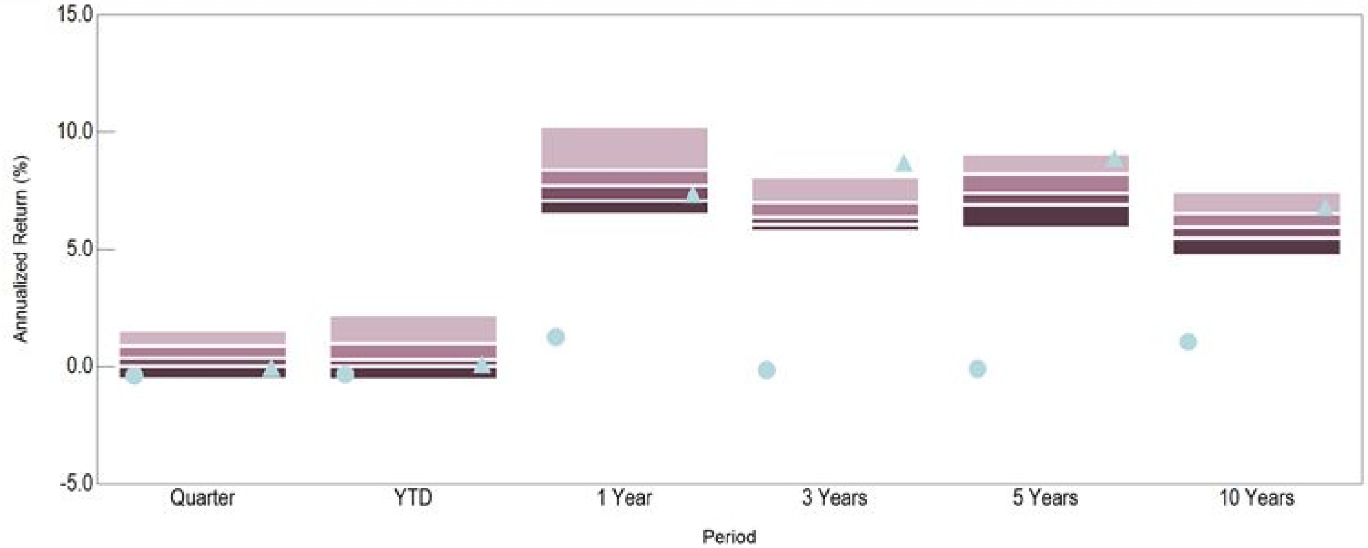
Total Fund Correlation Matrix
1 Year Ending June 30, 2018

	DPFP	Policy Index	60% MSCI ACWI/40% Barclays Global Agg
DPFP	1.00	--	--
Policy Index	0.90	1.00	--
60% MSCI ACWI/40% Barclays Global Agg	0.91	0.98	1.00

Total Fund Correlation Matrix
3 Years Ending June 30, 2018

	DPFP	Policy Index	60% MSCI ACWI/40% Barclays Global Agg
DPFP	1.00	--	--
Policy Index	0.45	1.00	--
60% MSCI ACWI/40% Barclays Global Agg	0.52	0.96	1.00

Total Plan Allocation vs. InvestorForce Public DB $1-5B Net Accounts
As of June 30, 2018



Return (Rank)	Quarter		YTD		1 Year		3 Years		5 Years		10 Years	
5th Percentile	1.5		2.2		10.2		8.1		9.1		7.4	
25th Percentile	0.9		1.0		8.4		7.0		8.2		6.5	
Median	0.4		0.3		7.7		6.4		7.4		6.0	
75th Percentile	0.0		0.0		7.1		6.1		6.9		5.5	
95th Percentile	-0.5		-0.5		6.5		5.8		5.9		4.7	
# of Portfolios	33		32		32		32		32		29	
DPFP	-0.4	(94)	-0.3	(94)	1.3	(99)	-0.1	(99)	-0.1	(99)	1.1	(99)
Policy Index	0.0	(83)	0.1	(70)	7.4	(66)	8.7	(2)	8.9	(7)	6.8	(11)

Dallas Police & Fire Pension System

As of June 30, 2018

Fund Watch List / Compliance
As of June 30, 2018

Name	Status	1 YR Return Above Benchmark	3 YR Return Above Benchmark	3 YR Sharpe Ratio Above Peers	3 YR Return Above Peers
Global Equity					
Boston Partners Global Equity Fund	Hold	No	--	--	--
Manulife Global Equity Strategy	Hold	No	--	--	--
OFI Global Equity Strategy	Hold	Yes	Yes	Yes	Yes
Walter Scott Global Equity Fund	Hold	Yes	Yes	No	Yes
Emerging Markets Equity					
RBC Emerging Markets Equity	Hold	--	--	--	--
Short Term Core Bonds					
IR&M 1-3 Year Strategy	Hold	Yes	--	--	--
Global Bonds					
Brandywine Global Fixed Income	Hold	No	Yes	Yes	Yes
High Yield					
Loomis Sayles High Yield Fund	Hold	Yes	Yes	Yes	No
Bank Loans					
Loomis Sayles Senior Rate and Fixed Income	Hold	Yes	Yes	Yes	No
Pacific Asset Management Corporate (Bank) Loan Strategy	Hold	--	--	--	--
Emerging Markets Debt					
Ashmore EM Blended Debt	Hold	--	--	--	--

1 YR Return Above Benchmark - 1 YR Return Above Benchmark
3 YR Return Above Benchmark - 3 YR Return Above Benchmark
3 YR Sharpe Ratio Above Peers - 3 YR Sharpe Ratio Above Peer Group Median
3 YR Return Above Peers - 3 YR Return Above Peer Group Median

Returns are net of fees.

Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

Asset Class Performance Summary (Net)

	Market Value ($)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	**2,051,055,342**	**100.0**	**-0.4**	**-0.3**	**1.3**	**-0.1**	**-0.1**	**1.1**	**5.9**	**Jun-96**
Policy Index			*0.0*	*0.1*	*7.4*	*8.7*	*8.9*	*6.8*	*--*	*Jun-96*
Allocation Index			*1.0*	*1.7*	*7.3*	*8.2*	*9.1*	*5.9*	*7.4*	*Jun-96*
Global Equity	**442,312,260**	**21.6**	**1.1**	**0.4**	**10.7**	**9.1**	**10.5**	**6.8**	**6.5**	**Jul-06**
Global Equity Weighted Index			*0.7*	*-0.1*	*11.3*	*8.8*	*9.7*	*6.8*	*6.4*	*Jul-06*
Emerging Markets Equity	**46,556,928**	**2.3**	**-6.6**	**-7.5**	**--**	**--**	**--**	**--**	**-7.5**	**Jan-18**
MSCI Emerging Markets Gross			*-7.9*	*-6.5*	*8.6*	*6.0*	*5.4*	*2.6*	*-6.5*	*Jan-18*
Private Equity	**244,847,531**	**11.9**	**0.0**	**0.0**	**-11.9**	**-14.3**	**-13.5**	**-5.7**	**-1.7**	**Oct-05**
Private Equity Custom Benchmark			*4.7*	*4.8*	*18.2*	*14.9*	*16.7*	*13.6*	*12.1*	*Oct-05*
Short Term Core Bonds	**240,630,702**	**11.7**	**0.6**	**0.3**	**0.5**	**--**	**--**	**--**	**0.5**	**Jun-17**
BBgBarc US Treasury 1-3 Yr TR			*0.2*	*0.1*	*0.0*	*0.4*	*0.6*	*1.2*	*0.0*	*Jun-17*
Global Bonds	**64,702,703**	**3.2**	**-6.2**	**-2.4**	**0.3**	**2.9**	**2.0**	**--**	**2.6**	**Dec-10**
BBgBarc Global Aggregate TR			*-2.8*	*-1.5*	*1.4*	*2.6*	*1.5*	*2.6*	*1.6*	*Dec-10*
High Yield	**82,655,463**	**4.0**	**0.8**	**0.9**	**2.9**	**5.7**	**5.0**	**--**	**6.8**	**Dec-10**
BBgBarc Global High Yield TR			*-2.2*	*-2.5*	*1.1*	*5.5*	*5.2*	*7.9*	*6.3*	*Dec-10*
Bank Loans	**112,715,235**	**5.5**	**0.8**	**2.2**	**5.0**	**4.4**	**--**	**--**	**4.3**	**Jan-14**
S&P/LSTA Leveraged Loan			*0.7*	*2.2*	*4.4*	*4.2*	*--*	*--*	*3.8*	*Jan-14*
Emerging Markets Debt	**18,989,190**	**0.9**	**-7.8**	**-6.7**	**-2.6**	**4.5**	**2.3**	**--**	**3.0**	**Dec-10**
50% JPM EMBI/50% JPM GBI-EM			*-7.0*	*-5.8*	*-1.9*	*3.4*	*1.6*	*--*	*2.7*	*Dec-10*
Private Debt	**11,734,947**	**0.6**	**3.2**	**8.7**	**9.1**	**--**	**--**	**--**	**-5.0**	**Jan-16**
Barclays Global High Yield +2%			*-1.7*	*-1.6*	*3.1*	*7.6*	*--*	*--*	*10.8*	*Jan-16*
Real Estate	**477,386,409**	**23.3**	**-0.2**	**0.8**	**4.2**	**-3.9**	**-6.9**	**-5.0**	**3.7**	**Mar-85**
NCREIF Property Index			*1.8*	*3.5*	*7.2*	*8.3*	*9.8*	*6.2*	*8.0*	*Mar-85*
Natural Resources	**176,574,047**	**8.6**	**-3.9**	**-5.8**	**-10.9**	**-2.1**	**1.7**	**--**	**4.2**	**Dec-10**
Natural Resources Benchmark (Linked)			*5.3*	*3.4*	*24.1*	*19.6*	*17.2*	*--*	*13.7*	*Dec-10*
Infrastructure	**62,481,341**	**3.0**	**0.0**	**2.4**	**4.5**	**18.9**	**11.7**	**--**	**10.7**	**Jul-12**
S&P Global Infrastructure TR USD			*2.6*	*-3.1*	*1.8*	*6.0*	*8.0*	*4.1*	*8.3*	*Jul-12*
Cash Equivalents	**69,468,586**	**3.4**	**0.4**	**0.7**	**1.2**	**1.1**	**--**	**--**	**1.1**	**Apr-15**
91 Day T-Bills			*0.5*	*0.8*	*1.4*	*0.7*	*0.4*	*0.3*	*0.6*	*Apr-15*

[1] Please see the Appendix for composition of the Custom Benchmarks.[2] As of 6/30/2018 the Safety Reserve exposure was approximately $310.1 million (14.9%). [3] All private market data is preliminary until valuations are finalized.

Dallas Police & Fire Pension System

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As of June 30, 2018

Trailing Net Performance

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	**2,051,055,342**	**100.0**	**--**	**-0.4**	**-0.3**	**1.3**	**-0.1**	**-0.1**	**1.1**	**5.9**	**Jun-96**
Policy Index				*0.0*	*0.1*	*7.4*	*8.7*	*8.9*	*6.8*	*--*	*Jun-96*
Allocation Index				*1.0*	*1.7*	*7.3*	*8.2*	*9.1*	*5.9*	*7.4*	*Jun-96*
InvestorForce Public DB $1-5B Net Rank				*94*	*94*	*99*	*99*	*99*	*99*	*74*	*Jun-96*
Total Equity	**733,716,719**	**35.8**	**35.8**	**0.2**	**-0.3**	**1.4**	**-4.4**	**2.1**	**--**	**3.6**	**Dec-10**
Total Equity Policy Index				*-0.1*	*-0.4*	*12.0*	*--*	*--*	*--*	*--*	*Dec-10*
Public Equity	**488,869,188**	**23.8**	**66.6**	**0.3**	**-0.4**	**9.8**	**8.8**	**10.3**	**6.7**	**6.4**	**Jul-06**
Public Equity Weighted Index				*-0.2*	*-0.8*	*10.6*	*8.5*	*9.6*	*6.7*	*6.4*	*Jul-06*
eV All Global Equity Net Rank				*66*	*59*	*55*	*35*	*36*	*52*	*45*	*Jul-06*
Global Equity	**442,312,260**	**21.6**	**90.5**	**1.1**	**0.4**	**10.7**	**9.1**	**10.5**	**6.8**	**6.5**	**Jul-06**
Global Equity Weighted Index				*0.7*	*-0.1*	*11.3*	*8.8*	*9.7*	*6.8*	*6.4*	*Jul-06*
eV All Global Equity Net Rank				*54*	*46*	*48*	*33*	*34*	*51*	*44*	*Jul-06*
Boston Partners Global Equity Fund	106,561,308	5.2	24.1	-0.8	-2.1	7.7	--	--	--	7.7	Jul-17
MSCI ACWI Gross				*0.7*	*-0.1*	*11.3*	*8.8*	*10.0*	*6.4*	*11.3*	*Jul-17*
eV Global Large Cap Value Eq Net Rank				*61*	*57*	*38*	*--*	*--*	*--*	*38*	*Jul-17*
Manulife Global Equity Strategy	110,664,834	5.4	25.0	-0.4	-3.6	2.4	--	--	--	2.4	Jul-17
MSCI ACWI Gross				*0.7*	*-0.1*	*11.3*	*8.8*	*10.0*	*6.4*	*11.3*	*Jul-17*
eV Global Large Cap Value Eq Net Rank				*52*	*72*	*95*	*--*	*--*	*--*	*95*	*Jul-17*
OFI Global Equity Strategy	111,227,150	5.4	25.1	2.4	2.9	16.8	9.9	12.1	9.1	6.6	Oct-07
MSCI ACWI Gross				*0.7*	*-0.1*	*11.3*	*8.8*	*10.0*	*6.4*	*4.7*	*Oct-07*
eV Global Large Cap Growth Eq Net Rank				*47*	*69*	*49*	*70*	*54*	*25*	*39*	*Oct-07*
Walter Scott Global Equity Fund	113,858,967	5.6	25.7	3.2	4.5	15.7	11.1	10.4	--	9.6	Dec-09
MSCI ACWI Gross				*0.7*	*-0.1*	*11.3*	*8.8*	*10.0*	*6.4*	*9.4*	*Dec-09*
eV Global Large Cap Growth Eq Net Rank				*30*	*53*	*74*	*58*	*91*	*--*	*85*	*Dec-09*

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As of June 30, 2018

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Markets Equity	**46,556,928**	**2.3**	**9.5**	**-6.6**	**-7.5**	**--**	**--**	**--**	**--**	**-7.5**	**Jan-18**
MSCI Emerging Markets Gross				*-7.9*	*-6.5*	*8.6*	*6.0*	*5.4*	*2.6*	*-6.5*	*Jan-18*
eV Emg Mkts Equity Net Rank				*20*	*61*	*--*	*--*	*--*	*--*	*61*	*Jan-18*
RBC Emerging Markets Equity	46,556,928	2.3	100.0	-6.6	-7.5	--	--	--	--	-7.5	Jan-18
MSCI Emerging Markets Gross				*-7.9*	*-6.5*	*8.6*	*6.0*	*5.4*	*2.6*	*-6.5*	*Jan-18*
eV Emg Mkts Equity Net Rank				*20*	*61*	*--*	*--*	*--*	*--*	*61*	*Jan-18*
Private Equity	**244,847,531**	**11.9**	**33.4**	**0.0**	**0.0**	**-11.9**	**-14.3**	**-13.5**	**-5.7**	**-1.7**	**Oct-05**
Private Equity Custom Benchmark				*4.7*	*4.8*	*18.2*	*14.9*	*16.7*	*13.6*	*12.1*	*Oct-05*
Total Fixed Income	**531,428,241**	**25.9**	**25.9**	**-0.9**	**0.6**	**2.7**	**2.5**	**3.1**	**5.3**	**5.5**	**Jul-06**
Total Fixed Income Policy Index				*-1.9*	*-1.0*	*2.2*	*--*	*--*	*--*	*--*	*Jul-06*
eV All Global Fixed Inc Net Rank				*38*	*14*	*19*	*67*	*46*	*32*	*36*	*Jul-06*
Public Fixed Income	**519,693,294**	**25.3**	**97.8**	**-1.0**	**0.3**	**2.7**	**4.9**	**3.9**	**--**	**5.5**	**Dec-10**
Public Fixed Income Weighted Index				*-1.1*	*-0.4*	*2.3*	*4.6*	*4.3*	*--*	*5.0*	*Dec-10*
Short Term Core Bonds	**240,630,702**	**11.7**	**46.3**	**0.6**	**0.3**	**0.5**	**--**	**--**	**--**	**0.5**	**Jun-17**
BBgBarc US Treasury 1-3 Yr TR				*0.2*	*0.1*	*0.0*	*0.4*	*0.6*	*1.2*	*0.0*	*Jun-17*
IR&M 1-3 Year Strategy	240,630,702	11.7	100.0	0.6	0.3	0.5	--	--	--	0.5	Jul-17
BBgBarc US Treasury 1-3 Yr TR				*0.2*	*0.1*	*0.0*	*0.4*	*0.6*	*1.2*	*0.0*	*Jul-17*
eV US Short Duration Fixed Inc Net Rank				*4*	*21*	*49*	*--*	*--*	*--*	*49*	*Jul-17*
Global Bonds	**64,702,703**	**3.2**	**12.5**	**-6.2**	**-2.4**	**0.3**	**2.9**	**2.0**	**--**	**2.6**	**Dec-10**
BBgBarc Global Aggregate TR				*-2.8*	*-1.5*	*1.4*	*2.6*	*1.5*	*2.6*	*1.6*	*Dec-10*
eV All Global Fixed Inc Net Rank				*95*	*69*	*65*	*55*	*69*	*--*	*64*	*Dec-10*
Brandywine Global Fixed Income	64,702,703	3.2	100.0	-6.2	-2.4	0.3	2.6	1.9	4.8	4.7	Oct-04
BBgBarc Global Aggregate TR				*-2.8*	*-1.5*	*1.4*	*2.6*	*1.5*	*2.6*	*3.4*	*Oct-04*
eV All Global Fixed Inc Net Rank				*95*	*69*	*65*	*64*	*70*	*40*	*50*	*Oct-04*

[1] Please note, private market data is preliminary until valuations are finalized.

Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
High Yield	**82,655,463**	**4.0**	**15.9**	**0.8**	**0.9**	**2.9**	**5.7**	**5.0**	**--**	**6.8**	**Dec-10**
BBgBarc Global High Yield TR				*-2.2*	*-2.5*	*1.1*	*5.5*	*5.2*	*7.9*	*6.3*	*Dec-10*
eV Global High Yield Fixed Inc Net Rank				*9*	*5*	*16*	*24*	*42*	*--*	*9*	*Dec-10*
Loomis Sayles High Yield Fund	82,655,463	4.0	100.0	0.8	0.9	2.9	5.9	6.0	8.6	9.7	Oct-98
BBgBarc Global High Yield TR				*-2.2*	*-2.5*	*1.1*	*5.5*	*5.2*	*7.9*	*8.3*	*Oct-98*
eV Global High Yield Fixed Inc Net Rank				*9*	*5*	*16*	*19*	*20*	*1*	*1*	*Oct-98*
Bank Loans	**112,715,235**	**5.5**	**21.7**	**0.8**	**2.2**	**5.0**	**4.4**	**--**	**--**	**4.3**	**Jan-14**
S&P/LSTA Leveraged Loan				*0.7*	*2.2*	*4.4*	*4.2*	*--*	*--*	*3.8*	*Jan-14*
eV All Global Fixed Inc Net Rank				*7*	*3*	*4*	*15*	*--*	*--*	*17*	*Jan-14*
Loomis Sayles Senior Rate and Fixed Income	60,724,075	3.0	53.9	0.8	2.4	5.3	4.6	--	--	4.3	Jan-14
S&P/LSTA Leveraged Loan				*0.7*	*2.2*	*4.4*	*4.2*	*--*	*--*	*3.8*	*Jan-14*
eV US Float-Rate Bank Loan Fixed Inc Net Rank				*6*	*8*	*5*	*21*	*--*	*--*	*15*	*Jan-14*
Pacific Asset Management Corporate (Bank) Loan Strategy	51,991,160	2.5	46.1	0.7	2.0	--	--	--	--	3.9	Aug-17
Credit Suisse Leveraged Loan				*0.8*	*2.4*	*4.7*	*4.3*	*--*	*--*	*3.9*	*Aug-17*
eV US Float-Rate Bank Loan Fixed Inc Net Rank				*16*	*22*	*--*	*--*	*--*	*--*	*15*	*Aug-17*
Emerging Markets Debt	**18,989,190**	**0.9**	**3.7**	**-7.8**	**-6.7**	**-2.6**	**4.5**	**2.3**	**--**	**3.0**	**Dec-10**
50% JPM EMBI/50% JPM GBI-EM				*-7.0*	*-5.8*	*-1.9*	*3.4*	*1.6*	*--*	*2.7*	*Dec-10*
eV All Emg Mkts Fixed Inc Net Rank				*62*	*67*	*64*	*30*	*60*	*--*	*59*	*Dec-10*
Ashmore EM Blended Debt	18,989,190	0.9	100.0	-7.8	-6.7	--	--	--	--	-5.2	Dec-17
Ashmore Blended Debt Benchmark				*-5.8*	*-5.0*	*-1.2*	*3.2*	*2.0*	*--*	*-4.0*	*Dec-17*
eV All Emg Mkts Fixed Inc Net Rank				*62*	*67*	*--*	*--*	*--*	*--*	*56*	*Dec-17*
Private Debt	**11,734,947**	**0.6**	**2.2**	**3.2**	**8.7**	**9.1**	**--**	**--**	**--**	**-5.0**	**Jan-16**
Barclays Global High Yield +2%				*-1.7*	*-1.6*	*3.1*	*7.6*	*--*	*--*	*10.8*	*Jan-16*

[1] Please note, private market data is preliminary until valuations are finalized.

Prepared by Meketa Investment Group

Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Assets	**716,441,797**	**34.9**	**34.9**	**-1.1**	**-0.8**	**1.3**	**0.4**	**-3.0**	**--**	**-2.3**	**Dec-10**
Total Real Assets Policy Index				*2.7*	*2.3*	*9.5*	*--*	*--*	*--*	*--*	*Dec-10*
Real Estate	**477,386,409**	**23.3**	**66.6**	**-0.2**	**0.8**	**4.2**	**-3.9**	**-6.9**	**-5.0**	**3.7**	**Mar-85**
NCREIF Property Index				*1.8*	*3.5*	*7.2*	*8.3*	*9.8*	*6.2*	*8.0*	*Mar-85*
Natural Resources	**176,574,047**	**8.6**	**24.6**	**-3.9**	**-5.8**	**-10.9**	**-2.1**	**1.7**	**--**	**4.2**	**Dec-10**
Natural Resources Benchmark (Linked)				*5.3*	*3.4*	*24.1*	*19.6*	*17.2*	*--*	*13.7*	*Dec-10*
Infrastructure	**62,481,341**	**3.0**	**8.7**	**0.0**	**2.4**	**4.5**	**18.9**	**11.7**	**--**	**10.7**	**Jul-12**
S&P Global Infrastructure TR USD				*2.6*	*-3.1*	*1.8*	*6.0*	*8.0*	*4.1*	*8.3*	*Jul-12*
Cash Equivalents	**69,468,586**	**3.4**	**3.4**	**0.4**	**0.7**	**1.2**	**1.1**	**--**	**--**	**1.1**	**Apr-15**
91 Day T-Bills				*0.5*	*0.8*	*1.4*	*0.7*	*0.4*	*0.3*	*0.6*	*Apr-15*

[1] Please note, private market data is preliminary until valuations are finalized.

Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

Statistics Summary

5 Years Ending June 30, 2018

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
DPFP	-0.1%	5.7%	-1.6	0.6	-0.1	5.5%
Policy Index	8.9%	4.0%	--	1.0	2.1	0.0%
Public Equity	10.3%	10.3%	0.4	1.0	1.0	1.8%
Public Equity Weighted Index	9.6%	10.4%	--	1.0	0.9	0.0%
Global Equity	10.5%	10.3%	0.5	1.0	1.0	1.8%
Global Equity Weighted Index	9.7%	10.3%	--	1.0	0.9	0.0%
Private Equity	-13.5%	18.0%	-1.5	0.0	-0.8	20.7%
Private Equity Custom Benchmark	16.7%	10.0%	--	1.0	1.6	0.0%
Public Fixed Income	3.9%	4.9%	-0.3	1.1	0.7	1.5%
Public Fixed Income Weighted Index	4.3%	4.3%	--	1.0	0.9	0.0%
Global Bonds	2.0%	6.0%	0.2	1.1	0.3	3.2%
BBgBarc Global Aggregate TR	1.5%	4.5%	--	1.0	0.2	0.0%
High Yield	5.0%	6.4%	-0.1	1.1	0.7	2.8%
BBgBarc Global High Yield TR	5.2%	5.4%	--	1.0	0.9	0.0%
Emerging Markets Debt	2.3%	8.3%	0.3	1.0	0.2	2.1%
50% JPM EMBI/50% JPM GBI-EM	1.6%	8.1%	--	1.0	0.1	0.0%
Real Estate	-6.9%	13.8%	-1.1	-1.3	-0.5	15.8%
NCREIF Property Index	9.8%	4.1%	--	1.0	2.3	0.0%
Natural Resources	1.7%	4.9%	-1.4	0.1	0.3	11.4%
Natural Resources Benchmark (Linked)	17.2%	11.3%	--	1.0	1.5	0.0%
Infrastructure	11.7%	29.1%	0.1	-0.1	0.4	31.1%
S&P Global Infrastructure TR USD	8.0%	10.4%	--	1.0	0.7	0.0%

Benchmark History
As of June 30, 2018

DPFP		
4/1/2016	Present	20% MSCI ACWI Gross / 5% MSCI Emerging Markets Gross / 5% Private Equity Custom Benchmark / 2% BBgBarc US Treasury 1-3 Yr TR / 3% BBgBarc Global Aggregate TR / 5% BBgBarc Global High Yield TR / 6% S&P/LSTA Leveraged Loan / 6% HFRI RV: FI (50/50-ABS/Corp) / 6% 50% JPM EMBI/50% JPM GBI-EM / 5% Barclays Global High Yield +2% / 5% 60% MSCI ACWI/40% Barclays Global Agg / 3% 60% MSCI ACWI/40% Barclays Global Agg / 2% HFRX Absolute Return Index / 5% Natural Resources Benchmark (Linked) / 5% S&P Global Infrastructure TR USD / 12% NCREIF Property Index / 3% CPI + 5% (Seasonally Adjusted) / 2% 91 Day T-Bills
4/1/2014	3/31/2016	15% MSCI ACWI / 15% S&P 500 + 2% / 10% Total Global Natural Resources Custom Benchmark / 15% BBgBarc Global Aggregate TR / 20% CPI + 5% (Seasonally Adjusted) / 10% CPI + 5% (Seasonally Adjusted) / 15% NCREIF Property Index
1/1/2014	3/31/2014	15% MSCI ACWI / 15% Private Markets / 10% Total Global Natural Resources Custom Benchmark / 15% BBgBarc Global Aggregate TR / 20% CPI + 5% (Seasonally Adjusted) / 10% Infrastructure / 15% Real Estate
Total Equity		
1/1/2016	Present	66.67% MSCI ACWI Gross / 16.67% MSCI Emerging Markets Gross / 16.66% Private Equity Custom Benchmark
Public Equity		
2/1/2018	Present	Weighted Average of MSCI ACWI Gross / MSCI Emerging Markets
1/1/2018	1/31/2018	Weighted Average of MSCI ACWI Gross / MSCI Emerging Markets / FTSE EPRA/NAREIT Linked 91 Day Tbill
12/1/2017	12/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill
7/1/2006	11/30/2017	100% Global Equity Weighted Index
Global Equity		
2/1/2018	Present	Weighted Average of MSCI ACWI Gross
1/1/2018	1/31/2018	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Global
12/1/2017	12/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill
8/1/2017	11/30/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill
7/1/2017	7/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill
5/1/2017	6/30/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross
4/1/2017	4/30/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / Russell 2000
12/1/2016	3/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / Russell 2000 / Dow Jones Equal Wtd. Oil & Gas
11/1/2016	11/30/2016	Weighted Average of Russell 2000 / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / Dow Jones Equal Wtd. Oil & Gas / MSCI ACWI Gross
9/1/2016	10/31/2016	Weighted Average of Russell 2000 / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / FTSE EPRA/NAREIT Global / Dow Jones Equal Wtd. Oil & Gas / MSCI ACWI Gross

Dallas Police & Fire Pension System

DPFP

As of June 30, 2018

Private Equity		
10/1/2005	Present	Russell 3000 + 3%
Total Fixed Income		
1/1/2016	Present	6.07% BBgBarc US Treasury 1-3 Yr TR / 9.09% BBgBarc Global Aggregate TR / 15.15% BBgBarc Global High Yield TR / 18.18% S&P/LSTA Leveraged Loan / 18.18% HFRI RV: FI (50/50-ABS/Corp) / 18.18% 50% JPM EMBI/50% JPM GBI-EM / 15.15% Barclays Global High Yield +2%
Public Fixed Income		
5/1/2018	Present	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / Credit Suisse Leveraged Loan / Ashmore Blended Debt Benchmark
12/1/2017	4/30/2018	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / Credit Suisse Leveraged Loan / Ashmore Blended Debt Benchmark / JP Morgan GBI EM Global Diversified TR USD
10/1/2017	11/30/2017	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / Credit Suisse Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD
9/1/2017	9/30/2017	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD / Credit Suisse Leveraged Loan
7/1/2017	8/31/2017	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD
4/1/2017	6/30/2017	Weighted Average of BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD / JP Morgan EMBI Global Diversified
Ashmore EM Blended Debt		
12/1/2017	Present	50% JP Morgan EMBI Global Diversified / 25% JPM ELMI+ TR USD / 25% JP Morgan GBI EM Global Diversified TR USD
Total Real Assets		
1/1/2016	Present	20% Natural Resources Benchmark (Linked) / 20% S&P Global Infrastructure TR USD / 48% NCREIF Property Index / 12% CPI + 5% (Seasonally Adjusted)
Natural Resources		
1/1/2016	Present	S&P Global Natural Resources Net USD
12/31/2010	12/31/2015	Total Global Natural Resources Custom Benchmark

Disclaimer

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SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM", "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

FUND EVALUATION REPORT

Dallas Police & Fire Pension System

Private Markets Review
As of March 31, 2018

MEKETA INVESTMENT GROUP

BOSTON MASSACHUSETTS | CHICAGO ILLINOIS | MIAMI FLORIDA | PORTLAND OREGON | SAN DIEGO CALIFORNIA | LONDON UNITED KINGDOM

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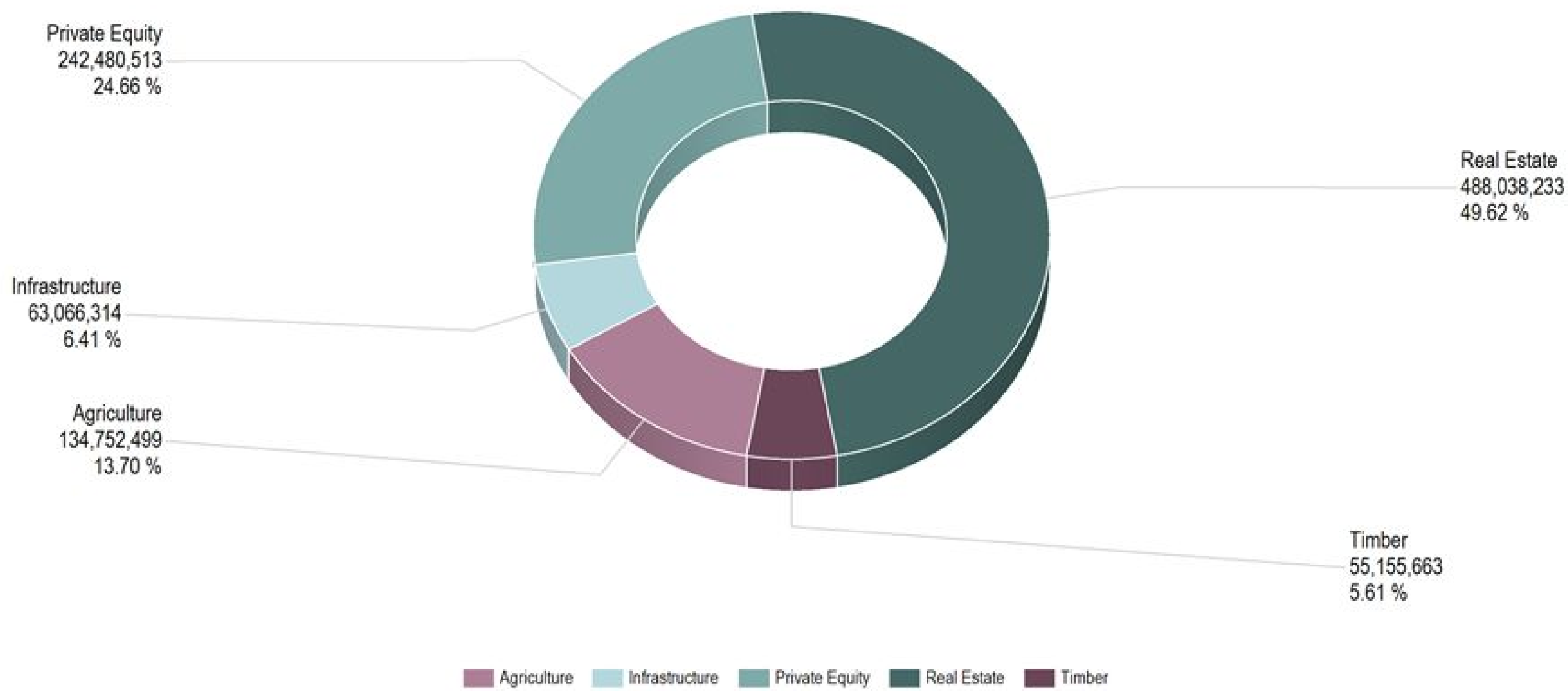
Dallas Police & Fire Pension System

Private Markets Review

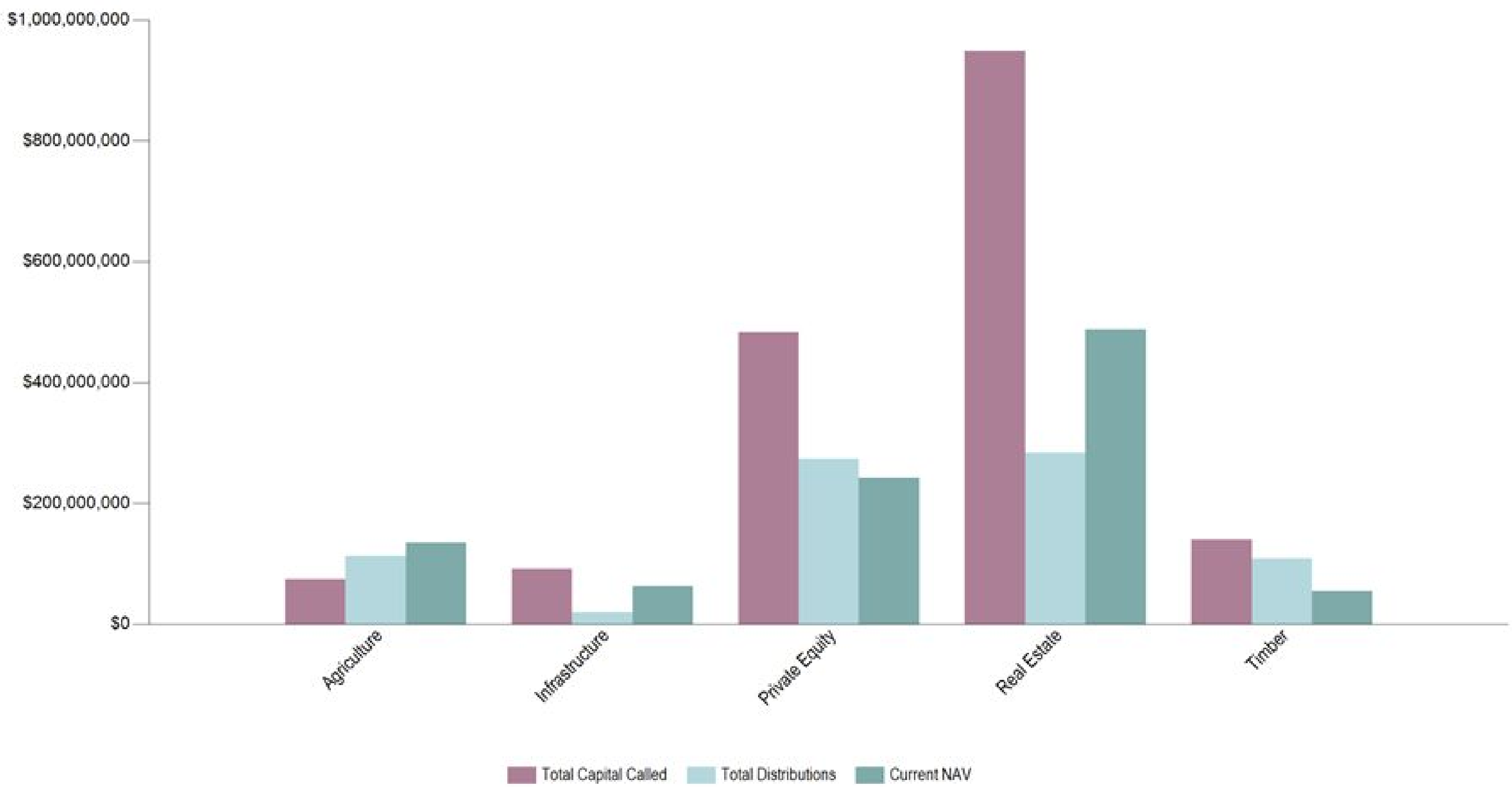
As of March 31, 2018

Private Market Investments as of March 31, 2018
Market Value Allocation by Asset Class



