Comprehensive Annual Financial Report

For the fiscal years ended
September 30, 2019 and 2018

Teachers' Retirement Fund and Police Officers and Fire Fighters' Retirement Fund

of the

District of Columbia Government

as managed by

The District of Columbia Retirement Board

Comprehensive Annual Financial Report

For the fiscal years ended September 30, 2019 and 2018

District of Columbia Retirement Board

a Pension Trust Fund of the District of Columbia

Prepared by the District of Columbia Retirement Board's Finance Department

900 7th Street NW
2nd Floor
Washington, D.C. 20001
(202) 343-3200
www.dcrb.dc.gov

ACTUARIAL SECTION

STATISTICAL SECTION

ADDITIONAL DISCLOSURES

This page intentionally left blank

INTRODUCTORY SECTION

Letter of Transmittal

900 7th Street, NW, 2nd Floor
Washington, DC 20001
www.dcrb.dc.gov

Telephone: (202) 343-3200
Facsimile: (202) 566-5000
E-mail: dcrb@dc.gov

April 23, 2020

Board of Trustees
District of Columbia Retirement
Board 900 7th Street NW
Washington, DC 20001

Dear Board Members:

It is my pleasure to submit the Comprehensive Annual Financial Report (CAFR or Report) of the District of Columbia Retirement Board (DCRB or Agency) for the fiscal year (FY) ended September 30, 2019. This CAFR is a presentation of the financial results that are intended to provide useful information related to DCRB's management of the assets in the District of Columbia Police Officers and Fire Fighters' Retirement Fund, and the District of Columbia Teachers' Retirement Fund (collectively referred to as the Fund), which are held in trust for our members.

The District is responsible for members covered under the District Replacement Plans for Police Officers, Firefighters, and Teachers (the District Plans), which were adopted on July 1, 1997. Fund assets, which are pooled for investment purposes, may only be used to pay benefits and expenses necessary to administer the retirement program. DCRB also serves as the third-party administrator for benefits earned through June 30, 1997, under the frozen, federally funded plans (the Frozen Plans), which are the responsibility of the U.S. Department of the Treasury (U.S. Treasury). U.S. Treasury reimburses DCRB for costs incurred for these third-party administrator services. Any reimbursement of administrative expenses from U.S. Treasury offsets the amount required from the Fund each year.

For the District Plans, the District Government, as the employer, is the Plan Sponsor, and is responsible for the design of the Plans, for certain benefits administration activities, and for paying the required employer contributions into the Fund. In addition to employer contributions, Fund income includes employee contributions, which are a fixed percentage of their pay, and investment earnings.

DCRB's mission includes two, overarching goals: (1) *to prudently invest and manage the assets of the Fund,* and (2) to *administer retirement benefits by providing members with accurate and timely pension payments, as well as excellent customer service*. Agency operations are managed in accordance with our fiduciary responsibilities and relevant legal authorities. The projects and initiatives in progress, as well as those planned for the future, are undertaken to support this mission.

Letter of Transmittal

PRUDENTLY INVEST AND MANAGE FUND ASSETS

One of DCRB's major, ongoing responsibilities is to prudently invest Fund assets, with the goal of earning a return that meets or exceeds our long-term actuarial return target of 6.5 percent. This target is intended to sustain the Fund's viability over the long-term investment horizon. I am pleased to report that, as of September 30, 2019, the Fund generated an annualized gross return of 8.7 percent since its inception in October 1982—substantially exceeding the 6.5 percent long-term actuarial investment return target. For *fiscal year* 2019, a volatile market year, the Fund earned a gross return of 3.9 percent. The gross return for *calendar year* 2019 was 16.9 percent.

In building a solid foundation for achieving long-term, sustainable risk-adjusted net returns, we continue to review investment manager performance against benchmark returns, rebalance the portfolio to maintain compliance with asset allocation targets and ranges, and monitor and evaluate investment manager fees. In FY 2019, we also successfully completed fee negotiations with several investment managers. This resulted in estimated annual fee savings to the Fund—along with improved alignment of interests.

We will further validate the accuracy of fees paid to our investment managers to ensure compliance with investment management agreements. This is a key initiative of the U.S. Securities and Exchange Commission, as well as the DCRB Board of Trustees.

In FY 2020, our focus will be on reviewing the Fund's strategic asset allocation. We plan on recommending an updated strategic asset allocation that should reduce equity-market risk through diversification, while maintaining a similar return expectation. We also expect to complete a search for an investment firm that will help DCRB increase its exposure to emerging and diverse investment managers.

More broadly, DCRB will continue providing ongoing education to Trustees and staff on a wide range of topics. This includes training on fiduciary principles; ethics; risk management and mitigation strategies; cybersecurity awareness; and actuarial principles. From a risk-management perspective, we understand that the integration of a strong governance, risk-mitigation, and compliance program is critical to sustaining longer-term investment returns. During FY 2019, DCRB enhanced our formal assessment of operational risks to identify, manage, and mitigate non-market risks. We are accomplishing this objective by focusing on business, legal, and operational risks as core factors for committing capital to new investment managers, and as part of ongoing monitoring efforts.

In FY 2020, DCRB will engage a consultant to conduct an operational fiduciary audit. This is a top-to-bottom analysis of the Agency's operations, processes, and performance needed to ensure that DCRB is following best practices and planning for Fund sustainability.

Letter of Transmittal

PROVIDE MEMBERS WITH ACCURATE AND TIMELY PAYMENTS AND EXCELLENT CUSTOMER SERVICE

Another of DCRB's major responsibilities is to administer retirement benefits. Among our primary tasks is to ensure the accurate calculation and timely payment of benefits to retired Plan members and their survivors and beneficiaries, and to provide them with excellent customer service. These services also include providing members with information about the Plans, responding to their questions, and keeping them aware of changes and issues related to their benefits.

Annual Benefits Statements and Member-focused Communications
DCRB will provide annual Estimated Benefits Statements to all active members of the Plans in FY 2020. We completed a benchmarking project to determine how our benefits administration operations compared with best practices and with other public pension systems of our size. The results revealed that DCRB lags its peers in the adoption of member-focused technology. For example, DCRB currently lacks an annuitant self-service website portal where members can update their personal information and receive timely and targeted communications. During FY 2019, we began discussions with U.S. Treasury and the District's Office of the Chief Technology Officer to explore the development of an online self-service application that will allow annuitants to access their benefit and tax-related information. Finally, in mid-2018, DCRB distributed updated Summary Plan Descriptions (SPDs) for each of the Plans to all Plan members.

Strategic Planning and Initiatives
In my first year as Executive Director, I set the course for DCRB's continued advancement with a re-evaluation of the Agency's current goals and objectives, to ensure that they continue to align with DCRB's mission. As part of that process, DCRB began a Strategic Planning Project in August 2019 that involved the Trustees and all DCRB employees.

In tandem with the Strategic Planning Project, and in preparation for the eventual acquisition of a pension management information system, we are refocusing our efforts on reviewing, analyzing, and documenting the major processes that are a part of our benefits administration operations. The purpose of this project is to update processes that were adopted several years ago in a paper-based environment, ensure alignment with the processes of our partner agencies, document key processes from end-to-end, and eliminate or adjust antiquated activities prior to memorializing them in a new system.

Management Responsibility for Financial Reporting

The responsibility for both the accuracy of the data and the completeness and fairness of the presentation of financial information, including all disclosures, rests with DCRB management. We believe the data, as presented, is accurate in all material respects; is presented in a manner designed to fairly set forth the Plan Fiduciary Net Position and the Changes in Fiduciary Net Position; and includes all disclosures necessary to enable the reader to gain the maximum understanding of the financial activities of the Fund.

The accounting records of DCRB are maintained by DCRB staff. Pension payment information is contained within the System to Administer Retirement (STAR), which is managed by the U.S. Department of Treasury. DCRB's employee payroll is processed through the District of Columbia's PeopleSoft System.

The Management Discussion and Analysis area of the Financial Section provides an introduction and overview of DCRB's financial statements. It supplements the Introductory Section of this CAFR, as well as the financial statements, notes, and supplementary information within the Financial Section.

The independent auditor's report was issued by the public accounting firm of McConnell & Jones, LLP, whose selection was approved by DCRB's Board of Trustees. This report on the Plans is presented in the Financial Section of this CAFR. DCRB's financial statements are audited annually. I am pleased to report that DCRB received an unmodified, or "clean," opinion for FY 2019, which is reflected in the opinion letter in the Financial Section of this document. DCRB will strive to obtain clean audit opinions annually, and will continue to report our financial activities according to accounting principles generally accepted in the United States of America.

Letter of Transmittal

The Agency's independent actuary performs an actuarial valuation each year. For FY 2019, DCRB engaged a new actuarial firm, Bolton. The actuarial certification letter provided by Bolton expressly states that the assumptions and methods used for funding purposes meet the parameters set by the Actuarial Standards of Practice (ASOP). The certification and related schedules included in the CAFR were provided by Cavanaugh Macdonald, whose selection was approved by DCRB's Board of Trustees. The valuation results are presented in the Actuarial Section of this CAFR.

Northern Trust, the custodian as of September 30, 2019, records and reports all investment and cash management transactions, and the staff exercises close review and controls over those records and transactions with prudent oversight by the Trustees.

DCRB management is responsible for maintaining internal accounting controls to provide reasonable assurance that transactions are properly authorized and recorded on an accrual basis in accordance with U.S. Generally Accepted Accounting Principles (GAAP), and that the financial statements conform with Governmental Accounting Standards Board (GASB) and American Institute of Certified Public Accountants (AICPA) reporting standards and GFOA guidelines. Consideration is given to the adequacy of internal accounting controls for systems under the control of DCRB, as well as to the systems shared with other governmental offices or service providers. These controls are designed to provide reasonable assurance regarding the safekeeping of assets and the reliability of financial records. Additional disclosures that are specifically required by statute also are included in this CAFR.

Awards

GFOA Awarded the Certificate of Achievement for Excellence in Financial Reporting to DCRB for its CAFR for the fiscal years ended September 30, 2018 and 2017. To be awarded a Certificate of Achievement, an organization must publish an easily readable and efficiently organized CAFR. This Report must satisfy both GAAP and other applicable regulatory requirements. A Certificate of Achievement is valid for a period of one year. We believe that our CAFR continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to GFOA to determine its eligibility for continuing certification.

We also were among the public retirement systems that received the Public Pension Coordinating Council's (PPCC) Public Pension Standards 2018 Award in recognition of meeting professional standards for plan design and administration. The PPCC is a national confederation of state retirement associations whose standards are widely recognized benchmarks for public pension systems in the areas of plan design, funding, actuarial and financial audits, benefits administration, and member communications.