1. Private Equity is composed of Private Equity and Private Debt

Private Market Investments as of March 31, 2018
Total Capital Called, Distributions, and Current NAV by Asset Class



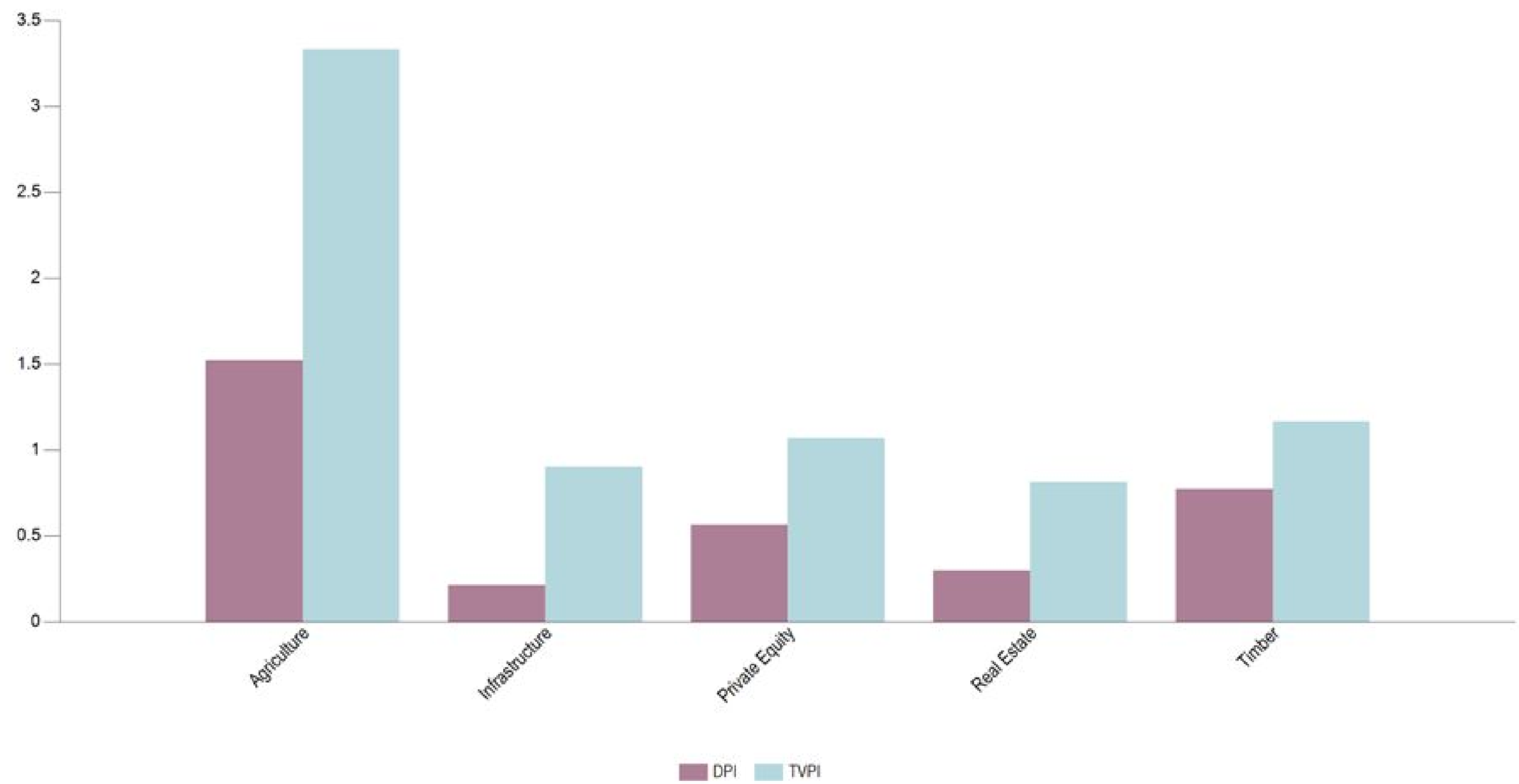
1. Private Equity is composed of Private Equity and Private Debt
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Private Markets Review

As of March 31, 2018

Private Market Investments as of March 31, 2018
DPI and TVPI by Asset Class



1. Private Equity is composed of Private Equity and Private Debt
2. Private markets performance reflected is composed of active investments only

Private Market Investments Overview

Active Funds	Commitments		Distributions & Valuations				Performance			
Asset Class	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Unrealized Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Total Agriculture	74,420,001	74,420,001	113,359,132	134,752,499	248,111,631	173,691,630	1.00	1.52	3.33	15.52
Total Infrastructure	97,000,000	91,542,582	19,521,079	63,066,314	82,587,393	-8,955,189	0.94	0.21	0.90	-2.39
Total Private Equity	484,220,208	483,213,809	273,952,390	242,480,513	516,432,903	22,041,607	1.00	0.57	1.07	1.07
Total Real Estate	966,446,119	957,082,683	294,978,366	488,038,233	783,016,599	-174,066,084	0.99	0.31	0.82	-4.07
Total Timber	139,756,705	140,474,365	108,821,865	55,155,663	163,977,527	23,503,163	1.01	0.77	1.17	2.87
Total	1,761,843,033	1,746,733,440	810,632,832	983,493,222	1,794,126,054	36,215,128	0.99	0.46	1.03	0.39

1. Private Equity is composed of Private Equity and Private Debt
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Active Funds with Unfunded Commitments Overview

As of March 31, 2018

Acitve Funds with Unfunded Commitments

Active Funds		Commitments		
Investment Name	**Vintage Year**	**Commitment ($)**	**Paid In Capital ($)**	**Unfunded Commitment ($)**
Infrastructure				
JP Morgan Asian Infrastructure	2008	37,000,000	36,265,060	734,940
JP Morgan Asian Infrastructure & Related resources II	2013	10,000,000	7,395,879	2,604,121
JP Morgan Maritime Fund, LP	2009	50,000,000	48,623,737	1,365,941
Total Infrastructure		**97,000,000**	**92,284,676**	**4,705,002**
Private Equity				
Huff Energy Fund LP	2006	100,000,000	99,880,015	119,985
Industry Ventures Partnership IV	2016	5,000,000	1,725,000	3,275,000
Lone Star Growth Capital	2006	16,000,000	12,800,000	16,000,000
Lone Star Opportunities V	2012	75,000,000	75,000,000	0
Riverstone Credit Partners LP	2016	10,000,000	9,998,720	1,568,148
Yellowstone Capital	2008	5,283,254	5,112,307	170,947
Total Private Equity		**211,283,254**	**202,949,174**	**21,134,080**
Real Estate				
Hearthstone MS II Homebuilding Investors	1999	10,000,000	7,973,058	1,008,131
Hearthstone MS III Homebuilding Investors	2003	10,000,000	1,221,446	1,221,446
Total Real Estate		**20,000,000**	**9,194,504**	**2,229,557**
Total		**328,283,254**	**304,438,676**	**28,068,639**

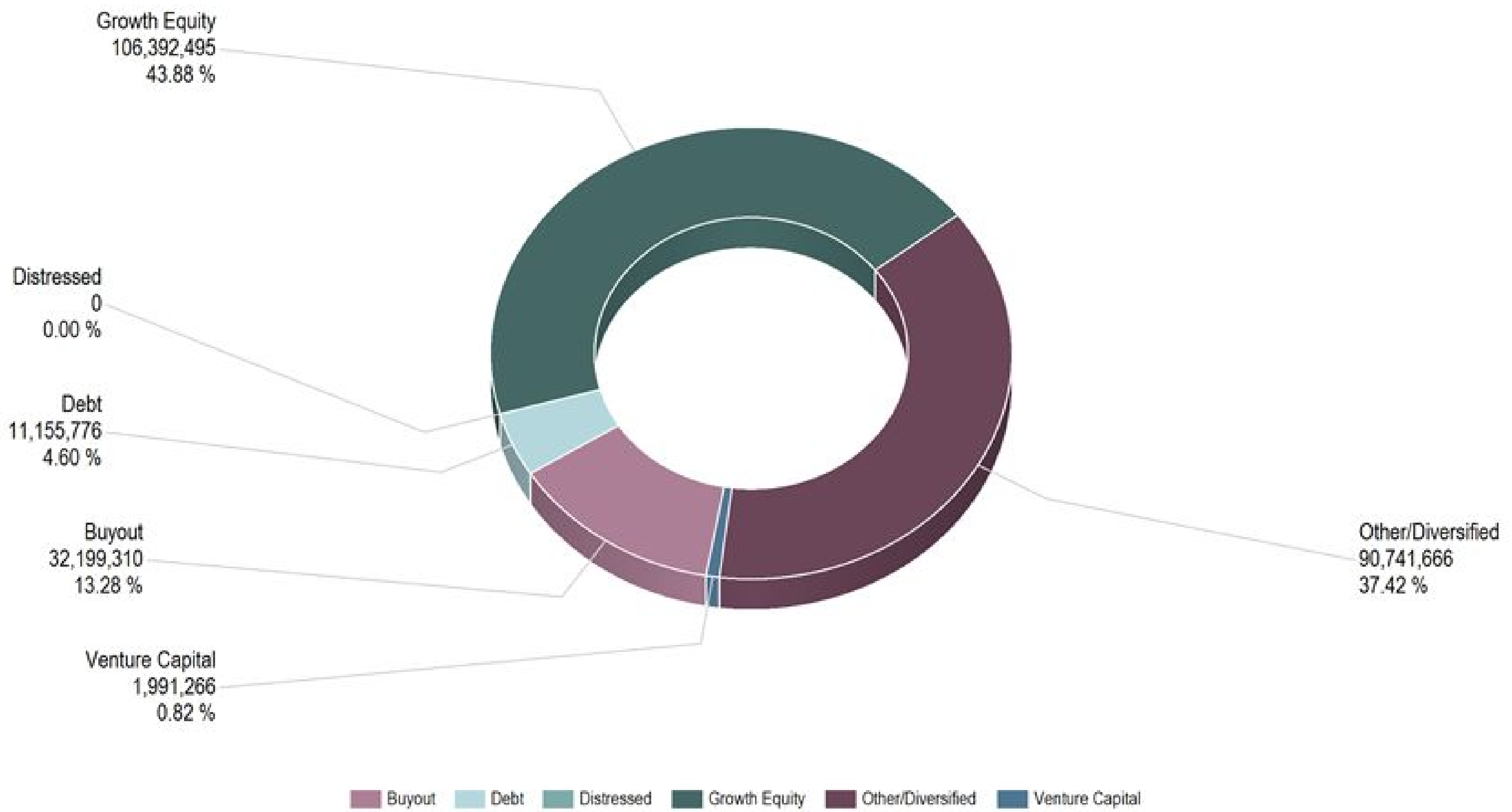
1. Private markets performance reflected is composed of active investments only
2. The funds and figures above represent investments with unfunded capital commitments
3. Lone Star valuations as directed by Dallas Police and Fire Investment staff
4. Lone Star Opportunities V received final capital call as of 1/26/18

Dallas Police & Fire Pension System

Private Equity and Debt

As of March 31, 2018

Private Equity and Debt Investments as of March 31, 2018
Market Value Allocation by Strategy

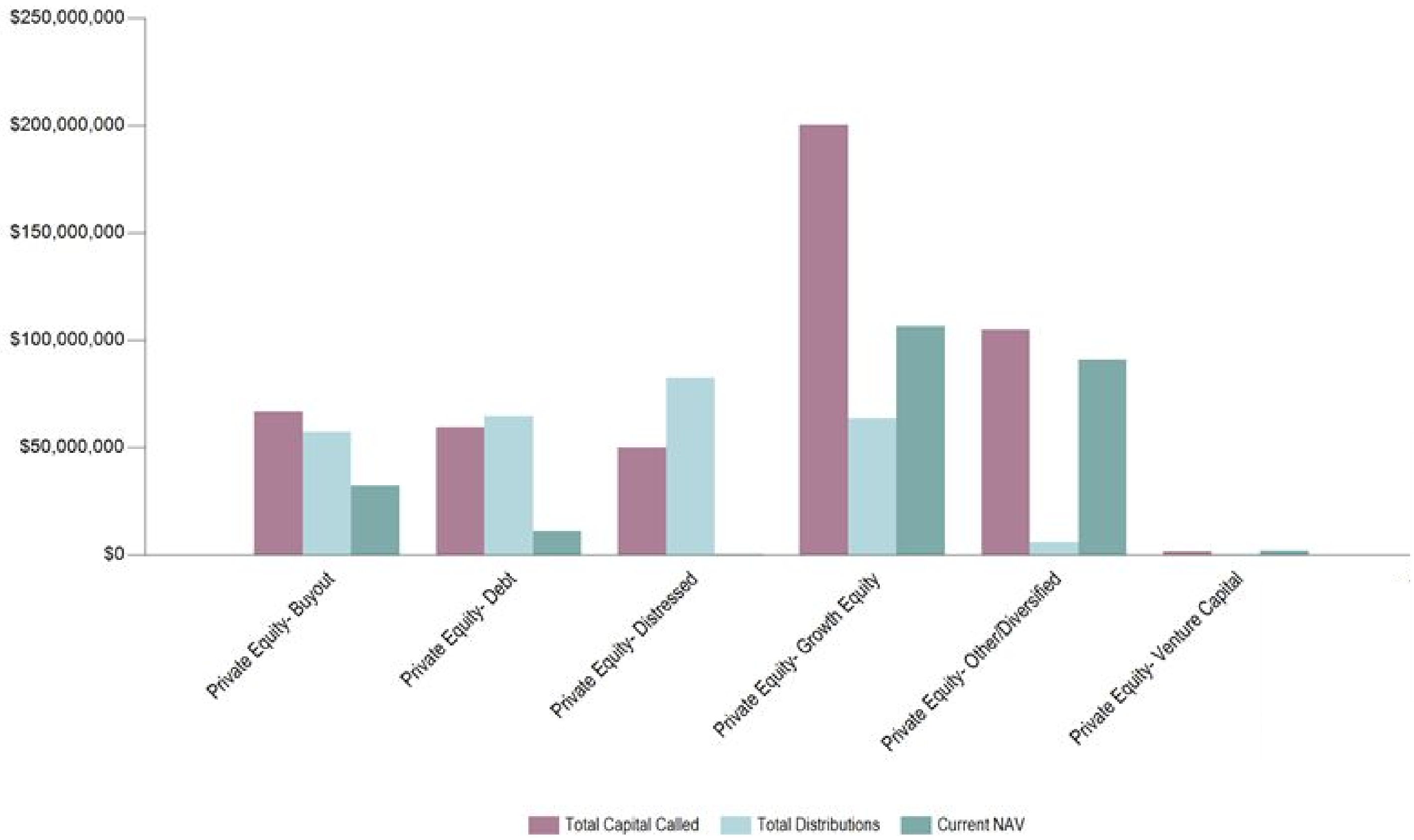


Dallas Police & Fire Pension System

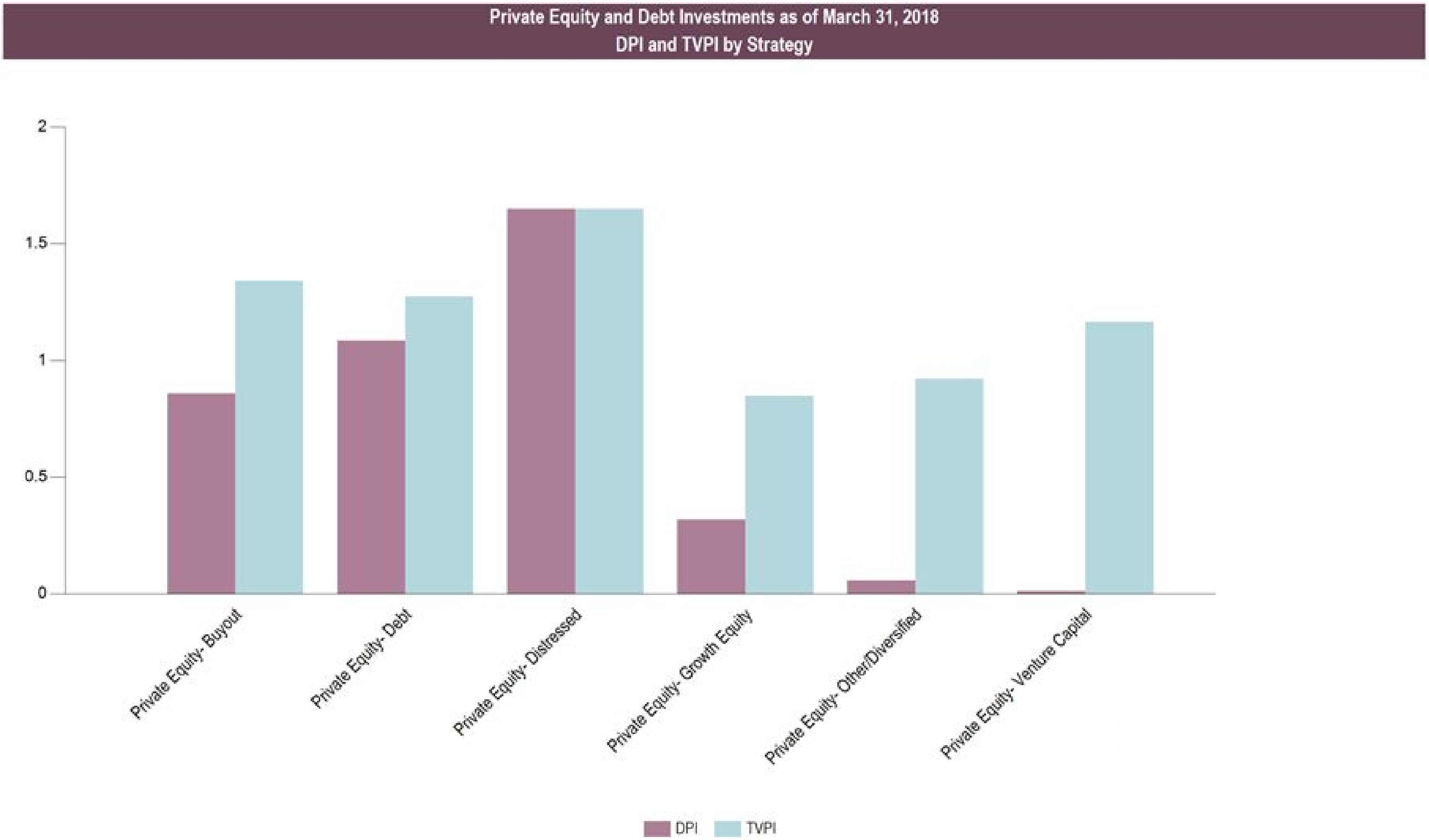
Private Equity and Debt

As of March 31, 2018

Private Equity and Debt Investments as of March 31, 2018
Total Capital Called, Distributions, and Current NAV by Strategy



1. Private markets performance reflected is composed of active investments only



1. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Private Equity and Debt

As of March 31, 2018

Private Equity and Debt Investments Overview

Active Funds		Commitments		Distributions & Valuations				Performance			
Investment Name	**Vintage Year**	**Commitment ($)**	**Paid In Capital ($)**	**Distributions ($)**	**Valuation ($)**	**Total Value ($)**	**Unrealized Gain/Loss**	**Call Ratio**	**DPI**	**TVPI**	**IRR (%)**
Buyout											
Huff Alternative Fund	2000	66,795,718	66,795,718	57,386,716	32,199,310	89,586,026	10,767,632	1.00	0.86	1.34	1.70
Total Buyout		**66,795,718**	**66,795,718**	**57,386,716**	**32,199,310**	**89,586,026**	**10,767,632**	**1.00**	**0.86**	**1.34**	**1.70**
Debt											
Highland Crusader Fund	2003	50,955,397	50,955,397	62,263,032	2,699,208	64,962,240	14,006,843	1.00	1.22	1.27	4.27
Riverstone Credit Partners LP	2016	10,000,000	8,431,852	2,225,377	8,456,568	10,681,945	2,147,951	0.84	0.26	1.27	18.79
Total Debt		**60,955,397**	**59,387,249**	**64,488,409**	**11,155,776**	**75,644,186**	**16,154,794**	**0.97**	**1.09**	**1.27**	**4.60**
Distressed											
Oaktree Fund IV	2001	50,000,000	50,000,000	82,516,590	0	82,516,590	32,516,590	1.00	1.65	1.65	28.36
Total Distressed		**50,000,000**	**50,000,000**	**82,516,590**	**0**	**82,516,590**	**32,516,590**	**1.00**	**1.65**	**1.65**	**28.36**
Growth Equity											
BankCap Partners Fund I	2007	20,000,000	20,000,000	24,760,986	236,929	24,997,915	4,997,915	1.00	1.24	1.25	2.60
Hudson Clean Energy	2009	25,000,000	24,994,470	3,661,896	6,362,841	10,024,737	-14,969,733	1.00	0.15	0.40	-16.01
Lone Star CRA	2008	50,000,000	57,519,050	12,928,698	70,073,832	83,002,530	25,483,480	1.15	0.22	1.44	16.08
Lone Star Growth Capital	2006	16,000,000	12,800,000	12,800,000	1,599,684	14,399,684	1,599,684	0.80	1.00	1.12	1.94
Lone Star Opportunities V	2012	75,000,000	56,250,000	531,444	26,457,213	26,988,657	-48,011,343	0.75	0.01	0.36	-62.59
North Texas Opportunity Fund	2000	10,000,000	10,000,000	8,911,187	1,661,996	10,573,183	573,183	1.00	0.89	1.06	0.65
Total Growth Equity		**196,000,000**	**200,316,520**	**63,594,211**	**106,392,495**	**169,986,706**	**-30,326,813**	**1.02**	**0.32**	**0.85**	**-9.58**
Other/Diversified											
Huff Energy Fund LP	2006	100,000,000	99,880,021	4,477,394	90,634,657	95,112,051	-3,820,633	1.00	0.04	0.95	-0.49
Yellowstone Capital	2008	5,283,254	5,112,307	1,458,572	107,009	1,565,581	-3,546,726	0.97	0.29	0.31	-27.42
Total Other/Diversified		**105,283,254**	**104,992,328**	**5,935,966**	**90,741,666**	**96,677,632**	**-7,367,359**	**1.00**	**0.06**	**0.92**	**-0.93**
Venture Capital											
Industry Ventures Partnership IV	2016	5,000,000	1,725,000	20,462	1,991,266	2,011,728	286,728	0.35	0.01	1.17	17.85
Total Venture Capital		**5,000,000**	**1,725,000**	**20,462**	**1,991,266**	**2,011,728**	**286,728**	**0.35**	**0.01**	**1.17**	**17.85**
Miscellaneous											
Miscellaneous Private Equity Expenses	2016	185,839	185,839								
Total Miscellaneous		**185,839**	**185,839**								
Total		**484,220,208**	**483,402,654**	**273,942,354**	**242,480,513**	**516,422,867**	**22,031,571**	**1.00**	**0.57**	**1.07**	**1.07**

1. Private markets performance reflected is composed of active investments only
2. Lone Star valuations as directed by Dallas Police and Fire Investment staff

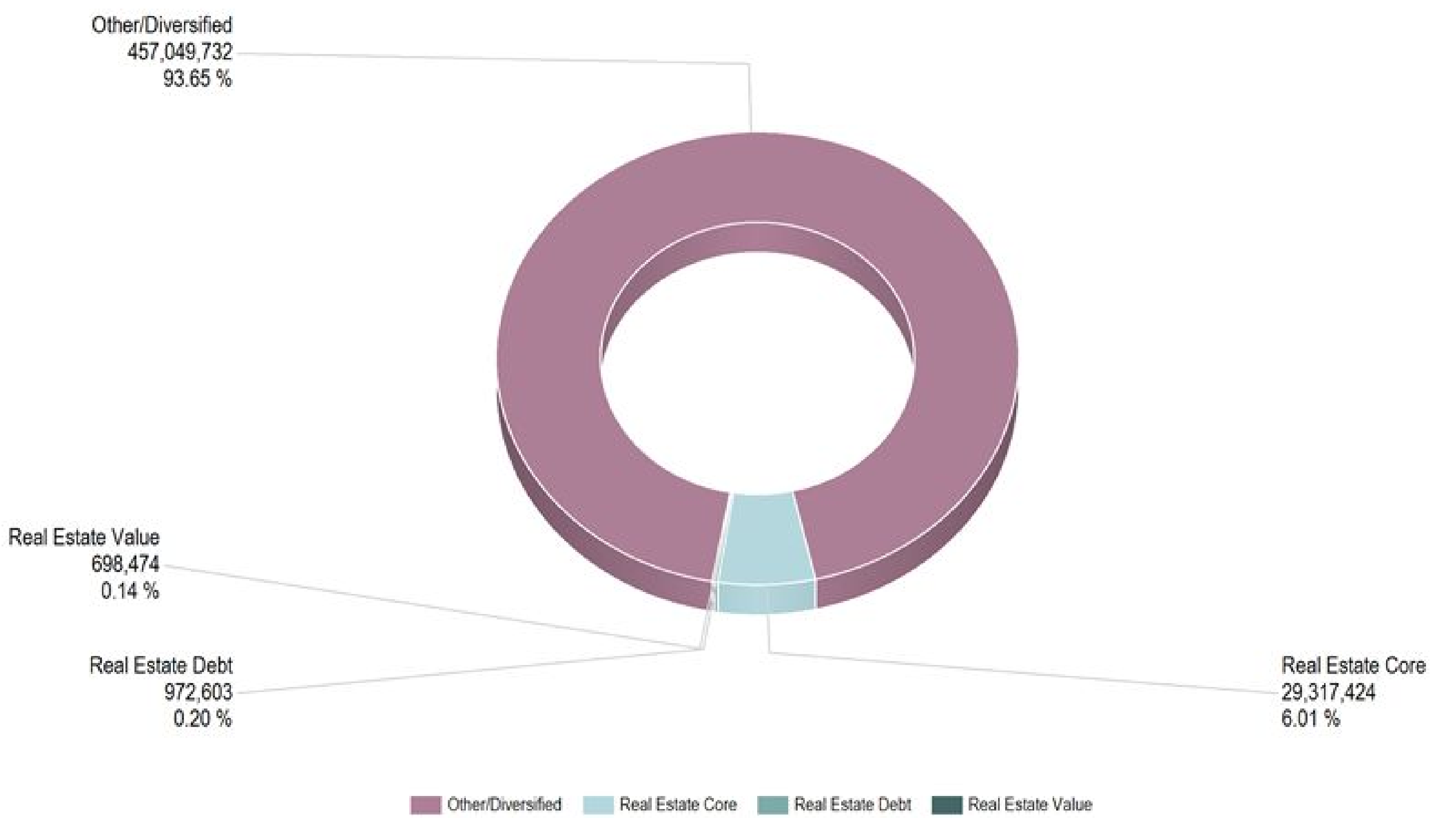
Prepared by Meketa Investment Group

Dallas Police & Fire Pension System

Real Estate

As of March 31, 2018

Real Estate Investments as of March 31, 2018
Market Value Allocation by Strategy

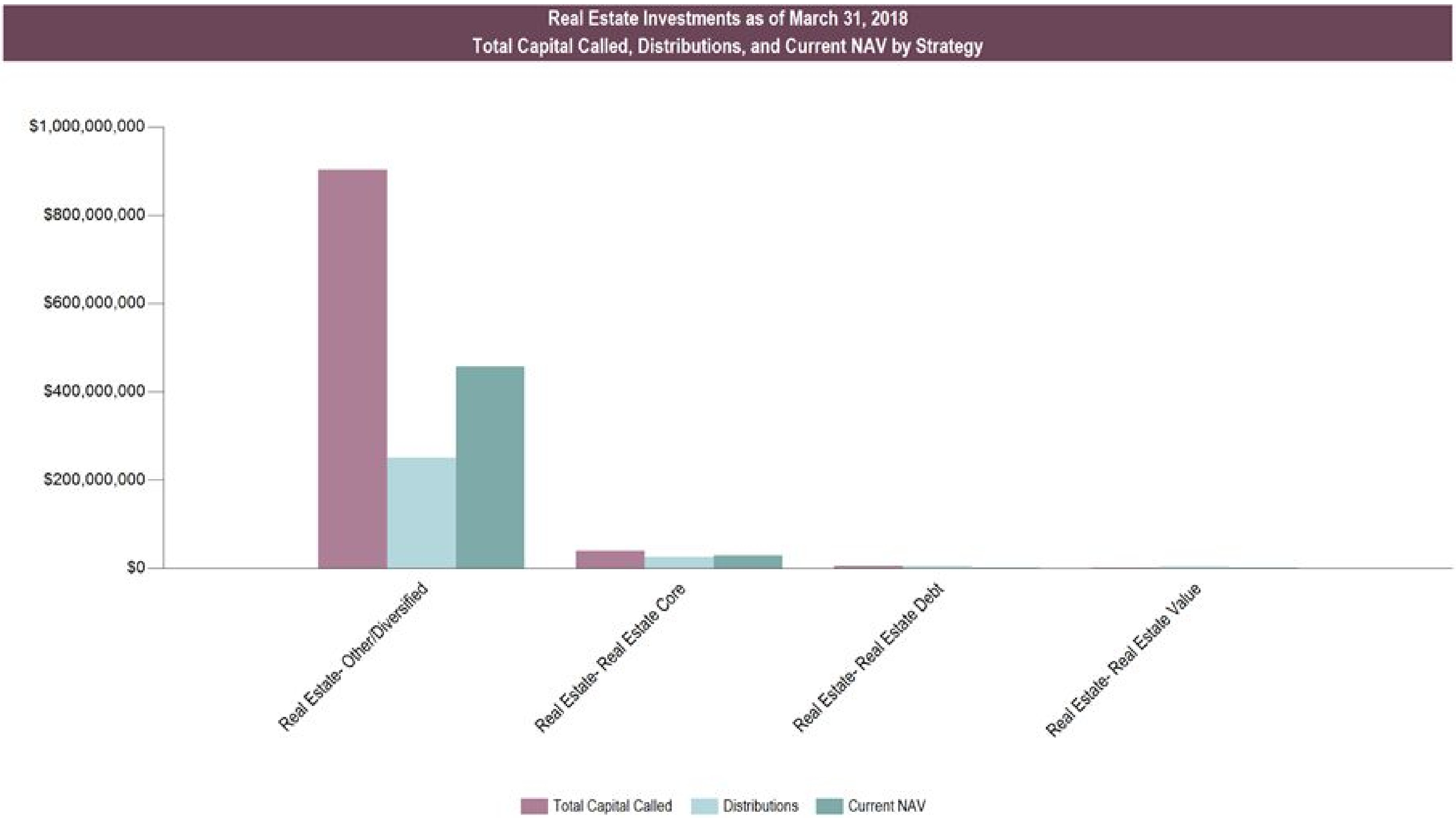


1. Other/Diversified is composed of direct real estate investments made by the fund

Dallas Police & Fire Pension System

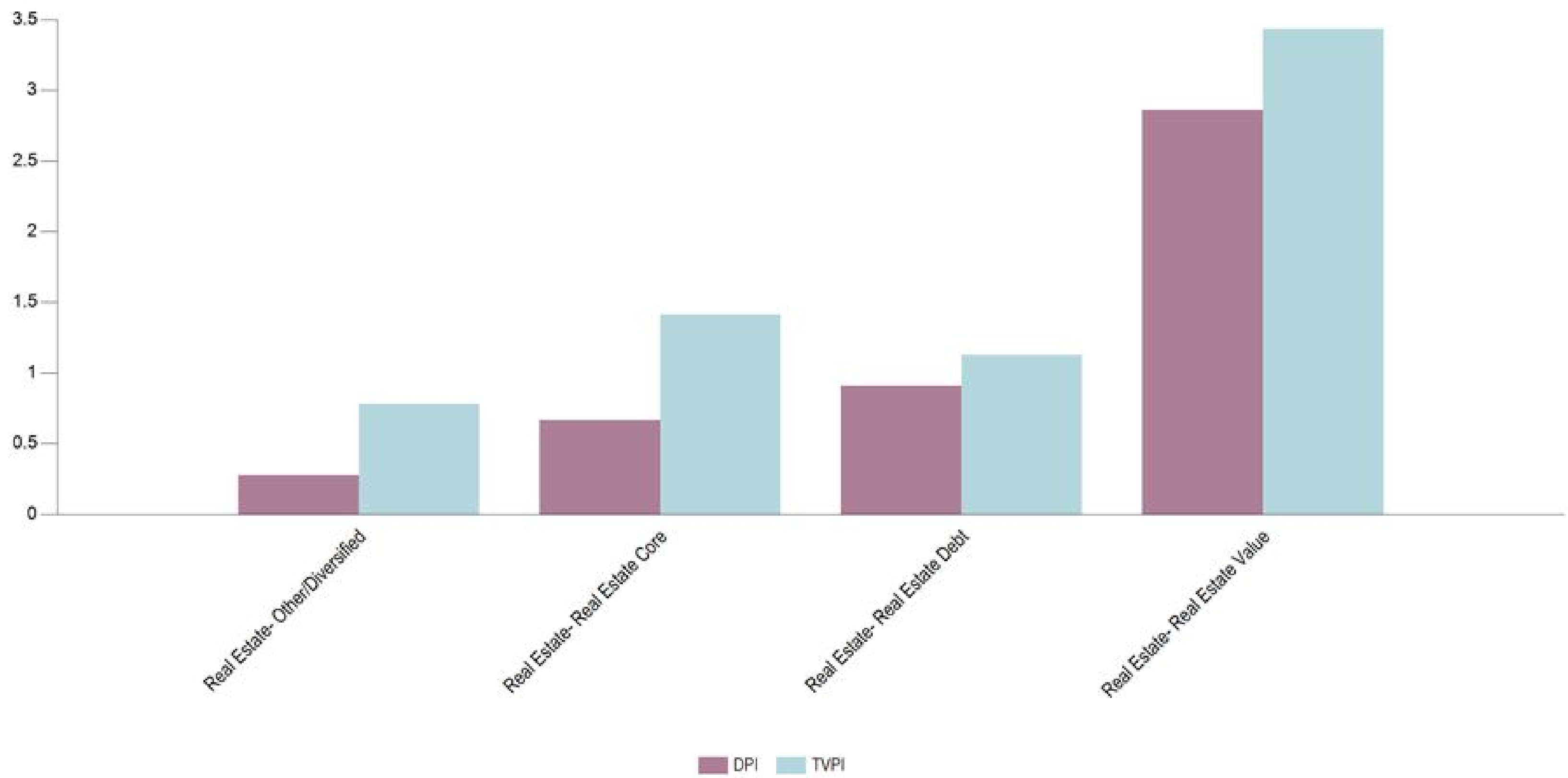
Real Estate

As of March 31, 2018



1. Other/Diversified is composed of direct real estate investments made by the fund
2. Private markets performance reflected is composed of active investments only

Real Estate Investments as of March 31, 2018
DPI and TVPI Call Ratio by Strategy



1. Other/Diversified is composed of direct real estate investments made by the fund
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Real Estate

As of March 31, 2018

Real Estate Investments Overview

Active Funds		Commitments		Valuations				Performance			
Investment Name	Vintage Year	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Unrealized Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Total Other/Diversified		902,740,801	904,068,440	250,292,137	457,049,732	707,341,869	-196,726,571	1.00	0.28	0.78	-3.94
Total Real Estate Core		39,205,318	39,319,738	26,113,944	29,317,424	55,431,369	16,111,630	1.00	0.66	1.41	5.69
Total Real Estate Debt		4,500,000	4,500,000	4,084,829	972,603	5,057,432	557,432	1.00	0.91	1.12	5.75
Total Real Estate Value		20,000,000	9,194,504	14,487,455	698,474	15,185,929	5,991,425	0.46	1.58	1.65	25.95
Total		966,446,119	957,082,683	294,978,366	488,038,233	783,016,599	-174,066,084	0.99	0.31	0.82	-4.07

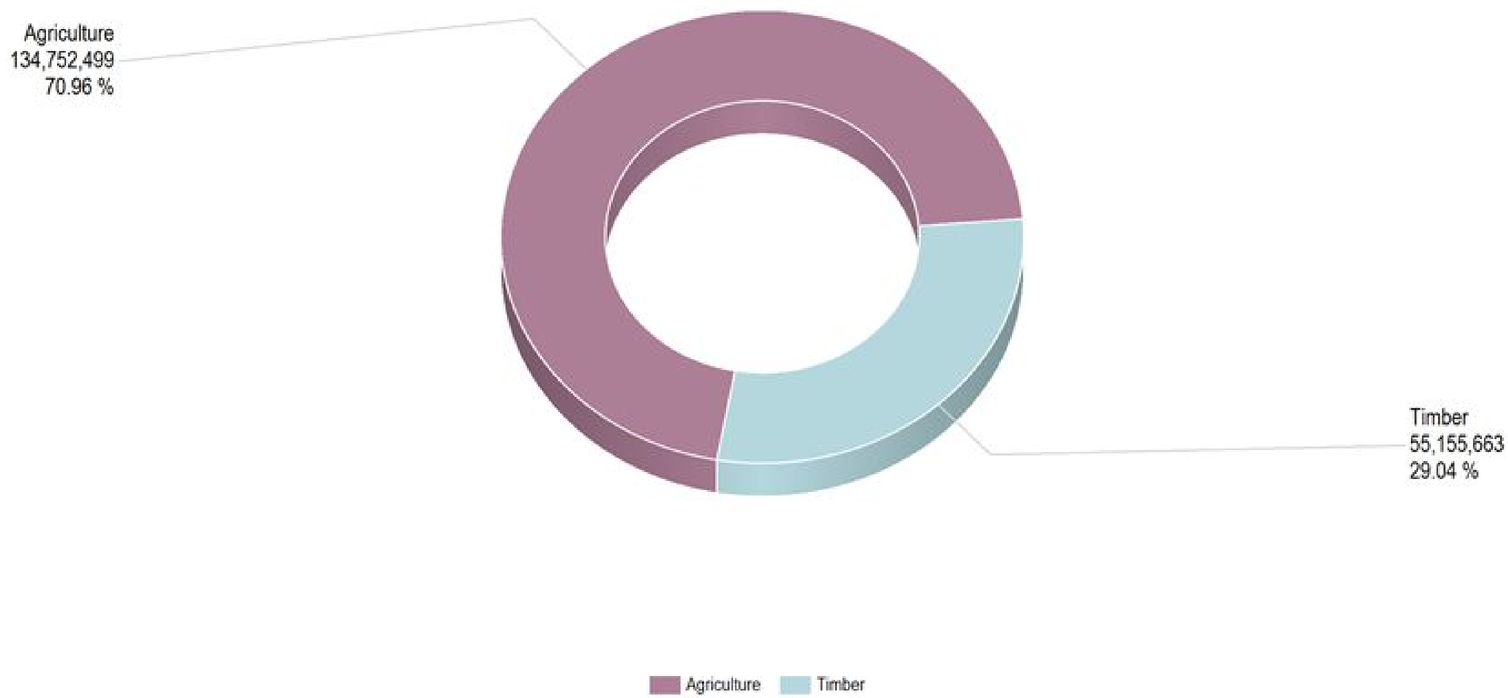
1. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

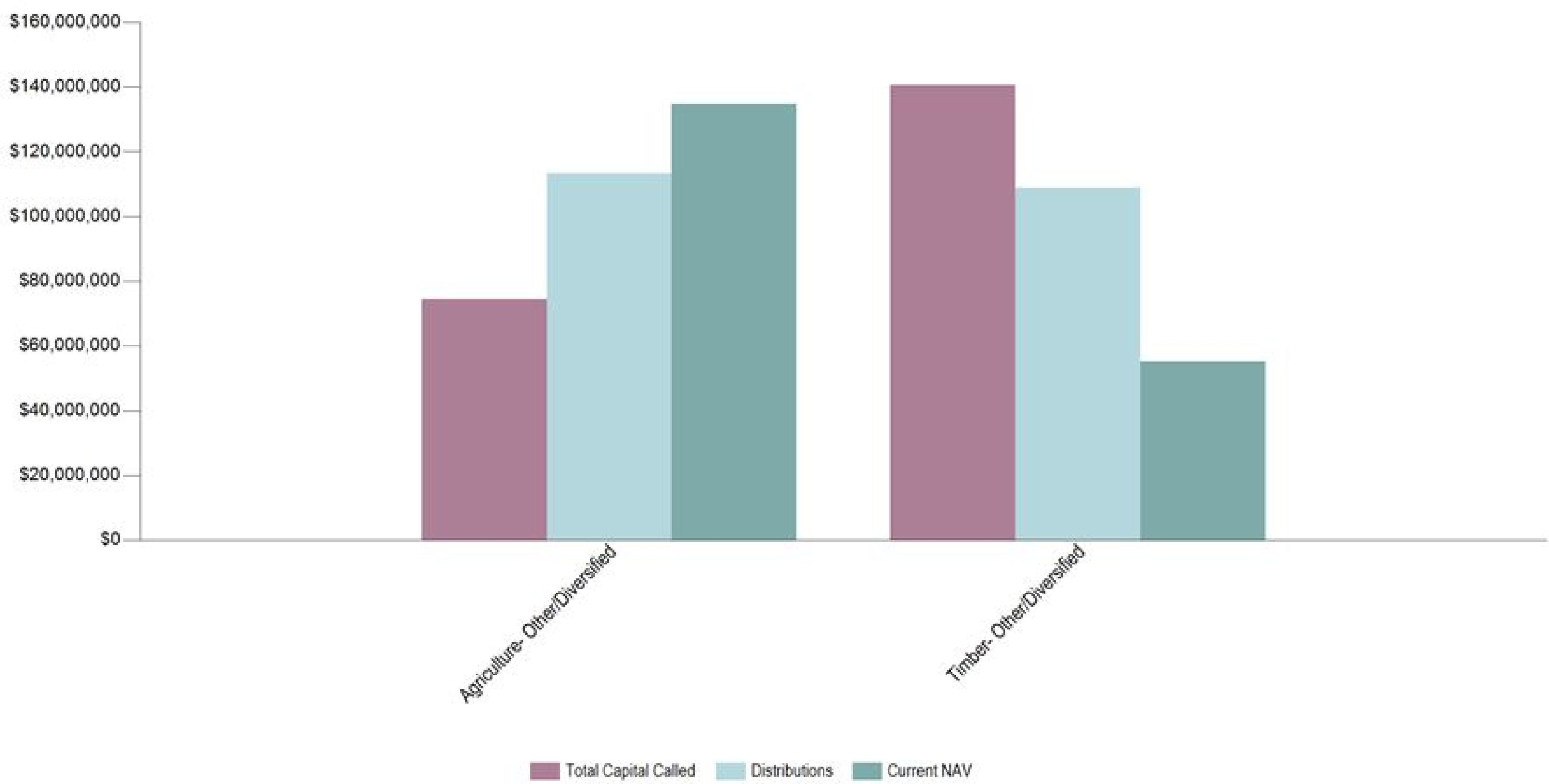
Natural Resources

As of March 31, 2018

Natural Resources Investments as of March 31, 2018
Market Value Allocation by Asset Class



Natural Resources Investments as of March 31, 2018
Total Capital Called, Distributions, and Current NAV by Strategy

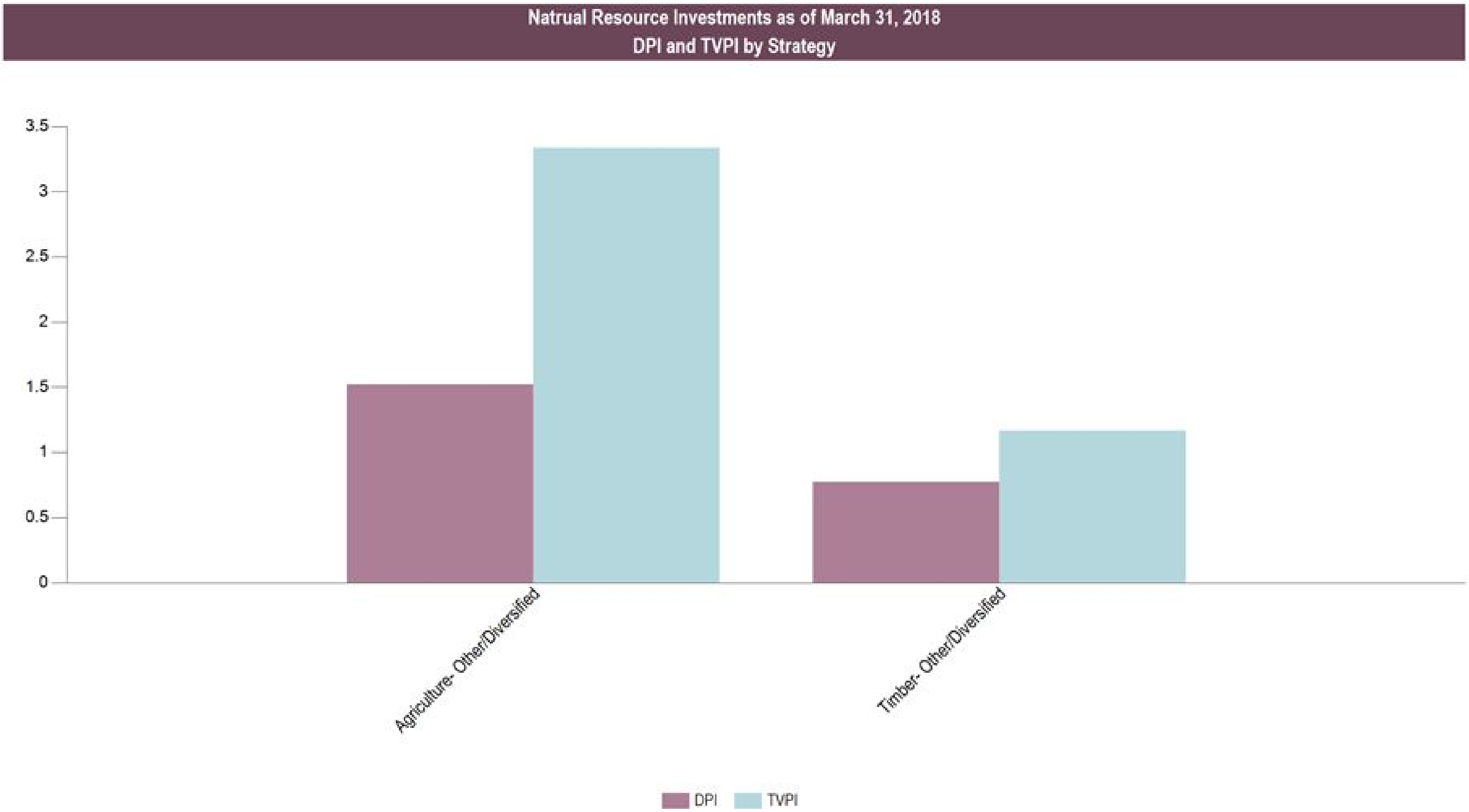


1. Timber 'Other/Diversified' is composed of domestic and global timber exposure.
2. Agriculture 'Other/Diversified' is composed of permanent and row crops exposure.
3. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Natural Resources

As of March 31, 2018



1. Timber 'Other/Diversified' is composed of domestic and global timber exposure.
2. Agriculture 'Other/Diversified' is composed of permanent and row crops exposure.
3. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Natural Resources

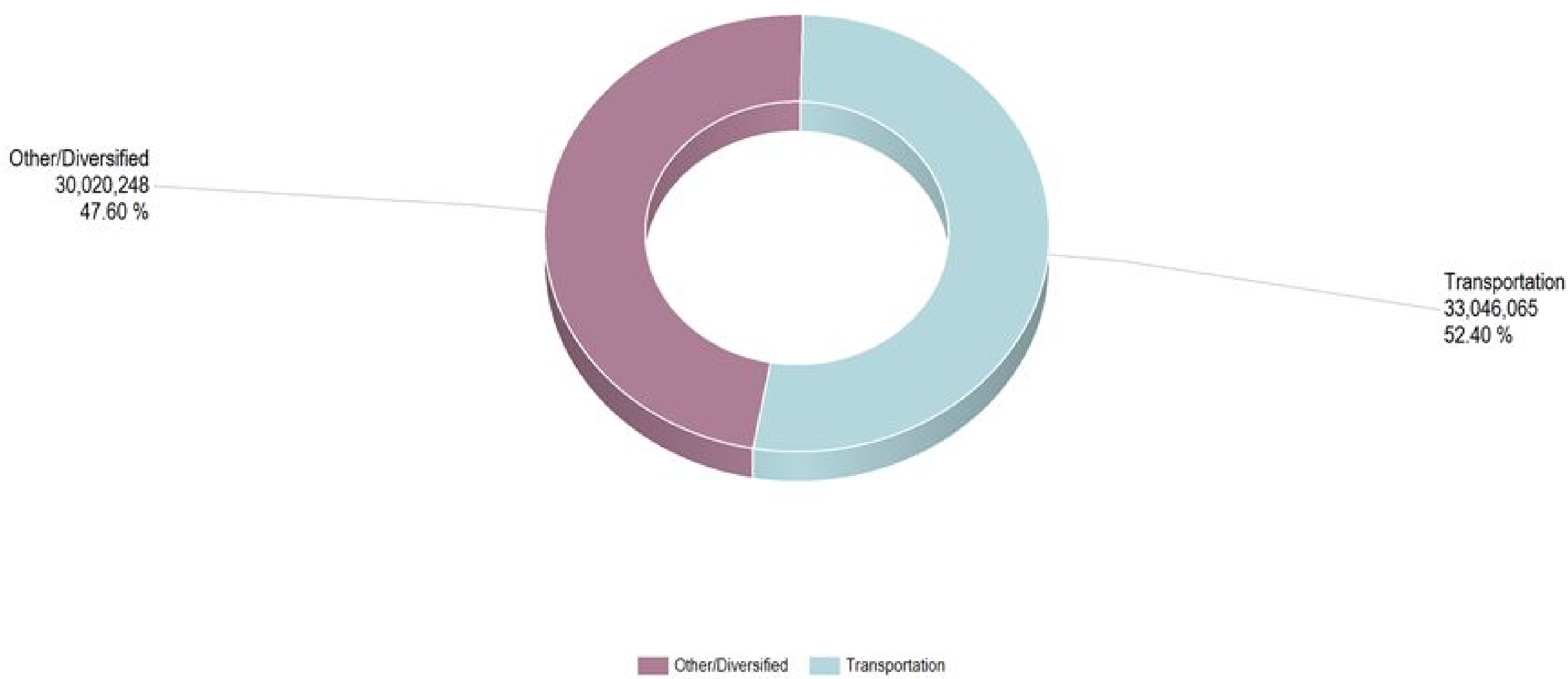
As of March 31, 2018

Natural Resource Investments Overview

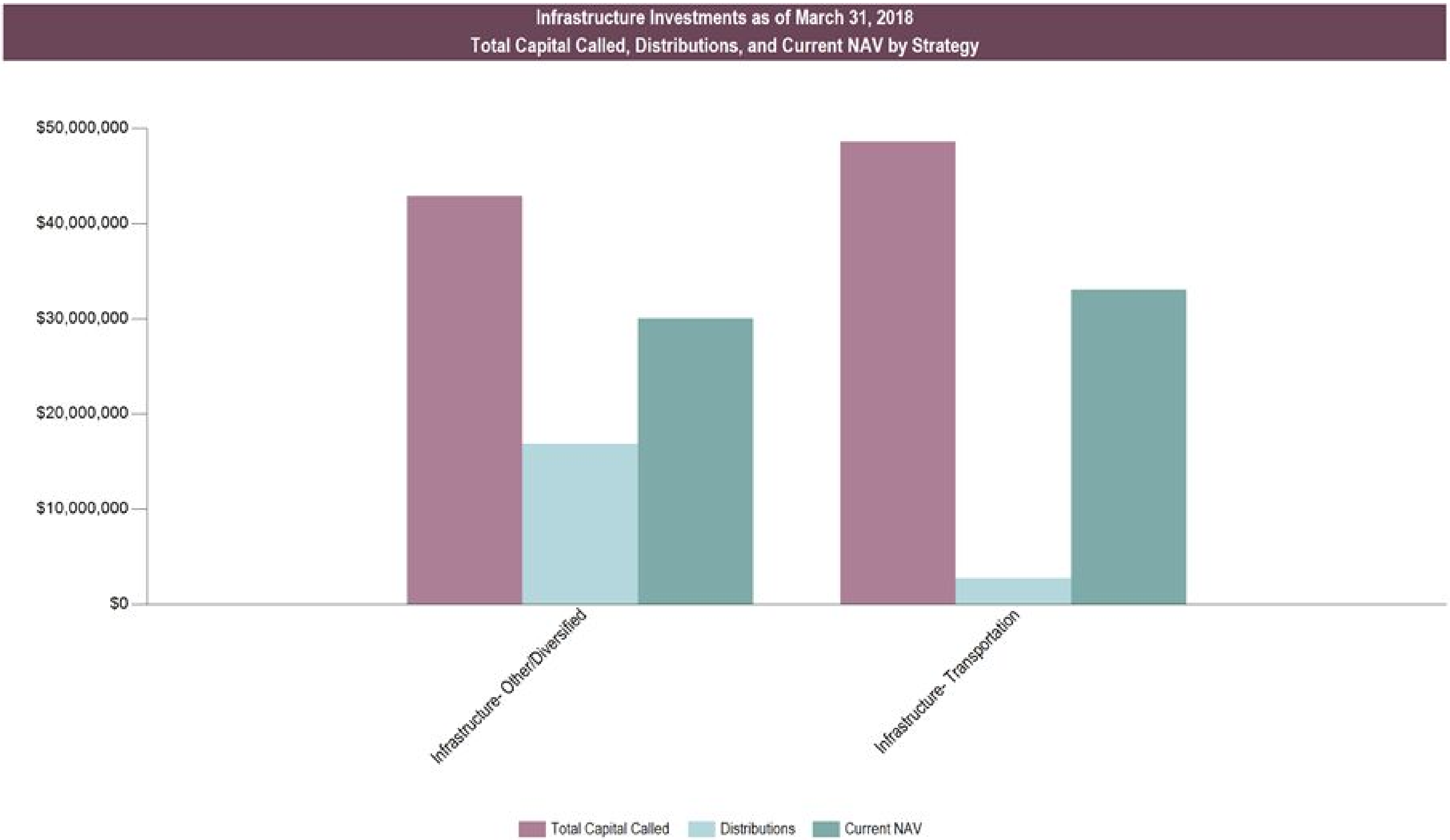
Active Funds		Commitments		Distributions & Valuations				Performance			
Investment Name	**Vintage Year**	**Commitment ($)**	**Paid In Capital ($)**	**Distributions ($)**	**Valuation ($)**	**Total Value ($)**	**Unrealized Gain/Loss ($)**	**Call Ratio**	**DPI**	**TVPI**	**IRR (%)**
Agriculture											
Hancock Agricultural	1998	74,420,001	74,420,001	113,359,132	134,752,499	248,111,631	173,691,630	1.00	1.52	3.33	15.52
Total Agriculture		**74,420,001**	**74,420,001**	**113,359,132**	**134,752,499**	**248,111,631**	**173,691,630**	**1.00**	**1.52**	**3.33**	**15.52**
Timber											
BTG Pactual	2006	80,107,009	80,824,669	16,000,000	38,981,320	54,981,320	-25,843,349	1.01	0.20	0.68	-5.78
Forest Investment Associates	1992	59,649,696	59,649,696	92,821,865	16,174,343	108,996,207	49,346,511	1.00	1.56	1.83	7.75
Total Timber		**139,756,705**	**140,474,365**	**108,821,865**	**55,155,663**	**163,977,527**	**23,503,163**	**1.01**	**0.77**	**1.17**	**2.87**
Total		**214,176,706**	**214,894,366**	**222,180,997**	**189,908,162**	**412,089,158**	**197,194,793**	**1.00**	**1.03**	**1.92**	**9.44**

1. Private markets performance reflected is composed of active investments only

Infrastructure Investments as of March 31, 2018
Market Value Allocation by Strategy



1'Other/Diversified' is composed of various operating and developing infrastructure project exposure

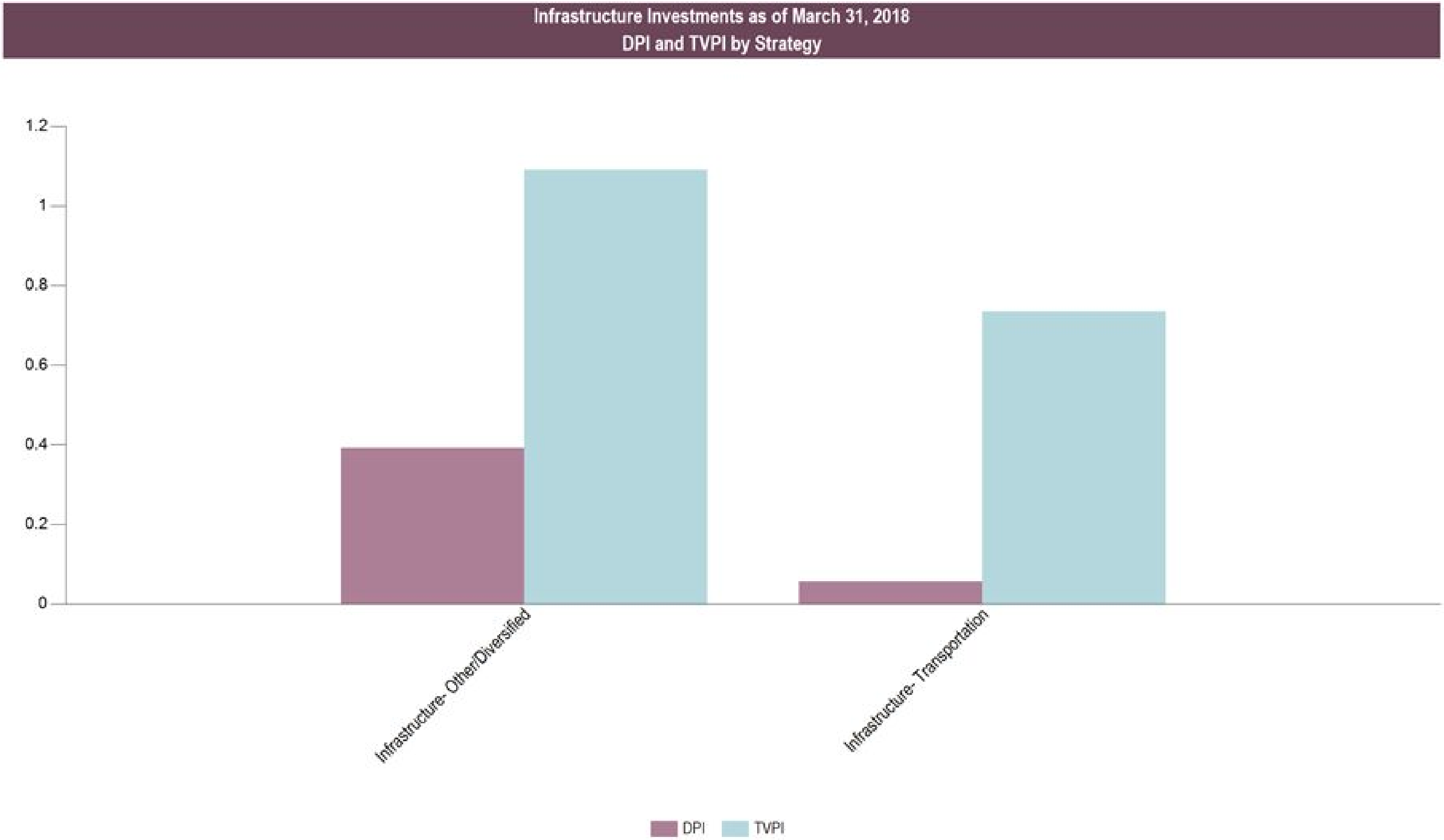


1'Other/Diversified' is composed of various operating and developing infrastructure project exposure
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Infrastructure

As of March 31, 2018



1'Other/Diversified' is composed of various operating and developing infrastructure project exposure
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Infrastructure

As of March 31, 2018

Infrastructure Investments Overview

Active Funds		Commitments		Distributions & Valuations				Performance			
Investment Name	Vintage Year	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Unrealized Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Infrastructure											
JP Morgan Asian Infrastructure	2008	37,000,000	35,895,156	16,714,775	25,426,863	42,141,638	6,246,482	0.97	0.47	1.17	2.72
JP Morgan Asian Infrastructure & Related resources II	2013	10,000,000	7,023,689	98,853	4,593,386	4,692,239	-2,331,450	0.70	0.01	0.67	-9.01
JP Morgan Maritime Fund, LP	2009	50,000,000	48,623,737	2,707,451	33,046,065	35,753,516	-12,870,221	0.97	0.06	0.74	-8.74
Total Infrastructure		**97,000,000**	**91,542,582**	**19,521,079**	**63,066,314**	**82,587,393**	**-8,955,189**	**0.94**	**0.21**	**0.90**	**-2.39**
Total		**97,000,000**	**91,542,582**	**19,521,079**	**63,066,314**	**82,587,393**	**-8,955,189**	**0.94**	**0.21**	**0.90**	**-2.39**

1. Private markets performance reflected is composed of active investments only

Private Markets Review
List of Completed Funds

Dallas Police & Fire Pension System

Private Markets Review

As of March 31, 2018

Total Real Assets Program[1]

Completed Funds	Vintage Year	Commitment Amount	Paid in Capital	Capital to be Funded	Addtnl Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI Ratio	TVPI Ratio	IRR
AEW Creative Holdings	2007	13,035,849	13,035,849	0	0	0	0	0	-13,035,849	0.00	0.00	N/A
BTG U.S. Timberland	2007	22,230,000	22,230,000	0	0	33,065,920	0	33,065,920	10,835,920	1.49	1.49	4.82%
CDK Multifamily I	2014	10,559,876	10,617,376	0	0	10,025,434	0	10,025,434	-591,942	0.94	0.94	-1.99%
Clarion 1210 South Lamar	2014	10,500,000	10,201,489	0	0	13,214,065	0	13,214,065	3,012,576	1.30	1.30	12.85%
Clarion 4100 Harry Hines Land	2006	3,088,810	3,092,788	0	0	3,641,946	0	3,641,946	549,158	1.18	1.18	1.69%
Clarion Beat Lofts	2005	8,729,783	8,730,183	0	0	1,137,817	0	1,137,817	-7,592,366	0.13	0.13	-30.76%
Clarion Four Leaf	2005	16,892,767	16,892,767	0	0	3,733,148	0	3,733,148	-13,159,619	0.22	0.22	-39.69%
Hearthstone Dry Creek	2005	52,303,043	52,303,043	0	0	8,973,059	0	8,973,059	-43,329,984	0.17	0.17	-38.78%
Hearthstone Nampa	2006	11,666,284	11,666,284	0	0	2,562,654	0	2,562,654	-9,103,630	0.22	0.22	-31.90%
JP Morgan Infrastructure Investments Fund	2007	37,000,000	37,000,000	0	-5,658	44,302,131	0	44,302,131	7,307,789	1.20	1.20	2.48%
L&B Realty Advsiors Beach Walk	2006	33,013,796	33,013,796	0	0	36,752,690	0	36,752,690	3,738,894	1.11	1.11	2.19%
L&B Realty Advisors KO Olina	2008	28,609,658	28,609,658	0	0	30,452,596	0	30,452,596	1,842,938	1.06	1.06	1.11%
L&B Realty Advisors West Bay Villas	2007	8,712,411	8,712,411	0	0	3,785,480	0	3,785,480	-4,926,931	0.43	0.43	-8.29%
LBJ Infrastructure Group Holdings, LLC (LBJ)	2009	50,000,000	44,346,229	0	0	77,892,000	0	77,892,000	33,545,771	1.76	1.76	12.77%
Lone Star Fund III (U.S.), L.P.	2000	20,000,000	19,827,576	0	0	40,701,250	0	40,701,250	20,873,674	2.05	2.05	31.88%
Lone Star Fund IV (U.S.), L.P.	2001	20,000,000	19,045,866	0	0	43,898,442	0	43,898,442	24,852,576	2.30	2.30	30.15%
Lone Star Fund V (U.S.), L.P.	2005	22,500,000	22,275,229	0	0	20,605,895	0	20,605,895	-1,669,334	0.93	0.93	-1.41%
Lone Star Fund VI (U.S.), L.P.	2008	25,000,000	20,034,018	0	0	31,712,968	0	31,712,968	11,678,950	1.58	1.58	21.76%
Lone Star Real Estate Fund (U.S.), L.P.	2008	25,000,000	20,743,769	0	0	25,403,707	0	25,403,707	4,659,938	1.23	1.23	5.15%
Lone Star Real Estate Fund II	2011	25,000,000	22,169,907	0	0	32,789,371	0	32,789,371	10,619,464	1.48	1.48	24.73%
Lone Star Real Estate Fund III	2014	25,000,000	23,490,784	0	0	26,638,028	0	26,638,028	3,147,244	1.13	1.13	8.20%
M&G Real Estate Debt Fund II	2013	29,808,841	21,523,663	0	0	17,088,107	0	17,088,107	-4,435,556	0.79	0.79	-15.04%
NTE 3a-3b	2012	50,000,000	23,794,565	0	0	28,186,978	0	28,186,978	4,392,413	1.18	1.18	16.03%
NTE Mobility Partners Holding, LLC (NTE)	2009	50,000,000	43,397,054	0	0	105,890,000	0	105,890,000	62,492,946	2.44	2.44	19.33%
Olympus II-Hyphen Solutions	2007	836,511	836,511	0	0	1,418,149	0	1,418,149	581,638	1.70	1.70	5.96%
P&F Housing IV	2006	134,015,889	134,015,889	0	0	83,179,802	0	83,179,802	-50,836,087	0.62	0.62	-8.44%
RREEF North American Infrastructure Fund	2007	50,000,000	50,000,000	0	846,289	55,238,755	0	55,238,755	4,392,466	1.09	1.09	12.59%
Sungate	2005	6,481,568	6,481,568	0	0	308,624	0	308,624	-6,172,944	0.05	0.05	-22.30%
Total Completed Funds		**789,985,087**	**728,079,272**	**0**	**840,631**	**782,599,016**	**0**	**782,599,016**	**53,679,113**	**1.07**	**1.07**	**1.73%**

[1] Data on Completed Funds as provided by former investment consultant.

Dallas Police & Fire Pension System

Private Markets Review

As of March 31, 2018

Private Equity & Debt Funds[1]

Completed Funds	Vintage Year	Commitment Amount	Paid in Capital	Capital to be Funded	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI Ratio	TVPI Ratio	IRR
Ashmore Global Special Situations Fund IV	2007	70,000,000	70,012,300	0	0	39,652,711	0	39,652,711	-30,359,589	0.57	0.57	-10.12%
BankCap Partners Opportunity Fund, LP	2013	20,000,000	19,587,052	0	0	18,266,454	0	18,266,454	-1,320,598	0.93	0.93	-5.69%
CDK Southern Cross	2008	1,535,316	1,535,316	0	0	0	0	0	-1,535,316	0.00	0.00	-20.08%
Highland Credit Ops	2006	35,348,165	35,348,165	0	0	29,994,190	0	29,994,190	-5,353,975	0.85	0.85	-2.06%
HM Capital Sector Performance Fund	2008	47,300,000	44,354,248	0	1,933,378	39,792,545	0	39,792,545	-6,495,081	0.86	0.86	-4.01%
Huff Alternative Income Fund	1994	40,000,000	40,000,000	0	2,018,676	66,940,198	0	66,940,198	24,921,522	1.59	1.59	17.82%
Kainos Capital Partners, L.P.	2013	35,000,000	30,316,015	0	0	43,263,688	0	43,263,688	12,947,673	1.43	1.43	24.76%
Levine Leichtman Capital Partners IV	2008	50,000,000	38,009,085	0	0	78,916,788	0	78,916,788	40,907,703	2.08	2.08	20.12%
Levine Leichtman Capital Partners V, L.P.	2013	25,000,000	19,181,272	0	-4,405	24,506,336	0	24,506,336	5,329,469	1.28	1.28	15.26%
Levine Leichtman Deep Value Fund	2006	75,000,000	75,000,000	0	11,025,662	88,688,224	0	88,688,224	2,662,562	1.03	1.03	0.73%
Levin Leichtman Private Capital Solutions II, L.P.	2012	25,000,000	17,961,807	0	-175	18,691,764	0	18,691,764	730,132	1.04	1.04	1.30%
Lone Star Fund IX (U.S.), L.P.	2014	35,000,000	24,241,467	0	0	23,459,730	0	23,459,730	-781,737	0.97	0.97	-3.28%
Lone Star Fund VII (U.S.), L.P.	2011	25,000,000	23,469,024	0	0	41,624,566	0	41,624,566	18,155,542	1.77	1.77	47.54%
Lone Star Fund VIII (U.S.), L.P.	2013	25,000,000	22,564,537	0	0	28,017,551	0	28,017,551	5,453,014	1.24	1.24	16.26%
Merit Energy Partners E-I	2004	7,018,930	7,031,052	0	-1,741	14,975,776	0	14,975,776	7,946,465	2.13	2.13	14.48%
Merit Energy Partners F-I	2005	8,748,346	8,749,275	0	0	3,801,206	0	3,801,206	-4,948,069	0.43	0.43	-17.19%
Merit Energy Partners G, LP	2008	39,200,000	39,320,050	0	0	26,756,651	0	26,756,651	-12,563,399	0.68	0.68	-9.96%
Merit Energy Partners H, LP	2010	10,000,000	10,033,415	0	0	6,870,451	0	6,870,451	-3,162,964	0.68	0.68	-13.78%
Oaktree Loan Fund 2X	2007	60,000,000	60,004,628	0	0	65,066,951	0	65,066,951	5,062,323	1.08	1.08	2.24%
Oaktree Power Fund III	2011	30,000,000	16,167,147	0	0	23,839,959	0	23,839,959	7,672,812	1.47	1.47	12.35%
Pharos Capital Co-Investment, LLC	2007	20,000,000	20,000,000	0	0	10,019,157	0	10,019,157	-9,980,843	0.50	0.50	-9.92%
Pharos Capital Co-Investment, LP	2008	40,000,000	40,000,000	0	0	67,459,271	0	67,459,271	27,459,271	1.69	1.69	8.42%
Pharos Capital Partners IIA, L.P.	2005	20,000,000	20,080,306	0	0	17,715,199	0	17,715,199	-2,365,107	0.88	0.88	-2.39%
Pharos Capital Partners III, LP	2012	50,000,000	28,397,038	0	-54,286	20,196,932	0	20,196,932	-8,145,820	0.71	0.71	-19.95%
Total Completed Funds		**794,150,757**	**711,363,200**	**0**	**14,917,109**	**798,516,299**	**0**	**798,516,299**	**72,235,990**	**1.10**	**1.10**	**2.76%**

[1] Data on Completed Funds as provided by former investment consultant.

Disclaimer

WE HAVE PREPARED THIS REPORT (THIS “REPORT”) FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE “RECIPIENT”).

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DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C5

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, September 13, 2018

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C6

Topic: **Investment Advisory Committee**

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.074 of the Texas Government Code.

Discussion: The Board will discuss possible candidates to serve on the Investment Advisory Committee

Staff Recommendation: **Appoint** members of the Investment Advisory Committee.

DISCUSSION SHEET

ITEM #C7

Topic: **Lone Star Investment Advisors Extension Request and Update**

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 term expires October 4, 2018. The General Partner has proposed a one-year extension to the fund term. Staff will update the Board regarding DPFP investment managed by Lone Star Investment Advisors and discuss extension options and ramifications.

Staff Recommendation: Staff will provide a recommendation at the Board meeting.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C8

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 approval of settlement in pay lawsuit cases, Eddington et al. v. DPFP et al., Degan et al. v. DPFP et al., USERRA contributions owed by the City of Dallas and potential claims against fiduciaries and other third party advisors including engaging counsel with respect thereto, settlement offers, 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.

Filed: 8/29/2018 11:24 AM
Lea Carlson,
District Clerk
Rockwall County, Texas

Sophia Clemon

Cause No. 1-95-107

GEORGE G. PARKER, JOE M. GUNN, STEPHEN W. TOTH, NATHAN L. TRAMMELL AND TODD A. STRATMAN, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS Defendant.	§	ROCKWALL COUNTY, TEXAS

Cause No. 1-95-506

DAVID S. MARTIN, JAMES A. BRADDOCK, OBIE CARTMILL, ROBERT DALE MARTIN AND O.J. (JAY) ADAIR, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS Defendant.	§	ROCKWALL COUNTY, TEXAS

SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is entered into this 29th day of August, 2018, among Plaintiffs George G. Parker, Joe M. Gunn, Stephen W. Toth, Nathan L. Trammell and Todd A. Stratman (on behalf of themselves and each of the Class Members in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 in the 382nd District Court of Rockwall County, Texas), Plaintiffs David S. Martin, James A. Braddock, Obie Cartmill, Robert Dale Martin and O.J. (Jay) Adair (on behalf of themselves and each of the Class Members in *David S.*

of Dallas, Cause No. 1-95-506 in the 382nd District Court of Rockwall County, Texas), Defendant the City of Dallas, Intervenor Dallas Police and Fire Pension System, and Third-Party Defendants, Mike Rawlings, Scott Griggs, Adam Medrano, Casey Thomas II, Carolyn King Arnold, Rickey D. Callahan, Monica R. Alonzo, Tiffinni A. Young, Erik Wilson, Mark Clayton, B. Adam McGough, Lee Kleinman, Sandy Greyson, Jennifer S. Gates, Philip T. Kingston, and A.C. Gonzalez for the mutual consideration and purposes expressed herein. This Agreement is intended by the Parties (as defined below) to fully, finally, and forever resolve, discharge, and settle the Released Claims (as defined below) upon and subject to the terms and conditions herein.

I. DEFINITIONS

As used in this Agreement, the following terms have the meanings specified below:

1.1 "Agreement" shall have the meaning set forth in the introductory paragraph of this document.

1.2 "Authorized Claimant" means any Class Member whose claim for recovery has been allowed pursuant to the terms of this Agreement and approved by the Court.

1.3 "Bonds" means the refunding bonds issued by the City to fund the Settlement Amount.

1.4 "Bond Covenants" means the covenants that are required in connection with the issuance of the Bonds.

1.5 "City" or "Defendant" means the City of Dallas, a Texas municipal corporation, and its current and former City Council members, representatives, officials, officers, employees, agents, boards, commissions, departments, attorneys, and anyone acting by or for it or them.

1.6 "City Officials" mean any current or former City councilmembers, mayors, and city managers, including but not limited to Third-Party Defendants Mike Rawlings, Scott Griggs, Adam Medrano, Casey Thomas II, Carolyn King Arnold, Rickey D. Callahan, Monica R. Alonzo, Tiffinni A. Young, Erik Wilson, Mark Clayton, B. Adam McGough, Lee Kleinman, Sandy Greyson, Jennifer S. Gates, Philip T. Kingston, and A.C. Gonzalez, and their representatives, agents, attorneys, and anyone acting by or for them.

1.7 "Class Certification Orders" means the *Order Certifying Class* signed by the Court on August 17, 1995 in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 and the *Order Certifying Class* signed by the Court on July 22, 1996 in in *David S. Martin et al. v. City of Dallas*, Cause No. 1-95-506.

1.8 "Class Counsel" means Ted B. Lyon & Associates, P.C., Lyon, Gorsky & Gilbert, LLP, and Robert Lyon & Associates.

1.9 "Class Distribution Order" means the first order entered by the Court authorizing and directing that the Net Settlement Fund be distributed, in whole or in part, to the Authorized Claimants.

1.10 "Classes" or "Certified Classes" mean the Police Class and Fire Class collectively.

1.11 "Claimant" means any Class Member who files a Claim Form in such form and manner, and within such time, as the Court shall prescribe.

1.12 "Claim" means any and all manner of claims, including Unknown Claims as defined in ¶1.48, released by this Agreement.