Letter of Transmittal

Conclusion

In summary, I am pleased to report that the Fund is in sound financial condition, and that we continue striving to pay our Plan members accurately and timely. Further, the Trustees are fully engaged and committed to our mission, and we have a knowledgeable and experienced senior management team leading the Agency's strategic initiatives. Together, we continue to move forward in creating a comprehensive retirement system to serve the needs of Plan participants over the long-term.

I would like to express my appreciation to the U.S. Department of Treasury's Office of D.C. Pensions, the District of Columbia City Council, the D.C. Office of Financial and Operations Systems, the D.C. Office of Budget and Planning, all other D.C. Government Offices that support DCRB's Trustees, DCRB staff, consultants, and service providers for their tireless efforts to assure the financial soundness and successful operation of the District of Columbia Retirement Board.

If you have any questions regarding this CAFR of the District of Columbia Retirement Board for the fiscal year ended September 30, 2019, please direct them to my office at any time.

Respectfully submitted,

Sheila Morgan-Johnson,
Executive Director
District of Columbia Retirement Board

About DCRB

History

DCRB is an independent agency of the District of Columbia government that was created by Congress in 1979 under the Retirement Reform Act (the Reform Act). Prior to the Reform Act, eligibility and benefit rules and financing arrangements for the Plans were authorized by acts of Congress and administered by the Federal Government. Benefits were paid monthly from the general revenues of the U.S. Treasury on a “pay-as-you-go” basis when workers retired, not on a prefunded basis using actuarial assumptions and methods.

In 1997, with the passage of the National Capital Revitalization and Self-Government Improvement Act (the Revitalization Act), the Federal Government assumed responsibility for the unfunded pension liabilities for retirement benefits earned by District Teachers, Police Officers, and Firefighters as of June 30, 1997.

In 1998, the District of Columbia passed the Police Officers, Firefighters and Teachers Retirement Benefit Replacement Plan Act (the Replacement Plan Act), which established retirement plans for pension benefits accrued after June 30, 1997, and the method for calculating the employer’s (District of Columbia) annual contribution to the retirement Fund. The Board’s independent actuary determines the level of covered payroll and calculates the employer’s annual contribution, which is expressed as a percentage of payroll (the normal contribution rate) for each participant group.

With the passage of the District’s Office of Financial Operations and Systems Reorganization Act of 2004, DCRB assumed certain benefits administration responsibilities for the Plans from the District’s Office of Pay and Retirement Services. Those responsibilities included recordkeeping, related administrative tasks, and the payment of benefits for participants hired on or after July 1, 1997, who earned benefits under the District Plans. Under a memorandum of understanding signed in 2005, DCRB assumed recordkeeping and administrative tasks for participants hired prior to July 1, 1997, and whose benefit costs are the responsibility of the U.S. Treasury.

About DRCB

Profile of the Plans

The District of Columbia Police Officers and Firefighters' Retirement Plan provides retirement, service-related disability, non-service-related disability and death benefits. All police officers and firefighters of the District of Columbia automatically become members on their date of employment. Police cadets are not eligible.

The District of Columbia Teachers' Retirement Plan provides retirement, disability and death benefits. Permanent, temporary and probationary teachers for the District of Columbia public day schools become members automatically on their date of employment. Other employees covered include school librarians, principals and counselors. Former District of Columbia teachers working at charter schools may be eligible to remain in the Plan.

In order to minimize administrative expenses while providing a broad range of investment options that are economically feasible, the assets of the Plans are comingled for investment purposes. The investment returns of the Fund are calculated based on the fair value of the assets. The Board seeks long-term investment returns in excess of the actuarial investment rate of return assumption at a level of risk commensurate with the expected levels of returns and consistent with sound and responsible investment practices. The Board, working closely with investment consultants and with input from its actuary, selects the optimal asset allocation policy which best reflects the risk tolerance and investment goals of the Fund.

The asset allocation policy is implemented through the careful screening and selection of investment managers that have an audited, favorable, long-term track record, a disciplined investment process, and reasonable investment management fees. The Fund also seeks to outperform the Policy Benchmark, computed as the weighted average index return of the strategic asset allocation as described in the Investments Section.

Upon assuming responsibility for administering the Plans in September 2005, DCRB established a Benefits Department that is available to all active Plan members and retirees, calculates benefit payments and works closely with the U.S. Department of the Treasury's Office of D.C. Pensions (ODCP) to implement system changes resulting from software upgrades or legislation affecting Plan provisions. DCRB produces Plan communications that include periodic newsletters and Summary Plan Descriptions, as prescribed by statute. ODCP maintains the retirement information system that calculates benefits, issues monthly benefit payments to retirees and survivors and handles all payment-related activities, including tax withholdings and premiums for health and life insurance coverage.

By statute, the Board of Trustees is responsible for establishing DCRB's annual budget. The budget relies on monies derived from the Fund's investment earnings and employer and employee contributions. In addition, DCRB receives reimbursements as the third-party administrator for the Frozen Plans covering members whose pension benefits are financed by the U.S. Treasury. The District Council provides oversight of the budget process and, pursuant to Section 1-711 (f) of the District of Columbia Code, "may establish the amount of funds which will be allocated by the Board for administrative expenses, but may not specify the purposes for which such funds may be expended or the amounts which may be expended for the various activities."

Organizational Structure
As of September 30, 2019

District of Columbia Retirement Board

Board of Trustees

- **Executive Director**
  Sheila Morgan-Johnson
  - **Interim Chief Investment Officer**
    Patrick Sahm
  - **Interim Chief Benefits Office**
    Daniel Hernandez
  - **General Counsel**
    Erie Sampson
  - **Chief Financial Officer**
    Anthony Shelborne
  - **InformationTechnology Director**
    Ram Murphy
  - **Director of Stakeholder Communication and Outreach**
    Vacant

Auditor	Actuary	Investment Consultant
McConnell & Jones LLP	Bolton	Meketa Investment Group

*Information regarding the investment consultants can be found in the Schedule of Fees and Commissions in the Investments Section page 71.

Board of Trustees

As of September 30, 2019

DCRB's Board (the Board) has 12 Trustees, six (6) of whom are elected by the participant groups, three (3) who are appointed by the Mayor, and three (3) who are appointed by the District Council. In addition, the DC Treasurer (representing the District's Chief Financial Officer), serves on the Board as an ex-officio (non-voting) member. The Trustees, who are fiduciaries, must act solely in the interest of all Plan members.

Janice Adams
Mayoral Appointee
Current Term:
2017 - 2020

Lyle M. Blanchard
Treasurer
Council Appointee
Current Term:
2017 - 2021

Joseph M. Bress
Council Appointee
Current Term:
2016 - 2020

Joseph W. Clark
Chairman
Mayoral Appointee
Current Term:
2018 - 2022

Mary A. Collins *Elected Retired Teacher* Current Term:
2018 - 2022

Denise Daniels
Elected Active Teacher
Current Term:
2019- 2021

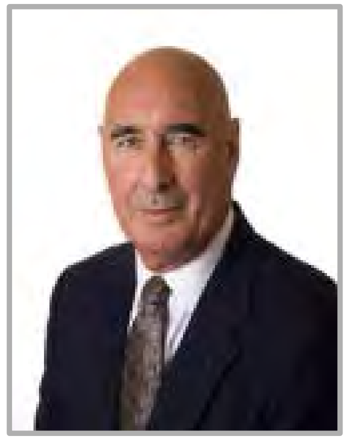
Gary W. Hankins
Sergeant-at-Arms
Elected Retired Police
Current Term:
2017 - 2021

Tracy S. Harris
Mayoral Appointee
Current Term: 2019 - 2023

Board of Trustees
As of September 30, 2019

Greggory Pemberton
Elected Active Police Officer
Current Term:
2019 - 2023

Edward C. Smith
Elected Active Firefighter
Current Term:
2017 - 2021



Thomas N. Tippett
Elected Retired Firefighter
Current Term:
2016 - 2020

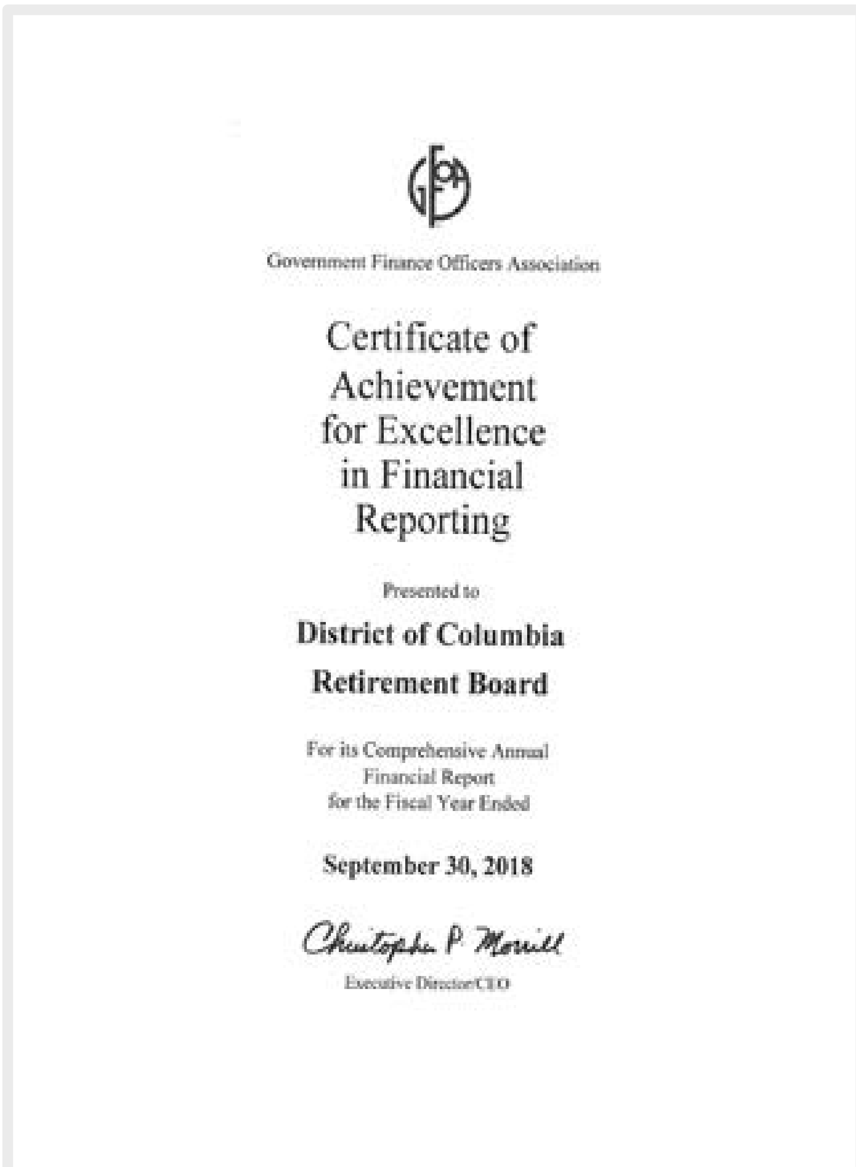
Michael J. Warren
Council Appointee
Current Term:
2019 - 2023

Bruno Fernandes
Designee of the D.C. CFO
D.C. Deputy CFO/Treasurer

Awards

Certificate of Achievement for Excellence in Financial Reporting

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to DCRB for our Comprehensive Annual Financial Report for the Fiscal Years ended September 30, 2018 and 2017. The Certificate of Achievement is awarded to a government entity for publishing an easily readable and efficiently organized comprehensive annual financial report that satisfies both generally accepted accounting principles and applicable legal requirements. DCRB's Finance Department has won this award for the past nine years. We believe our current comprehensive annual report continues to meet the Certificate of Achievement Program's requirements.



Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

District of Columbia Retirement Board

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

September 30, 2018

Christopher P. Morrill

Executive Director/CEO

Awards

Public Pension Standards Award

The Public Pension Coordinating Council (PPCC) awarded a Public Pension Standards Award for Funding to DCRB for the Fiscal Year ended September 30, 2018. In order to be awarded a Public Pension Standards Award, a public pension program must meet professional standards for plan funding as set forth in the Public Pension Standards. A Public Pension Standards Award is valid for a period of one year.

PPCC

Public Pension Coordinating Council

Recognition Award for Funding
2018

Presented to

District of Columbia Retirement Board

In recognition of meeting professional standards for
plan funding as set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation
of

National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems
(NCPERS)
National Council on Teacher Retirement (NCTR)

Alan H. Winkle

This page intentionally left blank

FINANCIAL SECTION

FINANCIAL STATEMENTS

FINANCIAL SECTION - REQUIRED SUPPLEMENTARY INFORMATION

FINANCIAL SECTION - SUPPLEMENTARY INFORMATION

MJ McCONNELL & JONES LLP
CERTIFIED PUBLIC ACCOUNTANTS

Independent Auditors' Report

To the Board of Trustees, District of Columbia Retirement Board for
District of Columbia Teachers' Retirement Fund and
District of Columbia Police Officers and Fire Fighters' Retirement Fund

Report on the Funds' Basic Financial Statements

We have audited the accompanying combining financial statements of District of Columbia Teachers' Retirement Fund and District of Columbia Police Officers and Fire Fighters' Retirement Fund (the Funds), Pension Trust Funds of the Government of the District of Columbia (the District), which comprise the Combining Statement of Fiduciary Net Position as of September 30, 2019, and the related Combining Statement of Changes in Fiduciary Net Position for the year then ended, and the related notes to the Funds combining financial statements, which collectively comprise the Funds' basic financial statements.

Management's Responsibility for the Funds' Basic Financial Statements

The Funds' management is responsible for the preparation and fair presentation of the Funds' basic financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the Funds' basic financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on the Funds' basic financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the Funds' basic financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the basic financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the basic financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Funds' preparation and fair presentation of the basic financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Funds' internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the basic financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the Funds' basic financial statements referred to above present fairly, in all material respects, the financial position of the Funds, as of September 30, 2019, and the respective changes in financial position for the year then ended, in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 1, these financial statements are intended to present the financial position and changes in financial position of the Funds, and do not purport to, and do not present fairly the financial position of the District of Columbia, as of September 30, 2019, and the changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

Other Matters

Prior Period Financial Statements

The combining financial statements of the Funds as of September 30, 2018, were audited by other auditors whose report dated December 28, 2018, expressed an unmodified opinion on those statements.

Required Supplementary Information

U.S. GAAP require that the management's discussion and analysis, schedule of changes in net pension liability and related ratios, schedule of employer contributions, and schedule of investment returns, as listed in the table of contents, be presented to supplement the Funds' basic financial statements. Such information, although not a part of the Funds' basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the Funds' basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the Funds' basic financial statements, and other knowledge we obtained during our audit of the Funds' basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the Funds' basic financial statements. The supplementary information, such as schedules of administrative expenses, schedules of investment expenses and schedules of payments to consultants, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the Funds' basic financial statements.

The supplementary information, as listed in the table of contents, is the responsibility of the Funds' management and was derived from and relate directly to the underlying accounting and other records used to prepare the Funds' basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the Funds' basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the Funds' basic financial statements or to the Funds' basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedules of administrative expenses, schedules of investment expenses and schedules of payments to consultants are fairly stated, in all material respects, in relation to the Funds' basic financial statements as a whole.

The introductory, investment, actuarial, statistical, and additional disclosures sections, as listed in the table of contents, have not been subjected to the auditing procedures applied in the audit of the Funds' basic financial statements, and accordingly, we do not express an opinion, or provide any assurance on it.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated January 16, 2020, on our consideration of the Funds' internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Funds' internal control over financial reporting, or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Funds' internal control over financial reporting and compliance.

McConnell & Jones LLP

Washington, D.C.
January 16, 2020

Management's Discussion and Analysis

INTRODUCTION

This discussion and analysis provides an overview of the financial activities of the District of Columbia Teachers' Retirement Fund (TRF) and Police Officers and Fire Fighters' Retirement Fund (POFRF), for the years ended September 30, 2019, 2018, and 2017, which collectively will be referred to as the "District Retirement Funds" or the "Fund." This discussion and analysis should be read in conjunction with the financial statements, the notes to the financial statements, the required supplementary information and the supplementary information provided in this Report.

The District of Columbia Retirement Board (the Board or DCRB) is an independent agency of the District of Columbia (the District or D.C.) Government. The Board is responsible for managing the assets of the District Retirement Funds. As authorized by D.C. Code, the Board pools the assets of the TRF and the POFRF into a single investment portfolio. The Board allocates the investment returns and expenses, and the administrative expenses of the Board, between the two District Retirement Funds in proportion to their respective net position. The Board maintains financial records of contributions, purchases of service, benefit payments, refunds, investment earnings, investment expenses, and administrative expenses.

Effective September 26, 2005, the Board entered into a Memorandum of Understanding (MOU) with the District of Columbia and the United States Department of the Treasury (the U.S. Treasury) to administer the pension benefits under the TRF and the POFRF for all retirees, survivors and beneficiaries that are the financial responsibility of the District of Columbia (service earned on and after July 1, 1997) and the Federal Government (service through June 30, 1997). In addition to the Board's administrative duties, the U.S. Treasury also provides certain administrative services related to the administration of pension benefits under the District of Columbia Teachers' Retirement Plan and the District of Columbia Police Officers and Firefighters' Retirement Plan (the Plans). The administrative costs incurred while administering the pension benefits are shared by DCRB and the U.S. Treasury in accordance with an MOU that is agreed to annually between the two parties.

OVERVIEW OF THE FINANCIAL STATEMENTS AND SCHEDULES

The following discussion and analysis are intended to serve as an introduction to DCRB's financial statements. The basic financial statements include:

The Combining Statements of Fiduciary Net Position are a point-in-time snapshot of plan fund balances at fiscal year-end. It reports the assets available to pay future benefits to retirees, and any liabilities that are owed as of the statement date. The resulting Net Position (Assets – Liabilities = Net Position) represents the value of assets restricted for pensions net of liabilities owed as of the financial statement date.

The Combining Statements of Changes in Fiduciary Net Position display the effect of financial transactions that occurred during the fiscal year, where Additions – Deductions = Change in Net Position. This increase (or decrease) in Net Position reflects the change in the value of Net Position Restricted for Pensions.

The Notes to Financial Statements contain disclosures and discussions which support the data presented in the financial statements. The notes present information about the creation and administration of the Fund, significant accounting policies, and investments. The notes are an integral part of the financial statements and should be considered in conjunction with any review of the financial statements.

The Required Supplementary Information consists of schedules of changes of employers' net pension liability and related ratios, employer contributions, and the money-weighted rate of investment returns.

The Supplementary Information includes additional information on the District Retirement Funds including schedules of administrative expenses, investment expenses, and payments to consultants. These schedules include more detailed information pertaining to the Plans.

ANALYSIS OF FINANCIAL INFORMATION

DCRB's funding objective is to meet long-term benefit obligations with net investment income and employer and member contributions. The discussion below provides an analysis of the current year's financial activities in relation to the current member population and relevant economic conditions for the combined Funds.

Management's Discussion and Analysis

Additions to Net Position (Revenues)

Additions to net position are comprised of employer contributions, employee contributions, net investment income, and other income. These additions for fiscal year 2019 totaled $544.7 million, a decrease of $109.2 million (16.7%) from the fiscal year 2018 amount of $653.8 million. This decrease was primarily due to the lower investment returns experienced in fiscal year 2019, as part of overall market volatility. Net investment income increased in fiscal year 2019; however, it increased by a lesser amount than in fiscal year 2018. Net investment income makes up about 58 percent of the total additions to net position figure. As a result, the lower net investment income had a significant impact.

Employer contributions in fiscal year 2019 totaled $144.6 million, a decrease of $20.0 million (12.2%) from the fiscal year 2018 amount of $164.6 million. The actuarial valuation report showed this decrease resulted primarily from better demographic experience of the member population versus the actuarial assumptions for the demographics. As a result, the decrease in total additions to net position was also affected by the lower employer contribution. Employer contributions make up 27 percent of the total additions to net position figure, so any change in employer contribution has a significant impact. The most recent Experience Study was completed in 2017, covering the years 2012 through 2015. DCRB plans to conduct a new actuarial Experience Study in fiscal year 2021. The results of this study may require a change in some assumptions in the future. The fiscal year 2019 employer contribution was derived from the contribution rate calculated in the actuarial valuation report for the period ended October 1, 2017, multiplied by covered payroll and adjusted for timing differences caused by the contribution being calculated 2 years in arrears. This adjustment is required by the D.C. Code.

Plan member contributions in fiscal year 2019 totaled $78.7 million, an increase of $3.9 million (5.2%) over the fiscal year 2018 amount of $74.8 million. Member contributions consist of amounts paid by members for future retirement benefits and increased for two reasons: salary increases, which are assumed to increase by 4.25 percent, and an increase in active, contributing participants. According to the October 1, 2019 actuarial valuation report, the total number of active participants increased by 217, an increase of 2.1 percent.