1.13 "Claims Administrator" means Matthew Frazier of Archer Systems, LLC, the third-party claims administrator who has been selected by Class Counsel and approved by counsel for the City and the Court, and any successor claims administrator in the event

Mathew Frazier of Archer Systems, LLC can no longer serve as claims administrator and the successor claims administrator shall be selected by Class Counsel and approved by counsel for the City (which approval will not be unreasonable withheld) and the Court.

1.14 "Claim Form" shall have the meaning set forth in ¶3.1 of this Agreement and attached as **Exhibit A** entitled *Proof of Claim, Acknowledgements, and Release of Claims*.

1.15 "Class Member" means a Person who falls within the definition of one of the Certified Classes.

1.16 "Class Period" means the period of time between March 22, 1991, through September 1, 2016, for the Police Class and November 28, 1991, through September 1, 2016, for the Fire Class.

1.17 "Court" means the 382nd Judicial District Court in Rockwall County, Texas.

1.18 "DPFPS" or "Intervenor" means Intervenor Dallas Police & Fire Pension System and its current and former members, representatives, officials, officers, employees, agents, boards, commissions, departments, attorneys, and anyone acting by or for it or them.

1.19 "Effective Date" means the date by which all the events and conditions specified in ¶7.1 of this Agreement have been met and have occurred.

1.20 "Fee and Expense Application" shall have the meaning set forth in ¶6.1 of this Agreement.

1.21 "Fee and Expense Award" shall have the meaning set forth in ¶5.2 of this Agreement.

1.22 "Final" means when the last of the following with respect to the Judgment shall have occurred: (i) the expiration of the time to file a motion to alter or amend the Judgment under Texas Rules of Civil Procedure has passed without any such motion having been filed; (ii) the expiration of the time in which to appeal the Judgment has passed without any appeal having been taken, which date shall be deemed to be thirty (30) days following the entry of the Judgment, unless the date to take such an appeal shall have been extended by Court order or otherwise, or unless the 30th day falls on a weekend or a Court holiday, in which case the date for purposes of this Agreement shall be deemed to be the next business day after such 30th day; and (iii) if such motion to alter or amend or for reconsideration is filed, or if an appeal is taken, the determination of that motion or that appeal in such a manner that affirms and leaves in place the Judgment without any material modification substantially in accordance with the terms and conditions of this Agreement, and the time, if any, for commencing any further motion or appeal has expired. For purposes of this paragraph, an "appeal" shall include any petition for a review or other writ that may be filed in connection with approval or disapproval of this Agreement.

1.23 "Final Approval Hearing" shall have the meaning set forth in ¶3.2 of this Agreement.

1.24 "Fire Class" means all Persons (including, as to all such persons, their beneficiaries) who were employed as members of the sworn ranks of the Dallas Fire-Rescue Department f/k/a Dallas Fire Department (the "Dallas Fire-Rescue Department") from November 28, 1991 through September 1, 2016. Excluded from the Fire Class definition are those Persons who were plaintiffs in the Related Cases. Also excluded from the Fire Class definition are those Persons who timely and validly requested exclusion from the Fire Class in 1996. Also excluded from the Fire Class definition are those Persons who timely and validly requested exclusion from the Fire Class pursuant to the Notice.

1.25 "Incentive Compensation Award" means one hundred thousand dollars from the Settlement Fund.

1.26 "Judgment" means the final order and judgment approving the Settlement and dismissing DPFPS' claims with prejudice against the City Officials, to be entered by the Court substantially in the form attached as **Exhibit B** entitled *Agreed Final Judgment*. The Judgment shall, among other things:

(a) find that the Court has subject matter jurisdiction to approve the Agreement and enter the Judgment;

(b) approve the Agreement as fair, reasonable and adequate as to, and in the best interests of, the Class Members; direct the Parties and their counsel to implement and consummate the Agreement according to its terms and provisions; and declare the Agreement to be binding on the Parties related to the Released Claims;

(c) find that Plaintiffs are not entitled to attorneys' fees, interest, fees or costs to any Party except as provided for in this Agreement;

(d) incorporate the release set forth herein and forever discharge the Released Parties as set forth herein;

(e) permanently bar and enjoin all Class Members who have not opted out from appealing, filing, commencing, prosecuting, intervening in or participating in, any lawsuits or other action in any jurisdiction based on the Released Claims; and

(f) incorporate any other provisions as the Court or any of the Parties deem necessary and just.

1.27 "Lawsuits" mean the following lawsuits currently pending in the 382nd District Court of Rockwall County, Texas: *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 and *David S. Martin et al. v. City of Dallas*, Cause No. 1-95-506.

1.28 "Litigation Expenses" means those costs and expenses the Court determines were reasonably and necessarily incurred by Class Counsel in order to prosecute the Lawsuits.

1.29 "Net Settlement Fund" means the balance of the Settlement Fund after the payment of items (a) through (b) of ¶5.2 of this Agreement.

1.30 "Notice" shall have the meaning set forth in ¶3.1 of this Agreement and attached as **Exhibit C** entitled *Notice of Pendency of Class Actions and Proposed Settlement, Motion for Attorneys' Fees and Settlement Hearing*.

1.31 "Ordinance" means Dallas Ordinance No. 16084, which adopted the Referendum.

1.32 "Parties" means the Plaintiffs (on behalf of themselves and each of the Class Members), the City, the City Officials, and DPFPS.

1.33 "Person" means an individual, estate, legal representative, trust, unincorporated association, government, or any political subdivision or agency thereof, and any entity, including any legal entity, and, as to each of the foregoing, their spouses, heirs, predecessors, successors, representatives, or assignees.

1.34 "Plaintiffs" mean Class Representatives George G. Parker, Joe M. Gunn, Stephen W. Toth, Nathan L. Trammell and Todd A. Stratman (on behalf of themselves and each of the Class Members in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 in the 382nd District Court of Rockwall County, Texas) and Class Representatives David S. Martin, James A. Braddock, Obie Cartmill, Robert Dale Martin and O.J. (Jay) Adair (on behalf of themselves and each of the Class Members in *David S. Martin et al. v. City of Dallas*, Cause No. 1-95-506 in the 382nd District Court of Rockwall County, Texas).

1.35 "Plan of Allocation" means a plan or formula of allocation of the Settlement Fund proposed by Class Counsel and approved by the Court and set forth in the Notice, whereby the Settlement Fund shall be distributed to Authorized Claimants after the expiration of all applicable time periods in this Agreement and described in the Notice.

1.36 "Police Class" means all Persons (including, as to all such persons, their beneficiaries) who were employed as members of the sworn ranks of the Dallas Police Department from March 22, 1991 through September 1, 2016. Excluded from the Police Class definition are those Persons who were plaintiffs in the Related Cases. Also excluded from the Police Class definition are those Persons who timely and validly requested exclusion from the Police Class in 1995. Also excluded from the Police Class definition are those Persons who timely and validly requested exclusion from the Police Class pursuant to the Notice.

1.37 "Preliminary Approval Order" means the preliminary order issued by the Court for mailing and publication as defined in ¶3.1 of this Agreement and substantially in the form attached as **Exhibit D**.

1.38 "Referendum" means the 1979 voter referendum that is the subject of the Lawsuits.

1.39 "Related Cases" mean the following lawsuits filed in the 199th District Court of Collin County, Texas: *Kenneth E. Albert et al. v. City of Dallas*, Cause No. 199-00697-94, *Anthony Arredondo et al. v. City of Dallas*, Cause No. 199-01743-99, *David L. Barber et al. v. City of Dallas*, Cause No. 199-00624-95 and *Kevin Michael Willis et al. v. City of Dallas*, Cause No. 199-00200-95.

1.40 "Released Claims" shall mean all claims released in Sections 4.1 through 4.8 of this Agreement, including but not limited to, any and all complaints, claims, third-party claims, cross-claims, counterclaims, demands, liabilities, obligations, promises, agreements, controversies, actions, causes of action, suits, rights, damages, costs, losses, debts, charges, and expenses (including Unknown Claims and attorneys' fees, expert fees, and disbursements of counsel and other professionals) of any and every nature whatsoever, whether in law or in equity, whether arising under federal, state, local, or common law or any other law, rule, or regulation, whether currently known or unknown, suspected or unsuspected, foreseen or unforeseen, ripened or unripened, accrued or unaccrued, or matured or not matured, whether arising in equity or under the law of contract, tort, malpractice, statutory breach, or any other legal right or duty, whether direct, derivative, individual, representative, or in any other capacity, and to the fullest extent that the law permits their release in the Lawsuits, that Plaintiffs or Class Counsel, or any other member of the Certified Classes (a) asserted in the operative Petition or any other pleadings or briefs filed in the Lawsuits, (b) could have asserted from the beginning of time to the end of time in any forum that arise out of, relate to, are connected with, or are in any way based upon the allegations, transactions, facts, matters, occurrences, representations, or omissions involved, set forth, or referred to in the operative petition or any other pleadings or briefs filed by any party in either of the Lawsuits, the Parker and Martin Class Certification Orders, or (c) directly or indirectly arising from, growing out of, or related to the Referendum or the Ordinance.

1.41 "Released Persons" mean each and all of the City, the City Officials, and DPFPS.

1.42 "Settlement" means the settlement embodied in this Agreement.

1.43 "Settlement Account" means the account in which the Settlement Fund is deposited on a basis consistent with the Bond Covenants.

1.44 “Settlement Amount” means the sum of One Hundred Seventy-Three Million, Three Hundred Twelve Thousand, Five Hundred Dollars ($173,312,500.00) in cash. The Settlement Amount represents the maximum amount of the City’s monetary obligations under this Agreement.

1.45 “Settlement Fund” means the Settlement Amount to be deposited into the Settlement Account, pursuant to this Agreement.

1.46 “Settling Parties” mean Plaintiffs (on behalf of themselves and the Class Members), the City, City Officials, and DPFPS, who have signed this Agreement by and through their respective counsel.

1.47 “Summary Notice” shall have the meaning set forth in ¶3.1 of this Agreement and attached as **Exhibit E**.

1.48 “Unknown Claims” means any and all Claims that any Plaintiff or any Class Member does not know or suspect to exist in his, her, or its favor at the time of the release of the Released Persons that, if known, might have affected his, her, or its decision(s) with respect to this Agreement or any of the terms hereof, or might have affected the decision by any Class Member with respect to this Settlement, including not to object to this Settlement or not to opt out from the Class, including any and all Claims described in ¶4.1 of this Agreement.

II. LITIGATION

Plaintiffs’ Allegations.

Plaintiffs allege that the City violated the Ordinance by failing to maintain the percentage pay differentials in the pay schedules among the sworn ranks of the Dallas Police Department and Dallas Fire-Rescue Department in the late 1970s through the present.

Procedural History.

These are two of the longest running (if not the longest) class action lawsuits in U.S. history. The original petition in the Police Class was filed on March 22, 1995. The original petition in the Fire Class was filed on November 28, 1995.

As discovery was underway, Plaintiffs moved to certify the classes for all current and future sworn officers of the Dallas Police Department and Dallas Fire-Rescue Department. The City agreed. The *Order Certifying Class* in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 was signed by the Court on August 17, 1995. The *Order Certifying Class* in *David S. Martin et al. v. City of Dallas*, Cause No. 1-95-506 was signed by the Court on July 22, 1996.

Discovery began in 1995 and has continued up until the Lawsuits were abated during the pending appeal. The four Related Cases pending in Collin County, Texas are excluded from the Lawsuits. Those cases involve direct claims filed by approximately 1,680 sworn officers of the Dallas Police Department and Dallas Fire-Rescue Department against the City. The claims in the Related Cases are the same claims made in the Lawsuits. The Related Cases were filed by an attorney in Collin County who has since passed away. Several different law firms represented the 1,680 officers in the Related Cases. Each of the officers in the Related Cases contributed cash up front in 1994-1995 (over $200 each) to cover costs of the litigation and remained obligated under their agreements to pay case expenses over the past twenty-five years. None of the Plaintiffs or Class Members were required to pay cash up front nor have they been obligated to fund the Lawsuits during the past twenty-five years because Class Counsel has continued to advance those costs. In recent years, in anticipation of trial, after multiple trips to various appeals courts, the Plaintiffs pursued data necessary to calculate Plaintiffs' alleged damages. Models were developed using millions of data points to calculate alleged pay differentials and losses.

The City has appealed pre-trial rulings in the Lawsuits on several occasions. With the most recent appeal, the Lawsuits at the trial court were stayed (no action could be taken other than actions in the appellate court). Most recently, the Lawsuits have been briefed in the Texas Supreme Court to consider whether the Lawsuits should be dismissed for want of jurisdiction in favor of the City. If the Texas Supreme Court grants review, there is a possibility the City would win that argument, in which case Plaintiffs and the Class Members would receive nothing. In the event that Plaintiffs prevail in this appeal, the Lawsuits would be remanded, eventually, to the trial court for trial. To date, there has never been a trial involving the Lawsuits or the Related Cases. In order to begin the process to settle the Lawsuits, the City filed a motion to abate the appeal and Class Counsel and counsel for DPFPS did not oppose the motion.

The City's denial of wrongdoing and liability.

The City has denied, and continues to deny, all claims and contentions alleged by Plaintiffs in the Lawsuits and maintains that it has meritorious defenses. The City has expressly denied and continues to deny all charges of wrongdoing or liability against it arising out of any of the conduct, statements, acts, or omissions alleged or that could have been alleged, in the Lawsuits. The City has also denied and continues to deny, *inter alia*, that the City engaged in any conduct that was subject to or violated the Referendum or the Ordinance, that Plaintiffs and the Classes have suffered damages, and that Plaintiffs and the Classes were harmed by the conduct alleged in the operative petitions.

Nonetheless, the City has concluded that the continuance of the Lawsuits would be protracted and expensive and has considered the uncertainty and risks inherent in any litigation (including serious financial consequences), especially in complex cases like the Lawsuits. The City has determined that it is desirable, beneficial, and in the best interests of the public to settle the Lawsuits in the manner and upon the terms and conditions set for in this Agreement. As set forth below in ¶¶8.1-8.2 of this Agreement, neither this Agreement nor any act performed or document executed pursuant to or in furtherance of this Agreement or the Settlement shall constitute an admission or finding of any wrongful conduct, act, or omission.

The City Officials' denial of wrongdoing and liability.

The City Officials' have denied, and continue to deny, all claims and contentions alleged by DPFPS in the Lawsuits and maintain that they have meritorious defenses. The City Officials have expressly denied and continue to deny all charges of wrongdoing or liability against them arising out of any of the conduct, statements, acts, or omissions alleged or that could have been alleged, in the Lawsuits. The City Officials have also denied and continue to deny, *inter alia*, that they engaged in any conduct that was subject to or violated the Referendum or the Ordinance, that DPFPS has suffered damages, and that DPFPS was harmed by the conduct alleged in the operative petitions and/or petitions in intervention.

Settlement in the Related Cases.

Late in 2017, on the eve of the first trial in one of the Related Cases, a settlement in principal was reached in the all of the Related Cases. A settlement agreement was signed by all of the plaintiffs, either individually or through powers of attorney, in the Related Cases in the spring of 2018, and the district court signed Final Judgments in each of the Related Cases on June 8, 2018. In August 2018, a bond offering was used to fund the Final Judgments in the Related Cases and payouts have been made to counsel of record and the four unrepresented plaintiffs in those cases. To calculate the recovery for each of the 1,680-plus plaintiffs in the Related Cases, plaintiffs' counsel in those cases turned to Class Counsel to use the model developed in the Lawsuits. Using the same model that Class Counsel proposes to use for this Settlement, the plaintiffs in the Related Cases individually approved the use of that model. Due to the number of plaintiffs in the Related Cases, the settlement agreement in the Related Cases is over 1,700 pages, mostly consisting of individual signature pages.

III. BENEFITS OF SETTLEMENT

Plaintiffs and Class Counsel (i) believe that the claims asserted in the Lawsuits have merit; (ii) recognize and acknowledge the expense and length of continued proceedings necessary to prosecute the Lawsuits through trial and possible appeals; (iii) have considered the uncertain outcome and the risk of any litigation, especially complex litigation involving novel issues such as those raised in the Lawsuits; (iv) have considered the inherent difficulties and delays in prosecuting the Lawsuits; (iv) are mindful of the inherent problems of proof and the possible defenses to the alleged Ordinance violations asserted in the Lawsuits and based on their evaluation, believe the Settlement set forth in this Agreement is fair, reasonable, adequate, and confers substantial benefits upon and is in the best interests of the Classes.

Intervenor has concluded that dismissal of its claims against the City Officials with prejudice is warranted based on this Agreement between the Parties.

IV. THE AGREED TERMS FOR SETTLEMENT

1. The Agreement.

NOW, THEREFORE, IT IS HEREBY STIPULATED AND AGREED by and among the Plaintiffs (for themselves and each of the Class Members), the City, the City Officials, and DPFPS, by and through their counsel, that, subject to Court approval and entry of the Judgment, and in consideration of the payment of the Settlement Amount by the City, the mutual covenants, warranties, releases, promises, and agreements stated in this Agreement, and other good and valuable consideration, the receipt and sufficiency of which are acknowledged, the Lawsuits and the Released Claims shall be finally and fully compromised, settled, and released, upon and subject to the terms and conditions of this Agreement, as follows.

2. The Settlement.

a. The Settlement Fund.

2.1 No later than ten (10) business days after the Preliminary Approval Order is issued by the Court, the City shall begin the process to issue the Bonds to pay the Settlement Amount and shall thereafter diligently pursue all reasonable efforts to receive from the sale of the Bonds the amount of money needed to pay the Settlement Amount. The City's obligation to fully fund the Settlement Amount contemplated by this Agreement shall not be affected by any shortfall in the amounts received by the City from the sale of the Bonds. However, the Bonds will not be issued or sold until all the events and conditions specified in ¶7.1 of this Agreement have been met and have occurred.

2.2 Subject to the terms of this Agreement, the City shall pay or cause to be paid the Settlement Amount into the Settlement Account within fifteen (15) business days after the date the City receives the funds from the sale of the Bonds.

2.3 The Settlement Fund shall only be used to pay claims and the expenses authorized by this Agreement and approved by the Court since any other payment would be an illegal gift of funds in violation of the Texas Constitution and a violation of the Bond Covenants.

2.4 Except for the City making the payment of the Settlement Amount in the manner and at the time expressly stated in this Agreement, the City shall have no further or other responsibility for or incur any liability whatsoever, or to make any additional payments, including but not limited to, pension payments, or to take any other employment related action, including but not limited to salary adjustments, promotions, maintaining salary differentials, sick leave, vacation leave, or any other type of leave, to any Person, including, but not limited to, Plaintiffs, any of the Class Members or putative Class Members, Class Counsel, or any counsel to any of the Class Members with respect to the Settlement Fund. No post-judgment interest is owed on the Settlement Amount.

2.5 The Parties expressly acknowledge and agree that the payment of the Settlement Amount and distributions to the Class Members shall not give rise to any obligations to make pension contributions to DPFPS or to any obligations by DPFPS to make any adjustments to pension accounts or payments to the Class Members or their beneficiaries or otherwise affect DPFPS pension obligations to the Class Members or their beneficiaries.

b. The Claims Administrator.

2.6 Upon receiving the Settlement Amount in the Settlement Account, the Claims Administrator shall distribute the Net Settlement Fund (as defined below) in accordance with the Court approved Plan of Allocation without further order of the Court.

2.7 All funds held by the Claims Administrator shall be deemed and considered to be *in custodia legis* of the Court and shall remain subject to the jurisdiction of the Court until such time as such funds shall be distributed pursuant to this Agreement and/or further order(s) of the Court.

2.8 The City and DPFPS shall not have any responsibility for or incur any liability whatsoever to any person, including, but not limited to, Plaintiffs, any of the Class Members, Class Counsel, or any counsel to any of the Class Members with respect to: any act, omission, or determination of or by the Claims Administrator, or any designees or agents thereof; the Settlement Account; the administration of, distribution of, or disbursement from the Settlement Account; the Settlement Fund; the administration of, distribution of, or disbursement from the

Settlement Fund; the Net Settlement Fund; or the administration of, distribution of, or disbursement from the Net Settlement Fund; or the payment of taxes.

2.9 No portion of the Settlement Fund shall be disbursed except as provided in this Agreement, as provided by an order of the Court, or with written agreement with undersigned counsel to the City.

c. Qualified Settlement Fund

2.10 The Settlement Fund will be treated at all times a "qualified settlement fund" within the meaning of Treas. Reg. §1.468B-1. In addition, the Claims Administrator shall timely make such elections as necessary or advisable, including the "relation-back election" (as defined in Treas. Reg. §1.468B-1) back to the earliest permitted date. Such elections shall be made in compliance with the procedures and requirements contained in such regulations. It shall be the responsibility of the Claims Administrator to timely and properly prepare and deliver the necessary documentation for signature by all necessary parties, and thereafter to cause the appropriate filing to occur.

2.11 For the purpose of Section 468B of the Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder, the "administrator" shall be the Claims Administrator. The Claims Administrator shall timely and properly file all informational and other tax returns necessary or advisable with respect to the Settlement Fund (including, without limitation, the returns described in Treas. Reg. §1.468B-2(k)). Such returns shall reflect that all taxes (including any estimated taxes, interest or penalties) on the income earned by the Settlement Fund shall be paid out of the Settlement Fund as provided in ¶2.12 of this Agreement.

2.12 All taxes (including any estimated taxes, interest, or penalties) arising with respect to the income earned by the Settlement Fund, including: (i) any taxes or tax detriments that may be imposed upon the Released Persons with respect to any income earned by the Settlement Fund for any period during which the Settlement Fund does not qualify as a "qualified settlement fund" for federal or state income tax purposes ("Taxes"); and (ii) expenses and costs incurred (including, without limitation, expenses of tax attorneys and/or accountants and mailing and distribution costs and expenses relating to filing (or failing to file) tax returns) ("Tax Expenses"), shall be paid out of the Settlement Fund.

2.13 In no event shall the Released Persons have any responsibility for or liability with respect to the Taxes or the Tax Expenses. The Claims Administrator (through the Settlement Fund) shall indemnify the Released Persons for all Taxes or tax detriments that may be imposed upon the Released Persons with respect to any income earned by the Settlement Fund. Without limiting the foregoing from the Settlement Fund, the Claims Administrator shall reimburse the Released Persons within ten days of written demand jointly submitted by Class Counsel and the City's counsel for any such Taxes to the extent they are imposed on the Released Persons for a period during which the Settlement Fund does not qualify as a "qualified settlement fund." All amounts payable pursuant to ¶¶2.12-2.13 shall be paid from the Settlement Fund subject to order by the Court.

2.14 Further, Taxes and Tax Expenses shall be treated as, and considered to be, a cost of administration of the Settlement Fund and shall be timely paid by the Claims Administrator out of the Settlement Fund without prior order from the Court, and the Claims Administrator shall be obligated (notwithstanding anything herein to the contrary) to withhold from distribution to Authorized Claimants any funds necessary to pay such amounts including the establishment of adequate reserves for any Taxes and Tax Expenses (as well as any amounts that may be required to be withheld under Treas. Reg. §1.468B-2(1)(2)). The Parties hereto agree to cooperate with the Claims Administrator, each other, and their tax attorneys and accountants to the extent reasonably necessary to carry out the provisions of ¶¶2.10 to 2.13 of this Agreement.

2.15 For the purpose of ¶¶2.10 to 2.12 of this Agreement, references to the Settlement Fund shall include the Settlement Fund and the Net Settlement Fund and shall also include any earnings on each of the foregoing.

3. Preliminary Approval Order and Final Approval Hearing.

3.1 Within ten (10) days or as soon as practical after execution of this Agreement, Plaintiffs shall submit this Agreement to the Court and shall apply for entry of the Preliminary Approval Order (**Exhibit D**), requesting, *inter alia*, the preliminary approval of the Settlement set forth in this Agreement and approval for mailing the Notice (**Exhibit C**), mailing the Claim Form (**Exhibit A**), and publication of the Summary Notice (**Exhibit E**), the form of all of which are attached to this Agreement and will be set attached to Plaintiffs' Unopposed Motion for Preliminary Approval (**Exhibit F**) and consistent with the terms of this Agreement. The Notice shall include the general terms of the Settlement set forth in this Agreement, the proposed Plan of Allocation, the general terms of the Fee and Expense Application (as defined below), and the date of the Final Approval Hearing (as defined below).

3.2 Class Counsel shall request that after the Notice is given, the Court hold a hearing (the "Final Approval Hearing") and approve the Settlement of the Lawsuits as set forth herein. In the event that the Court does not approve this Agreement as agreed to by the Parties, then this Agreement shall be null and void unless all Parties accept any changes to this Agreement as proposed by the Court within ten (10) days of the Parties' receipt of the Court's revisions to this Agreement. At or after the Final Approval Hearing, as set forth in ¶3.1 of this Agreement, above, and ¶¶6.1 to 6.4 of this Agreement, below, Class Counsel also will request that the Court approve the proposed Plan of Allocation and the Fee and Expense Application. The Preliminary Approval Order submitted to the Court shall specifically include provisions that, among other things, will:

(a) Preliminarily approve this Agreement and the Settlement as being fair, just, reasonable and adequate to all Parties and Class Members;

(b) Approve the form of the Notice for mailing to the Class Members;

(c) Approve the form of the Claim Form for mailing to the Class Members;

(d) Approve the Summary Notice for publication;

(e) Direct the Claims Administrator to mail or cause to be mailed by first class mail the Notice and the Claim Form to those Class Members who can be identified through reasonable effort, on or before the date specified in the Preliminary Approval Order; the City shall provide mailing addresses from payroll records and DPFPS shall provide contact information to Class Counsel to be used solely for purposes of the mailing; the Claims Administrator shall keep the contact information ,alleged damages based on Plaintiffs' model, employee identification number, and other information confidential under the law of the Class members strictly confidential in accordance with the confidentiality order signed by the Court on August 29, 2018 the "Protective Order")

(f) In addition to subparagraph (e), above, to effect Notice, the Claims Administrator shall cause the Summary Notice to be published once in both print and online versions of the Dallas Morning News and Fort Worth Star Telegram, on or before the date specified in the Preliminary Approval Order, and to place a copy of the live petitions in the Lawsuits and this Agreement on the website(s) of the Dallas Fire and Police associations and the website of Class Counsel (or a website maintained by Class Counsel and/or Claim Administrator), on or before the date specified in the Preliminary Approval Order;

(g) Provide that Class Members who wish to participate in the Settlement shall be encouraged to complete and file Claim Forms pursuant to the instructions contained therein;

(h) Find that the notice given pursuant to subparagraphs (f) above constitutes the best notice practicable under the circumstances, including individual notice to all Class Members who can be identified by reasonable effort, and constitutes valid, due and sufficient notice to all Class Members, complying fully with the requirements of Rule 42 of the Texas Rules of Civil Procedure, the Constitution of Texas, and any other applicable law;

(i) Schedule the Final Approval Hearing to be held by the Court to consider and determine whether the Settlement should be approved as fair, reasonable and adequate, and whether the Judgment should be entered;

(j) Provide that any Class Member who so desires may exercise the right to exclude themselves from the Classes but only if they comply with the requirements for so doing as set forth in the Notice;

(k) Provide that at or after the Final Approval Hearing, the Court shall determine whether the proposed Plan of Allocation should be approved;

(l) Provide that at or after the Final Approval Hearing, the Court shall determine and enter an order regarding whether and in what amount attorneys' fees and reimbursement of expenses should be awarded to Class Counsel out of the Settlement Fund;

(m) Provide that pending final determination of whether the Settlement should be approved, neither Plaintiffs nor any Class Member, either directly, representatively, or in any other capacity, shall commence or prosecute any action or proceeding in any court or tribunal asserting any of the Released Claims against any of the Released Persons;

(n) Provide that any objections to (i) the Settlement; (ii) entry of the Judgment ; (iii) the proposed Plan of Allocation; or (iv) Class Counsel's fee and expense application(s), and any papers submitted in support of said objections, shall be considered by the Court at the Final Approval Hearing only if, on or before the date specified in the Preliminary Approval Order, Persons making objections shall have filed and served written objections (which shall set forth each objection and the basis therefore) and copies of any papers in support of their position as set forth in the Preliminary Approval Order; and

(o) Provide that the Final Approval Hearing may be continued or adjourned by order of the Court without further notice to the Classes.

4. Releases.

4.1 Subject to the terms, provisions, limitations and exceptions set forth in this Agreement, if any (including Plaintiffs' obligations to perform this Agreement), Plaintiffs and each of the Class Members, on their own behalf and on behalf of their agents, attorneys, employees, representatives, spouses, children, administrators, heirs, executors, successors, and assigns, anyone acting directly or indirectly for any of them, do compromise, assign, settle, remise, release, relinquish, acquit, and forever discharge the City, the City Officials, and DPFPS, and each of their current and former Councilmembers, Mayors, City Managers, agents, bondholders, attorneys, elected and appointed officials, employees, board members, boards, commissions, departments,

principals, directors, trustees, officers, partners, administrators, receivers, beneficiaries, representatives, servants, predecessors, successors, assigns, independent contractors, insurers, related or affiliated entities, and all persons, natural or corporate, in privity with them or any of them or acting in their behalf, jointly and severally, each and all of them, whether named herein or not, from all obligations, claims, demands, damages, losses, actions, causes of action, debts, accounts, bonds, covenants, charges, dues, agreements, judgments, liabilities, penalties, expenses, liens, and lawsuits of every kind, nature, character, or description, whether in contract or tort, for ultra vires conduct, at law or in equity, for personal injury, property damage, business interruption, loss of profits, life insurance benefits, medical benefits, sick leave, vacation leave or any other type of leave, monetary losses, expenses, attorneys' fees, interest, costs, expenses, contribution, indemnity, negligence, negligence per se, gross negligence, slander, defamation, antitrust, discrimination, quantum meruit, retaliation, civil rights or labor violations, constitutional violations, malice, loss of consortium, any claim for back pay, retirement benefits or other employment benefits, intentional tort, trespass, nuisance, fraud, conversion, fraudulent concealment, inverse condemnation/taking, breach of contract/third-party beneficiary, breach of the duty of good faith and fair dealing, conspiracy, or the violation of any state or federal constitutional

provision, statute, ordinance, or in equity or at common law, otherwise known or unknown, suspected or unsuspected, real or imagined, fixed or contingent, liquidated or unliquidated, directly or indirectly arising from, growing out of, or related to the Referendum or the Ordinance, the claims in the Lawsuits, the claims referred to in the Parker and Martin Class Certification Orders, and any pension benefits or contributions, if any, that could arise from or relate to distributions from the Settlement Fund.

4.2 Each of the Plaintiffs and each of the Class Members (in their individual claim forms) acknowledge that the release in this Agreement is a general release, and each of them expressly waives and assumes the risk of any and all obligations, claims, demands, damages, losses, actions, causes of action, debts, accounts, bonds, covenants, charges, dues, agreements, judgments, liabilities, penalties, expenses, liens, and lawsuits that exist as of this date, as well as those which each of the Plaintiffs and each of the Class Members (in their individual claim forms) does not know or suspect to exist, whether through ignorance, oversight, error, negligence, or otherwise, and which, if known, would materially affect the decision to enter into this Agreement. Each of the Plaintiffs and each of the Class Members (in their individual claim forms) also assumes the risk that the facts or law involved in, or in any way connected with, the Referendum, the Ordinance, or the Lawsuits may be

otherwise than they believe.

4.3 Each of the Plaintiffs and each of the Class Members (in their individual claim forms), on his or her own behalf and on behalf of his or her current and former agents, attorneys, employees, representatives, spouses, children, successors, and assigns (but not on behalf of any other Plaintiff or Class Member), agrees to hold harmless, indemnify and defend the City and DPFPS, and their agents, executors, administrators, attorneys, employees, principals, directors, trustees, elected and appointed officials, officers, partners, executors, administrators, receivers, beneficiaries, parent and subsidiary corporations, representatives, servants, predecessors, successors, assigns, independent contractors, insurers, related or affiliated entities, and all persons, natural or corporate, in privity with them or any of them or acting in their behalf, jointly and severally, each and all of them, whether named herein or not, against all past, present, and future claims that may be brought against them by persons or entities who are not Parties, whether based on a tort, contract, state or federal constitutional provision, statute, ordinance, or any other theory of recovery, to the extent such claims relate to the claims released in Section 4.1 and arise by, through or under a Plaintiff or Class Member. Each Plaintiff and each of the Class Members (in their individual claim forms) acknowledges that this hold harmless, indemnify and defend obligation is a

general hold harmless, indemnify and defend obligation, and each Plaintiff and each of the Class Members (in their individual claim forms) expressly assumes the risk of any and all obligations, claims, demands, damages, losses, actions, causes of action, debts, accounts, bonds, covenants, charges, dues, agreements, judgments, liabilities, penalties, expenses, liens, and lawsuits that exist as of this date as well as those that each Plaintiff and each of the Class Members does not know or suspect to exist, whether through ignorance, oversight, error, negligence, or otherwise, and which, if known, would materially affect the decision to enter into this Agreement. This provision and duty to indemnity is specific to each of the Plaintiffs and each of the Class Members and is not a general duty for all Plaintiffs and Class Members to indemnity all other Plaintiffs and Class Members. Each Plaintiff and each of the Class Members (in their individual claim forms) assumes the risk that the facts or law involved in, or in any way connected with, the Referendum, the Ordinance or any of the Lawsuits may be otherwise than they believe.

4.4 The releases in Section 4 of this Agreement are effective upon the Effective Date, as defined in ¶7.1 of this Agreement.

4.5 By expressly releasing and forever discharging each and every Released Claim, whether known or unknown, against each and all of the Released Persons, the Plaintiffs and all other Class Members (except those

Class Members who timely opt out of the Settlement in accordance with the provisions of ¶5.4) expressly waive any and all provision, rights, and benefits to the contrary conferred by any law of any jurisdiction (domestic or foreign) or principal of common law.

4.6 With respect to any and all Released Claims, the Parties stipulate and agree that upon the Effective Date, the Classes expressly waive, and each Class Member shall be deemed to have waived, and by operation of the Judgment shall have expressly waived, any and all provisions, rights and benefits allegedly conferred by or a consequence of alleged noncompliance with the Referendum or the Ordinance. The Plaintiffs and Class Members expressly acknowledge they may hereafter discover facts in addition to or different from those that any of them or their counsel now knows or believes to be true with respect to the subject matter of the Released Claims or otherwise, but upon the Effective Date, Plaintiffs expressly have, and each Class Member shall be deemed to have, and by operation of the Judgment shall have, fully, finally, and forever settled and released any and all Released Claims, known or unknown, suspected or unsuspected, contingent or non-contingent, whether or not concealed or hidden, that now exist or heretofore have existed, or in the future may come into existence, upon any theory of law or equity now existing or coming into existence in the future, including, but

not limited to, conduct that is negligent, reckless, intentional, with or without malice, or a breach of any contract, duty, law, or rule, without regard to the subsequent discovery or existence of such different or additional facts. Plaintiffs acknowledge, and the Class Members shall be deemed to have acknowledged, and by operation of the Judgment shall have acknowledged, that the foregoing waiver and the inclusion of Unknown Claims in the Released Claims was separately bargained for and a key element of the Settlement of which this release is a part.

4.7 Subject to the terms, provisions, limitations and exceptions set forth in this Agreement, if any, DPFPS, on its own behalf and on behalf of its agents, attorneys, employees, representatives, administrators, heirs, executors, successors, and assigns, anyone acting directly or indirectly for any of them, do compromise, assign, settle, remise, release, relinquish, acquit, and forever discharge the City and the City Officials from all claims that have been or could have been made by DPFPS related to pension contributions on Plaintiffs' claims for back pay and all claims that have been or could have been made by DPFPS related to pension contributions, if any, that could arise from or relate to distributions from the Settlement Fund.

4.8 Subject to the terms, provisions, limitations and exceptions set forth in this Agreement, if any, the City shall fully, finally, and forever release,

relinquish, and discharge the Plaintiffs, each and all of the Class Members, and Class Counsel from all claims directly or indirectly arising from, growing out of, or related to the Referendum or the Ordinance.

5. Administration and Calculation of Claims, Final Awards, and Supervision and Distribution of Settlement Fund.

5.1 The Claims Administrator shall administer the process of receiving, reviewing, and approving or denying the claims submitted by Class Members under the supervision of Class Counsel, subject to the jurisdiction of the Court, and pursuant to the Preliminary Approval Order entered by the Court. The Claims Administrator shall search for Class Members who fail to submit a claim by using contact information for Class Members from the City and/or DPFPS. The Claims Administrator shall receive claims and determine first, whether the claim is valid, in whole or in part; and second, each Authorized Claimant's pro rata share of the Net Settlement Fund (as set forth in the Plan of Allocation to be submitted by Class Counsel to the Court for approval, or in such other plan of allocation as the Court approves). Neither the City nor any of the Released Persons shall have any responsibility whatsoever for the administration of the Settlement or the claims process, and shall have no liability whatsoever to any person, including, but not limited to, Plaintiffs, any other Class Member, Class Counsel, or any counsel to any Class Member in connection with such administration.

5.2 Subject to the terms of this Agreement and any orders of the Court, the Settlement Fund shall be applied as follows:

(a) to pay all fees, costs and expenses of the Claims Administrator reasonably and actually incurred in connection with providing notice, locating Class Members, assisting with the filing of Claims, administering and distributing the Net Settlement Fund to Authorized

Claimants, and processing Claim Forms;

(b) to pay Class Counsel's attorneys' fees and expenses to the extent allowed by the Court (the "Fee and Expense Award"); and

(c) to distribute the Net Settlement Fund to Authorized Claimants including any incentive payments to the Plaintiffs approved by the Court, as allowed by this Agreement (including ¶¶5.3 – 5.7 below), the Plan of Allocation, and any other applicable order of the Court.

5.3 Any Person falling within the definition of either of the Classes may be excluded from either of the Classes by submitting to the Claims Administrator a written request for exclusion which complies with the requirements set forth in the Notice, which shall provide (a) that any such request for exclusion from either of the Classes must be mailed or delivered such that it is received by the Claims Administrator no later than twenty-one (21) calendar days prior to the date of the Settlement Hearing, or as otherwise ordered by the Court; and (b) that each request for exclusion must (i) state the name, mailing address, telephone number and email address, if any, of the person requesting exclusion; (ii) state that such person or entity "requests exclusion from his/her class in *Parker et al. v. City of Dallas* for the Police Class and *Martin et al. v. City of Dallas* for the Fire Class"; (iii) if known, state the dates of employment with the City during the Class Period, as well as for each rank and period where there was a change in pay state the rank, step in rank and rate of pay during the times of employment, and provide the City employee identification number; and (iv) be signed by the person requesting exclusion or an authorized representative. Copies of all requests for exclusion from one of the Classes received by the Claims Administrator shall be provided to the City's Counsel on a rolling basis but in no event shall any timely request for exclusion be provided to City's Counsel less than twenty-one (21) calendar days prior to the Final Approval Hearing. A request for exclusion shall not be effective unless it provides all the required information and is received within the time stated above or is otherwise accepted by the Court. Any Person who submits a valid and timely request for exclusion (and does not subsequently revoke this request for exclusion) shall have no rights under this Agreement, shall not share in the distribution of the Net Settlement Fund, and shall not be bound by this Agreement (including the releases herein) or the Judgment. However, a Class Member may submit a written revocation of a request for exclusion within fifteen (15) days after the mailing of the Notice or such other period as may be ordered by the Court and may receive payments pursuant to this Agreement and Settlement provided the Class Member also submits a valid Claim Form, as set forth in ¶5.5 below, within ninety (90) days after the mailing of the Notice, or such other period as may be ordered by the Court. Within ninety (90) days after the mailing of the Notice or such other time as may be set by the Court, each Person claiming to be an Authorized Claimant shall be required to submit to the Claims Administrator a completed Claim Form, signed under penalty of perjury and supported by such documents as are specified in the Claim Form and as are reasonably available to the Authorized Claimant.

5.4 All Class Members who do not opt out and fail to timely submit a Claim Form within ninety (90) days after the mailing of the Notice or such other period as may be ordered by the Court and are not located by the Claims Administrator shall be forever barred from bringing any action, claim or other proceeding of any kind against the City and any of the Released Persons concerning any of the Released Claims but will in all other respects be subject to and bound by the provisions of this Agreement, the releases contained herein, and the Judgment. For purposes of determining the extent, if any, to which a Class Member shall be entitled to be treated as an Authorized Claimant, the following conditions shall apply:

(a) Each Class Member shall be encouraged to submit a Claim Form substantially in the form attached as **Exhibit A** supported by such information as is designated therein including employee identification number, social security number, and dates of employment, as the Claims Administrator or Class Counsel in their discretion may deem acceptable.

(b) All Claim Forms must be submitted by the date that will be set by the Court in the Preliminary Approval Order and specified in the Notice, unless such deadline is extended by Order of the Court. Any Class Member who fails to submit a Claim Form by such date and is not located by the Claims Administrator shall be forever barred from receiving any distribution from the Net Settlement Fund or payment pursuant to this Agreement (unless, by Order of the Court, late-filed Claim Forms are accepted) but shall in all other respects be bound by all of the terms of this Agreement and the Settlement, including the terms of the Judgment and the releases provided for herein, and will be barred and enjoined from bringing any action, claim, or other proceeding of any kind against the City or any of the other Released Persons concerning any and all of the Released Claims. Provided that it is received before the Motion for the Class Distribution Order is filed, a Claim Form shall be deemed to be submitted when posted if received with a postmark indicated on the envelope and if mailed by first-class mail and addressed in accordance with the instructions thereon. In all other cases, the Claim Form shall be deemed to have been submitted when actually received by the Claims Administrator. Subject to its discretion, and in conformity with procedures set forth herein and in any applicable Court orders, the Claims Administrator may establish procedures for and accept electronically submitted claims.

(c) Each Claim Form shall be submitted to and reviewed by the Claims Administrator under the supervision of Class Counsel, who shall determine in accordance with this Agreement and the Court-approved Plan of Allocation the extent, if any, to which each Claim shall be allowed, subject to review by the Court pursuant to subparagraph (e) below.

(d) Claim Forms that do not meet the submission requirements may be rejected. Prior to rejecting a Claim in whole or in part, the Claims Administrator shall communicate with the Claimant in writing to give the Claimant the chance to remedy any curable deficiencies in the Claim Form submitted. The Claims Administrator, under the supervision of Class Counsel, shall notify in a timely fashion and in writing all Claimants whose Claim the Claims Administrator proposes to reject in whole or in part, setting forth the reasons therefore and shall indicate in such notice that the Claimant whose Claim is to be rejected has the right to a review by the Court if the Claimant so desires and complies with the requirements of subparagraph (e) below.

(e) If any Claimant whose Claim has been rejected in whole or in part desires to contest such rejection, the Claimant must, within twenty days after the date of mailing of the notice required in subparagraph (d), above, serve upon the Claims Administrator a notice and statement of reasons indicating the Claimant's grounds for contesting the rejection along with any supporting documentation and requesting a review thereof by the Court.

(f) The administrative determinations of the Claims Administrator accepting and rejecting Claims shall be presented to the Court on notice to the City's Counsel for approval by the Court in the Class Distribution Order.

(g) No discovery shall be allowed in connection with the processing of Claims Forms.

5.5 If there is any balance remaining in the Net Settlement Fund after six (6) months from the date of the initial distribution of the Net Settlement Fund (whether by reason of tax refunds, un-cashed checks or otherwise), the remaining balance will be used to reimburse the Claims Administrator for costs and then allocated for a supplemental distribution to the Authorized Claimants.

5.6 No Person shall have any claim against the City, Class Counsel, the Claims Administrator, any of the Released Persons, based on distributions made substantially in accordance with this Agreement and the Settlement contained herein, the Plan of Allocation, or further order(s) of the Court.

5.7 The City will take no position with respect to the Proposed Plan of Allocation or such plan as may be approved by the Court, except that the City may object to the Plan of Allocation if it is not in accordance with the pro rata sharing among Class Members.

5.8 Class Counsel shall be responsible for supervising the administration of the Settlement and distribution of the Net Settlement Fund. The City and the Released Persons shall not have any responsibility for or incur any liability with respect to (1) any act, omission, or determination of or by Class Counsel or the Claims Administrator, or any designees or agents thereof; (2) any act, omission, or determination of or by any other entity designated by Class Counsel as referenced in Section IV(5) of this Agreement; (3) the Plan of Allocation; or (4) the administration of the Plan of Allocation, the Settlement or the claims process.

5.9 Class Counsel will apply to the Court, on notice to the City's Counsel, for a Class Distribution Order: (a) approving the Claims Administrator's administrative determinations concerning the acceptance and rejection of the claims submitted; (b) approving payment of any administration fees and expenses associated with the administration of the Settlement; and (c) if the Effective Date has occurred, directing payment of the Net Settlement Fund to the Authorized Claimants.

5.10 Payment pursuant to the Class Distribution Order shall be final and conclusive against all Class Members. All Class Members whose claims are not approved by the Court shall be barred from participating in distributions from the Net Settlement Fund but otherwise shall be bound by all of the terms of this Agreement and the Settlement, including the terms of the Judgment to be entered in the Lawsuits and the releases provided for therein, and will be barred and enjoined from bringing any action against the City or any of the other Released Persons concerning any and all of the Released Claims.

6. Class Counsel's Attorneys' Fees and Reimbursement of Expenses and Plaintiff's Expenses.

6.1 Class Counsel may submit an application or applications for distributions to it from the Settlement Fund for (a) an award of attorneys' fees; (b) an Incentive Compensation Award to each of the Plaintiffs; and (c) reimbursement of actual expenses, including but not limited to the fees of any experts or consultants incurred in connection with prosecuting the Lawsuits, not to exceed the maximum amount of expenses set forth in the Notice, as may be awarded by the Court (the Fee and Expense Application). The City, City Officials, and DPFPS will not take any position in opposition to any Fee and Expense Application that Class Counsel may file or on any request for Incentive Compensation Award to the Plaintiffs.

6.2 Any attorneys' fees and Litigation Expenses awarded by the Court shall be paid to Class Counsel within fifteen (15) business days after the date the City deposits the monies from the sale of the Bonds into the Settlement Fund. Neither Plaintiffs nor Class Counsel may cancel or terminate the Settlement based on this Court's or any appellate court's ruling with respect to attorneys' fees, Litigation Expenses, and/or Incentive Compensation Award. Class Counsel may allocate the attorneys' fees in a manner in which they in good faith believe reflects the contributions of such counsel to the initiation, prosecution, and resolution of the Lawsuits.

6.3 Class Counsel will move the Court to award from the Settlement Fund, Class Counsel's reasonable fees, costs, and expenses actually incurred and directly related to representation of the Classes. Class Counsel will also move the Court for an Incentive Compensation Award for each of the Plaintiffs.

6.4 The procedure for, and the allowance or disallowance by the Court of any applications by Class Counsel for attorneys' fees and expenses, including the fees of experts and consultants, to be paid out of the Settlement Fund, are not part of the Settlement and are to be considered by the Court separately from the Court's consideration of the fairness, reasonableness and adequacy of the Settlement. The Parties agree that the Fee and Expense Award to be approved by the Court will not be grounds for terminating the Settlement or proposed Settlement. Any order or proceedings relating to the Fee and Expense Application or Incentive Compensation Award to the Plaintiffs, Plaintiffs' Expenses Application, or any appeal from any order relating to either of the foregoing or reversal or modification of either of the foregoing, shall not operate to terminate or cancel this Agreement. Class Counsel agree that they shall receive no payment under this Agreement for attorneys' fees, costs or expenses until and unless all of the terms and conditions of paragraph 7.1 have occurred.

6.5 The Released Persons shall have no responsibility for, and no liability whatsoever to any person, including, but not limited to, Plaintiffs, any other Class Member, or Class Counsel, or any counsel to any Class Member with respect to any Fee and Expense Application that Class Counsel may file; any Plaintiffs' Expenses Application that Class Counsel may file; any payments to Class Counsel pursuant to ¶¶6.1 and 6.2, above; or any Fee and Expense Award that the Court may make in the Lawsuits. The Released Persons also shall have no responsibility for and no liability whatsoever with respect to, any other Person who may seek fees and expenses in connection with prosecuting or helping to prosecute the Lawsuits against the City or to any other Person who may assert some claim to any payments to Class

Counsel pursuant to ¶¶6.1 and 6.2, above, or any Fee and Expense Award the Court may make in the Lawsuits.

7. Conditions of Settlement, Effect of Disapproval, Cancellation, or Termination.

7.1 The Effective Date of this Agreement and the Settlement shall be conditioned on the occurrence of all of the following events:

(a) the Parties and counsel for the Parties have signed this Agreement;

(b) the Court has approved this Agreement and entered the Preliminary Approval Order substantially in the form attached as **Exhibit D**;

(c) at the election of the City, and pursuant to the Protective Order, a material number of Class Members do not opt out of the Classes;

(d) the Court has entered the Judgment or a judgment substantially in the form attached as **Exhibit B** and includes the releases set forth in this Agreement;

(e) the Judgment has become Final without any appeals being taken from the Judgment; and

(f) all of the terms and conditions of this Agreement and the terms of all Court orders have been satisfied.

7.2 Upon the occurrence of all of the events referenced in ¶7.1 of this Agreement, the City is obligated to issue the Bonds and fund the Settlement Fund.

7.3 If all of the conditions specified in ¶7.1 of this Agreement are not met, then this Agreement shall not take effect and shall be null and void. If all of the conditions specified in ¶7.1 of this Agreement are not met, the Parties shall be restored to their respective positions in the Lawsuits as of the moment immediately before the June 4, 2018, joint filing in the Texas Supreme Court.

8. No Admission of Wrongdoing.

8.1 This Agreement, and all negotiations, discussions, statements, acts, or proceedings in connection therewith:

(a) shall not be offered or received against any of the Parties or any of the other Released Persons in the Lawsuits or any other civil, criminal, or administrative action or proceeding as evidence of, or construed as or deemed to be evidence of, any presumption, concession, or admission by the City or any of the other Released Persons with respect to the truth of any fact alleged by Plaintiffs, the validity of any claim that was or could have been asserted against the City in the Lawsuits or in any litigation, or of any liability, negligence, recklessness, fault, or wrongdoing of the City or any of the other Released Persons;

(b) shall not be offered or received against any of the Parties or any of the other Released Persons as any evidence, presumption, concession, or admission with respect to any liability, negligence, recklessness, fault, or wrongdoing, or in any way referred to for any other reason as against any of the Parties or Released Persons, in the Lawsuits or any other civil, criminal, or administrative action or proceeding other than such proceedings as may be necessary to effectuate the provisions of this Agreement; provided, however, that if the Effective Date occurs, the Parties may refer to it to effectuate the protection from liability granted them hereunder or otherwise to enforce the terms of the Settlement; and

(c) shall not be construed against the Parties or any of the other Released Persons as an admission, concession, or presumption that the consideration to be given hereunder represents the amount that could be or would have been recovered after trial.

8.2 Plaintiffs and Class Counsel shall not issue any disparaging or negative press release or make any other public statement, written or oral, or cause or encourage others to make such public statements that states claims or implies that, as to any claim alleged in the Lawsuits, the City engaged in any negligent, reckless, wrongful, improper, or unlawful conduct or otherwise suggests that this Agreement or Settlement constitutes an admission of fault or liability as to any claim alleged in the Lawsuits.

9. Miscellaneous Provisions.

9.1 While the City contends that there is no need to take any action to declare or determine that the Ordinance is void or of no effect for future pay raises because the Ordinance simply provided for a one-time pay increase, nevertheless, in order to avoid future litigation about the meaning and effect of the Ordinance, each of the Plaintiffs covenant and agrees that he or she shall take no action, directly or indirectly, to interfere with or object to the City's possible efforts to seek legislation, at the federal, state, or local level, to repeal, nullify, or void the Referendum and/or the Ordinance.

9.2 While the City contends that the Ordinance simply provided for a one-time pay increase, nevertheless, the Parties agree the Ordinance will have no effect on any future pay scales for the Dallas Police Department and Dallas Fire-Rescue Department after September 30, 2016.

9.3 On or before September 4, 2018, the Parties shall file a joint status report with the Texas Supreme Court. The joint status report will state that (1) a settlement was reached; (2) a Motion for Preliminary Approval was filed with the Court; and (3) the Motion for Preliminary Approval was approved by the Court, if applicable. In order to proceed to finalize the Judgment, the Court will need to conduct a Settlement Hearing. In the event that the final Judgment is not signed, the Parties agree that they will be restored to their respective positions in the Lawsuits as of the moment immediately before the June 4, 2018, joint filing in the Texas Supreme Court. In the event that a final Judgment is signed and after the Settlement Amount is placed in the

Settlement Fund, the Parties agree that they will not oppose the City filing a motion pursuant to Texas Rule of Appellate Procedure 56.3 in *City of Dallas et al. v. David S. Martin et al.*, No. 17-0836 (Tex.), asking the Supreme Court of Texas to issue an order granting the petition for review and, without hearing argument or considering the merits, render a judgment setting aside the judgment of the Fifth Court of Appeals without regard to the merits and acknowledging the settlement of the Lawsuits.

9.4 The Parties: (a) acknowledge that it is their intent to consummate this Agreement and (b) agree to cooperate to the extent reasonably necessary to effectuate and implement all terms and conditions of this Agreement and to exercise their reasonable best efforts to accomplish the terms and conditions of this Agreement.

9.5 Subject to the terms of this Agreement, the Parties intend this Settlement to be a final and complete resolution of all disputes and claims that Plaintiffs (for themselves and the Class Members) and the Classes have with the Released Persons and that the City has with Plaintiffs and the Classes with respect to the Released Claims. The Settlement compromises claims that are contested and shall not be deemed an admission by any Plaintiff or Class Member or the City as to the merits of any claim or defense. The Judgment will contain a statement that during the course of the Lawsuits, the Parties and their respective counsel at all times complied with the requirements of Rule 13 of the Texas Rules of Civil Procedure. In addition, the Plaintiffs (for themselves and the Class Members) and the Classes will not make applications against the Released Persons, and the City will not make applications against Plaintiffs and the Classes, for fees, costs or sanctions pursuant to any rule of procedure or any other court rule or statute with respect to any claims or defenses in the Lawsuits or to any aspect of the institution, prosecution, or defense of the Lawsuits. While retaining its right to deny liability, the City agrees that the amount paid to the Settlement Fund and the other terms of the Settlement were negotiated in good faith by the Parties and reflect a settlement that was reached voluntarily after consultation with competent legal counsel.

9.6 Any of the Released Persons may file this Agreement and/or the Judgment in any action or other proceeding that may be brought against them in order to support a defense, argument, or counterclaim based on principles of *res judicata*, collateral estoppel, release, good faith settlement, judgment bar or reduction, or any other theory of claim preclusion or issue preclusion or similar defense, argument, or counterclaim.

9.7 All agreements made and orders entered during the course of the Lawsuits relating to the confidentiality of information shall survive this Agreement, pursuant to their terms.

9.8 This Agreement may be amended or modified only by a written instrument signed by all Parties or their respective successors-in-interest.

9.9 This Agreement constitutes the entire agreement among the Parties and no representations, warranties or inducements have been made to any party concerning this Agreement other than the representations, warranties, and covenants contained and memorialized herein. Except as otherwise provided herein, Plaintiffs shall not be responsible for any costs borne by City or its counsel, and City shall not be responsible for any costs borne by Plaintiffs or their counsel.

9.10 Class Counsel, on behalf of the Classes, are expressly authorized by Plaintiffs to take all appropriate action required or permitted to be taken by the Classes pursuant to this Agreement to effectuate its terms.

9.11 Each counsel or other Person executing this Agreement on behalf of any party hereto hereby warrants that such Person has the full authority to do so.

9.12 This Agreement may be executed in one or more counterparts. All executed counterparts and each of them shall be deemed to be one and the same instrument. A complete set of original executed counterparts shall be filed with the Court.

9.13 This Agreement shall be binding upon, and inure to the benefit of, the successors and assigns of the Parties.

9.14 This Agreement and the exhibits attached thereto are the result of substantial negotiations between and among the Parties and their counsel. The Parties acknowledge that each of them has had the benefit of counsel of their own choice or have had the opportunity to obtain counsel of their choice to advise them concerning entering into this Agreement. The Parties further acknowledge that they have, through their respective counsel, participated in the preparation of this Agreement and the exhibits attached thereto. Accordingly, it is immaterial that counsel for one party or another may have drafted this Agreement, the exhibits attached thereto, or any portion of these documents. In the event of any dispute over the documents' meaning, application, interpretation, or construction, the documents shall be construed reasonably such that no ambiguities are resolved presumptively against any Party as a matter of law. No parol or other evidence may be offered to explain, construe, contradict, or clarify its terms, the intent of the Parties or their counsel, or the circumstances under which this Agreement was made or executed.

9.15 The Parties agree that any action based on this Agreement or to enforce any of its terms shall be brought in this Court.

9.16 Plaintiffs and Class Counsel represent and warrant that none of Plaintiffs' claims or causes of action in the Lawsuits have been assigned, encumbered, or in any manner transferred in whole or in part (except for attorneys' fees and expenses).

9.17 All terms of this Agreement shall be governed by and interpreted according to the substantive laws of the State of Texas, without giving regard or effect to its choice-of-law rules.

9.18 The headings herein are used for the purpose of convenience only and are not meant to have legal effect.

9.19 The waiver by one Settling Party of any breach of this Agreement by any other Settling Party shall not be deemed a waiver of any other prior or subsequent breach of this Agreement. Unless otherwise stated herein, any breach of any provision of this Agreement by any Settling Party hereto shall not constitute grounds for rescission of this Agreement but shall constitute grounds only for a claim for specific performance for breach of this Agreement.

9.20 The Parties agree that the City shall make available last known address data related to the Class Members as of August 1, 2018. The data shall be provided within (ten) 10 days of the execution of this Agreement. The Parties agree that DPFPS shall make available last known address data related to the Class Members as of August 1, 2018. Plaintiffs, the Class Members, and Class Counsel stipulate and agree that the exception to non-disclosure requirements of pension records set forth in Section 552.0038(d) of the Texas Government Code and the Court's Protective Order apply to permit DPFPS and the City to provide Class Members' addresses to Class Counsel and that Class Counsel (and the Claims Administrator) shall maintain such addresses as confidential and use them solely for purposes of implementing this Settlement.

9.21 The Parties agree that the City and DPFPS will reasonably cooperate in providing last known addresses and contact information of Class Members to the Claims Administrator so that the Claims Administrator may make a reasonable effort to contact Class Members who failed to timely make a claim.

9.22 To the extent that any suits, administrative or any other actions or proceedings involving any of the matters released under Section IV(4) of this Agreement, other than the Lawsuits, either directly or indirectly arising from, growing out of, or related to the Referendum or the Ordinance, either before any trial or appellate court or before any administrative agency, tribunal or any other body, are pending prior to the execution of this Agreement, each Class Member who has not opted out of the Classes who is a plaintiff in such other lawsuit or proceeding, shall file a motion to dismiss, or its functional equivalent, of each of such lawsuits, administrative or other actions described in this paragraph, then pending with prejudice as to the City and obtain an order or orders of dismissal and provide a copy to the City, all of which shall occur prior to such Class Member receiving his or her settlement payment from the Settlement Amount.

9.23 The City is in no way waiving or impairing its claim of governmental or sovereign immunity as to all claims brought against it in the Lawsuits or by virtue of entering into this Agreement, except that the City will not assert the defense of sovereign or governmental immunity in connection with any claims or actions by Plaintiffs or Class Members who have not opted out of one of the Classes to enforce this Agreement.

9.24 Nothing contained in this Agreement, and no act required to be performed pursuant to this Agreement, is intended to constitute, cause or effect any waiver (in whole or in part) of any attorney-client privilege, work product protection or common interest/joint defense privilege, and each Party to this Agreement covenants and agrees that he, she, it or they shall not make or cause to be made in any forum any assertion to the contrary.

9.25 The Parties each represent and warrant to one another that they, respectively, are the owners of and/or have the exclusive and sole right to release all claims, demands, and causes of action which they have released by means of this Agreement, and that no part of any such claim, demand, or cause of action has been pledged, assigned, transferred, sold, conveyed, encumbered, or otherwise disposed of to any other person or any other entity. Accordingly, each of the Parties also represents and warrants that no other person has an interest in any of the claims that are released pursuant to this Agreement that has not been released or discharged by this Agreement or otherwise nor is anyone other than each Plaintiff have any claim or interest in any settlement payment pursuant to this Agreement.

9.26 Each of the Parties also warrants and represents that he, she, or it has the power and authority to enter into this Agreement, and that he or she has the sole right and authority to execute this Agreement as the owner of said claims. The Parties further agree that this warranty of ownership shall be deemed breached and a cause of action accrued thereon immediately upon the making of any claim or demand or the institution or continuation of any suit, action, or proceeding by the opposite Party, or any person, firm or corporation claiming by, through or under the opposite party, contrary to this Agreement, and that in any such suit, action, or proceeding, this Agreement may be pleaded as a defense or by way of counterclaim or cross-claim. Each of the Plaintiffs also covenants and agrees that there is no other person or entity that needs to approve the terms of this Agreement for, or on behalf of, any of the Plaintiffs.

9.27 The Parties understand and acknowledge that the City is required by Chapter 552 of the Texas Government Code to disclose various categories of documents to the public upon request, including a settlement agreement to which the City is a party and information that is also contained in a public record.

9.28 The terms of this Agreement are contractual and are not merely recitals. All agreements, representations, warranties, covenants, terms, and conditions of this Agreement shall survive its execution and shall be binding upon and inure to the benefit of and be enforceable by the legal representatives, officers, directors, assigns, beneficiaries, heirs, successors, assigns, trustees, spouses, children, receivers, affiliates, partners, venturers, owners, members, and related companies of the Parties. The Parties each also warrant and represent that all documents delivered pursuant to this Agreement are valid, binding, and enforceable in the same manner and by the same parties as described in the previous sentence.

9.29 No Party admits any wrongdoing or liability to any other Party concerning the matters described in this Agreement. The Parties enter into this Agreement to resolve, settle, and compromise the matters in dispute between them that are the subject of this Agreement, and solely to avoid the cost, expense, effort, and trouble of further litigation. Accordingly, nothing contained herein, including the execution of the Agreement, any payments made, releases, or other consideration given, shall be construed as an admission of liability. Furthermore, neither this Agreement nor any act performed or document executed pursuant to or in furtherance of this Agreement (including payment of the Settlement Amount) is or may be deemed to be or may be used as an admission of, evidence of, the validity of any of the Released Claims, or of any wrongdoing or liability of any Released Parties; or is or may be deemed to be or may be used as an admission of, evidence of, any fault or omission of any Released Parties in any civil, criminal, regulatory, or administrative proceeding in any court, administrative agency or tribunal.

9.30 This Agreement contains the entire agreement and understanding between and among the Parties with respect to all matters described in this Agreement and supersedes and renders null and void any and all prior agreements, arrangements, discussions and understandings, if any, between and/or among all Parties relating to the subject matter of this Agreement. No oral understandings, statements, promises, or inducements contrary to the terms of this Agreement exist, and, except as otherwise expressly set forth in this Agreement, all Parties expressly disclaim reliance upon any facts, promises or representations made by any other party, or its agents, servicers or attorneys, prior to the effective date of this Agreement. This Agreement cannot be changed, modified, amended, or terminated except by a subsequent agreement in writing executed jointly by all Parties. All Parties understand and agree that they shall receive no further sums of money, credits, rebates, offsets, reimbursements or other consideration of any kind, including without limitation costs and attorneys' fees, from any of the Parties except as provided in this Agreement and except as is owed in the ordinary course to those Plaintiffs who continue to be employed by the City.

9.31 This Agreement is made for the sole benefit of the Parties. No other person or entity shall have any rights or remedies under or by reason of this Agreement, nor shall anything in this Agreement be construed to confer upon any person or entity, whether or not a party to this Agreement, the rights or remedies of a third-party beneficiary.

9.32 All notices required to be given under this Agreement shall be in writing and delivered to the Parties at their respective addresses (or such other address as specified by any counsel or Party in accordance with the provisions of this Section) by (i) hand delivery, (ii) nationally recognized overnight courier, (iii) or mailed postage prepaid by certified or registered mail, return receipt requested, and will be deemed to be effective the day of delivery by hand or overnight courier, or three (3) days after mailing if sent by mail to the addresses listed on the signature pages for the Parties' counsel. Any Party shall have the right to change his, her or its address to which notices shall thereafter be sent and the Party to whose attention such notice shall be directed by giving the opposing Party notice thereof in accordance with the provisions of this Section.

9.33 In case any one or more of the provisions contained in this Agreement or its exhibits should be determined to be illegal, invalid, or unenforceable in any respect under any current or future law, such provision shall be fully severable, and the Agreement shall be construed and enforced as if such provision had never comprised a part of the document or agreement and the remaining provisions of the document or agreement shall remain in full force and effect and shall not be affected by such provision or its severance from the document or agreement. Furthermore, in lieu of such illegal, invalid, or unenforceable provision, there shall be added automatically as a part of the document or agreement a provision as similar in terms to such illegal, invalid, or unenforceable provision as may be possible and be legal, valid, or enforceable, and a court of competent jurisdiction shall have the power to construe this Agreement as if such a provision had been added in writing.

9.34 Unless the context requires otherwise words of a singular number shall be held to include the plural and vice-versa.

9.35 The headings of the sections of this Agreement are included only to make it easier to locate the subjects covered by each provision, and shall not control or affect the meaning, intention, construction, or effect of this Agreement or any provision in this Agreement.

9.36 This Agreement may be executed in multiple identical counterparts, each of which shall be considered an original for all purposes, but which together shall constitute only one and the same Agreement. Each counterpart shall be deemed effective when all Parties have affixed their signatures to the counterparts and they have been delivered to all other Parties. The Parties shall execute as many duplicates of this Agreement as may be necessary to effectuate the Agreement. This Agreement may be signed with an electronic or facsimile signature.

9.37 Each Party warrants and represents, to each other Party and to each person executing this Agreement on behalf of another Party, that both such Party and such person executing this Agreement on behalf of such Party has the full power, authority, qualifications, competency, and capacity to execute this Agreement on behalf of the Party so executing, and that upon execution the same is and shall be binding upon that Party and its respective heirs, successors, and assigns. Each person executing this Agreement personally warrants and represents that he or she has full power, authority, and capacity to bind his or her principal to this Agreement in accordance with its terms and conditions. All corporate entities executing this Agreement are duly incorporated or organized with a legal status separate and apart from its affiliates, are validly existing and are in good standing under the laws of the state of formation or existence, and has complied with all conditions prerequisite to its doing business in Texas.

9.38 Nothing contained herein is intended to create any partnership, joint venture or association by or among any of the Parties and any inference to the contrary are hereby expressly negated.

9.39 All rights and remedies of the Parties shall be cumulative and shall not exclude any other right or remedy available at law or equity. These rights and remedies may be exercised or enforced concurrently, separately, and jointly and as often as necessary. Any action or proceeding under this Agreement shall not extinguish any other rights or remedies that the Parties might have against the others.

9.40 This Agreement may not be assigned, transferred or conveyed without the prior written consent of the City and Class Counsel. Upon any such assignment, transfer or conveyance, this Agreement shall be binding upon and inure to the benefit of the successors and assigns of such assigning Party.

9.41 Taxes will be addressed in the Claim Form.

9.42 The settlement amounts to be paid to the Class Members under this Agreement are payments to settle those Class Members' claims in the Lawsuits and are not considered salary, therefore, the City will not be making any payments and/or contributions to any DPFPS fund or account of the Class Members. The Class Members specifically acknowledge and agree that neither the City nor any of the Class Members shall make any payments and/or contributions to DPFPS in connection with the Settlement and neither the City nor any of the Class Members is required to make any such payment. Each Plaintiff expressly acknowledges and agrees that they are not entitled to any payment to any pension fund as a result of the payment of the Settlement Amount. Additionally, payment of the Settlement Amount will have no effect on any Plaintiff who is a current employee of the City, nor shall the payment of the Settlement Amount have any effect on the City's meet and confer agreement. Finally, the payment of the Settlement Amount will not affect, in any way, the employer-employee relationship between the City and each of the Plaintiffs who are currently employed by the City.

9.43 The payments from the Settlement Fund to be paid each Plaintiff and Class Member under this Agreement shall have no impact on the pension benefits, computation pay, base pay or eligible backpay of any Class Member or any current or former member or beneficiary of DPFPS. Plaintiffs (on behalf of themselves and the Class Members) expressly acknowledge and agree that the payments from the Settlement Fund, distribution to Class Members, and other terms of this Agreement shall have no effect on Class Members or their beneficiaries' pension accounts and will not increase or otherwise affect pension account balances or payments now payable or due in the future.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by the individuals listed below and their duly authorized attorneys.

PLAINTIFFS (on behalf of themselves and each of the Class Members)

George G. Parker — Aug 24, 2018

George G. Parker (on behalf of himself and each the Class Members in the Police Class) — Date

Joe M. Gunn (on behalf of himself and each the Class Members in the Police Class) — Date

Stephen W. Toth (on behalf of himself and each the Class Members in the Police Class) — Date

Nathan L. Trammell (on behalf of himself and each the Class Members in the Police Class) — Date

Todd A. Stratman (on behalf of himself and each the Class Members in the Police Class) — Date

David S. Martin (on behalf of himself and each the Class Members in the Fire Class) — Date

James A. Braddock (on behalf of himself and each the Class Members in the Fire Class) — Date

Obie Cartmill (on behalf of himself and each the Class Members in the Fire Class) — Date

Robert Dale Martin (on behalf of himself and each the Class Members in the Fire Class) — Date

O.J. (Jay) Adair (on behalf of himself and each the Class Members in the Fire Class) — Date

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by the individuals listed below and their duly authorized attorneys.

PLAINTIFFS (on behalf of themselves and each of the Class Members)

George G. Parker (on behalf of himself and each the Class Members in the Police Class) — Date

Joe M. Gunn
8-23-18

Joe M. Gunn (on behalf of himself and each the Class Members in the Police Class) — Date

Stephen W. Toth (on behalf of himself and each the Class Members in the Police Class) — Date

Nathan L. Trammell (on behalf of himself and each the Class Members in the Police Class) — Date

Todd A. Stratman (on behalf of himself and each the Class Members in the Police Class) — Date

David S. Martin (on behalf of himself and each the Class Members in the Fire Class) — Date

James A. Braddock (on behalf of himself and each the Class Members in the Fire Class) — Date

Obie Cartmill (on behalf of himself and each the Class Members in the Fire Class) — Date

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Stephen W. Toth (on behalf of himself and each the Class Members in the Police Class)	8-27-18 Date
Nathan L. Trammell (on behalf of himself and each the Class Members in the Police Class)	Date
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Obie Cartmill (on behalf of himself and each the Class Members in the Fire Class)	Date
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Stephen W. Toth (on behalf of himself and each the Class Members in the Police Class)	Date
Nathan L. Trammell Nathan L. Trammell (on behalf of himself and each the Class Members in the Police Class)	8-23-2018 Date
Todd A. Stratman (on behalf of himself and each the Class Members in the Police Class)	Date
David S. Martin (on behalf of himself and each the Class Members in the Fire Class)	Date
James A. Braddock (on behalf of himself and each the Class Members in the Fire Class)	Date
Obie Cartmill (on behalf of himself and each the Class Members in the Fire Class)	Date
Robert Dale Martin (on behalf of himself and each the Class Members in the Fire Class)	Date
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David S. Martin (on behalf of himself and each the Class Members in the Fire Class)	8-23-18 Date
James A. Braddock (on behalf of himself and each the Class Members in the Fire Class)	Date
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James A. Braddock (on behalf of himself and each the Class Members in the Fire Class) — Date

Obie Cartmill

Obie Cartmill (on behalf of himself and each the Class Members in the Fire Class) — 8-23-'18 Date

Robert Dale Martin (on behalf of himself and each the Class Members in the Fire Class) — Date

O.J. (Jay) Adair (on behalf of himself and each the Class Members in the Fire Class) — Date

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Obie Cartmill (on behalf of himself and each the Class Members in the Fire Class)	Date
Robert Dale Martin Robert Dale Martin (on behalf of himself and each the Class Members in the Fire Class)	8-23-18 Date

O.J. (Jay) Adair (on behalf of himself and each the Class Members in the Fire Class)

Aug. 23, 2018
Date

CITY OF DALLAS AND CITY OFFICIALS

by: ______________________________
Jon Fortune, the City's Assistant City Manager

____
Date

DALLAS POLICE AND FIRE PENSION SYSTEM

by: ______________________________
Kelly Gottschalk, DPFPS's Executive Director

____
Date

CITY OF DALLAS AND CITY OFFICIALS

by: ______________________________ 8/28/2018
T.C. Broadnax, the City's City Manager Date

DALLAS POLICE AND FIRE PENSION SYSTEM

by: ______________________________ ______________
Kelly Gottschalk, DPFPS's Executive Director Date

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Exhibit A

Cause No. 1-95-107

GEORGE G. PARKER, JOE M. GUNN, STEPHEN W. TOTH, NATHAN L. TRAMMELL AND TODD A. STRATMAN, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

Cause No. 1-95-506

DAVID S. MARTIN, JAMES A. BRADDOCK, OBIE CARTMILL, ROBERT DALE MARTIN AND O.J. (JAY) ADAIR, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

PROOF OF CLAIM, ACKNOWLEDGMENTS, AND RELEASE OF CLAIMS[1]

Deadline for Submission: Monday, January 21, 2019

If you worked as a sworn officer for the Dallas Police Department during any period(s) of time from March 22, 1991 to September 1, 2016, inclusive, you could get a payment from a class action settlement. If you worked as a sworn officer for the Dallas Fire-Rescue Department during any period(s) of time from November 28, 1991 to September 1, 2016, inclusive, you could get a payment from a class action settlement.

IF YOU ARE A CLASS MEMBER, YOU ARE ENCOURAGED TO FILL OUT AND SUBMIT THIS FORM IN ORDER TO BE ELIGIBLE FOR ANY SETTLEMENT BENEFITS.

[1] All capitalized terms herein have the meaning set forth in the Settlement Agreement filed with the Court on August 29, 2018 (the "Agreement").

TO SUBMIT A CLAIM FORM, YOU MUST COMPLETE AND SIGN THIS PROOF OF CLAIM, ACKNOWLEDGMENTS, AND RELEASE OF CLAIMS ("CLAIM NOTICE") AND MAIL IT BY FIRST CLASS MAIL, POSTMARKED NO LATER THAN MONDAY, JANUARY 21, 2019 TO THE FOLLOWING ADDRESS:

ARCHER SYSTEMS, LLC
ATTN: CITY OF DALLAS CLAIMS
1775 ST. JAMES PLACE, SUITE 200
HOUSTON, TX 77056

YOUR FAILURE TO SUBMIT YOUR CLAIM BY JANUARY 21, 2019, WILL SUBJECT YOUR CLAIM TO REJECTION AND PRECLUDE YOUR RECEIVING ANY MONEY IN CONNECTION WITH THE SETTLEMENT OF THESE LAWSUITS. DO NOT MAIL OR DELIVER YOUR CLAIM TO THE COURT OR TO ANY OF THE PARTIES OR THEIR COUNSEL AS ANY SUCH CLAIM WILL BE DEEMED NOT TO HAVE BEEN SUBMITTED. SUBMIT YOUR CLAIM ONLY TO THE CLAIMS ADMINISTRATOR.

CLAIMANT'S STATEMENT, ACKNOWLEDGMENTS, AND RELEASE OF CLAIMS

1. I worked for the City of Dallas (the "City") as either (a) a sworn police officer for the Dallas Police Department during any period of time from March 22, 1991 to September 1, 2016, inclusive; or (b) a sworn officer for the Dallas Fire-Rescue Department during any period(s) of time from November 28, 1991 to September 1, 2016. (Do not submit this Claim Notice if you were not a sworn officer for the Dallas Police Department or Dallas Fire-Rescue Department during the designated Class Period).