Investment income, net of investment fees, for fiscal year 2019 totaled $318.0 million and had a return of 3.8 percent, after a volatile market period during the fiscal year. Fortunately for the fund, the market rebounded later in the calendar year and had a gross return of 16.9 percent for calendar year 2019. Net investment income for fiscal year 2018 totaled $411.0 million and had a return of 5.4 percent, which was 1.1 percent below the actuarial investment return target of 6.5 percent. DCRB strives to build a solid foundation for achieving long-term, sustainable risk-adjusted net returns, and management will continue to review investment manager performance against benchmark returns and rebalance the portfolio to maintain compliance with asset allocation targets and ranges. Other income in fiscal year 2019 totaled $3.3 million, which was a decrease of $0.1 million from the fiscal year 2018 amount of $3.4 million. Other income consists mainly of reimbursements of administrative expenses from the U.S. Treasury, and the numbers do not fluctuate much from year to year.

Deductions from Net Position (Expenses)

The statutory mandate of DCRB is to provide retirement, survivor, and disability benefits to eligible members and their survivors. The costs of such programs include recurring benefit payments, elective refunds of contributions to employees who terminate employment, and the cost of administering the District Retirement Plans.

Deductions from net position are comprised of benefit payments, refunds, and administrative expenses. These deductions for fiscal year 2019 totaled $223.7 million, an increase of $14.7 million (7.0%) over the fiscal year 2018 amount of $209.0 million.

Benefit payments for fiscal year 2019 totaled $202.8 million, an increase of $17.6 million (9.5%) over the fiscal year 2018 amount of $185.2 million. This increase reflects the combination of a net growth in the number of retirees and survivors receiving benefits, which increased by 223 members (3.0%) to 7,706 participants in fiscal year 2019, from 7,483 in fiscal year 2018. This growth was coupled with COLA adjustments and an overall increase in the final average salary for new retirees. In fiscal years 2019 and 2018, benefit payments made on behalf of current retirees, survivors and beneficiaries comprised approximately 91% and 89% of the funds' expenses, respectively.

Refunds of member contributions in fiscal year 2019 totaled $8.0 million, an increase of $0.3 million (3.2%) over the fiscal year 2018 amount of $7.7 million. Refunds are typically much higher in the Teachers' Fund than in the Police Officer and Fire Fighters' Retirement Fund, because more teachers enter and leave the plan annually, than do the active participants in the Police Officer and Fire Fighters' Retirement Plan. These refunds of member contributions are at the discretion of the member and vary from year to year.

Administrative expenses in fiscal year 2019 totaled $12.9 million, a decrease of $3.1 million (19.5%) from the fiscal year 2018 amount of $16.0 million. This decrease was the result of a decline in professional services fees and lower personal services costs. DCRB serves as the third-party administrator for benefits earned through June 30, 1997, which are the responsibility of the U.S. Department of the Treasury (U.S. Treasury). U.S. Treasury reimburses DCRB for costs incurred for these third-party administrator services. Any reimbursement of administrative expenses from U.S. Treasury offsets the amount required from the Fund each year. In fiscal years 2019 and 2018, the administrative expenses were equivalent to 15 and 20 basis points of the assets under management, respectively.

Funding Status

As of September 30, 2019 (the date of the most recent actuarial valuation), the funding status was 105.5% for the combined Teachers' and Police Officer and Fire Fighters' Retirement Funds. DCRB is a well-funded yet immature system as a result of the 1999 asset split with the U.S. Treasury, in which the U.S. Treasury assumed responsibility for all benefit obligations prior to July 1, 1997. As the system continues to mature, investment income is beginning to provide a greater percentage of the funds necessary to pay retirement benefits. Therefore, the long-term rate of investment return is critical to DCRB's long-term funding status.

At September 30, 2019, the actuarial value of assets set aside to pay pension benefits was about $2.3 billion for the Teachers Retirement Fund (TRF) and about $6.3 billion for the Police Officers and Fire Fighters' Retirement Fund (POFRF) for a total of $8.6 billion. The fair value of these assets at September 30, 2019, included on the financial statements of DCRB, was $2.3 billion for the TRF and $6.3 billion for the POFRF for a total of $8.6 billion. Therefore, when viewing the actuarial funding status in this case, the market value of assets would provide a similar funding position to the actuarial value of assets as of the September 30, 2019 valuation.

FINANCIAL ANALYSIS SUMMARY

Net position may serve over time as a useful indication of DCRB's financial strength. At the close of fiscal years 2019 and 2018, the net position of DCRB totaled $8.5 billion and $8.2 billion, respectively. Net position serves to meet DCRB's ongoing obligations to Plan participants and their survivors and beneficiaries.

Management's Discussion and Analysis

Summary of Financial Information

The following Condensed and Combining Statements of Fiduciary Net Position and Changes in Fiduciary Net Position present financial information for the combined Funds and compares fiscal years 2019, 2018, and 2017.

Condensed and Combined Statements of Fiduciary Net Position (Dollars in thousands)

	2019	2018	2017	2019 Percent Change	2018 Percent Change
Assets					
Cash and Short-Term Investments	$ 76,434	$ 59,334	$ 88,216	28.8 %	(32.7)%
Receivables	8,620	8,657	63,684	(0.4)	(86.4)
Prepaid Expenses	151	-	-		
Investments	8,453,602	8,144,235	7,675,417	3.8	6.1
Total Assets	8,538,807	8,212,226	7,827,317	4.0	4.9
Liabilities					
Other Payables	6,977	7,973	6,337	(12.5)	25.8
Investment Commitments Payable	10,985	4,377	65,939	151.0	(93.4)
Total Liabilities	17,962	12,350	72,276	45.4	(82.9)
Net Position Restricted for Pensions	$8,520,845	$8,199,876	$7,755,041	3.9 %	5.7 %

Management's Discussion and Analysis

Condensed and Combined Statements of Changes in Fiduciary Net Position (Dollars in thousands)

	2019	2018	2017	2019 Percent Change	2018 Percent Change
Additions					
Employer Contributions	$ 144,627	$ 164,642	$ 202,412	(12.2)%	(18.7)%
Plan Member Contributions	78,675	74,802	67,788	5.2	10.3
Net Investment Income	318,034	410,971	894,864	(22.6)	(54.1)
Other Income	3,318	3,394	3,375	(2.2)	0.6
Total Additions (Reductions)	544,654	653,809	1,168,439	(16.7)	(44.0)
Deductions					
Benefit Payments	202,813	185,224	164,606	9.5	12.5
Refunds	7,951	7,706	7,813	3.2	(1.4)
Administrative Expenses	12,921	16,044	17,559	(19.5)	(8.6)
Total Deductions	223,685	208,974	189,978	7.0	10.0
Change In Net Position	$ 320,969	$ 444,835	$ 978,461	(27.8)%	(54.5)%

Management's Discussion and Analysis

FINANCIAL HIGHLIGHTS

The District of Columbia Retirement Board Combined Fund financial highlights are as follows:

- Net position restricted for pensions as of September 30, 2019 was $8.5 billion, an increase of $321.0 million or 3.9 percent over fiscal year 2018. Net position restricted for pensions as of September 30, 2018 was $8.2 billion, an increase of $444.8 million or 5.7 percent over fiscal year 2017. In both years the increase was the result of an increase in the value of the investments of the fund.

- Investment income, net of investment expenses, for fiscal year 2019 was $318 million and had a return of 3.9 percent. Despite the positive return for the year, the increase was less than the one that took place in fiscal year 2018, as the result of market volatility during the fiscal year. Investment income amount was 22.6 percent less in fiscal year 2019 than in 2018. Net investment income for fiscal year 2018 was $410.9 million and had a return of 5.4 percent. It was 54.1 percent less than the net investment income for fiscal year 2017, which totaled $894.9 million. This change was the result of a very strong market in 2017.

- Total additions to net position are comprised of employer contributions, employee contributions, net investment income, and other income. These additions for fiscal year 2019 totaled $544.7 million, a decrease of $109.2 million (16.7%) from the fiscal year 2018 amount of $653.8 million. The fiscal year 2018 amount of $653.8 million was a decrease of $514.6 million from fiscal year 2017. In both years, the decrease was primarily due to the lower investment returns experienced as part of overall market volatility. Employer contributions in fiscal year 2019 totaled $144.6 million, a decrease of $20.0 million (12.2%) from the fiscal year 2018 amount of $164.6 million. Employer contributions for fiscal year 2018 were $164.6 million, a decrease of $37.7 million or 18.7% as compared to fiscal year 2017. In both years, the decreases, as presented by the independent actuary, were the result of lower actual cost-of-living and salary increases than those projected to occur in the economic assumptions for the Plans.

- Plan member contributions in fiscal year 2019 totaled $78.7 million, an increase of $3.9 million (5.2%) over the fiscal year 2018 amount of $74.8 million. Plan member contributions for fiscal year 2018 were $74.8 million, an increase of $7.0 million or 10.3% over fiscal year 2017. Member contributions consist of amounts paid by members for future retirement benefits and those contributions increased because of salary increases and because of an increase in the total number of active participants.

- Total deductions are made up of annuitant benefit payments, lump-sum refunds of member contributions, and administrative expenses. Total deductions for fiscal year 2019 totaled $223.7 million, an increase of $14.7 million (7.0%) over the fiscal year 2018 amount of $209.0 million. Total deductions for fiscal year 2018 were $208.9 million, an increase of $19.0 million or 10.0% over fiscal year 2017.

- Annuitant benefit payments make up about 91 percent of total deductions; therefore, any change in benefit payments is the main driver of total deductions. Benefit payments for fiscal year 2019 totaled $202.8 million, an increase of $17.6 million (9.5%) over the fiscal year 2018 amount of $185.2 million. The fiscal year 2018 amount was in turn an increase of $20.6 million or 12.5% over fiscal year 2017. The increase in benefit payments was due to the increase in the number of retired members in the Plans, and the increases are expected to continue.

- Refunds of member contributions in fiscal year 2019 totaled $8.0 million, an increase of $0.3 million (3.2%) over the fiscal year 2018 amount of $7.7 million. Refunds of member contributions for fiscal year 2018 were $7.7 million, a decrease of $107 thousand or -1.4% as compared to fiscal year 2017. The total refunds vary from year to year.

- For fiscal year 2019, the costs of administering the plan decreased by $3.1 million (-19.5%) from fiscal year 2018, due to lower professional services fees and total staff compensation expenses.

ADDITIONAL INFORMATION

These financial statements of the District Retirement Funds are presented in accordance with accounting principles generally accepted in the United States of America. Questions about these financial statements or other inquiries should be addressed to the Executive Director, District of Columbia Retirement Board, 900 7th Street, NW, 2nd Floor, Washington, D.C. 20001.