2. By submitting this Claim Notice, I state that I believe in good faith that I am a Class Member as defined above, in the Agreement, and in the Notice of Pendency of Class Actions and Proposed Settlement, Motion for Attorneys' Fees and Settlement Hearing (the "Notice"), and Motion for Preliminary Approval (which addresses attorneys' fees and the settlement fairness hearing), or am acting for such person(s); that I am not a defendant in the Lawsuits or anyone excluded from the Classes; that I have read and understand the Notice; that I believe that I am entitled to receive a share of the Net Settlement Fund, as defined in the Notice; that I elect to participate in the proposed Settlement described in the Notice; and that I have not filed a request for exclusion. (If you are acting in a representative capacity on behalf of a Class Member [e.g., as an executor, administrator, trustee, or other representative], or if you claim a legal interest [e.g., such as through a Divorce Decree or other Court Order] you must submit evidence of your current authority to act on behalf of that Class Member. Such evidence would include, for example, letters testamentary, letters of administration, or a copy of the trust documents.

3. I consent to the jurisdiction of the Court with respect to all questions concerning the validity of this Claim Notice. I understand and agree that my claim may be subject to investigation and discovery under the Texas Rules of Civil Procedure, provided that such investigation

and discovery shall be limited to my status as a Class Member and the validity and amount of my claim. No discovery shall be allowed on the merits of the Lawsuits or the Settlement in connection with processing of the Claim Notice.

4. I have set forth where requested below all relevant information with respect to my employment with the City during the Class Period. I agree to furnish additional information to the Claims Administrator to support this claim if requested to do so.

5. I have provided my City employee identification number and social security number in this Claim Notice. I recognize that this is necessary to verify that I receive my portion of the settlement connected to my employment and is being used to as security against someone else taking my claim.

6. I understand that the information contained in this Claim Notice is subject to such verification as the Claims Administrator may request or as the Court may direct, and I agree to cooperate in any such verification. (The information requested herein is designed to provide the minimum amount of information necessary to process most simple claims. The Claims Administrator may request additional information as required to efficiently and reliably calculate your recognized claim. In some cases, the Claims Administrator may condition acceptance of the claim based upon the production of additional information, including, where applicable, information concerning transactions in any derivatives securities such as options.)

7. I understand and acknowledge that the City will not have any responsibility for or incur any liability whatsoever to any person, including, but not limited to, Plaintiffs, any of the Class Members, Class Counsel, or any counsel to any Class Member with respect to any act, omission, or determination of or by the Claims Administrator, or any designees or agents thereof; the Settlement Account; the administration of, distribution of, or disbursement from the Settlement Account; the Settlement Fund; the administration of, distribution of, or disbursement from the Settlement Fund; the Net Settlement Fund; or the administration of, distribution of, or disbursement from the Net Settlement Fund; or the payment of taxes.

8. I understand and acknowledge that the Settlement Amount represents the maximum amount of the City's monetary obligations under the Agreement and the Settlement. I also understand and acknowledge that all fees, costs, and expenses to manage and administer the Settlement Fund and/or Net Settlement Fund will be deducted from the Settlement Amount. Under no circumstances will the City be required to pay more than the Settlement Amount pursuant to the Agreement.

9. Upon the occurrence of the Effective Date, as defined in the Notice and the Agreement, I agree and acknowledge that my signature(s) hereto shall effect and constitute a full and complete release, remise and discharge by me and my heirs, joint tenants, tenants in common, beneficiaries, executors, administrators, predecessors, successors, attorneys, insurers and assigns (or, if I am submitting this Claim Notice on behalf of an estate or one or more other persons, by it, him, her or them, and by its, his, her or their heirs, executors, administrators, predecessors, successors, and assigns) of each of the Released Persons in Section 4 of the Agreement entitled "Releases."

10. I understand and acknowledge to pay all taxes, if any, that are required by law to be paid with respect to amounts received under the Agreement. I further agree to indemnify, defend, and hold harmless the City from any claims, demands, deficiencies, levies, assessments, executions, judgments, or recoveries by any governmental entity against the City for any taxes owed by me as a result of the Settlement or other amounts any governmental agency claims to be due or arising out of any claim that amounts paid hereunder are subject to withholding. I further agree to indemnify and hold the City harmless from any costs, expenses, or damages the City sustains because of any such claims, including any amounts the City pays as taxes, attorneys' fees, deficiencies, levies, assessments, fines, penalties, interest, or otherwise. I further agree that no opinion concerning the tax consequences of the Settlement has been given or will be given by the Parties or Parties' counsel. I understand and acknowledge that my tax obligations, and the determination therefor, are my sole responsibility, and it is understood that the tax consequences may vary depending on the particular circumstances.

11. I agree to not issue any disparaging or negative press release or make any other public statement, written or oral, or cause or encourage others to make such public statements that states, claims, or implies that, as to any claim alleged in the Lawsuits, the City engaged in any negligent, reckless, wrongful, improper, or unlawful conduct or otherwise suggests that the Agreement or the Settlement constitutes an admission of fault or liability as to any claim alleged in the Lawsuits. I understand and agree that I will take no action, directly or indirectly, to interfere with or object to possible efforts by the City to seek legislation, at the federal, state, or local level, to repeal, nullify, or void the Referendum and/or the Ordinance.

12. NOTICE REGARDING ASSISTANCE: If you wish to file your claim and need information or assistance you may contact the Claims Administrator at 1-800-908-1274 or visit www.cityofdallasclaims.com to obtain helpful information.

CLAIMANT INFORMATION

<table>
<tr><td colspan="3">Officer's First Name   MI   Officer's Last Name</td></tr>
<tr><td colspan="3">Address 1:</td></tr>
<tr><td colspan="3">Address 2</td></tr>
<tr><td>City</td><td>State</td><td>ZIP</td></tr>
<tr><td>Day Phone</td><td colspan="2">Evening Phone</td></tr>
<tr><td>Email Address</td><td colspan="2">City of Dallas Employee Id No.</td></tr>
</table>

Social Security No.
Dates of Employment with City of Dallas Beginning Date:
Ending Date:
Circle Applicable Class: Police Class Fire Class

If additional space is needed, attach separate, numbered sheets, giving all required information, substantially in the same format, and print your name, Social Security number, and City employee identification number at the top of each sheet.

Certification

UNDER THE PENALTIES OF PERJURY, I CERTIFY THAT ALL OF THE INFORMATION I PROVIDED ON THIS CLAIM NOTICE IS TRUE, CORRECT AND COMPLETE.

Signature of Claimant (If this claim is being made on behalf of a claimant then the person filing the claim must sign).

____
(Signature)

____
(Capacity of person(s) signing on behalf of claimant, e.g. executor, administrator, trustee, etc.) (See item 2 on page 2 of this form for instruction)

Date: _______________________

THIS CLAIM NOTICE MUST BE SUBMITTED NO LATER THAN MONDAY, JANUARY 21, 2019 AND MUST BE MAILED TO:

ARCHER SYSTEMS, LLC
ATTN: CITY OF DALLAS CLAIMS
1775 ST. JAMES PLACE, SUITE 200
HOUSTON, TX 77056

A Claim Notice received by the Claims Administrator shall be deemed to have been submitted when posted, if mailed by Monday, January 21, 2019, and if a postmark is indicated on the envelope and it is mailed first class and addressed in accordance with the above instructions. In all other cases, a Claim Notice shall be deemed to have been submitted when actually received by the Claims Administrator.

REMINDER CHECKLIST

- Please be sure to sign this Claim Notice. If this Claim Notice is submitted on behalf of joint claimants, then both claimants must sign.
- Please remember to attach supporting documents.
- Do NOT use a highlighter on the Claim Notice or any supporting documents.
- If you move after submitting this Claim Notice, you must notify the Claims Administrator of the change in your address.

Exhibit B

Cause No. 1-95-107

GEORGE G. PARKER, JOE M. GUNN, STEPHEN W. TOTH, NATHAN L. TRAMMELL AND TODD A. STRATMAN, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

Cause No. 1-95-506

DAVID S. MARTIN, JAMES A. BRADDOCK, OBIE CARTMILL, ROBERT DALE MARTIN AND O.J. (JAY) ADAIR, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

AGREED FINAL JUDGMENT[1]

ON THIS DAY the Court considered the Motion for Entry of Agreed Final Judgment filed in the two above styled and referenced cases (the "Lawsuits"). Plaintiffs George G. Parker, Joe M. Gunn, Stephen W. Toth, Nathan L. Trammell and Todd A. Stratman, David S. Martin, James A. Braddock, Obie Cartmill, Robert Dale Martin and O.J. (Jay) Adair (on behalf of themselves and

[1] All capitalized terms herein have the meaning set forth in the Settlement Agreement filed with the Court on August 29, 2018 (the "Agreement").

each of the Class Members in the Lawsuits) (collectively, the “Plaintiffs”), Defendant the City of Dallas (the “City”), Intervenor Dallas Police and Fire Pension System (“DPFPS”), and Third-Party Defendants, Mike Rawlings, Scott Griggs, Adam Medrano, Casey Thomas II, Carolyn King Arnold, Rickey D. Callahan, Monica R. Alonzo, Tiffinni A. Young, Erik Wilson, Mark Clayton, B. Adam McGough, Lee Kleinman, Sandy Greyson, Jennifer S. Gates, Philip T. Kingston, and A.C. Gonzalez (collectively, the “City Officials”) are sometimes referred to in this Agreed Final Judgment individually as “Party” and collectively as the “Parties.”

All matters of fact and issues in controversy between the Parties have been fully and finally compromised and settled and as reflected by the signatures of the Parties’ counsel below, the Parties agree to the entry of this Agreed Final Judgment. Entry of this Agreed Final Judgment is not a finding, one way or the other, as to liability or wrongdoing.

The Parties entered into a Settlement Agreement in the Lawsuits on or around August 29, 2018 (the “Agreement”) for the mutual consideration and purposes expressed in the Agreement.

The Court finds that it has subject matter jurisdiction to enter this Agreed Final Judgment on the Agreement.

The Court approves the Agreement as fair, reasonable and adequate as to, and in the best interests of, the Class Members in the Lawsuits.

The Court directs the Parties and their counsel to implement and consummate the Agreement according to its terms and provisions.

The Court finds that the Agreement is binding on the Parties.

The Court finds that Plaintiffs are not entitled to attorneys’ fees, interest, fees or costs from any Party.

The Court hereby dismisses DPFPS’s claims with prejudice against the City Officials.

This Agreed Final Judgment incorporates the terms of the Agreement and directs the Parties and their counsel to implement and consummate the Agreement according to its terms and provisions.

This Agreed Final Judgment incorporates the release of the claims as provided for in Section 4.1 through 4.8 of the Agreement.

This Agreed Final Judgment forever discharges the Released Parties as set forth in the Agreement.

This Agreed Final Judgment permanently bars and enjoins all Class Members (as that term is defined in the Agreement) who have not opted out from appealing, filing, commencing, prosecuting, or intervening in any lawsuits or other action in any jurisdiction based on the Released Claims as provided for in the Agreement.

The Court finds that the $_______________ in attorneys' fees and expenses requested by Class Counsel, and the requested Incentive Compensation Awards in the amount of $_______________ to each of the ten (10) Class Representatives are fair and reasonable.

This Agreed Final Judgment and the City's obligation to pay the Settlement Amount are general or special obligations of the City within the meaning of Chapter 1207 of the Texas Government Code, as amended, and may lawfully be paid with proceeds from the sale of refunding bonds issued by the City in accordance with that Chapter and applicable law.

No post-judgment interest is owed on the Settlement Amount or this Agreed Final Judgment.

The Parties are responsible for paying their own attorneys' fees, expenses, and costs of court.

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED that Plaintiffs have and recover from the City the sum of $173,312,500.00 (the "Settlement Amount") to be paid to Plaintiffs as provided in the Agreement.

This Agreed Final Judgment finally disposes of all claims and all Parties.

Signed this ___ day of ___________, 2018.

____

HONORABLE JUDGE NATHAN WHITE

APPROVED AS TO FORM AND CONTENT:

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Exhibit C

Cause No. 1-95-107

GEORGE G. PARKER, JOE M. GUNN, STEPHEN W. TOTH, NATHAN L. TRAMMELL AND TODD A. STRATMAN, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

Cause No. 1-95-506

DAVID S. MARTIN, JAMES A. BRADDOCK, OBIE CARTMILL, ROBERT DALE MARTIN AND O.J. (JAY) ADAIR, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs,	§	382ND JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

NOTICE OF PENDENCY OF CLASS ACTIONS AND PROPOSED SETTLEMENT, MOTION FOR ATTORNEYS' FEES AND SETTLEMENT HEARING[1]

If you were a sworn officer for (a) the Dallas Police Department during any period(s) of time from March 22, 1991 to September 1, 2016 or (b) the Dallas Fire-Rescue Department during any period(s) of time from November 28, 1991 to September 1, 2016, you could get a payment from a class action settlement.

A Texas District Court authorized this Notice. This is not a solicitation from a lawyer.

[1] All capitalized terms herein have the meaning set forth in the Settlement Agreement filed with the Court on August 29, 2018 (the "Agreement").

The Settlement resolves two state class action lawsuits alleging that the City violated the Ordinance (which was enacted following the Referendum) by failing to maintain the percentage pay differentials among the sworn ranks after 1979 for the period of time from March 22, 1991 to September 1, 2016 for the Police Class and from November 28, 1991 to September 1, 2016 for the Fire Class.

The class representatives are George Parker, Nathan Trammell, Stephen W. Toth, Joe Gunn, and Todd Stratman (on behalf of themselves and each of the Class Members in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 in the 382nd District Court of Rockwall County, Texas) for the Police Class and David S. Martin, Obie Cartmill, O.J. Adair, James A. Braddock and Robert Dale Martin (on behalf of themselves and each of the Class Members in *David S. Martin et al. v. City of Dallas*, Cause No. 1-95-506 in the 382nd District Court of Rockwall County, Texas) for the Fire Class (collectively, the "Plaintiffs").

The City denies Plaintiffs' allegations. The Parties disagree on, among other things, whether the Ordinance required the current percentage pay differentials between the grades in the sworn ranks of the Dallas Police Department and Dallas Fire-Rescue Department to be maintained for a single year (the City's position), or every year following the Referendum that created the Ordinance (the Plaintiffs' position), whether the City violated the Referendum or the Ordinance, whether Plaintiffs and the Classes have suffered damages, and whether Plaintiffs and the Class Members were harmed by the alleged violations.

The Court has certified the two agreed Classes: the Police Class and the Fire Class. The Police Class consists of all persons who were employed as members of the sworn ranks of the Dallas Police Department from March 22, 1991 through September 1, 2016. Excluded from the Police Class are those persons (1) who were plaintiffs in the Related Cases in Collin County; (2) who timely and validly requested exclusion from the Police Class in 1995; and (3) who timely and validly requested exclusion from the Police Class pursuant to the Notice. The Fire Class consists of all persons who were employed as members of the sworn ranks of the Dallas Fire-Rescue Department from November 28, 1991 through September 1, 2016. Excluded from the Fire Class are those persons (1) who were plaintiffs in the Related Cases in Collin County; (2) who timely and validly requested exclusion from the Fire Class in 1996; and (3) who timely and validly requested exclusion from the Fire Class pursuant to the Notice.

The Settlement will provide a one hundred seventy-three million, three hundred twelve thousand and five hundred dollars ($173,312,500.00) all cash Settlement Fund for the benefit of the Class Members. The Settlement Amount ($173,312,500.00) represents the maximum amount of the City's monetary obligations under this Agreement. The Settlement Fund is to be funded pursuant to the terms of the Agreement. The City will issue bonds to fund the Settlement Amount.

This hard-fought litigation spans more than two decades and involves appeals to the Texas Supreme Court (where the case was awaiting a ruling after requested full merits briefing at the time the Plaintiffs (on behalf of themselves and the Classes) and the City reached an agreement to settle) and multiple appeals to the Fifth Court of Appeals in Dallas. Class Counsel and the City obtained certified Classes in the Police Class and the Fire Class, conducted years of discovery and research, and fully briefed multiple summary judgments and pleas to the jurisdiction before achieving the Settlement. Hundreds of thousands of pages of documents, testimony and millions of data points were involved in the work that lead to this result. These legal services performed on behalf of Plaintiffs and the Class Members were on a wholly contingent basis, and therefore Class Counsel have not received any payment for any of their services during the past twenty-five (25) years, nor have they been reimbursed for their litigation expenses which were entirely advanced by Class Counsel at no risk to Plaintiffs or any of the Class Members during the past twenty-five years. Before final approval of the Settlement, Class Counsel will apply to the Court for an award of attorneys' fees in an amount not to exceed one-third (33⅓%) of the Settlement Amount and apply for reimbursement of litigation expenses in an amount not to exceed $2,000,000.

Your legal rights are affected whether you act or do not act. Read this Notice carefully.

YOUR LEGAL RIGHTS AND OPTIONS IN THIS SETTLEMENT	
SUBMIT A CLAIM FORM BY <u>1/21/19</u>	The only way to get a payment in this Settlement if your claim is approved.
EXCLUDE YOURSELF FROM THE LAWSUITS BY SUBMITTING AN OPT-OUT FORM BY <u>11/28/18</u>	Get no payment pursuant to this Settlement. This is the **only** option that allows you to be a part of any other lawsuit against the City involving the claims released by this Settlement. (See paragraph 5 of the Agreement)
OBJECT BY <u>12/7/18</u>	Write a letter to the Court objecting to the Settlement. You must still file a claim if you want to receive payment from the Settlement.
GO TO A HEARING ON <u>1/17/19</u>	Ask to speak in Court about the Settlement.
DO NOTHING	You risk no payment from this Settlement if you cannot be located using payroll and pension fund records. You may also be giving up your rights regarding all claims released by this Settlement.

These rights and options—**and the deadlines to exercise them**—are explained in this Notice.

The Court in charge of this case still has to decide whether to approve the Settlement. Payments will be made if the Court approves the Settlement and after any appeals by Class Members are resolved.

SUMMARY OF THIS NOTICE

Statement of Class Recovery Under the Settlement

Pursuant to the Settlement described herein, a one hundred seventy three million, three hundred twelve thousand and five hundred dollars ($173,312,500.00) all cash Settlement Fund will be established. Plaintiffs estimate that there are approximately 8,700 Class Members (combined in the Police Class and Fire Class). An Approved Claimant's actual recovery will be a pro-rata distribution of the Net Settlement Fund (defined below), determined by each Approved Claimant's alleged loss (*i.e.*, a claim proved by timely submission of an approved Claim Form) as compared to the total recognized losses of all Class Members. This proportional allocation is called "proration." All members of each of the Classes are treated equally. The payouts to Claimants have been figured based upon years in service, rank and step and rate of pay. A mathematical model was created using payroll data obtained from the City to calculate the relative losses as alleged in the operative petitions. The confidence of the model applied to the Police Class is 99.99% and for the Fire Class, 99.44%. The Fire Class model used the hand-written payroll data for years in the 1990s that did not provide the level of certainty that computer based data later provided. *See* the Plan of Allocation beginning on Page 15 for more information.

Statement of Claims, Issues, Defenses, and Potential Outcome of Case

Plaintiffs allege that the City violated the Ordinance by failing to maintain the percentage pay differentials among the sworn ranks of the Dallas Police Department and Dallas Fire-Rescue Department, in place in the late 1970s through the present.

These are two of the longest running (if not the longest) class action lawsuits in U.S. history. The original petition in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107, was filed on March 22, 1995 in the 382nd District Court of Rockwall County, Texas (the police officer lawsuit). The original petition in *David S. Martin et al. v. City of Dallas*, Cause No. 1-95-506, was filed on November 28, 1995 in the *Martin* Class (the firefighter lawsuit).

As discovery was underway, Plaintiffs moved to certify the classes for all current and future sworn officers of the Dallas Police Department and Dallas Fire-Rescue Department. The City agreed to certify the classes. The *Order Certifying Class* in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 was signed by the Court on August 17, 1995. The *Order Certifying Class* in *Robert Dale Martin et al. v. City of Dallas*, Cause No. 1-95-506 was signed by the Court on July 22, 1996.

Discovery began in 1995 and has continued up until the Lawsuits were abated during the pending appeal. The four Related Cases pending in Collin County, Texas are excluded from these Lawsuits. Those cases involve direct claims filed by approximately 1,680 sworn officers of the Dallas Police Department and Dallas Fire-Rescue Department. The claims in the Related Cases are the same claims made in the Lawsuits. The Related Cases were filed by an attorney in Collin County who has since passed away. Several different law firms represented the 1,680 officers in the Related Cases. Each of the officers in the Related Cases contributed cash up front in 1994-

1995 (over $200 each) to cover costs of the litigation and remained obligated under their agreements to pay case expenses over the past twenty-five years. None of the Plaintiffs or Class Members were required to pay cash up front nor have they been obligated to fund the Lawsuits during the past twenty-five years because Class Counsel has continued to advance those costs. In recent years, in anticipation of trial, after multiple trips to various appeals courts, the Plaintiffs pursued data necessary to calculate Plaintiffs' alleged damages. Models were developed using millions of data points to calculate alleged pay differentials and losses.

The City has appealed pre-trial rulings in this case on several occasions. With the most recent appeal, the Lawsuits at the trial court were stayed (no action could be taken other than actions in the appellate court). Most recently the Lawsuits have been briefed in the Texas Supreme Court to consider whether the Lawsuits should be dismissed for want of jurisdiction in favor of the City. If the Texas Supreme Court grants review, there is a possibility that the City would win that argument, in which case Plaintiffs and the Class Members would receive nothing. In the event that Plaintiffs prevail in this appeal, the Lawsuits would be remanded, eventually, to the trial court for trial. To date, there has never been a trial involving the Lawsuits or the Related Cases. In order to begin the process to settle the Lawsuits, the City filed a motion to abate the appeal and Class Counsel and counsel for DPFPS did not oppose the motion.

A trial in the Lawsuits would mean either Plaintiffs prevail or the City prevails. If Plaintiffs were to prevail at trial, the damages alleged by Plaintiffs were such that, in the event of a judgment following a jury verdict, the City would appeal the judgment. In the event Plaintiffs prevailed on that appeal, the judgment against the City would, in all likelihood, create serious financial consequences for the City. Should the City prevail in these Lawsuits, Plaintiffs and the Class Members would recover nothing.

A procedural history of the cases to this point is as follows:

- The Lawsuits were both filed in 1995 for each of the Classes.
- Discovery began shortly thereafter.
- The Police Class was certified by agreement in 1995 and the Fire Class was certified by agreement in 1996.
- Notices with the opportunity to opt-out were sent by Class Counsel as ordered.
- The City filed counterclaims against the Classes, asserting counterclaims against the Plaintiffs and the Classes.
- The City dropped its counterclaims in 2004.
- Various appeals involving the Lawsuits and/or the Related Cases occurred during the 1990s, early 2000s and again presently.

The Parties disagree on the amount of damages, if any, which would have been recoverable had Plaintiffs prevailed on their claims in the Lawsuits. Plaintiffs contend that the pay scales used in their damage modeling were tied to a particular date and rank (including steps within a given rank). The City contends that Plaintiffs are entitled to no damages.

The City contends that the actual pay raises given by the City in implementing the Ordinance through Resolution No. 79-0348 ("Resolution 79-0348") considered both clause (1) and clause (2) of the Ordinance. Clause (1) of the Ordinance provides that the grades in the sworn ranks of the Fire Fighter and Rescue Force receive a salary increase of at least $186.60. In addition, clause (2) of the Ordinance provided that "the percentage pay differentials between the grades in the sworn ranks of the Dallas Police Department and the Fire Fighter and Rescue Force shall be maintained." Based on clause (2) of the Ordinance, the City gave some salary raises in excess of the $186.60 provided under clause (1) in order to maintain the percentage pay differentials between the grades in the sworn ranks of the Dallas Police Department and Dallas Fire-Rescue Department.

The City further contends there is no basis for Plaintiffs using the Fire Chief, Police Chief, and Police Captain grades as the benchmarks for their theory of damages because there is no reference to the Fire Chief, Police Chief, or Police Captain grades in the Ordinance. The City contends the use of the Fire Chief, Police Chief, and Police Captain grades as the benchmarks are just as arbitrary as using any other position within the Dallas Fire-Rescue Department and Dallas Police Department.

Plaintiffs contend that the percentage pay differentials between the grades of Fire Chief, Police Chief, and Police Captain and the grades in the sworn ranks of the Dallas Fire-Rescue Department and Dallas Police Department widened (i.e., that the pay of the Fire Chief, Police Chief, and Police Captain grades increased at a higher percentage than the pay of the sworn ranks of the other grades in the departments) from the time the Ordinance became effective through the Plaintiffs' alleged damage period. The City contends that this is not accurate and that Plaintiffs' contention is misleading. The City contends that, in reality, the percentage pay differentials between the grades of Fire Chief, Police Chief, and Police Captain and the grades in the sworn ranks of the Dallas Fire-Rescue Department and Dallas Police Department narrowed from the time the Ordinance became effective through the Plaintiffs' damage period.

The City further contends that Plaintiffs' damages theory and methodology are flawed and speculative because they consider grades, ranks, and steps in the sworn ranks that did not exist at the time of the Ordinance. Plaintiffs' response to this contention was twofold. First, there are real steps and phantom steps that are never occupied by personnel. For example, there are at least twelve steps at the highest rank of chief, but only one chief; therefore, all unoccupied steps are phantom steps that attempt to evade the Ordinance. Second, the steps did not invalidate or remove the application of the Ordinance. Where for example, one rank is given an additional step, all ranks (per the Ordinance) should be given the same additional steps; therefore, where the City gave steps to one rank, but not another, the City was violating the Ordinance.

The City further contends that Plaintiffs' personal base salaries increased at materially higher rates than the personal base salaries of the Fire Chief, Police Chief, and Police Captain during the Plaintiffs' alleged damage period, demonstrating the failures with the Plaintiffs' methodologies, formulas, and damage theory.

The City further contends that the failure of the Classes or Related Cases to complain prior to the mid-1990s supports the City's position that the Referendum and Ordinance was meant for a one-time application when the police officers and firefighters were seeking at 15% raise. The

Classes contend that they worked through the grievance process and their grievances were verified with merit. However, the grievance failed to change the pay percentage differentials. The Classes also contend that "secret" compensation packages were given to a select few officers in the late 1980s while the rank-and-file officers were ignored and kept in the dark. The Classes further respond that only after years of pleading their case internally with the City, they turned to the courts.

The City further contends that newspaper articles, television reports, reports from third parties, and the campaign literature from the 1978–1979 time frame support the City's position as to (1) the police officers and firefighters' intent regarding the Referendum; (2) the City's intent regarding the Referendum; and (3) what the voters (and the general public) were told regarding the Referendum, mainly that the Referendum was for a one-time 15% catch up raise. The City also relies on the deposition testimony of police officers, firefighters, City officials, and members of the Dallas Police and Fire Association to support its position. Plaintiffs respond saying that a one-time across the board raise would by itself maintain that the differentials were intact; however, the language of maintaining the differentials was added during the negotiations with the City. The author of the Referendum, now the sitting District Judge Ken Molberg of the 95th Judicial District Court explained that the language was meant to keep the differentials intact moving forward in time. In repeated trips to the Fifth District Court of Appeals and Texas Supreme Court, the appellate courts have consistently held that these differing interpretations of the Ordinance demonstrate an ambiguity in the Referendum. The ambiguity requires a jury to determine the police officers and firefighters' intent, the City's intent, and the voters' intent at the time of the Referendum. That is, was the Referendum intended to apply into the future, or just in connection with the actual pay raise implementing the Ordinance based on Resolution 79-0348.

Plaintiffs contend that the documents and decisions through the 1980s into the 1990s demonstrate that the course of dealing within the City proves that the intent of the parties to the Referendum was to maintain the differentials. The City contends that the only time maintaining the differentials was required was during the 1978-1979 time period, immediately after the Referendum. The City further contends that compensation proposals submitted by the Dallas Police Association, the Dallas Fire-Rescue Association, and the City as early as May 1980 are inconsistent with Plaintiffs' theory that the percentage pay differentials between the grades in the sworn ranks were to be maintained perpetually.

This settlement terminates the dispute for the entirety of the Plaintiffs and the Classes.

Statement of Attorneys' Fees and Costs Sought, Plaintiffs' Compensation, and Notice Costs and Expenses

Bob Lyon and Bob Gorsky were originally approved as Class Counsel for both Classes at the time the Lawsuits were certified by the Court. During the pendency of the case, Ted Lyon & Associates P.C. joined Class Counsel to assist the prosecution of these claims. Bob Lyon, Bob Gorsky, Ted Lyon, Ben Taylor and Marquette Wolf (as well as other associates from all firms) worked on the prosecution of Plaintiffs' claims and all appeals. Bob Gorsky also serves as General Counsel to the Dallas Police Association. Mr. Gorsky and his firm have also represented many Dallas firefighters. When Class Counsel were originally hired in 1995 (prior to the 2003 rule changes to Rule 42 of the Texas Rules of Civil Procedure addressing attorneys' fees which is not applicable in this case) the attorney/client agreement required Class Counsel to advance all costs of litigation including filing fees, court reporter deposition costs, videographers, copy, postage, expert and consulting witness charges and all costs associated with discovery, trial and appeals. The fee was agreed to be 33⅓ percent of the aggregate settlement if the case was settled without filing suit; 40 percent of the aggregate settlement if suit was filed; and 50 percent of the aggregate in the event of an appeal. This is the typical contingency fee agreement within the usual and customary fee charged for civil litigation when hourly fees are not feasible. None of the Class Representatives had the ability to pay an hourly rate and the contingency fee allowed them to proceed with minimal risk. Unlike the Related Cases, neither Plaintiffs nor the Classes have ever paid any of the expenses associated with the Lawsuits. Class Counsel will move the Court to award attorneys' fees in an amount of one-third (33⅓ percent) of the Settlement Amount and for reimbursement of expenses incurred in connection with the prosecution of this action not to exceed $2,000,000. All Class Counsel's attorneys' fees will be paid from the amount awarded by the Court and paid from the Settlement Fund. The Settlement Fund shall be applied to pay all fees, costs, and expenses of the Claims Administrator reasonably and actually incurred in connection with providing notice, locating Class Members, assisting with the filing of claims, administering and distributing the Net Settlement Fund to Authorized Claimants, and processing Claim Forms.

An application will be made for an Incentive Compensative Award to each of the ten individual Class Representatives. This application is meant as an acknowledgment to the Class Representatives who have participated dutifully for over twenty-five years in the prosecution of the Lawsuits. The time and effort spent by these Class Representatives includes the entirety of the discovery period and participation in the decision-making process for each procedural and substantive event that has successfully lead the Classes to this Settlement, as well as assisting in the carrying out of the Settlement.

Keeping with the original contingency fee contract, the Class Representatives and Class Members are not personally liable for any such fees, expenses, or compensation.

Further Information

Further information regarding the Lawsuits and this Notice of Pendency of Class Actions and Proposed Settlement, Motion for Attorneys' Fees and Settlement Hearing (the "Notice") may be obtained by contacting Class Counsel: Bob Lyon at (972) 412-0412, and Bob Gorsky at (214) 965-0090. A website is also available at www.cityofdallasclaims.com.

Reasons for the Settlement

For Plaintiffs, the principal reason for the Settlement is the benefit to be provided to the Classes now. This benefit must be compared to the high risk that no recovery might be achieved after a contested trial and likely appeals, possibly years into the future. Plaintiffs further considered, after conducting a substantial investigation into the facts of the Lawsuits, the risks to proving liability and damages. For the City, which denies all allegations of wrongdoing or liability, the principal reason for the Settlement is to eliminate the expense, risks, and unknown outcome of the Lawsuits and to remove the risk of uncertainty.

HOW YOU GET A PAYMENT—SUBMITTING A PROOF OF CLAIM FORM

1. How can I get a payment?

To qualify for a payment, your most sure way to be paid is to send in a Proof of Claim, Acknowledgment, and Release of Claims form ("Claim Form"). A Claim Form is being circulated with this Notice. You may also get a Claim Form on the Internet at www.cityofdallasclaims.com. Read the instructions carefully, fill out the Claim Form, include all the documents the form asks for, sign it, and mail it postmarked no later than Monday, January 21, 2019.

2. When would I get my payment?

The Court will hold a hearing on Thursday, January 17, 2019, to decide whether to approve the Settlement. If the Court approves the Settlement, after that, there may be appeals by Class Members. Resolving appeals can take time, perhaps more than a year. It also takes time for all the Claim Forms to be processed.

3. What am I giving up to get a payment?

Unless you specifically exclude yourself, you will be treated as a Class Member in this class action. This means that upon the Effective Date, you will relinquish all Released Claims against the Released Persons. These terms are defined below:

> "Released Claims" shall mean all claims released in Sections 4.1 through 4.8 of the Agreement, including but not limited to, all complaints, claims, third-party claims, cross-claims, counterclaims, demands, liabilities, obligations, promises, agreements, controversies, actions, causes of action, suits, rights, damages, costs, losses, debts, charges, and expenses (including Unknown Claims and attorneys' fees, expert fees, and disbursements of counsel and other professionals) of any and every nature whatsoever, whether in law or in equity, whether arising under federal, state, local, or common law or any other law, rule, or regulation, whether currently known or unknown, suspected or unsuspected, foreseen or unforeseen, ripened or unripened, accrued or unaccrued, or matured or not matured, whether arising in equity or under the law of contract, tort, malpractice, statutory breach, or any other legal right or duty, whether direct, derivative, individual, representative, or in any other capacity, and to the fullest extent that the law permits their release in the Lawsuits, that Plaintiffs or Class Counsel, or any other member of the Certified Classes (a) asserted in the operative Petition or any other pleadings or briefs filed in the Lawsuits, (b) could have asserted from the beginning of time to the end of time in any forum that arise out of, relate to, are connected with, or are in any way based upon the allegations, transactions, facts, matters, occurrences, representations, or omissions involved, set forth, or referred to in the operative petition or any other pleadings or briefs filed by any party in either of the Lawsuits, the Parker and Martin Class Certification Orders, or (c) directly or indirectly arising

from, growing out of, or related to the Referendum or the Ordinance.

"Released Persons" means each and all of the City, the City Officials, and DPFPS.

The "Effective Date" of the Agreement and the Settlement shall be conditioned on the occurrence of all of the following events:

(a) the Parties and counsel for the Parties have signed the Agreement;

(a) the Court has approved the Agreement and entered the Preliminary Approval Order;

(b) at the election of the City, and pursuant to the Protective Order, a material number of Class Members do not opt out of the Classes;

(c) the Court has entered the Judgment and includes the releases set forth in the Agreement;

(d) the Judgment has become Final without any appeals being taken from the Judgment; and

(e) all of the terms and conditions of the Agreement and the terms of all Court orders have been satisfied.

If you remain a member of the Classes, all of the Court's orders will apply to you and legally bind you.

EXCLUDING YOURSELF FROM THE SETTLEMENT

If you do not want a payment from this Settlement, but you want to keep any right you may have to sue or continue to sue the City then you must take steps to remove yourself from the Lawsuits. This is called excluding yourself from or "opting out" of one of the Classes.

4. How do I exclude myself from the proposed settlement?

To exclude yourself from one of the Classes, you must send a signed letter by mail stating that you "request exclusion from the Classes in *Parker et al. v. City of Dallas*, Cause No. 1-95-107 for the Police Class, and *Martin et al. v. City of Dallas*, Cause No. 1-95-506 for the Fire Class." Your letter should state the dates of your employment, your rank, and employee identification number. In addition, be sure to include your name, address, telephone number, email address, and signature. You must mail your exclusion request postmarked no later than Wednesday, November 28, 2018 to Archer Systems, LLC, Attn: City of Dallas Claims, 1775 St. James Place, Suite 200, Houston, TX 77056.

You cannot exclude yourself by telephone or by email. If you ask to be excluded, you will not get any payment and you cannot object to the Settlement. You will not be legally bound by anything that happens in the Lawsuits, and you may be able to continue to sue the City. If you exclude yourself, do not send in a Claim Form to ask for any money. To do so you will be required to appear in court and prosecute your claims through your own counsel or *pro se*. Class Counsel will not represent you if you exclude yourself from the Classes.

5. If I do not exclude myself from the Settlement, can I sue the City and the other Released Persons later for the same alleged conduct?

No. Unless you exclude yourself from one of the Classes, you give up any rights to sue the City or any of the Released Persons for any and all of the Released Claims. You must exclude yourself from *the proper* Class to continue your own lawsuit for the same conduct alleged in the Lawsuits, styled *Parker et al v. City of Dallas* for the Police Class and *Martin et al. v. City of Dallas* for the Fire Class. Remember, the exclusion deadline is Wednesday, October 14, 2018. You will be required to appear by yourself or through counsel of your own choosing at your own cost. The case is presently before the Texas Supreme Court where, in addition to the trial court you would need to appear and be prepared to defend the appeal and if successful, move forward at the trial court with the prosecution of the claims in the relevant petition that applies to you. Class Counsel will not represent you if you exclude yourself from the Classes.

6. If I exclude myself from the settlement, can I get money from the proposed settlement?

No, but you may exercise any right you may have to continue to sue the City.

IF YOU DO NOTHING

7. What happens if I do nothing at all?

The judgment of the Court will be binding upon you if you do nothing. If your recovery is greater than $1,000.00, the Claims Administrator of the Settlement Fund will make a reasonable effort to find you by using the contact information provided by the City and DPFPS. The releases in this Settlement will be binding upon any claim you had. To ensure your best chance to share in the Net Settlement Fund, you should submit a Claim Form (*see* Question 1). To continue the Lawsuits against the City as to the Released Claims in the Lawsuits, you must exclude yourself from one of the Classes (*see* Question 4).

THE LAWYERS REPRESENTING CLASS MEMBERS

8. Do I have a lawyer in this case?

Class Counsel, Ted Lyon & Associates, P.C., Bob Lyon, and Bob Gorsky, represent all the Class Members. You will not be separately charged for these lawyers. The Court will determine the amount of Class Counsel's fees and expenses, which will be paid from the gross Settlement Fund. If you want to be represented by your own lawyer, you may hire one at your own expense.