This page intentionally left blank

FINANCIAL STATEMENTS

Combining Statements of Fiduciary Net Position

As of September 30, 2019 and 2018
(Dollar amounts in thousands)

	2019			2018		
	Teachers' Retirement Fund	Police Officers and Fire Fighters' Retirement Fund	Total	Teachers' Retirement Fund	Police Officers and Fire Fighters' Retirement Fund	Total
ASSETS						
Cash and Short-Term Investments	$ 20,298	$ 56,136	$ 76,434	$ 15,735	$ 43,599	$ 59,334
Receivables:						
Federal Government	437	1,161	1,598	568	1,054	1,622
Investment Sales Proceeds	252	695	947	272	752	1,024
Interest and Dividends	2	6	8	2	6	8
Employee Contributions	3,227	2,840	6,067	3,196	2,807	6,003
Total Receivables	3,918	4,702	8,620	4,038	4,619	8,657
Prepaid Expenses	41	110	151	-	-	-
Investments at Fair Value:						
Domestic Equity	606,643	1,677,696	2,284,339	585,891	1,623,381	2,209,272
International Equity	618,471	1,710,408	2,328,879	615,500	1,700,514	2,316,014
Fixed Income	714,375	1,975,633	2,690,008	676,194	1,873,591	2,549,785
Real Assets	181,943	503,170	685,113	183,811	509,300	693,111
Private Equity	123,558	341,705	465,263	98,427	277,626	376,053
Total Investments at Fair Value	2,244,990	6,208,612	8,453,602	2,159,823	5,984,412	8,144,235
Total Assets	2,269,247	6,269,560	8,538,807	2,179,596	6,032,630	8,212,226
LIABILITIES						
Accounts Payable and Other Liabilities	1,704	4,733	6,437	2,170	5,348	7,518
Due to Federal Government	144	396	540	159	296	455
Investment Commitments Payable	2,917	8,068	10,985	1,161	3,216	4,377
Total Liabilities	4,765	13,197	17,962	3,490	8,860	12,350
Net Position Restricted for Pensions	$ 2,264,482	$ 6,256,363	$ 8,520,845	$ 2,176,106	$ 6,023,770	$ 8,199,876

See accompanying Notes to Basic Combining Financial statements.

Combining Statements of Changes in Fiduciary Net Position

For the years ended September 30, 2019 and 2018
(Dollar amounts in thousands)

	2019			2018		
	Teachers' Retirement Fund	Police Officers and Fire Fighters' Retirement Fund	Total	Teachers' Retirement Fund	Police Officers and Fire Fighters' Retirement Fund	Total
Additions						
Contributions:						
District Government	$ 53,343	$ 91,284	$ 144,627	$ 59,046	$ 105,596	$ 164,642
Plan Members	40,432	38,243	78,675	40,324	34,478	74,802
Total Contributions	93,775	129,527	223,302	99,370	140,074	239,444
Investment Income:						
Net Appreciation in Fair Value of Investments	74,878	204,976	279,854	84,279	288,839	373,118
Interest and Dividends	14,908	41,072	55,980	13,863	38,381	52,244
Total Gross Investment Income	89,786	246,048	335,834	98,142	327,220	425,362
Less:						
Investment Expenses	4,739	13,061	17,800	4,013	10,378	14,391
Net Investment Income	85,047	232,987	318,034	94,129	316,842	410,971
Other Income	883	2,435	3,318	1,038	2,356	3,394
Total Additions	179,705	364,949	544,654	194,537	459,272	653,809
Deductions						
Annuitant Benefit Payments	81,471	121,342	202,813	78,430	106,794	185,224
Refunds of Member Contributions	6,418	1,533	7,951	6,126	1,580	7,706
Administrative Expenses	3,440	9,481	12,921	4,474	11,570	16,044
Total Deductions	91,329	132,356	223,685	89,030	119,944	208,974
Change in Net Position	88,376	232,593	320,969	105,507	339,328	444,835
Net Position Restricted for						
Beginning of Year	2,176,106	6,023,770	8,199,876	2,070,599	5,684,442	7,755,041
End of Year	$ 2,264,482	$ 6,256,363	$ 8,520,845	$ 2,176,106	$ 6,023,770	$ 8,199,876

See accompanying Notes to Basic Combining Financial statements.

Notes to Financial Statements

NOTE 1: ORGANIZATION

The District of Columbia Teachers' Retirement Fund (TRF) and the District of Columbia Police Officers and Fire Fighters Retirement Fund (POFRF), collectively referred to as the Fund or the District Retirement Funds, are two separate single-employer defined benefit pension plans that were established in 1979 by the District of Columbia Retirement Reform Act (the Reform Act, Pub. L. 96- 122, D. C. Code § 1-701 et seq.). The Fund holds in trust the assets available to pay pension benefits to teachers, police officers, and firefighters of the District of Columbia Government. The Reform Act also established the District of Columbia Retirement Board.

The National Capital Revitalization and Self-Government Improvement Act of 1997 (the Revitalization Act, Title XI of the Balanced Budget Act of 1997, Pub. L. 105-33) transferred significant assets and liabilities of the District Retirement Funds to the Federal Government. The Revitalization Act transferred to the Federal Government the liability for retirement benefits for employee service credit earned prior to July 1, 1997, by participants of the District Retirement Funds. The assets transferred to the Federal Government were intended to partially fund this liability.

On September 18, 1998, the Council of the District of Columbia (the Council) enacted the Police Officers, Fire Fighters, and Teachers Retirement Benefit Replacement Plan Act of 1998 (the Replacement Act). The Replacement Act established the District Retirement Funds for employee service earned after June 30, 1997 and provided for full funding of these benefits on an actuarially sound basis.

The Board is an independent agency of the District of Columbia government that is responsible for managing the assets of the TRF and the POFRF. Although the assets of these funds are commingled for investment purposes, each fund's assets may only be used for the payment of benefits to the participants of that fund and certain administrative expenses.

The District Retirement Funds are included in the District's Comprehensive Annual Financial Report as a pension trust fund.

NOTE 2: FUND ADMINISTRATION AND DESCRIPTION

District of Columbia Retirement Board

The Board consists of 12 trustees, three appointed by the Mayor of the District, three appointed by the Council of the District, and six elected by the active and retired participants. Included are one active and one retired representative each, from the police officers, firefighters, and teachers. Each of the six representatives of the Plans' participants is elected by the respective groups of active and retired employees. In addition, the District's Chief Financial Officer or his designee serves as a nonvoting, ex-officio trustee.

Since its inception, the Board has operated under a committee system which provides a two-tiered process for fiduciary review and analysis. In this manner, the Board, consistent with its fiduciary duties, reviews all issues brought before it. The Board has six standing committees: Benefits, Audit, Fiduciary, Investments, Legislative, and Operations. To implement its policies, the Board retains an executive director and other staff who are responsible for the day-to-day management of the District Retirement Funds and the administration of the benefits paid from the Funds.

Teachers' Retirement Fund

Other Entities involved in Plan Administration – The District of Columbia Public School's (the DCPS) Office of Human Resources makes decisions regarding voluntary and involuntary retirement, survivor benefits, and annual medical and income reviews.

Benefits Calculation – DCRB's Benefits Department receives the approved retirement applications for all active Plan members found eligible for retirement by the DCPS Office of Human Resources and carries out the day-to-day processing of retirement benefits. DCRB also processes employee requests for refunds of contributions and purchases of service.

Eligibility – Permanent, temporary, part-time and probationary teachers and certain other employees of the District of Columbia public day schools are automatically enrolled in the Teachers' Retirement Fund on their date of employment.

Notes to Financial Statements

NOTE 2: FUND ADMINISTRATION AND DESCRIPTION (CONTINUED)

Teachers' Retirement Fund (Continued)

Certain D.C. Public Charter School employees are also eligible to be participants. However, substitute teachers and employees of the Department of School Attendance and Work Permits are not covered.

Title 38, Chapter 20 of the D.C. Official Code (D.C. Code § 38-2021.01 et seq. (2001 Ed.)) establishes benefit provisions which may be amended by the District City Council. For employees hired before November 1, 1996, the annual retirement benefit is the average salary, as defined, multiplied by 1.5% for each of the first five years of service, plus 1.75% for each of the second five years; plus 2% for each additional year over 10 years. For employees hired on or after November 1, 1996, the annual retirement benefit is the average salary, as defined, multiplied by 2% for each year of service. The average salary is the highest average consecutive 36 months of pay.

The annuity may be further increased by crediting unused sick leave as of the date of retirement. Participants receiving retirement benefits receive an annual benefit increase proportional to changes in the Consumer Price Index; however, the annual increase may not exceed 3% for participants hired on or after November 1, 1996. Participants may select from among several survivor options.

Participants who have 5 years of school service (by working for the District of Columbia public school system), and who become disabled and can no longer perform their jobs satisfactorily, may be eligible for disability retirement. Such disability retirement benefits are calculated in the same manner as a retirement benefit, however, a minimum disability benefit applies.

Voluntary retirement is available for teachers who have a minimum of 5 years of school service and who achieve the following age and length of service requirements:

- at age 62 with 5 years of service;
- at age 60 with 20 years of service; and
- at age 55 with 30 years of service; if hired before November 1, 1996; or
- at any age with 30 years of service, if hired by the school system on or after November 1, 1996.

Employees who are involuntarily separated other than for cause and who have 5 years of school service, may be eligible for retirement at any age with 25 years of service or at age 50 with 20 years of service.

An involuntary retirement benefit is reduced if, at the time of its commencement, the participant is under the age of 55.

Police Officers and Fire Fighters' Retirement Fund

Other Entities involved in Plan Administration – The District of Columbia Police Officers and Fire Fighters Retirement and Relief Board makes findings of fact, conclusions of law, and decisions regarding eligibility for retirement and survivor benefits, determines the extent of disability, and conducts annual medical reviews. The Police and Fire Clinic determines medical eligibility for disability retirement.

Benefits Calculation – DCRB's Benefits Department receives the retirement orders for retirement benefit calculations for all active Plan members found eligible for retirement by the District of Columbia Police Officers and Fire Fighters Retirement and Relief Board, and carries out the day-to-day processing of retirement benefits. DCRB also processes employee requests for refunds of contributions and purchases of service. Effective 2013, DCRB began conducting annual disability income reviews.

Eligibility – A participant becomes a member when he/she begins work as a police officer or firefighter in the District. Cadets are not eligible to join the Fund.

Retirement and disability benefit provisions for District of Columbia police officers and firefighters are established by the "Policemen and Firemen's Retirement and Disability Act" (D.C. Code § 5 701 et seq. (2001 Ed.)).

Notes to Financial Statements

NOTE 2: FUND ADMINISTRATION AND DESCRIPTION (CONTINUED)

Police Officers and Fire Fighters' Retirement Fund (Continued)

Members Hired Before February 15, 1980 – Members are eligible for optional retirement with full benefits at any age after 20 years of departmental service, or for deferred retirement at age 55 after five years of departmental service. The annual basic retirement benefit equals 2.5% of average base pay, which is defined as the highest average consecutive 12 months of base pay, multiplied by departmental service through 20 years; plus 3% of average base pay multiplied by average base pay times departmental service over 20 years; plus 2.5% of average base pay multiplied by years of other creditable service; however, the aggregate annual basic retirement benefit may not exceed 80% of the member's average base pay. Members terminated after five years of police or fire service are entitled to a deferred pension beginning at age 55. Benefits are also provided to certain survivors of active, retired, or terminated vested members. Retirement benefits are increased by the same percentage in base pay granted to active participants.

Members with a service-related disability receive a disability retirement benefit of 2.5% of average base pay multiplied by the number of years of creditable service. A minimum annual disability retirement benefit of 66⅔% of average base pay and a maximum annual disability retirement benefit of 70% of average base pay apply.

Members with a nonservice related disability and at least five years of departmental service receive a disability retirement benefit of 2% of average base pay multiplied by the number of years of creditable service. A minimum annual disability retirement benefit of 40% of average base pay and a maximum annual disability retirement benefit of 70% of average base pay apply.

Members Hired On or After February 15, 1980 and Before November 10, 1996 –Members are eligible for optional retirement with full benefits at age 50 with at least 25 years of departmental service, or after age 55 with five years of departmental service. The annual basic retirement benefit equals 2.5% of average base pay, which is defined as the highest average consecutive 36 months of base pay, multiplied by the number of years of creditable service through 25 years; plus 3% of average base pay multiplied by the number of years of departmental service over 25 years; plus 2.5% of average base pay multiplied by the number of years of other creditable service; however, the aggregate annual basic retirement benefit may not exceed 80% of the member's average base pay. Members separated from the Police or Fire Department after five years of departmental service are entitled to a deferred pension beginning at age 55.

Benefits are also provided to certain survivors of active, retired, or terminated vested members. Members who retired after February 15, 1980 receive annual benefit increases proportional to changes in the Consumer Price Index.

Members Hired on or After November 10, 1996 – Members are eligible for retirement at any age, with at least 25 years of departmental service or after age 55 with five years of departmental service. The annual basic retirement benefit equals 2.5% of average base pay, which is defined as the highest average consecutive 36 months of base pay, multiplied by creditable service; however, the aggregate annual basic retirement benefit may not exceed 80% of the average base pay. Members separated after five years of departmental service are entitled to a deferred pension beginning at age 55. Benefits are also provided to certain survivors of active, retired, or terminated vested members. Members receive annual benefit increases proportional to changes in the Consumer Price Index, however, the increase is capped at 3%.

Members with a service-related disability receive a disability retirement benefit of 70% of base pay multiplied by the percentage of disability. A minimum annual disability retirement benefit of 40% of base pay applies.

Members with a nonservice related disability and at least five years of departmental service receive a disability retirement benefit of 70% of base pay multiplied by the percentage of disability. A minimum annual disability retirement benefit of 30% of base pay applies.

Prior to reaching age 50, a disability retirement benefit will be reduced or terminated if outside earnings exceed a certain limit.

Notes to Financial Statements

Participant Data

The number of participants for the years ended September 30 was as follows:

Teachers' Retirement Fund	2019	2018	2017
Retirees and Survivors Receiving Benefits			
(Post June 30, 1997)	4,059	3,990	3,899
Active Plan Members	5,226	5,066	5,199
Vested Terminations	1,446	1,429	1,330
Total TRF participants	10,731	10,485	10,428

Police Officers and Fire Fighters' Retirement Fund	2019	2018	2017
Retirees and Survivors Receiving Benefits			
(Post June 30, 1997)	3,699	3,441	3,215
Active Plan Members	5,406	5,349	5,312
Vested Terminations	261	315	340
Total POFRF participants	9,366	9,105	8,867

Totals	2019	2018	2017
Retirees and Survivors Receiving Benefits			
(Post June 30, 1997)	7,758	7,431	7,114
Active Plan Members	10,632	10,415	10,511
Vested Terminations	1,707	1,744	1,670
Total Participants	20,097	19,590	19,295

Contributions

As a condition of participation, members are required to contribute certain percentages of salaries as authorized by statute. Fund members contribute by salary deductions at rates established by D.C. Code § 5-706 (2001 Ed.). Members contribute 7% (or 8% for Teachers and Police Officers and Firefighters hired on or after November 1, 1996 and November 10, 1996, respectively) of annual gross salary, including any differential for special assignment and longevity, but excluding overtime, holiday, or military pay.

The District is required to contribute the amounts necessary to finance the Plan benefits of its members through annual contributions at actuarially determined amounts in accordance with the provisions of the Replacement Act. The amount of the District contributions for fiscal years 2019 and 2018 were equal to the amounts computed, if any, by the Board's independent actuary.

Contribution requirements of members are established by D.C. Code §5-706 and requirements for District of Columbia government contributions to the Fund are established at D.C. Code §1-907.02 (2001 Ed.), which may be amended by the City Council.

Notes to Financial Statements

NOTE 3: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

DCRB's financial statements were prepared in accordance with accounting principles generally accepted in the United States (GAAP) using the accrual basis of accounting. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and reporting principles. Employee contributions are recognized at the time compensation is paid to Plan members. Employer contributions are recognized when due and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the retirement Plan's commitment.

Federal Income Tax Status

The District Retirement Funds are qualified plans under section 401(a) of the Internal Revenue Code and are exempt from federal income taxes under section 501(a).

Use of Estimates in Preparing Financial Statements

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires the Board to make estimates and assumptions that affect the reported amounts of assets, liabilities, additions and deductions to net position restricted for pensions and disclosure of contingent assets and liabilities at the date of the financial statements and during the reporting period. Actual results could differ from those estimates.

Investment Expenses

The District of Columbia Appropriation Act authorized Fund earnings to be used for investment expenses incurred in managing the assets and administering the Fund. The total investment expenses borne by the District Retirement Funds was $17,800,245 in 2019 and $14,390,879 in 2018. A significant number of the alternative investment managers provide account valuations net of management expenses. Those expenses are netted against investment income and, because they are not separable, are recorded and reported net of management expenses in the net (depreciation) appreciation in the fair value of investments.

Reclassification

Certain accounts in the prior-year financial statements have been reclassified for comparative purposes to conform to the presentation in the current-year financial statements.

Notes to Financial Statements

NOTE 4: INVESTMENTS

The Board is authorized to manage and control the investment of the District Retirement Funds' assets. The Board broadly diversifies the investments of the District Retirement Funds to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so, as required by D.C. Code § 1-741(a)(2)(C), (2001 Ed.).

Master Trust – The Board has pooled all of the assets under its management (the Investment Pool), as is authorized by D.C. Code § 1-903(b), (2001 Ed.), with a master custodian under a master trust arrangement (the Master Trust). Using an investment pool, each Fund owns an undivided proportionate share of the pool.

District and employee contributions are deposited in the respective Retirement Fund for which the contribution was made, and benefit payments and employee contribution refunds are withdrawn from the Fund in which the recipient participates. Investment performance and administrative expenditures are allocated between the two Funds based upon their proportionate net position in the pool.

The fair values of investments of the Investment Pool as of September 30 are as follows:

(Dollars in thousands)

	2019	2018
Cash and short-term investments	**$ 76,434**	**$ 59,334**
Investments:		
Domestic Equity	2,284,339	2,209,272
International Equity	2,328,879	2,316,014
Fixed Income	2,690,008	2,549,785
Real Assets	685,113	693,111
Private Equity	465,263	376,053
Total Investments	**8,453,602**	**8,144,235**
Total	**$ 8,530,036**	**$ 8,203,569**

Annual money-weighted rate of return – The money-weighted rate of return shows investment performance when taking into account the impact of cash infusion into and disbursements from the pension system. The rates are shown net of fees. The rate for 2018, in the prior-year financial statements, were shown gross of fees, and it is restated in these financial statements. For the years ended September 30, 2019 and 2018, the money-weighted rates of return, as calculated by the custodian based on a month-end net flow weighting method, were as follows:

	FY 2019	FY 2018
Total Portfolio	3.84%	5.34%

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

Debt Instruments – As of September 30, 2019, the Investment Pool held the following debt instruments:

(Dollars in thousands)

Investment Type	Fair Value	% of Segment	Duration (Years)	Rating*
US Agency	$ 25,753	0.96 %	3.39	AA+
Asset Backed	11,387	0.42	2.73	AAA
Bank Loans	396,347	14.73	0.02	B
Cash Equivalent	26,757	0.99	-	A-1+
CMBS	18,919	0.70	5.09	AA+
CMO	279	0.01	0.96	AA+
Corporate - US	295,936	11.00	6.87	BBB+
Corporate - Euro	16,518	0.61	3.79	A-
Foreign	507,563	18.87	6.23	BBB+
Mortgage Pass-Through	249,308	9.27	2.55	AA+
Municipal	5,685	0.21	11.41	AA-
Options	11,258	0.42	-	
Private Placement	141,086	5.24	2.69	CCC+
US Treasury	980,713	36.46	7.34	AA+
Unclassified	2,499	0.09	-	BB-
Total Fixed Income	$ 2,690,008	100.00 %		

* Using quality ratings provided by Standard & Poor's

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

Debt Instruments – As of September 30, 2018, the Investment Pool held the following debt instruments:

(Dollars in thousands)

Investment Type	Fair Value	% of Segment	Duration (Years)	Rating*
US Agency	$ 28,265	1.11 %	3.62	AA+
Asset Backed	14,031	0.55	2.44	AAA
Bank Loans	336,943	13.21	0.03	B-
Cash Equivalent	52,470	2.06	-	A-1+
CMBS	16,866	0.66	5.09	AA+
CMO	722	0.03	1.07	AA+
Corporate - US	307,830	12.07	6.03	BBB
Corporate - Euro	15,918	0.62	2.23	BBB+
Foreign	446,869	17.53	5.71	A
Mortgage Pass-Through	251,733	9.87	4.91	AA+
Municipal	5,592	0.22	10.77	AA-
Options	15,949	0.63	-	
Private Placement	108,984	4.27	3.29	CCC+
US Treasury	944,221	37.03	7.00	AA+
Unclassified	3,392	0.13	-	BB-
Total Fixed Income	$ 2,549,785	100.00 %		

* Using quality ratings provided by Standard & Poor’s

Interest Rate Risk – Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Generally, an investment with a longer maturity will have a greater sensitivity to fair value changes that are related to market interest rates. The Board monitors the interest rate risk inherent in its portfolio by measuring the weighted average duration of its portfolio. Duration is a measure of a debt investment’s exposure to fair value changes arising from changing interest rates. It uses the present value of cash flows, weighted for those cash flows as a percentage of the investment’s full price. As a general rule, the risk and return of the Board’s fixed income segment of the portfolio is compared to the Barclays Capital U.S. Universal Index. To mitigate interest rate risk, the fixed income segment is expected to maintain a weighted average duration (sensitivity to interest rate changes) within +/-2 years of the duration of this Index.