9. How will Class Counsel be paid?

Class Counsel will move the Court to award Class Counsel's attorneys' fees from the gross Settlement Fund in a total amount not greater than one-third (33⅓%) of the gross Settlement Fund and reimbursement of their expenses in an amount no greater than $2,000,000, plus interest on such expenses may be sought.

10. How will the notice costs and expenses be paid?

The Claims Administrator's fees and expenses, and the costs to manage and administer the Settlement Fund and/or Net Settlement Fund will be paid out of the Settlement Amount. The Settlement Amount represents the maximum amount of the City's monetary obligations under this Agreement. Under no circumstances will the City be required to pay more than the Settlement Amount ($173,312,500.00) pursuant to the Agreement. The Claims Administrator was selected by Class Counsel and approved by the City and the Court.

OBJECTING TO THE SETTLEMENT

You can tell the Court that you do not agree with the Settlement or some part of it.

11. How do I object to the Settlement?

If you are a Class Member, you can object to the Settlement or any of its terms, the proposed Plan of Allocation, and/or the application for an award of attorneys' fees and expenses by Class Counsel or any other counsel who may seek an award of attorneys' fees and expenses. Plaintiffs reserve the right to object to any fee and expense application submitted by any lawyers other than Class Counsel. You may write to the Court setting out your objection(s). You should state reasons why you think the Court should not approve any or all of the settlement terms or arrangements.

You must object in writing by sending a signed letter stating that you object to the proposed settlement in *Parker et al v. City of Dallas* for the Police Class and *Martin et al. v. City of Dallas* for the Fire Class. Your objection must include a cover page identifying these cases names and numbers and naming the hearing date of Monday, December 3, 2018, at 10:00 a.m. at the Rockwall County Courthouse, 1111 W. Yellow Jacket Lane, Rockwall, TX 75087. Be sure to include your name, address, telephone number, and signature; identify the dates of employment, your social security number, and employee identification number and email address, and state the reasons why you object to the settlement. Your objection must be postmarked on or before Thursday, November 1, 2018 to each of the following (1) the Court; (2) Ted Lyon & Associates, P.C. on behalf of the Plaintiffs; and (3) Sayles Werbner, P.C., counsel for the City, at the following addresses:

COURT:

Clerk of the Court
1111 W. Yellow Jacket Lane
Rockwall, Texas 75087

FOR PLAINTIFFS:

Ted Lyon & Associates, P.C.
18601 LBJ Freeway, Suite 525
Mesquite, Texas 75150

FOR THE CITY:

Robert L. Sayles
Sayles Werbner, P.C.
4400 Renaissance Tower
1201 Elm Street
Dallas, Texas 75270

You do not need to go to the Settlement Hearing to have your written objection considered by the Court.

At the Settlement Hearing, any Class Member who has not previously submitted a request for exclusion from the Classes may appear and be heard, to the extent allowed by the Court, to state any timely filed and served objection to the settlement, the Plan of Allocation, or any motion for an award of attorneys' fees and reimbursement of expenses. Any such objector may appear in person or arrange, at that objector's expense, for a lawyer to represent the objector at the Settlement Hearing. If you or your representative intend to appear in person but have not submitted a written objection postmarked by Thursday, November 1, 2018, it is recommended that you give advance notice to Class Counsel and the City's counsel of your intention to attend the hearing in which may or may not be considered in the discretion of the Judge. You may contact them at the addresses provided above.

12. What is the difference between objecting to the Settlement and excluding myself from the Settlement?

Objecting is simply telling the Court that you do not like something about the proposed settlement. You can object only if you remain in one of the Classes. Excluding yourself is telling the Court that you do not want to be part of one of the Classes. If you exclude yourself, you have no basis to object because the Lawsuits no longer affect you.

THE COURT'S SETTLEMENT HEARING

The Court will hold a hearing to decide whether to approve the proposed settlement. You may attend and you may ask to speak, but you do not have to.

13. When and where will the Court decide whether to approve the proposed settlement?

The Court will hold a Settlement Hearing on Monday, December 3, 2018, at 10:00 a.m. at the Rockwall County Courthouse, 1111 W. Yellow Jacket Lane, Rockwall, TX 75087. At this hearing, the Court will consider whether the Settlement is fair, reasonable, and adequate. The Court also will consider the proposed Plan of Allocation for Settlement proceeds and Class Counsel's attorneys' fees and expenses application, and, if necessary, the attorneys' fees and expenses application of any other counsel. The Court will take into consideration any written objections mailed in accordance with the instructions in the answer to Question 11. The Court also will listen to people who seek to speak at the hearing, but decisions regarding the conduct of the hearing will be made solely by the Court. *See* Question 11 for more information about speaking at the hearing. The Court will decide how much to pay to Class Counsel, and may also decide how much, if any, to pay any other counsel. After the hearing, the Court will decide whether to approve the Settlement. It is not known how long these decisions will take.

You should be aware that the Court may change the date and time of the Settlement Hearing. Thus, if you want to come to the hearing, you should check with Class Counsel before coming to be sure that the date and/or time has not changed.

GETTING MORE INFORMATION

14. Are there more details about the proposed settlement?

This Notice summarizes the proposed Settlement. More details are contained in the Agreement, the Motion for Preliminary Approval and the pleadings for the Lawsuits on file with the Rockwall County District Clerk.

To receive more information regarding the Settlement, you can call the Claims Administrator toll-free at 1-800-908-1274; write to the Claims Administrator at Archer Systems, LLC, Attn: City of Dallas Claims, 1775 St. James Place, Suite 200, Houston, TX 77056; or visit the website at www.cityofdallasclaims.com, where you will find the Agreement, Notice, a Claim Form, answers to common questions about the Settlement, and other information to help you determine whether you are a Class Member and whether you are eligible for a payment.

15. How do I get more information?

For more detailed information concerning the matters involved in the Lawsuits, you can inspect the pleadings, the Agreement, the orders entered by the Court, and the other papers filed in the Lawsuits at the office of the Rockwall County District Clerk, 1111 W. Yellow Jacket Lane, Rockwall, TX 75087, during regular business hours. You may not discuss the case with court personnel. You may also contact Class Counsel.

PLAN OF ALLOCATION OF NET SETTLEMENT FUND AMONG CLASS MEMBERS

This Plan of Allocation has been prepared by Plaintiffs and Class Counsel with the assistance of their economics consultant. The City does not agree with the characterization that any damages were suffered by any Plaintiffs or Class Members.

The one hundred seventy three million, three hundred twelve thousand, five hundred dollar ($173,312,500.00) all cash Settlement Amount shall be the gross Settlement Fund. The gross Settlement Fund, less approved costs, fees, and expenses (the "Net Settlement Fund") shall be distributed to Class Members who submit acceptable Claim Forms ("Authorized Claimants").

The Claims Administrator shall determine each Authorized Claimant's *pro rata* share of the Net Settlement Fund based upon each Authorized Claimant's recognized loss. The recognized loss formula is not intended to be an estimate of the amount a Class Member might have been able to recover after a trial, nor is it an estimate of the amount that will be paid to Authorized Claimants pursuant to the Settlement. The recognized loss formula is the basis upon which the Net Settlement Fund will be proportionately allocated to the Authorized Claimants.

The following proposed Plan of Allocation are based on the allegations asserted in Plaintiffs' current live petitions in the Lawsuits (collectively, the "Petitions") regarding the City's alleged violations of the Ordinance. The Petitions claim that these alleged violations caused underpayments to the Police Class from March 22, 1991 to September 1, 2016 and to the Fire Class from November 28, 1991 to September 1, 2016.

Each Authorized Claimant shall be paid based on the percentage of the Net Settlement Fund that each Authorized Claimant's alleged recognized loss bears to the total of the alleged recognized losses of all Authorized Claimants (the "pro rata share").

PLAN OF ALLOCATION

The objective of the Plan of Allocation is to equitably distribute the Settlement proceeds to those Class Members who suffered alleged economic losses as a result of the alleged violations of the Ordinance. The Plan of Allocation reflects Plaintiffs' damages expert's analysis undertaken to that end, including a review of publicly available information regarding pay scales for the years including 1978 to September 1, 2016 for sworn officers of the Dallas Police Department and Dallas Fire-Rescue Department. The Plan of Allocation, however, is not a formal damages analysis. Rather, the allocation uses a formula to treat each of the sworn officer the same so that the pro rata share is based upon objectively verifiable data which demonstrates that the Class Members will recover based upon years of service, ranks and steps and rates of pay.

This is the same approach approved by over 1,680 individual sworn officers in the Related Cases.

The calculations made pursuant to the Plan of Allocation are not intended to be estimates of, nor indicative of, the amounts that the Class Members might have been able to recover after a trial. Nor are the calculations pursuant to the Plan of Allocation intended to be estimates of the amounts that will be paid to Authorized Claimants pursuant to the Settlement. The computations under the Plan of Allocation are only a method to weigh the claims of Authorized Claimants against one another for the purposes of making *pro rata* allocations of the Net Settlement Fund.

The Plan of Allocation generally measures the amount of the alleged loss that a Class Member can claim for purposes of making *pro rata* allocations of the cash in the Net Settlement Fund to Authorized Claimants.

CALCULATION OF ALLEGED RECOGNIZED LOSS AMOUNTS

A recognized loss amount will be calculated for each officer for alleged underpayment. If the calculation of a recognized loss amount for any particular shift hour or pay period results in a negative number, that number shall be set to zero.

ADDITIONAL PROVISIONS

If a Class Member has more than one period of employment in the relevant time frame, all such periods are included.

The sum of an Authorized Claimant's recognized loss amounts will be the Authorized Claimant's recognized claim.

An Authorized Claimant's recognized claim shall be the amount used to calculate the Authorized Claimant's *pro rata* share of the Net Settlement Fund. If the sum total of recognized claims of all Authorized Claimants is greater than the Net Settlement Fund, each Authorized Claimant shall receive his, her, or its *pro rata* share of the Net Settlement Fund. The *pro rata* share shall be the Authorized Claimant's recognized clam divided by the total of recognized claims of all Authorized Claimants, multiplied by the total amount in the Net Settlement Fund.

If there is any balance remaining in the Net Settlement Fund after six (6) months from the date of the initial distribution of the Net Settlement Fund (whether by reason of tax refunds, un-cashed checks or otherwise), the remaining balance will be used to reimburse the Claims Administrator for costs and then allocated for a supplemental distribution to Authorized Claimants.

SO ORDERED, this ______ day of __________, 2018.

____
The Honorable Nathan White, Presiding

Exhibit D

CAUSE NO. 1-95-107

GEORGE G. PARKER, JOE M. GUNN, STEPHEN W. TOTH, NATHAN L. TRAMMELL AND TODD A. STRATMAN, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED Plaintiffs. vs. THE CITY OF DALLAS, TEXAS Defendant.	§ § § § § § § § § § § §	IN THE DISTRICT COURT 382nd JUDICIAL DISTRICT ROCKWALL COUNTY, TEXAS

CAUSE NO. 1-95-506

DAVID S. MARTIN, JAMES A. BRADDOCK, OBIE CARTMILL, ROBERT DALE MARTIN AND O.J. (JAY) ADAIR, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED Plaintiffs. vs. THE CITY OF DALLAS, TEXAS Defendant.	§ § § § § § § § § § § §	IN THE DISTRICT COURT 382nd JUDICIAL DISTRICT ROCKWALL COUNTY, TEXAS

ORDER PRELIMINARILY APPROVING SETTLEMENT AND PROVIDING FOR NOTICE OF PENDENCY[1]

On this 29th day of August 2018, this Court heard and considered Plaintiffs' Unopposed Motion for Preliminary Approval of Class Action Settlement and Approval of Notice to the Class (the "Motion") in the above-styled and numbered causes (the "Lawsuits"). Having considered the Motion, the exhibits to the Motion, and the arguments of counsel, the Court finds that the Motion is well taken and should be GRANTED.

The Court hereby ORDERS the following:

1. The Court preliminarily approves the Agreement between the Parties, subject to further consideration at the Settlement Fairness Hearing described below.

[1] All capitalized terms herein have the meaning set forth in the Settlement Agreement filed with the Court on August 29, 2018 (the "Agreement").

2. On November 28, 1995 this Court certified an agreed class action in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107, for persons who were currently employed as members of the sworn ranks of the Dallas Police Department, all past members of the sworn ranks of the Dallas Police Department who have retired or otherwise have left the employment of the City, and all future employees who may become members of the sworn ranks of the Dallas Police Department for the period beginning March 22, 1991.

2. On July 22, 1996, this Court certified an agreed class action in *David S. Martin et al. v. City of Dallas*, Cause No. 1-95-506, for persons who were currently employed as members of the sworn ranks of the Dallas Fire-Rescue Department f/k/a Dallas Fire Department, all past members of the sworn ranks of the Dallas Fire-Rescue Department who have retired or otherwise have left the employment of the City, and all future employees who may become members of the sworn ranks of the Dallas Fire-Rescue Department beginning November 28, 1991.

3. Excluded from the definition of Classes are those Persons who timely and validly request exclusion from the Classes pursuant to the Notice of Pendency of Class Action and Proposed Settlement, Motion for Attorneys' Fees and Settlement (the "Notice").

3. Thus, under Rules 11 and 42 of the Texas Rules of Civil Procedure, the class certifications were agreed to and ratified by this Court. Furthermore, the questions of law or fact common to Class Members predominate over any questions affecting individual members, and a class action is superior to other available methods for the fair and efficient adjudication of this controversy.

4. The Settlement Fairness Hearing shall be held before this Court on or about **January 27, 2019, at 10:00 A.M.**, at the Rockwall County Courthouse, 1111 W. Yellow Jacket Lane, Rockwall, Texas 75087, to determine whether the proposed Settlement of the Lawsuits on the terms and conditions provided for in the Agreement is fair, reasonable, and adequate to the Classes and should be approved by the Court; whether a Judgment as provided in the Agreement and its Exhibit B, which, *inter alia*, approves the Settlement and dismisses DPFPS's claims with prejudice against the City Officials, should be entered by the Court; whether the proposed Plan of Allocation should be approved; to determine the amount of a reasonable Incentive Compensation Awards to the ten (10) class representative Plaintiffs (the "Class Representatives"), if any; and to determine the amount of reasonable fees, costs, and expenses, that should be awarded to Class Counsel. The Court may adjourn the Settlement Fairness Hearing without further notice to Class Members.

5. The Court approves, as to form and content, the Notice, the Proof of Claim, Acknowledgments, and Release of Claims form (the "Claim Form"), and Summary Notice for publication, included with the Motion for Preliminary Approval, and finds that the mailing and distribution of the Notice and publishing of the Summary Notice substantially in the manner and form set forth therein meet the requirements of Rule 42(e) of the Texas Rules of Civil Procedure and due process, and constitute the best notice practicable under the circumstances and shall constitute due and sufficient notice to all Persons entitled thereto.

6. The Court further reserves the right to enter a Final Judgment that approves the Settlement and dismisses DPFPS' claims with prejudice against the City Officials regardless of whether the Court has approved the Plan of Allocation, or awarded attorneys' fees and expenses to Class counsel or Incentive Compensation Awards to the Class Representatives.

7. The Court appoints Matthew Frazier of Archer Systems, LLC as the third-party claims administrator (the "Claims Administrator") to supervise and administer the notice procedure as well as the processing of claims as more fully set forth below:

(a) Not later than fourteen (14) days after entry of this Order (the "Notice Date"), the Claims Administrator shall cause a copy of the Notice and the Claim Form, substantially in the forms attached to the Motion, to be mailed by first class mail to all Class Members who can be identified with reasonable effort.

(b) Not later than twenty-one (21) days after the issuance of this Order, the Claims Administrator shall cause the Summary Notice to be published in the *Dallas Morning News and Fort Worth Star Telegram* and online at www.cityofdallasclaims.com, and not later than twenty-one (21) days after the issuance of this Order, the Claims Administrator shall place a copy of the current petitions in the Lawsuits and the Agreement (with exhibits) on that website.

(c) By **November 12, 2018**, the Claims Administrator shall cause to be served on the City's counsel and filed with the Court proof, by affidavit or declaration, of the mailing and publishing described above.

(d) Each date in this Order may be adjusted or extended as much as sixty (60) days without leave of Court, in order to accommodate the Claims Administrator. In the event that the dates change, the Claims Administrator is directed to work with Class Counsel who will file a Notice of Date adjustment with the Court so that any date or deadline changes in this Order are publically available through the Court's filing system.

8. All Class Members shall be bound by all determinations and judgments in the Lawsuits concerning the Settlement, whether favorable or unfavorable to the Classes.

9. Class Members who wish to participate in the Settlement are encouraged to complete and submit a Claim Form in accordance with the instructions contained therein. Unless the Court orders otherwise, all Claim Forms must be postmarked no later than **January 21, 2019**. Any Class Member who does not timely submit a Claim Form within the time provided for shall be contacted by the Claims Administrator using either information from the City's payroll data and/or DPFPS's contact information. Those Class Members who do not make a claim and those not found using payroll or pension system records shall be barred from sharing in the distribution of the proceeds of the Net Settlement Fund, unless otherwise ordered by the Court.

10. Any Person who desires to request exclusion from the Classes shall do so within the time set forth and in the manner described in the Notice. All Persons who submit valid and timely requests for exclusion in the manner set forth in the Notice shall have no rights under the

Agreement, shall not share in the distribution of the Net Settlement Fund, and shall not be bound by the Agreement or the Judgment.

11. Any Class Member may enter an appearance in the Lawsuits, at their own expense, individually or through counsel of their own choice. If they do not enter an appearance, they will be represented by Class Counsel.

12. Any Class Member may appear and show cause, if he/she has any reason why the proposed Settlement of the Lawsuits should or should not be approved as fair, reasonable, and adequate, why a judgment should or should not be entered thereon, why the Plan of Allocation should or should not be approved, why the Individual Compensation Award to the Class Representatives should or should not be approved, or why attorneys' fees and expenses should or should not be awarded to Class Counsel.

13. Any Class Member who does not make a written objection in the manner provided and/or appear in person or through a representative at the Settlement Fairness Hearing shall be deemed to have waived such objection and shall forever be foreclosed from making any objection to the fairness or adequacy of the Settlement, to the Plan of Allocation, to the Individual Compensation Award to the Class Representatives, or to the award of attorneys' fees and expenses to Class Counsel.

14. All funds held by the Claims Administrator shall be deemed and considered to be in *custodia legis* of the Court, and shall remain subject to the jurisdiction of the Court, until such time as such funds shall be distributed pursuant to the Agreement and Plan of Allocation.

15. No Released Persons shall have any responsibility for or liability with respect to the Plan of Allocation or any application for attorneys' fees or reimbursement of expenses submitted by Class Counsel, and such matters will be considered separately from the fairness, reasonableness, and adequacy of the Settlement.

16. At or after the Settlement Fairness Hearing, the Court will determine whether the Plan of Allocation proposed by Class Counsel, any application for attorneys' fees or reimbursement of expenses, and any incentive award shall be approved.

17. All reasonable expenses incurred in identifying and notifying Class Members, as well as administering the Settlement Fund, shall be paid as set forth in the Agreement.

18. Neither the Agreement, nor any of its terms or provisions or exhibits, nor any of the negotiations or proceedings connected with it, shall be construed as an admission or concession by the City or any of the Released Persons of the truth of any of the allegations in the Lawsuits, or of any liability, fault, or wrongdoing of any kind and shall not be construed as, or deemed to be evidence of, or an admission or concession that, Plaintiffs or any Class Members have suffered any damages, harm, or loss.

19. In the event that the Settlement or Judgment do not become Final in accordance with the terms of the Agreement or the Effective Date does not occur, this Order shall be rendered

null and void to the extent provided by and in accordance with the Agreement and shall be vacated. In such event, all orders entered and releases delivered in connection herewith shall also be null and void to the extent provided by and in accordance with the Agreement. All communications among the parties made during this process shall be considered communications pursuant to Rule 408 of the Texas Rules of Evidence.

20. The Court finds that the accounting models used for Plan of Allocation and the payments to the Class Members is based upon confidential salary, employee id, and social security information. Therefore, the Court orders that the data included in the model is protected information and orders that the private information of the individual officers in each of the Classes is not subject to public disclosure.

21. The Court reserves the right to continue the Settlement Fairness Hearing without further notice to the Class Members and retains jurisdiction to consider all further applications arising out of or connected with the proposed Settlement. The Court may approve the Settlement, with such modifications as may be agreed to by the Parties, if appropriate, without further notice to the Classes.

22. Pending the Settlement Fairness Hearing, all Class Members are enjoined from initiating or prosecuting any actions or claims against the City or any of the Released Persons that are within the scope of the Released Claims provided for by the Agreement.

23. The following schedule of dates shall govern resolution of the Settlement:

Event	**Deadline**
Notice and the Claim Form shall be mailed by first class mail to all Class Members (the "Notice Date")	**October 29, 2018**
Summary Notice to be published in the Dallas Police and Fire associations' websites, online at www.cityofdallasclaims.com, and local newspapers. Class Counsel shall place a copy of the Settlement documents on the its website.	**November 5, 2018**
Class Counsel to file affidavit of notice mailing and publication	**November 12, 2018**
Deadline for filing and serving all opening briefs and supporting documents in support of Applications for fees, expenses and incentives	**December 17, 2018**

Deadline for submitting Requests for Exclusion	**November 28, 2018**
Deadline for submitting any written objections	**December 17, 2018**
Deadline for filing and serving any responses or oppositions to any of the written objections	**January 17, 2019**
Deadline for filing and serving reply papers, if any, in further support of the objections or in response to any objections	**January 14, 2019**
Date of Settlement Fairness Hearing	**January 17, 2019**
Deadline for Class Members' submission of Proof of Claim and Release forms	**January 21, 2019**

SO ORDERED.

Signed this 29th day of August, 2018.

____
HONORABLE JUDGE NATHAN WHITE

Exhibit E

CAUSE NO. 1-95-107

GEORGE G. PARKER, JOE M. GUNN, STEPHEN W. TOTH, NATHAN L. TRAMMELL AND TODD A. STRATMAN, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs.	§	382nd JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

CAUSE NO. 1-95-506

DAVID S. MARTIN, JAMES A. BRADDOCK, OBIE CARTMILL, ROBERT DALE MARTIN AND O.J. (JAY) ADAIR, Individually and On Behalf of ALL OTHERS SIMILARLY SITUATED	§	IN THE DISTRICT COURT
Plaintiffs.	§	382nd JUDICIAL DISTRICT
vs.	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

SUMMARY NOTICE[1]

TO: TO ALL SWORN OFFICERS FOR (A) THE DALLAS POLICE DEPARTMENT DURING ANY PERIOD(S) OF TIME FROM MARCH 22, 1991 TO SEPTEMBER 1, 2016 OR (B) THE DALLAS FIRE-RESCUE DEPARTMENT DURING ANY PERIOD(S) OF TIME FROM NOVEMBER 28, 1991 TO SEPTEMBER 1, 2016.

YOU ARE HEREBY NOTIFIED, pursuant to an Order of the 382nd Judicial District Court of Rockwall County, that a hearing will be held on Thursday, January 17, 2019, at 10:00 a.m. , before the Honorable Nathan White at the Rockwall County Courthouse, 1111 W. Yellow

[1] All capitalized terms herein have the meaning set forth in the Settlement Agreement filed with the Court on August 29, 2018 (the "Agreement").

Jacket Lane, Rockwall, Texas 75087, for the purpose of determining: (1) whether the proposed Settlement for the sum of one hundred seventy three million, three hundred twelve thousand and five hundred dollars ($173,312,500.00) in cash should be approved by the Court as fair, reasonable and adequate; (2) whether, after the hearing, a final Judgment should be entered in these Lawsuits pursuant to the terms and conditions set forth in the Agreement filed with the Court on August 29, 2018; (3) whether the Plan of Allocation is fair, reasonable and adequate and should be approved; and (4) whether the application of Class Counsel (or any other counsel) for the payment of attorneys' fees and reimbursement of expenses incurred in these Lawsuits should be approved.

If you worked as a sworn police officer for the City during any period(s) of time from March 22, 1991 through September 1, 2016, inclusive, your rights may be affected by the settlement of these Lawsuits. If you worked as a sworn fire or rescue officer for the City during any period(s) of time from November 28, 1991 through September 1, 2016, inclusive, your rights may be affected by the settlement of the Lawsuits. If you have not received a detailed Notice of Pendency of Class Action and Proposed Settlement, Motion for Attorneys' Fees and Settlement Hearing ("Notice") and a copy of the Proof of Claim, Acknowledgements and Release of Claim ("Claim Form"), you should obtain copies by writing to Archer Systems, LLC, Attn: City of Dallas Claims, 1775 St. James Place, Suite 200, Houston, TX 77056, or by visiting the website at www.cityofdallasclaims.com. The Notice contains details about these Lawsuits and the Settlement, including what you must do to exclude yourself from the Settlement, object to the terms of the Settlement, or file a Claim Form. If you are a Class Member, in order to share in the distribution of the Net Settlement Fund, you are encouraged to submit a Claim Form postmarked no later than Monday, January 21, 2019, establishing that you are entitled to recovery.

If you desire to be excluded from the Classes, you must submit a request for exclusion postmarked by November 28, 2018, in the manner and form explained in the Notice. All Class Members who have not timely and validly requested exclusion from the Classes will be bound by any judgment entered in these Lawsuits pursuant to the terms and conditions of the Agreement. Any objection to the Settlement must be postmarked on or before December 17, 2018 to each of the following (1) the Court; (2) Ted B. Lyon & Associates, P.C., on behalf of the Plaintiffs; and (3) Sayles Werbner, P.C. for the City of Dallas at the following addresses:

COURT:

Clerk of the Court
382nd Judicial District Court
1111 W. Yellow Jacket Lane
Rockwall, TX 75087

FOR PLAINTIFFS:

Ted B. Lyon & Associates, P.C.
18601 LBJ Freeway, Suite 525
Mesquite, TX 75150

FOR DEFENDANT CITY OF DALLAS

Sayles Werbner, P.C.
Attn: Robert L. Sayles
1201 Elm Street, Suite 4400
Dallas, Texas 75270

PLEASE DO NOT CONTACT THE COURT OR THE CLERK'S OFFICE REGARDING THIS NOTICE.

If you have any questions about the settlement, you may contact Class Counsel at the address listed above.

Exhibit F

CAUSE NO. 1-95-107

GEORGE G. PARKER, JOE M. GUNN,	§	IN THE DISTRICT COURT
STEPHEN W. TOTH, NATHAN L.	§	
TRAMMELL AND TODD A. STRATMAN,	§	
Individually and On Behalf	§	
of ALL OTHERS SIMILARLY	§	
SITUATED	§	382nd JUDICIAL DISTRICT
Plaintiffs.	§	
vs.	§	
	§	
	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

CAUSE NO. 1-95-506

DAVID S. MARTIN, JAMES A.	§	IN THE DISTRICT COURT
BRADDOCK, OBIE CARTMILL, ROBERT	§	
DALE MARTIN AND O.J. (JAY) ADAIR,	§	
Individually and On Behalf	§	
of ALL OTHERS SIMILARLY	§	
SITUATED	§	382nd JUDICIAL DISTRICT
Plaintiffs.	§	
vs.	§	
	§	
	§	
THE CITY OF DALLAS, TEXAS	§	
Defendant.	§	ROCKWALL COUNTY, TEXAS

PLAINTIFFS' UNOPPOSED MOTION FOR PRELIMINARY APPROVAL OF CLASS ACTION SETTLEMENT AND APPROVAL OF NOTICE TO THE CLASS

TO THE HONORABLE JUDGE OF SAID COURT:

COMES NOW, Plaintiffs George G. Parker, Joe M. Gunn, Stephen W. Toth, Nathan L. Trammell and Todd A. Stratman (on behalf of themselves and each of the Class Members in *George G. Parker et al. v. City of Dallas*, Cause No. 1-95-107 in the 382nd District Court of Rockwall County, Texas), Plaintiffs David S. Martin, James A. Braddock, Obie Cartmill, Robert Dale Martin and O.J. (Jay) Adair (on behalf of themselves and each of the Class Members in *David S. Martin* *et al. v. City of Dallas*, Cause No. 1-95-506 in the 382nd District Court of Rockwall County, Texas) (collectively, the "Plaintiffs"), by and through their counsel of record and make and file this Unopposed Motion for Preliminary Approval of Class Action Settlement and Approval of Notice of the Class (the "Motion"), and would show unto the Court as follows:

Following lengthy negotiations, Plaintiffs (on behalf of themselves and each of the Class Members), Defendant City of Dallas (the "City"), Intervenor Dallas Police and Fire Pension System ("DPFPS"), and Third-Party Defendants, Mike Rawlings, Scott Griggs, Adam Medrano, Casey Thomas II, Carolyn King Arnold, Rickey D. Callahan, Monica R. Alonzo, Tiffinni A. Young, Erik Wilson, Mark Clayton, B. Adam McGough, Lee Kleinman, Sandy Greyson, Jennifer S. Gates, Philip T. Kingston, and A.C. Gonzalez (collectively, the "City Officials") have agreed to a settlement of the above-referenced lawsuits as reflected in the attached exhibits. Plaintiffs (on behalf of themselves and each of the Class Members), the City, the City Officials, and DPFPS will be referred to in this Motion as the Parties.

I. Definitions

The Parties hereby incorporate by reference the definitions used in the attached Settlement Agreement (the "Agreement").

II. The Terms of the Agreement

The Parties hereby incorporate by reference the terms of the attached Agreement. As described more fully in the attached Agreement, the City agrees to pay Plaintiffs (for themselves and the Class Members) $173,312,500.00 in exchange for a release of all claims against the City, City Officials, and DPFPS that are directly or indirectly arising from, growing out of, or related to the Referendum or the Ordinance.

III. <u>Criteria for Preliminary Approval</u>

The 4[TH] Edition of the Manual for Complex Litigation, (although related to Federal Rules on class action litigation provides guidance for Texas state courts) summarizes the preliminary approval criteria as follows:

> If the preliminary evaluation of the proposed settlement does not disclose grounds to doubt its fairness or other obvious deficiencies, such as unduly preferential treatment of class representatives or excessive compensation for class counsel, and appears to fall within the range of possible approval, the court should direct that notice under [Tex. R. Civ. P. 42, *et seq* as it existed when these Lawsuits were filed in 1995] be given to the class members of a formal fairness hearing, at which arguments and evidence may be presented in support of and in opposition to the settlement.

MANUAL FOR COMPLEX LITIGATION § 30.41 (3rd ed. 1995). Some factors that may bear on a review of this Settlement are set out below:

1. the advantages of the proposed settlement versus the probable outcome of a trial on the merits of liability and damages as to the claims, issues, or defenses of the class and individual class members;

2. the probable time, duration, and cost of continued litigation, appeals, attendant expenses of all parties, and the trial;

3. the probability that the class claims, issues, or defenses could be maintained through trial on a class basis;

4. the maturity of the underlying procedural and substantive issues, as measured by nearly 25 years of litigation gained through adjudicating the actions, the development of expert testimony, and other factors that bear on the probable outcome of a trial on the merits;

5. the extent of participation in the settlement negotiations by class counsel and class representatives, and by the numerous judges, over nearly 25 years who have presided over this case;

6. the number and force of objections by class members;

7. the probable resources and ability of the parties to pay, collect, or enforce the settlement compared with enforcement of the probable judgment predicted under above paragraph 1 or 4;

8. the lack of any effect of the settlement on other pending actions;

9. similar claims by other individual non-class member and subclasses and their actual outcomes (approximately 1,680 plaintiffs in the Related Cases in Collin County individually and unanimously approved settlement based on the identical damage model used herein);

10. whether class or subclass members have the right to request exclusion from the settlement, and, if so, the number exercising that right;

11. the reasonableness of any provisions for attorney fees and expenses and incentive pay for each of the class representatives;

12. the fairness and reasonableness of the procedure for processing individual claims under the settlement; and

13. the apparent intrinsic fairness of the settlement terms.

MANUAL FOR COMPLEX LITIGATION § 21.62 (4th ed. 2004).

IV. Content of Class Notice

The Parties hereby incorporate by reference the proposed notice in the attached Notice of Pendency of Class Action and Proposed Settlement, Motion for Attorneys' Fees, and Settlement Hearing (the "Notice").

V. The Settlement Meets the Standards for Preliminary Approval Under Rule 42(e)

Under Rule 42(e), a court must review any "settlement, voluntary dismissal, or compromise" of the "claims, issues or defenses of a certified class." TEX. R. CIV. P. 42(e). A court should approve a proposed class action settlement if it determines that the settlement is "fair, reasonable, and adequate, as well as consistent with the public interest." *Cotton v. Hinton*, 559 F.2d 1326, 1330 (5th Cir. 1977). Whether to grant preliminary approval is within the sound discretion of the court, which should exercise its judgment in the context of public policy that strongly favors the pretrial settlement of class action lawsuits. *See, e.g.*, *In re Deepwater Horizon,* 739 F. 3d 790, 807 (5th Cir. 2014), *cert. denied sub nom. BP Expl. & Prod. Inc. v. Lake Eugenie Land & Dev., Inc.,* 135 S. Ct. 754 (2014); *Tajudin Jarrallah v. Sodexo, Inc.,* 452 F. App'x 465, 468 (5th Cir. 2011). Indeed, "there is an overriding public interest in favor of settlement." *Cotton,* 559 F.2d at 1331. The procedure for review of a proposed class action settlement is a well-established two-step process. *See* MANUAL FOR COMPLEX LITIGATION § 13.14 (4th ed. 2004); *see also McNamara v. Bre-X Minerals Ltd.,* 214 F.R.D. 424, 426 (E.D. Tex. 2002). First, the court conducts a preliminary inquiry, the purpose of which is "to ascertain whether there is any reason to notify the class members of the proposed settlement and to proceed with a fairness hearing." MANUAL FOR COMPLEX LITIGATION § 21.632 (4th ed. 2004). If the court preliminarily approves the settlement, the class is notified, and Class Members are provided an opportunity to be heard at a final fairness hearing concerning the merits of the settlement. *Id.* §§ 21.633-634.

At the preliminary approval stage, the court should consider two factors in making its determination whether approval is warranted: (1) the extent of informed, arm's-length negotiations between the parties; and (2) whether the resulting settlement is within the range of what might be found fair, reasonable, and adequate. *See e.g.*, *Newby v. Enron Corp.,* 394 F.3d 296 (5th Cir. 2004). Indeed, a strong initial presumption of fairness attaches to the proposed settlement if, as here, the settlement is reached by experienced counsel after arm's-length negotiations. *See Klein v. O'Neal, Inc.,* 705 F. Supp. 2d 632, 650 (N.D. Tex. 2010).

Weighing the fairness of a settlement is within the sound discretion of the court. *See In re Enron Corp. Sec., Derivatives & ERISA Litig.,* No. H-01-3624, 2008 U.S. Dist. LEXIS 84656, at

*40 (S.D. Tex. Sept. 8, 2008). As long as the settlement appears to fall within the range of possible approval, the court should grant preliminary approval. *In re OCA, Inc. Sec. and Derivative Litig.,* No. 05-2165, 2008 U.S. Dist. LEXIS 84869, at *37 (E.D. La. Oct. 17, 2008).

For preliminary approval purposes, courts in the Fifth Circuit consider whether the settlement "does not disclose grounds to doubt its fairness or other obvious deficiencies, such as unduly preferential treatment of a class representative or of segments of the class, or of excessive compensation for attorneys, and appears to fall within the range of possible approval." *McNamara v. Bre-X Minerals Ltd.,* 214 F.R.D. 424, 430 (E.D. Tex. 2002); *see also In re OCA*, 2008 U.S. Dist. LEXIS 84869, at *37.

In this case, the proposed Settlement meets the standard for preliminary approval established by the Fifth Circuit and therefore fully merits the Court's preliminary approval.

A. There Are No Obvious Deficiencies in the Settlement or Reasons to Doubt Its Fairness

In determining whether deficiencies exist in the fairness, adequacy and reasonableness of a settlement, courts examine the process and the stage of the litigation as well as the terms of the settlement. *See In re OCA,* 2008 U.S. Dist. LEXIS 84869, at *37. Courts have found that fairness may be presumed when there is an arm's-length settlement after "meaningful discovery" has been conducted. *In re Heartland Payment Sys., Inc. Customer Data Sec. Breach Litig.,* 851 F. Supp. 2d. 1040, 1063 (S.D. Tex. 2012); *see also Ayers v. Thompson,* 358 F.3d 356, 369 (5th Cir. 2004) (stage of the proceedings favored settlement when discovery provided ample information with which to evaluate the merits of the competing positions).

In this case, the Settlement has no deficiencies in the process through which it was reached. The Settlement was obtained through multiple rounds of formal and informal negotiations over two decades. Moreover, all parties were represented by highly experienced and accomplished attorneys who had been litigating this case for years and were well-apprised of the strengths and weaknesses of their respective positions.

The extensive history of this case, as well as the stage of the litigation at the time of Settlement, also weigh strongly in favor of a presumption of fairness of the Settlement. After many years of litigation, the accumulation of the information discovered through the litigation process has permitted Plaintiffs to be well-informed about the strengths and weaknesses of the Lawsuits and to engage in effective settlement discussions. Indeed, after extensive factual and expert discovery, and after numerous legal questions were resolved through motions and appeals, there can be no doubt that the parties were fully informed to negotiate the Settlement.

B. The Settlement Treats All Class Members Fairly

The Settlement also meets the requirement of fair treatment of all Class Members because it treats all Class Members equally.

The terms of this Settlement, with respect to how the payouts will be made are virtually identical to the terms used in the Related Cases in Collin County. Those terms were approved by over 1,680 current and former officers who each independently consented and agreed to the use of the same model used by the Classes in order to determine their share of the aggregate settlement in the Lawsuits. The model uses only objective data points including pay scales, rate of pay, rank and step in rank and time of service in order to fairly pro-rate the recovery among the sworn officers. This settlement treats all of the Class Members fairly and based solely upon the objective data already included in the model before any settlement negotiations began.