Credit Risk – Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. This is measured by the assignment of a rating by a nationally recognized statistical rating organization. Unless specifically authorized otherwise in writing by the Board, fixed income managers invest in investment grade instruments rated in the top four rating categories by a recognized statistical rating service.

***Custodial Credit Risk* -** The Funds had custodial credit risk exposure during fiscal 2019 totaling $2,739,253. Investments held by the custodian on behalf of DCRB were held in an account in the name of DCRB. Funds not invested at the end of a given day were placed in overnight instruments in the name of DCRB.

Foreign Currency Risk – Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. As a general policy, investment managers with authority to invest in issuers denominated in a foreign currency may reduce exposure to currency risk by systematically hedging foreign currency positions back to U.S. dollars through the forward currency markets. Since the forward exchange rate is seldom equal to the spot exchange rate, forward hedging gains and losses may arise. For the years ended September 30, 2019 and 2018, the Investment Pool held amounts in commingled funds which invested in foreign currencies totaling approximately $3.2 billion and $3.1 billion, respectively.

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

As of September 30, 2019, the Investment Pool held investments that were denominated in a currency other than the United States Dollar, as summarized below:

(Dollars in thousands)

	Asset Class				
	Cash	Equities	Fixed Income	Private Equity	Total
Canadian Dollar	$ -	$ -	$ -	$ 18,057	$ 18,057
British Sterling	-	-	-	13,808	13,808
Euro	-	-	-	40,961	40,961
Total Foreign	$ -	$ -	$ -	$ 72,826	$ 72,826

As of September 30, 2018, the Investment Pool held investments that were denominated in a currency other than the United States Dollar, as summarized below:

(Dollars in thousands)

	Asset Class				
	Cash	Equities	Fixed Income	Private Equity	Total
Canadian Dollar	$ -	$ -	$ -	$ 6,036	$ 6,036
British Sterling	-	-	-	8,371	8,371
Swiss Franc	-	-	-	109	109
Euro	199	-	-	58,084	58,283
Total Foreign	$ 199	$ -	$ -	$ 72,600	$ 72,799

Securities Lending Transactions – The Board's policies permit the District Retirement Funds to participate in securities lending transactions by relying on a Securities Lending Authorization Agreement, which authorizes the master custodian to lend the Board's securities to qualified broker-dealers and banks pursuant to a form of loan agreement.

The Board may participate in securities lending through its custodian in the future; however, it did not do so in fiscal years 2019 and 2018.

Derivative Investments – Derivatives are generally defined as contracts in which the value depends on, or derives from, the value of an underlying asset, reference rate, or index. Derivative investments generally contain exposure to credit risk, market risk, and/or legal risk. Credit risk is the exposure to the default of another party to the transaction (counterparty). Market risk is the exposure to changes in the market, such as a change in interest rates, currency exchange rates, or a change in the price or principal value of a security. The Board believes that all contracts entered into are legally permissible in accordance with the policy of the Board.

During 2019 and 2018, the District Retirement Funds, in accordance with the policy of the Board, and through the District Retirement Funds' investment managers who have full discretion over investment decisions, invested in various derivative instruments either to increase potential earnings or to hedge against potential losses.

TBAs (to-be-announced, sometimes referred to as dollar rolls) are used by the District Retirement Funds as an alternative to holding mortgage-backed securities outright to raise the potential yield and to reduce transaction costs. The selected TBAs are used because they are expected to behave the same in duration and convexity as mortgage-backed securities with identical credit, coupon, and maturity features. Credit risk is managed by limiting these transactions to primary dealers.

Market risk for this type of security is not significantly different from the market risk for mortgage-backed securities.

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

Foreign currency forwards, futures contracts, and foreign currency options, when used, are generally used by the District Retirement Funds for defensive purposes. These contracts hedge a portion of the District Retirement Funds' exposure to particular currencies on occasion when significant adverse short-term movement in exchange rate levels is expected.

Foreign currency forward and futures contracts can pose market risk when the maximum potential loss on a particular contract is greater than the value of the underlying investment. Market risks arise due to movements in the foreign exchange rates underlying the contracts used by the District Retirement Funds. Credit risk is managed by limiting transactions to counterparties with short-term credit ratings of Al or Pl or by trading on organized exchanges. Market risk for currency options is limited to the purchase cost. Credit risk for currency options is also managed by limiting transactions to counterparties with investment-grade ratings or by trading on organized exchanges.

Equity index futures were also used by the District Retirement Funds in order to gain exposure to equity markets in a more efficient and liquid manner than directly investing in all of the underlying equity securities. Equity index futures may pose market risk when the maximum potential loss on a particular contract is greater than the value of the underlying investment. Market risks arise due to movements in the equities markets underlying the contracts used by the District Retirement Funds. The notional amounts of the contracts are not included in the derivatives holdings disclosed. Credit risk is managed by dealing with member firms of the futures exchanges.

Exchange-traded and over-the-counter bond futures and options were used by the District Retirement Funds to gain exposure to fixed income markets in a more efficient and liquid manner than by purchasing the underlying bonds. Market risk for these futures and options is limited to purchase cost. Credit risk is managed by limiting transactions to counterparties with investment-grade ratings or by trading with member firms of organized exchanges.

Warrants were used by the District Retirement Funds to gain equity exposure and to enhance performance. Warrants are often distributed by issuers to holdings of common stock and bonds and are held for the same fundamental reasons as the original common stock and/or bond holdings. Rights are a security that gives the holder the entitlement to purchase new shares issued by a corporation at a predetermined price in proportion to the number of shares already owned.

Market risk for warrants and rights is limited to the purchase cost. Credit risk for warrants and rights is similar to the underlying equity and/or bond holdings. Again, all such risks are monitored and managed by the District Retirement Funds' external investment managers who have full discretion over such investment decisions.

Swaps represent an agreement between two or more parties to exchange a sequence of cash flows during a predetermined timeframe. The District Retirement Funds utilize swaps for several different reasons: to manage interest rate fluctuations, to protect against a borrower default, and to gain market exposure without having to actually own the asset.

The District Retirement Funds may manage credit exposure through the use of credit default swaps. A credit default swap (CDS) is a contract whereby the credit risk associated with an investment is transferred by entering into an agreement with another party who, in exchange for periodic fees, agrees to make payments in the event of a default or other predetermined credit event. One of the main advantages of a CDS is that it allows for exposure to credit risk while limiting exposure to other risks such as interest rate and currency risk.

The District Retirement Funds may also hold derivative instruments indirectly by participating in pooled, commingled, or short-term funds that hold derivatives. Information regarding any risks associated with these holdings is not generally available. The following is a list of derivatives as of September 30, 2019; there were no derivatives as of September 30, 2018.

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

Derivatives - Futures (dollars in thousands)

		Market Value September 30, 2019
Equity index futures	$	10,582
Fixed Income - convertible bonds		2
Fixed Income futures		2
Synthetic equity swaps		235
Warrants		2,031
Swaps		25,714
Total	$	38,566

Fair Value Measurements - DCRB categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and gives the highest priority to unadjusted quoted prices in active markets for identical assets (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements).

Level 1 – Unadjusted quoted prices for identical instruments in active markets.

Level 2 – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.

Level 3 – Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured at fair value using the Net Asset Value (NAV) per share (or its equivalent) are not classified in the fair value hierarchy as they do not have a readily determinable fair value.

In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation. DCRB's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability.

Changes in Fair Value Levels

The availability of observable market data is monitored to assess the appropriate classification of financial instruments within the fair value hierarchy. Changes in economic conditions or model-based valuation techniques may require the transfer of financial instruments from one fair value level to another. In such instances, the transfer is reported at the beginning of the reporting period.

Plan management has evaluated the significance of transfers between levels based upon the nature of the investments and size of the transfer relative to total net assets available for benefits. For the year ended September 30, 2019, investments in private equity securities were placed under Level 3 as compared to the previous year based on management's reevaluation of its valuation methodology.

The tables on pages 42 and 43 show the fair value leveling of the investments for the Investment Pool.

Equity securities classified in Level 1 of the fair value hierarchy are valued at the last sale price or official close price as of the close of trading on the applicable exchange where the security principally trades.

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

Equity and fixed income securities classified in Level 2 of the fair value hierarchy are valued at prices provided by independent pricing vendors. The vendors provide these prices after evaluating observable inputs including, but not limited to: quoted prices for similar securities, the mean between the last reported bid and ask prices (or the last bid price in the absence of an asked price), yield curves, yield spreads, credit ratings, deal terms, tranche level attributes, default rates, cash flows, prepayment speeds, broker/dealer quotations, inflation and reported trades.

Equity securities classified in Level 3 are valued with last trade data having limited trading volume. Real assets classified in Level 3 are real estate investments generally valued using the income approach by internal manager reviews or independent external appraisers. Unfunded commitments to purchase partnership interests in private equity funds as of September 30, 2019 and 2018 was 544.9 million and $508.9 million, respectively.

Investments measured at the Net Asset Value (NAV) – The unfunded commitment and redemption frequency and notice period for investments measured at the net asset value (NAV) per share (or its equivalent) is presented on the tables on pages 42 and 43.

Real Assets – DCRB has made commitments to purchase partnership interests in real asset funds as part of its long-term asset allocation plan for private markets. As shown in the table on page 42, the unfunded commitments totaled $365.9 million, as of September 30, 2019. This represents global investments in 39 real asset funds. The unfunded commitments totaled $389.7 million, as of September 30, 2018 as shown in the table on page 43. This represented global investments in 35 real asset funds.

In general, investments in the private markets program are illiquid and redemptions are structurally limited over the life of the investment. The private equity program spans a range of underlying strategies including buyouts, growth equity/venture, private debt, secondaries, and fund-of-funds. The real asset program includes investments in a broad range of real estate strategies (i.e., core, value-added, opportunistic), infrastructure, and natural resources funds.