Approval of a plan of allocation of settlement proceeds among the members of a class is governed by the same standard of fairness, reasonableness and adequacy applicable to approval of the settlement as a whole. *See In re Chicken Antitrust Litig. Am. Poultry*, 669 F.2d 228, 428 (5th Cir. 1982) (standard of review "applies with as much force to the review of the allocation agreement as it does to the review of the overall settlement between plaintiffs and defendants"); *see also In re Am. Bank Note Holographics,* 127 F.Supp.2d 418 (S.D.N.Y. 2001) (plan of allocation "need only have a reasonable, rational basis, particularly if recommended by 'experienced and competent' class counsel") (citations omitted). Ultimately, the court should grant preliminary approval if the "proposed allocation plan compensates class members in relation to the timing of their actual purchases and sales as well as the amount of their actual losses." *In re Oca,* 2008 U.S. Dist. LEXIS 84869, at *40.

As discussed more fully in the Notice, the Plan of Allocation treats all Class Members equally – providing pro rata compensation to all Class Members.

As described in the Agreement and the Notice, Plaintiffs will move the Court for an award compensating Plaintiffs' ten class representatives based on their work over the last 25 years and their hundreds of hours of time dedicated to their representation of the Classes in an amount up to $100,000.00 for each class representative. This request is routinely awarded in similar cases. *See, e.g.*, *In re Flag Telecom Holdings,* No. 02-3400, 2010 U.S. Dist. LEXIS 119702 (S.D.N.Y. Nov. 5, 2010) (awarding $100,000 to plaintiff who was actively involved in this litigation, produced over 4,000 pages of documents from his business' files, and spent more than four hundred hours on the litigation over eight years); *Revco Sec. Litig., Arsam Co. v. Salomon Bros., Inc.,* No. 89-593, 1992 U.S. Dist. LEXIS 7852 (N.D. Ohio May 6, 1992) (awarding class representative

$200,000 because of diligence and because class would have recovered nothing if not for the representative's involvement in the case). Such awards, which are designed to compensate a plaintiff for time, costs and expenses, are particularly appropriate in cases such as this, where the Lawsuits reached an advanced stage after a prolonged period of litigation. *See e.g.*, *In re Marsh & McLennan Cos., Inc. Sec. Litig.,* 2009 U.S. Dist. LEXIS 120953 (S.D.N.Y. Dec. 42, 2009) (awarding plaintiff groups fees in the amounts of $70,000 and $144,657.14 for a total award of $214,657.14 due to their active involvement and oversight of case lasting five years). Therefore, such reimbursement does not improperly grant preferential treatment to any of the class representatives and does not weigh against preliminary approval of the Settlement.

C. The Settlement Falls Within the Range of Reasonableness

In evaluating whether a settlement falls within the range of reasonableness, "the court is not to decide the issues or try the case via the fairness hearing because, the very purpose of the compromise is to avoid the delay and expense of trial." *Garza v. Sporting Goods Props.,* No. SA-CA-1082, 1996 U.S. Dist. LEXIS 2009, at *49 (W.D. Tex. Feb. 6, 1996) (citing *Reed v. Gen. Motors Corp.,* 703 F.2d 170, 172 (5th Cir. 1983) (additional citations omitted)). Courts should recognize the "uncertainty of litigation" and the potential difficulty of proving liability and damages at trial. *Id.*

The terms of this Settlement, with respect to how the payouts will be made are virtually identical to the terms used in the Related Cases in Collin County. Those terms were approved by over 1,680 current and former officers who each independently consented and agreed to the use of the same model used by the Classes in order to determine their share of the aggregate settlement. The model uses only objective data points including pay scales, rate of pay, rank and step in rank and time of service to fairly pro-rate the recovery among the sworn officers. This settlement treats all of the Class Members fairly and based solely upon the objective data already included in the model before any settlement negotiations began.

Plaintiffs and Class Counsel believe that the proposed Settlement of $173,312,500.00 in in cash and in exchange for the release of claims against the City adequately reflects the value of these Lawsuits at this juncture. Class Counsel have expended substantial amounts of time and money developing the legal and factual case against the City with the assistance of extensive fact and expert discovery. Based on that work, Plaintiffs believe there is substantial evidence supporting their arguments and further believes that Plaintiffs have a reasonable probability of prevailing on appeal, at summary judgment, and at trial. Nevertheless, the City has articulated significant defenses to Plaintiffs' allegations, which could be accepted by the Texas Supreme Court in the pending appeal, by this Court on summary judgment, or by a jury at trial. Among other things, the City has claimed Plaintiffs have waived their claims; are estopped from making their claims; are constitutionally barred from making their claims; have no damages; and other serious factual and legal defenses.

Furthermore, to the extent Plaintiffs succeeded on any claims, the City would challenge those issues on appeal, which could result in additional years or decades of litigation with no certainty as to outcome. Considering the present time-value of money and the risk that the Classes would not succeed in proving liability or in establishing damages in excess of the Settlement Amount, Plaintiffs believe this Settlement is well within the range of reasonableness. *See In re Enron Corp. Sec. Derivative & "ERISA" Litig.,* 228 F.R.D. 541, 566 (S.D. Tex. 2005) ("The settlement at this point would save great expense and would give the Plaintiffs hard cash, a bird in the hand."). These risks, when balanced against the immediate benefits of this Settlement, favor a finding that the Settlement is well within the range of reasonableness.

D. The Requested Attorneys' Fees and Expenses are Fair and Reasonable

Class Counsel will move the Court to award attorneys' fees in the amount of one-third (33⅓%) of the gross Settlement Fund and reimbursement of expenses incurred in connection with the prosecution of the Lawsuits. When Class Counsel and Plaintiffs contracted with each other the fee structure was 33⅓% if settled without suit being filed, 40% after suit was filed and 50% if appealed plus all reasonable and necessary expenses needed to prosecute these claims. Class Counsel and Plaintiffs agree the fee and expense request is fair and reasonable considering there have been several appeals of these Lawsuits.

Courts in the Fifth Circuit and others grant awards up to and at times exceeding 33⅓% in class actions. *See, e.g.*, *Sims v. Shearson Lehman Bros., Inc.,* Fed. Sec. L. Rep. (CCH) ¶ 98, 134, at 98,976 (N.D. Tex. Nov. 29, 1993) (awarding fee equal to 33⅓% of $30 million settlement in securities case); *Lasky v. Brown,* No. 99-1035 (M.D. La. Jan. 27, 2003) (awarding fee equal to 33⅓% of $20.5 million settlement in securities case); *In re Olicom Sec. Litig.,* No. 94-0511 (N.D. Tex. Aug. 30, 1996) (awarding fee equal to 33⅓% of $7.5 million settlement in securities case); *In re Initial Pub. Offering Sec. Litig.,* 671 F.Supp.2d 467 (S.D.N.Y. 2009) (awarding fee equal to 33⅓% of $510 million settlement in securities case); *In re Combustion, Inc.,* 968 F. Supp. 1116, 1133 (W.D. La. 1997) (finding that district courts in the Fifth Circuit have awarded percentages of approximately one-third contingency fee and that 50 percent of the fund as the upper limit). Moreover, Chief Judge Barbara Lynn recently approved a 33⅓% fee in *The Erica P. John Fund, Inc, et al, On Behalf of Itself and All others similarly Situated v. Halliburton Company and David*

J. Lesar, 3:02-CV-1152-M, United States District Court, Northern District of Texas, Dallas Division (2017). That case involved a $100 million recovery in a securities class action.

The request of up to one-third of the gross Settlement Fund is appropriate here given the unique nature of this case, which led to two opinions by the Dallas Court of Appeals and one opinion by the Texas Supreme Court (with another petition for review currently pending) and required extraordinary time, effort, skill and resources over many years; and the benefit achieved of a settlement of $173,312,250.00. Additionally, Class Counsel's fee agreements with Plaintiffs provided for a 50% contingency fee if an appeal was involved. Class Counsel believe that a 33⅓% fee is more than justified and will be fully supported at the final approval stage. *See, e.g.*, *In re Educ. Testing Serv. Praxis Principles of Learning and Teaching: Grades 7-12 Litig.,* 447 F. Supp. 2d 612, 628 (E.D. La. 2006). At this juncture, in the event the Court preliminarily approves the Settlement, no specific fee award will be established by the Court, but a 33⅓% ceiling on Class Counsel's request, will be put in place and noticed to Class Members.

VI. The Proposed Notice to the Classes Satisfies Rule 42 and Due Process Requirements

"Rule 42(1)(B) provides that "Notice of the material terms of the proposed settlement … shall be given to all members in such manner as the court directs." *Mullane v. Cent. Hanover Bank & Tr. Co.,* 339 U.S. 306, 314 (1950). To satisfy the due process requirements, notice to class members must be "reasonably calculated, under all the circumstances, to apprise interested parties of the pendency of the action and afford them an opportunity to present their objections." *Id*. Notice should also contain "information that a reasonable person would consider to be material in making an informed, intelligent decision of whether to opt out or remain a member of the class and be bound by the final judgment." *In re Nissan Motor Corp. Antitrust Litig.*, 552 F.2d 1088, 1105 (5th Cir. 1977).

A. The Mechanics of the Proposed Notice Program

Plaintiffs propose that notices be given in the form of the attached notices. The proposed form and method of the Classes notices describe in basic English the terms of operation of the Settlement, the considerations that caused Class Counsel to conclude the Settlement is fair and adequate, the maximum Class Counsel fees and expenses and class representative compensation that may be sought, the procedure for objecting to the Settlement, and the date, time, and place of the fairness hearing.

The Claims Administrator anticipates making an initial mailing to the Class Members. Plaintiffs also propose publishing the attached Summary Notice, which provides an abbreviated but informative description of the Lawsuits and the proposed Settlement, and also explains how to obtain the more detailed Notice and Claim Form. The attached Notice and Claim Form, as well as the attached Agreement detailing the Settlement, will also be posted on a website hosted by the Claims Administrator and dedicated to the Settlement administration of the Lawsuits. The Summary Notice will be published in print and online. Courts have consistently approved settlements that published the same number of notices using these publications.

B. The Scope of the Notice Program Is Adequate

The proposed forms of notice will fairly apprise Class Members of the Settlement and their options with respect thereto and fully satisfy due process requirements. There are no "rigid rules" that apply when determining the adequacy of notice for a class action settlement. Rather, when measuring the adequacy of a settlement notice in a class action under either the Due Process Clause or the Texas Rules, the court should look to the reasonableness of the notice program. *See In re Merrill Lynch & Co. Research Reports Sec. Litig.,* No. 02 MDL 1484, 2007 U.S. Dist. LEXIS 9450, at *26-28 (S.D.N.Y. Jan. 31, 2007); *In re Enron Corp. Sec. & ERISA Litig.,* Civ. No. H-01-3624, at 6 (S.D. Tex. July 24, 2003); *In re OCA, Inc. Sec. and Derivative Litig.,* No. 05-2165, 2008 U.S. Dist. LEXIS 84869, at *48-52 (E.D. La. Oct. 17, 2008).

C. The Proposed Form of Notice Comports With the Requirements of Due Process and Rule 42

The content of a notice is generally found to be reasonable if "the plain language of the Notice apprises all class members of the nature of the action." *In re OCA, Inc.*, 2008 U.S. Dist. LEXIS 84869, at *47. Specifically, the proposed notice of settlements must state: (i) the amount of the settlement proposed to be distributed to the parties to the action, determined in the aggregate and on an average per share basis; (ii) if the parties do not agree on the average amount of damages per share that would be recoverable in the event plaintiff prevailed, a statement from each party concerning the issue(s) on which the parties disagree; (iii) a statement indicating that settling parties or counsel intend to make an application for an award of attorneys' fees and costs (including the amount of such fees and costs determined on an average per share basis), and a brief explanation supporting the fees and costs sought; (iv) the name, telephone number, and address of one or more representatives of counsel for the plaintiff class who will be reasonably available to answer questions concerning any matter contained in the notice of settlement published or otherwise disseminated to the class; (v) a brief statement explaining the reasons why the parties are proposing the settlement; and (vi) such other information as may be required by the court. *Id.*

The proposed Notice contains all of the information required by Due Process. *See* Notice. The information is provided in a format that is accessible to the reader and advises Class Members of their right to exclude themselves from or object to any aspect of the Settlement. Accordingly, Plaintiffs respectfully submit that the proposed form of Notice satisfies Due Process and Rule 42, and should therefore be approved.

VII. Proposed Timeline of Events

In conjunction with the order preliminarily approving the Settlement, Plaintiffs respectfully request the Court set deadlines for the following events and has proposed a schedule which is set forth below:[1]

Event	Deadline
Notice and the Claim Form shall be mailed by first class mail to all Class Members (the "Notice Date")	**October 29, 2018**
Summary Notice to be published in the Dallas Police and Fire associations' websites, online at www.cityofdallasclaims.com, and local newspapers. Class Counsel shall place a copy of the Settlement documents on the its website.	**November 5, 2018**
Class Counsel to file affidavit of notice mailing and publication	**November 12, 2018**
Deadline for filing and serving all opening briefs and supporting documents in support of Applications	**December 17, 2018**
Deadline for submitting Requests for Exclusion	**November 28, 2018**

[1] Plaintiffs and the City agree to allow the Claims Administrator to adjust the proposed schedule so long as the sequencing of proposed deadlines remains the same.

Deadline for submitting any written objections	**December 17, 2018**
Deadline for filing and serving any responses or oppositions to any of the written objections	**January 17, 2019**
Deadline for filing and serving reply papers, if any, in further support of the objections or in response to any objections	**January 14, 2019**
Date of Settlement Fairness Hearing	**January 17, 2019**
Deadline for Class Members' submission of Proof of Claim and Release forms	**January 21, 2019**

VIII. DPFPS' Execution of the Agreement

DPFPS is a party to the Agreement. The details of this Settlement and the due process requirements of these Lawsuits proceeding to final Judgment do not require relief from nor relief in favor of DPFPS. The elements of the request for preliminary approval and each step in the process in advance of the final Judgment do not involve DPFPS. The Parties anticipate, based upon conferences among counsel, that DPFPS's counsel will recommend approval of the Agreement to DPFPS's Board of Trustees at the upcoming board meeting. The Parties agree that the due process steps should not be delayed in anticipation of DPFPS' execution of the Agreement. Therefore, in advance of the final execution of the Agreement by DPFPS this matter is presented to the Court for preliminary approval. The Agreement is otherwise fully executed.

IX. Conclusion

Based on the reasons discussed above, Plaintiffs respectfully request that the Court: (1) grant preliminary approval of the proposed Settlement; (2) approve the forms for mailed and published notices; (3) authorize the mailing and publication of the notices; and (4) set a date and time for the fairness hearing with respect to (i) final approval of the proposed Settlement and entry of the proposed final Judgment, (ii) the Plan of Allocation and (ii) Class Counsel's application for an award of attorneys' fees and expenses and Incentive Compensation Awards to the class representatives.

Respectfully submitted,

TED B. LYON & ASSOCIATES, P.C.

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CERTIFICATE OF SERVICE

I certify that a true and correct copy of this document (with accompanying exhibits) has been served upon all counsel of record in the manner indicated and via e-file, in accordance with the Texas Rules of Civil Procedure on this the 29th day of August, 2018.

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By: /s/ Ted B. Lyon
TED B. LYON

CERTIFICATE OF CONFERENCE

The undersigned hereby certifies that counsel for Plaintiffs conferred with counsel for the City, the City Officials, and DPFPS regarding *Plaintiffs' Unopposed Motion for Preliminary Approval of Class Action Settlement and Approval of Notice of the Class*. Counsel for the City, City Officials, and DPFPS stated that they were unopposed to the relief requested herein.

/s/ Marquette Wolf
Marquette Wolf

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C9

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.

Future Education and Business Related Travel
Regular Board Meeting – September 13, 2018

ATTENDING APPROVED

1. **Conference:** **NCPERS Public Pension Funding Forum**
   Dates: September 16-18, 2018
   Location: Cambridge, MA
   Est. Cost: $900

2. **Conference:** **NCPERS Public Safety Conference**
   Dates: October 28-31, 2018
   Location: Las Vegas, NV
   Est. Cost: $1,500

3. **Conference:** **NCPERS Legislative Conference**
   Dates: January 27-29, 2019
   Location: Washington, DC
   Est. Cost: TBD

4. **Conference:** **TEXPERS Annual Conference**
   Dates: April 7-10, 2019
   Location: Austin, TX
   Est. Cost: TBD

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

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

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

DALLAS POLICE & FIRE PENSION SYSTEM

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.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #D2

Topic: **Executive Director's report**

a. Associations' newsletters
- NCPERS Monitor (August 2018)

b. Staffing Update

c. Audit Update

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

THE NCPERS
MONITOR
The Latest in Legislative News
AUGUST 2018

In This Issue

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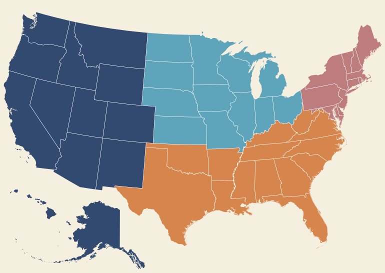
Photo Illustration © 2018, Shutterstock

There's no denying organized labor was dealt a setback when the Supreme Court on June 27 overturned 40 years of settled law in Janus vs. AFSCME. But it would be a big mistake for anyone to count the unions out.

4 Around the Regions



This month we highlight high returns in Florida, Oregon's auto-IRA's one year anniversary, Delaware's new supplemental pension fund, and Iowa's pension transfer.

Mid-Year Webcast Takes Stock of Achievements, Challenges

Photo © 2018, NCPERS

Public pensions scored a number of victories and only a handful of setbacks in the first half of 2018, but they can't be complacent heading in the November elections, according to participants in the NCPERS Mid-Year State and Legislative Update Webcast.

Anthony Roda, a principal in the law firm of Williams & Jensen, and Bridget Early, executive director of the National Public Pension Coalition, joined Hank Kim, NCPERS executive director and counsel, for the July 19 event, which attracted 50 participants.

Both Roda and Early noted that the public pension community had a number of wins. Late last year, it successfully fought off an attempt to impose the unrelated business income tax (UBIT) on certain of its investments. This would have been a significant financial burden on public plans. And highly engaged educators rose in support of wages, benefits, or both in at least five states.

Early said that the public pension community staved off attacks at the state level while advancing some proactive measures. She pointed to Colorado's SB200, signed into law in May. Alongside compromise provisions to increase the retirement age and implement a COLA freeze, SB200 contained a guarantee that the state would contribute $225 million annually to the pension plan. "It's a success any time we can states promise to fund pensions," Early said.

Another positive development occurred in Kentucky, where Governor Matt Bevin's bid to move all new teachers into a cash balance plan was derailed by a court decision ruling the measure unconstitutional. He could appeal, and it's also possible that Bevin will attempt to advance a revised measure in a special session or during 2019, Early noted.

CONTINUED ON PAGE 3

NCPERS Executive Directors Corner

Don't Bet Against Public-Sector Unions Despite Supreme Court Ruling

Photo Illustration © 2018, shutterstock

There's no denying organized labor was dealt a setback when the Supreme Court on June 27 overturned 40 years of settled law in *Janus vs. AFSCME*. But it would be a big mistake for anyone to count the unions out. If early indications are any sign, we can expect unions as well as legislators in union-friendly states to push back hard against this unwise ruling.

On a 5-4 vote, the Supreme Court ruled that government workers who decide not to join unions can't be required to pay for a proportionate share of collective bargaining costs. The ruling struck down an Illinois law on First Amendment grounds after a state worker sued, saying he did not agree with his workplace union's positions and should not be forced to pay so-called agency fees to support its work.

The ruling means union members in 21 states and the District of Columbia will have shoulder the full cost of contract bargaining and administration and other matters affecting wages, hours, and employment conditions—even though these efforts benefit union members and non-members alike. In 2017, the salary advantage of being represented by a public-employee union was, on average, $179 a week, according to the Bureau of Labor Statistics.

The 21 states, which include California, Illinois, Massachusetts, New Jersey, New York, Ohio, Pennsylvania and Rhode Island, have laws on the books that require non-union workers to contribute their fair share in the form of agency fees. So-called Right to Work states already ban these fees and thus are unaffected by the ruling.

Strong unions are vital to public pension advocacy at the state and local level. So any development that potentially weakens unions is a matter of concern for NCPERS.

Strong unions are vital to public pension advocacy at the state and local level. So any development that potentially weakens unions is a matter of concern for NCPERS. Fortunately, some steps are being taken already to reduce the impact of the ruling.

Governing magazine reported that in the first two weeks after the ruling, about a third of the affected states — most led by Democrats — had taken actions to make it harder for people to leave unions and harder for anti-union advocates to persuade them to leave.

Additionally, some states are looking at two-tier representation, permitting unions to stop offering services to non-members. For example, Rhode Island Governor Gina Raimondo in early July signed two bills to let police unions stop representing non-members in grievance cases. New York anticipated the ruling and added a similar rule — for all state employees — into its 2019 budget, which was signed in March.

There are also proposals afoot in New York, Hawaii and California to have governments make up any lost revenue, *Governing* reported.

Progress may be hampered somewhat by the fact that some state legislatures have already concluded their 2018 sessions. But unions are the backbone of the American workplace, and we have reason for optimism that the impact of the Janus case will be lightened through further legislative action. ◆

MID-YEAR WEBCAST CONTINUED FROM PAGE 1

Early also said coalitions in New Hampshire and Oklahoma scored victories by obtaining one-time COLA extensions for retirees. This will provide needed relief for retirees whose pension paychecks don't go as far as they once did due to inflation. Going forward, Early said, Georgia, Louisiana, Texas, and New Jersey are emerging as hot spots where it will be necessary to defend retirement benefits for current and future workers alike.

Roda singled out the Public Employee Pension Transparency Act, or PEPTA, which was recently re-introduced in the House as HR 6290, as a rising risk. Originally introduced in 2010, it has been championed in the House by Rep. Devin Nunes (R-Calif.) and in the Senate by Rep. Richard Burr (R-N.C.) and Sen. Orrin Hatch (R-Utah.)

If enacted, PEPTA would, for the first time in history, require state and local governmental pension plans to report to the U.S. Treasury on their funding status, among other issues. A key concern is that it would require pensions to recalculate their funded status using the Treasury's spot yield curve rate for 30-year bonds, which was 2.99 percent at the time of the webcast and at press time was 3.12 percent.

"It would make every plan in the country look horribly underfunded, strictly on paper," Roda said. He noted that the bill has been slimmed down over time from 90 pages to 11 pages. "PEPTA certainly would not travel on its own," he said, but there is a chance it will be attached to other legislation. He said the bill merits close watching because of Nunes's position as a member of the House Ways and Means and his links to the White House.

He also warned of a push toward about "Rothification," which has surfaced as a way to pay for tax reform. Rothification means funding a defined contribution plan with post-tax dollars rather than pre-tax dollars and it is gaining interest because of its potential for revenue generation, Roda said.

Roda also urged public pension plans to pay attention to the 16-member congressional Joint Select Committee on Solvency of Multiemployer Pension Plans. While the committee's work focuses on private sector Taft-Hartley Act plans, its recommendations could become a legislative vehicle for issues involving state and local plans. Turning to the midterm elections, Early said the primary cycle has been notable for "the emergence of the educator." In Kentucky, an educator beat the Republican House majority leader. And in Missouri, an educator won a special election for a state Senate seat, flipping it to the Democrats' column.

"I think we're looking at a worker wave," Early said. "It's about people wanting those in office who are going to advocate for the whole working package – not just wages and health care but retirement security as well." Well-publicized teacher activism in Arizona, Colorado, Kentucky, Oklahoma, and West Virginia this year may prove to be a bellwether, she added.

Roda gave better than even odds to the likelihood that Democrats will regain control of the House in November, but said the Senate appears more likely to remain in Republican hands.

He said a lame duck session is possible after the election, but gave

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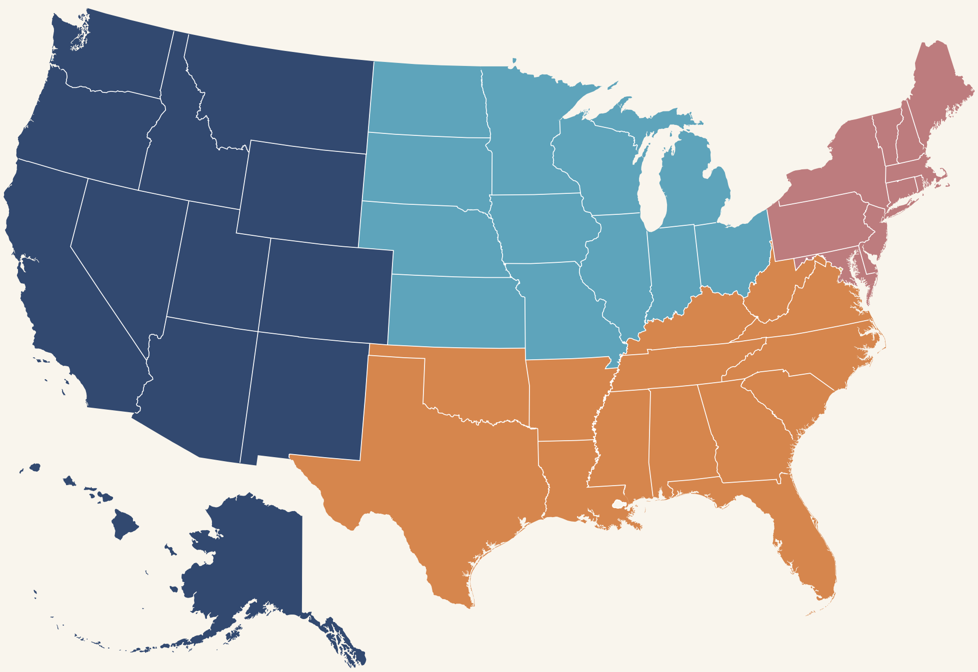
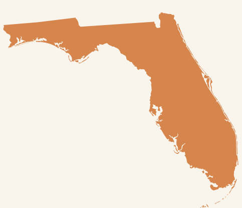
NCPERS Around the Regions

This month we highlight high returns in Florida, Oregon's auto-IRA's one year anniversary, Delaware's new supplemental pension fund, and Iowa's pension transfer.



SOUTH: Florida

Pension Fund Continues Winning Streak



Florida's state pension fund racked up a preliminary annual return of 8.99 percent for the fiscal year that ended June 30, its ninth consecutive year in positive territory.

The initial estimate showed that the Florida pension fund exceeded its aggregate performance benchmarks by 0.71 percent, the State Board of Administration (SBA) announced.

Ash Williams, the SBA's executive director, noted that fiscal year-end valuations for the fund's private-market assets, including real estate and private equity, have not yet been posted. He said the valuations "should further improve the return."

The 8.99 percent return helped the fund grow to $160.4 billion as of June 30, which was $6.8 billion higher than it started last July 1, even after accounting for benefit payouts offset by contributions.

The fund pays out more than $9 billion in benefits to retirees each year. Contributions from government agencies and active employees total $3.3 billion, making investment returns an important source of assets. Active employees have contributed 3 percent of salary since 2011.

The Florida pension fund plunged 19 percent in fiscal year 2009 due to the effects of Great Recession. Since then, the fund had two years where the return was less than 1 percent, but there were also five years of double-digit returns, including a 13.77 percent return in fiscal year 2017. Over the last 33 years, the fund has only had five negative years and has had 21 years of double-digit returns. Moody's Investor Services noted that Florida has "maintained consistently low debt and pension liabilities that compare well with other Aaa-rated states."

For the last four years, the state has lowered the "assumed" rate of return on the pension fund, which impacts the annual contribution amounts. Last fall, the Florida Retirement System Actuarial Assumption Conference lowered the projected rate from 7.6 percent to 7.5 percent. This resulted in the government agencies paying an additional $178.5 million in the new budget year, including $66.4 million from the counties, $54.4 million from the school districts and $31 million from the state agencies.

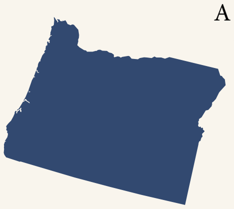
CONTINUED ON PAGE 5

AROUND THE REGIONS CONTINUED FROM PAGE 4

The state pension system includes more than 630,000 active employees, although about 117,000 who are enrolled in a 401(k)-type plan rather than the traditional pension plan. School district employees represent nearly half of the active workers, followed by county workers at 23 percent and state workers at 20 percent.

WEST: Oregon

Nation's First Auto-IRA Program Marks Anniversary



A year has passed since OregonSaves became the first state-sponsored auto-IRA program for private sector employees to open for business. Starting with a small pilot group of workers when it went live on July 1, 2017, Oregon Saves has since enrolled over 1,000 employers with 33,360 eligible employees. And it's just getting started.

OregonSaves has reported that workers are saving an average of $46.42 per pay check, or $100.21 per month, lifting program assets to more than $5 million. The average savings rate is 5.14 percent of gross pay, slightly more than the 5 percent default rate. In all, 73 percent of those eligible to enroll have done so – without benefit of special incentives such as an employer match or pre-tax savings.

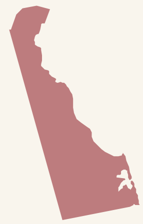
OregonSaves has promoted awareness of the program through 200 events and presentations to community organizations and 95 education sessions with employers and employees. The client services team has answered more than 12,000 phone calls and 4,000 emails.

The "third wave" of the program begins December 15, 2018, the deadline for employers with 20-49 workers to sign up. Employers with 100 or more workers were eligible to register in the first wave in November 2017, while those with 50 to 99 workers became eligible in May 2018. Additional employers will be eligible to sign up by the following deadlines:

- 10 to 19 employees – May 15, 2019
- 5 to 9 employees – Nov. 15, 2019
- 4 or fewer employees – May 15, 2020

NORTHEAST: Delaware

State Simplifies Access to Pension Supplements



Delaware's General Assembly on June 27 unanimously passed legislation designed to increase access to a rarely-used supplemental pension fund for police, firefighters, and their surviving spouses.

Previously, retired county and municipal police and firefighters could only access supplemental payments from a special fund if the relevant government entity submitted a proposal to the State Board of Pension Trustees. Only five such disbursements have been made in the fund's 48-year history. Existing law stipulates that any funds that are not disbursed within 10 years revert to Delaware's General Fund.

Senate Bill 11, the amendment adopted in June, created an additional mechanism for disbursing the funds. It authorized the State Board of Pension Trustees to provide biennial payments to eligible people receiving retirement, disability, or survivor pensions of less than $35,000 a year, even if the government unit from which the worker retired did not request it. Doing so could lift some beneficiaries out of poverty; the average surviving spouse in Wilmington's Police and Fire retirement plan receives a pension of $10,080, according to the bill.

Payments would vary based on length of retirement and would total at most $9,000 every two years. The payments come from a special fund that has been fed by a tax on insurance companies. Pension beneficiaries with incomes of less than $35,000 would be sorted into three categories, depending on length of retirement and whether the eligible individual is a surviving spouse or receiving a disability pension. The three categories would be eligible for up to $3,000, $6,000, or $9,000 in supplemental benefits, respectively. The first benefits would be paid September 1, 2019. The amounts paid may vary, because the fund is required to maintain a minimum balance of $500,000 after the disbursements are completed.

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MID-YEAR WEBCAST CONTINUED FROM PAGE 3

low odds to enactment of the so-called Tax Reform 2.0 package. "It could past he House with some troublesome provisions for our community, but it doesn't have a life of its own," and would be unlikely to gain Senate approval, he said.

Roda traced out a scenario in which a Democratic-led House would start 2019 with some tough floor votes for a Republican minority, including a "rifle-shot" bill to renew Deferred Action for Childhood Arrivals (DACA), a repeal of the $10,000 cap on state and local tax deductions, and a package of health care measures. And Democratic leaders would ratchet up oversight of the Trump Administration's actions and policies, he predicted.

Turning to regulations, Roda cited three topics to watch.

Normal retirement age regulations. Expectations are rising that the U.S. Treasury Department and the Internal Revenue Service will issue final regulations defining normal retirement age for the purposes of governmental pension plans by year-end.

Definition of governmental plan. The IRS received more than 2,000 comments on a 2011 advanced notice of proposed rulemaking covering Section 414(d) of the Internal Revenue Code. Many of the questions centered on how to determine whether charter schools are public or private entities.

"Pickup" requirements. In situations where a new plan tier or plan is created, tax rules govern how legacy plan participants can move their assets, Roda said. The basic question is what actions are required in order for a state or local government to "pick up" employee contributions to a qualified plan so that the contributions are treated as employer contributions. The House Appropriations Committee has weighed in calling for revisions to the Revenue Ruling 2006-43, which covers this topic, Roda said.

You can view the full webcast here. Join us for our next Center for Online Learning event, 'Dedicated Managed Accounts – Taking Control of Your Hedge Fund Allocations', with BNY Mellon on September 11, 2018!

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AROUND THE REGIONS CONTINUED FROM PAGE 5

MIDWEST: Iowa

Des Moines Pension Transfer Hits Roadblock

A plan to transfer a portion of the Des Moines Teachers Retirement System's assets into the Iowa Public Employees Retirement System has hit a stumbling block, the Des Moines Register reported July 9.

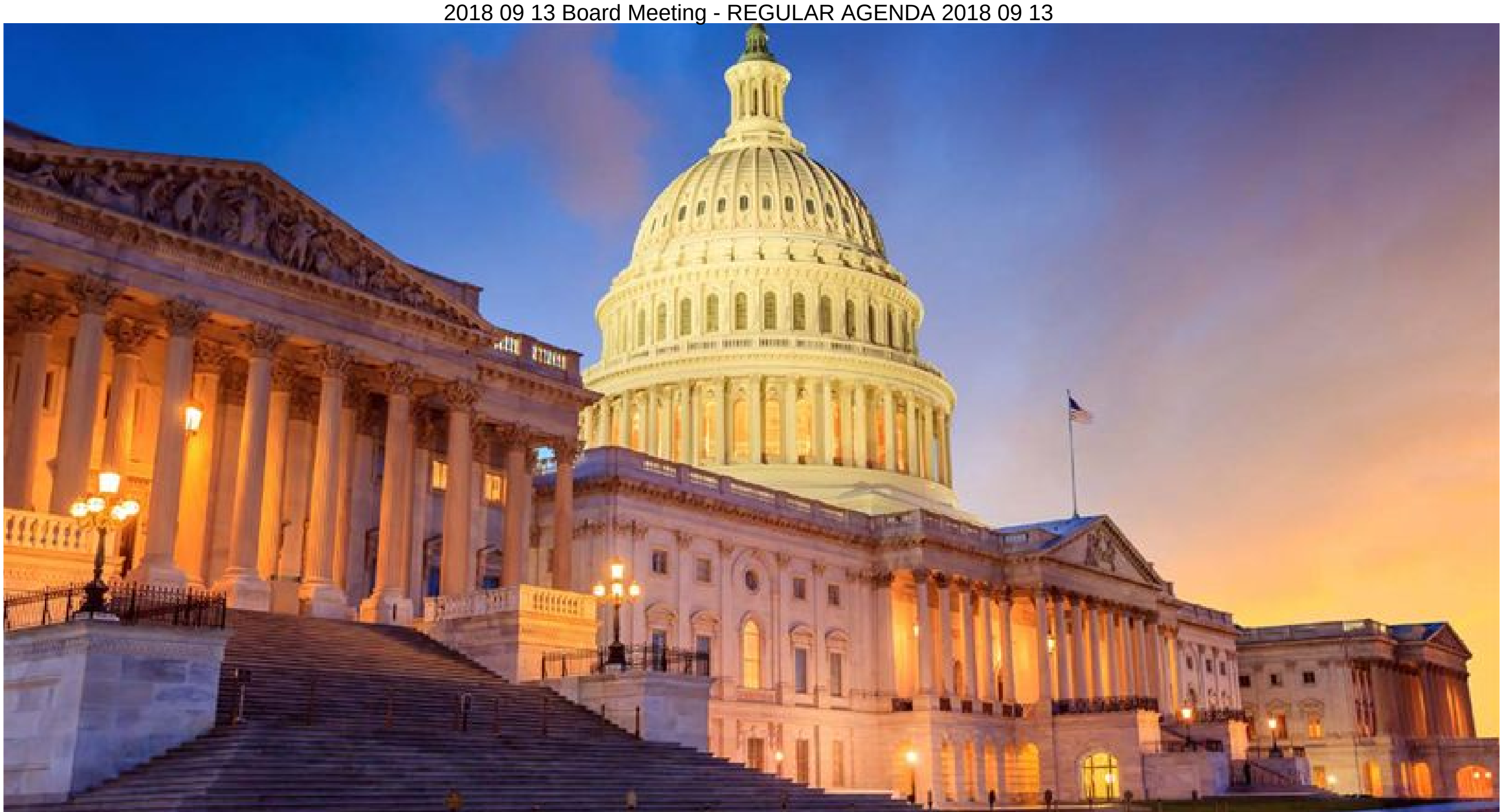
A new actuarial study found the cost to transfer the Des Moines plan to IPERS increased from an estimated $66 million two years ago to $82.5 million in June, the newspaper reported. Meanwhile, the Des Moines pension fund currently has about $236.8 million in total assets, down from about $245.1 million a year ago.

The transfer was expected to take place this summer subject to school board approval. At a contentious meeting on the matter, Nicholas Lenhardt, the school district's controller, said the plan is being reconsidered. "As of right now, we're in a holding pattern," Lenhardt said. "We're going to try to go back and have some discussions with IPERS about other possibilities."

Lenhardt assured retirees that the Des Moines plan is in "solid financial shape," the newspaper reported. There have been no additions to the Des Moines plan in two years, he added, noting that new employees are directed to IPERS.

Created in 1953, the Des Moines Teachers Retirement System is the state's only pension program operated by a school district.

Former Iowa Governor Terry Branstad signed legislation in 2017 to allow the transfer of the Des Moines pension fund into IPERS. The Des Moines school board must adopt a resolution to authorize the merger and must also approve any changes. IPERS is authorized, but not required, to accept a merger proposal. ◆



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October

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