Domestic and International Equities – DCRB has investments in 3 funds with a domestic focus and 5 funds with an international focus, in which the equity securities maintain some level of market exposure; however, the level of market exposure may vary through time.

Fixed income – DCRB has investments in 6 funds, including corporate bonds, and U.S. Treasury obligations, with redemption notifications not greater than 30 days.

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

Investments measured at Fair Value (Dollars in thousands)

	September 30, 2019	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by Fair Value Level				
Domestic Equity	$ 288,973	$ 278,237	$ 10,736	$ -
International Equity	206,937	206,937	-	-
Fixed Income	623,222	-	623,222	-
Real Assets	421,396	-	-	421,396
Private Equity	465,263	-	-	465,263
Total Investments by Fair Value Lev	2,005,791	$ 485,174	$ 633,958	$ 886,659
Investments Measured at the Net Asset Value (NAV)				
Domestic Equity	1,995,366			
International Equity	2,121,942			
Fixed Income	2,066,786			
Real Assets	263,717			
Total Investments Measured at NAV	6,447,811			
Total Investments	$ 8,453,602			

Additional information for investments measured at the net asset value (NAV) per share (or its equivalent) is presented on the table below:

	September 30, 2019	Unfunded Commitments	Redemption Frequency	Redemption Notice
Domestic Equity	$ 1,995,366	$ -	Daily	None
International Equity	2,121,942	-	3 times per month, monthly	2-5 days
Fixed Income	2,066,786	-	Daily, Monthly	3-30 days
Real Assets	263,717	365,899	None	N/A
Total Investments Measured at NAV	**6,447,811**	**$ 365,899**		

Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

Investments measured at Fair Value, as of September 30, 2018

	September 30, 2018	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by Fair Value Level				
Domestic Equity	$ 312,861	$ 297,016	$ 15,845	$ -
International Equity	166,670	166,670	-	-
Fixed Income	265,651	-	265,651	-
Real Assets	42,113	-	-	42,113
Private Equity	376,055	-	-	376,055
Total Investments by Fair Value Level	1,163,350	$ 463,686	$ 281,496	$ 418,168
Investments Measured at the Net Asset Value (NAV)				
Domestic Equity	1,896,422			
International Equity	2,149,344			
Fixed Income	2,284,134			
Real Assets	650,998			
Total Investments Measured at NAV	6,980,898			
Total Investments	**$ 8,144,248**			

Additional information for investments measured at the net asset value (NAV) per share (or its equivalent) is presented on the table below:

	September 30, 2018	Unfunded Commitments	Redemption Frequency	Redemption Notice
Domestic Equity	$ 1,896,422	$ -	Daily	None
International Equity	2,149,344	-	3 times per month, monthly	2-5 days
Fixed Income	2,284,134	-	Daily, Monthly	3-30 days
Real Assets	650,998	389,696	None	N/A
Total Investments Measured at NAV	**$ 6,980,898**	**$ 389,696**		

Notes to Financial Statements

NOTE 5: NET PENSION LIABILITY/(ASSET)

The components of the net pension liability (asset) of the District Retirement Funds at September 30, 2019 and 2018 were as follows:

	2019		2018	
(Dollars in thousands)	TRF	POFRF	TRF	POFRF
Total Pension Liability	$ 2,494,291	$ 5,604,573	$ 2,261,867	$ 5,265,874
Fiduciary Net Position	2,264,482	6,256,363	2,176,106	6,023,770
Net Pension Liability (Asset)	$ 229,809	$ (651,790)	$ 85,761	$ (757,896)
Ratio of Fiduciary Net Position to Total Pension Liability	90.79%	111.63%	96.21%	114.39%

Actuarial Assumptions - The total pension liability was determined based on an actuarial valuation as of September 30, 2019 using the following actuarial assumptions, applied to all periods included in the measurement:

Teachers' Retirement Fund	
Inflation	3.5 percent
Salary increases	5.50 percent - 8.63 percent, includes wage inflation of 4.25 percent
Investment rate of return	6.5 percent, net of pension plan investment expense
Mortality	Pre-retirement and post-retirement mortality rates were based on the RPH 2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males. Post-disability mortality rates were based on the RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females
Cost of Living Adjustments	3.00% for those hired on or after 11/1/1996, 3.5% for those hired before 11/1/1996.

Police and Fire Fighters' Retirement Fund	
Inflation	3.5 percent
Salary increases	4.25 – 6.34 percent, includes wage inflation of 4.25 percent
Investment rate of return	6.5 percent, net of pension plan investment expense
Mortality	Pre-retirement and post-retirement mortality rates were based on the RPH 2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males. Post-disability mortality rates were based on the RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females
Cost of Living Adjustments	3.00% for those hired on or after 11/1/1996, 3.50% for those hired before 11/1/1996.

Notes to Financial Statements

NOTE 5: NET PENSION LIABILITY/(ASSET) (continued)

All assets and liabilities are computed as of September 30, 2019. Demographic information was collected as of June 30, 2019. The actuarial assumptions used were based on the results of the most recent actuarial experience investigation for the period October 1, 2011 to September 30, 2015, dated July 18, 2017.

The discount rate used to measure the total pension liability was 6.5 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that the District contributions will be made in accordance with the Board's funding policy adopted in 2012 and revised in 2017. Based on those assumptions, the pension plan'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.

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis 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 geometric real rates of return for each major asset class included in the pension plan's target asset allocation as of September 30, 2019 and 2018 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic Equity	20.0%	7.8%
Foreign Equity (Developed)	16.0%	8.1%
Foreign Equity (Emerging)	10.0%	10.5%
U.S. Core Fixed Income	11.0%	4.4%
Treasury Inflation-Protected Securities (TIPS)	6.0%	3.3%
High Yield Bonds	4.0%	6.8%
Bank Loans	3.0%	5.7%
Foreign Bonds (Developed)	2.0%	2.6%
Emerging Markets Debt (Local)	4.0%	5.9%
Real Estate	6.0%	7.1%
Natural Resources (Private)	2.0%	7.8%
Infrastructure	3.0%	7.8%
Private Equity	9.0%	9.4%
Absolute Return	4.0%	5.6%
Total	100.0%	

Notes to Financial Statements

NOTE 5: NET PENSION LIABILITY/(ASSET) (continued)

Disclosure of the sensitivity of the net pension liability to changes in the discount rate - The following presents the net pension liability of the Teachers' Retirement Fund and the Police Officers and Fire Fighters Retirement Fund, calculated using the discount rate of 6.5%, as well as what the Plan's net pension liability calculated using a discount rate that is one percentage point lower (5.5%) or one percentage point higher (7.5%) than the current rate (dollar amounts in thousands):

FY 2019	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Teachers' Plan's Net Pension Liability/(Asset)	$669,520	$229,809	$(117,925)
Police and Firefighters' Plan's Net Pension Liability (Asset)	$372,957	$(651,790)	$(1,460,879)

FY 2018	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Teachers' Plan's Net Pension Liability/(Asset)	$477,094	$85,761	$(224,803)
Police and Firefighters' Plan's Net Pension Liability (Asset)	$232,199	$(757,896)	$(1,536,649)

FINANCIAL SECTION - REQUIRED SUPPLEMENTARY INFORMATION

Schedules of Changes in the Net Pension Liability and Related Ratios
(Dollar amounts in thousands)

Teachers' Retirement Fund	2019	2018	2017	2016	2015	2014
Total Pension Liability						
Service Cost	$ 72,429	$ 67,877	$ 65,911	$ 61,599	$ 53,297	$ 50,409
Interest	144,165	137,704	131,657	124,370	118,378	112,204
Difference Between Expected and Actual Experience	103,719	(19,505)	(37,230)	2,656	(7,246)	-
Changes of Assumptions	-	-	14,106	-	-	-
Benefit Payments	(81,471)	(78,430)	(72,069)	(69,093)	(64,076)	(59,832)
Refunds	(6,418)	(6,126)	(6,166)	(6,205)	(5,576)	(5,790)
Net Change in Total Pension Liability	232,424	101,520	96,209	113,327	94,777	96,991
Total Pension Liability - Beginning	2,261,867	2,160,347	2,064,138	1,950,811	1,856,034	1,759,043
Total Pension Liability - Ending (a)	2,494,291	2,261,867	2,160,347	2,064,138	1,950,811	1,856,034
Plan Net Position						
Contributions - District Government	53,343	59,046	56,781	44,469	39,513	31,636
Contributions - Plan Member	40,432	40,324	34,364	33,591	31,621	28,751
Net Investment (Loss) Income	85,047	94,129	239,554	152,262	(72,647)	132,086
Benefit Payments	(81,471)	(78,430)	(72,069)	(69,093)	(64,076)	(59,832)
Administrative Expense	(3,440)	(4,474)	(4,721)	(4,746)	(4,543)	(3,787)
Refunds	(6,418)	(6,126)	(6,166)	(6,205)	(5,576)	(5,790)
Other Income	883	1,038	907	1,033	385	522
Change in Net Position	88,376	105,507	248,650	151,311	(75,323)	123,586
Plan Net Position - Beginning	2,176,106	2,070,599	1,821,949	1,670,638	1,745,961	1,622,375
Plan Net Position - Ending (b)	2,264,482	2,176,106	2,070,599	1,821,949	1,670,638	1,745,961
Net Pension Liability - Ending (a) - (b)	$ 229,809	$ 85,761	$ 89,748	$ 242,189	$ 280,173	$ 110,073
Ratio of Plan Net Position to Total Pension Liability - (b) /	90.79%	96.21%	95.85%	88.27%	85.64%	94.07%
Covered Payroll	$ 466,792	$ 470,749	$ 447,762	$ 438,079	$ 417,090	$ 378,926
Net Pension Liability (Asset) as a Percentage of Covered	49.23%	18.22%	20.04%	55.28%	67.17%	29.05%

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Schedules of Changes in the Net Pension Liability and Related Ratios
(Dollar amounts in thousands)

Police and Firefighters' Retirement Fund	2019	2018	2017	2016	2015	2014
Total Pension Liability						
Service Cost	$ 180,928	$ 182,641	$ 196,629	$ 198,020	$ 192,114	$ 176,102
Interest	338,288	318,719	300,626	282,285	257,943	235,097
Difference Between Expected and Actual Experience	(57,642)	(84,452)	(188,549)	(106,840)	(2,477)	-
Changes of Assumptions	-	-	67,256	-	-	-
Benefit Payments	(121,342)	(106,794)	(92,537)	(79,137)	(63,634)	(52,784)
Refunds	(1,533)	(1,580)	(1,647)	(2,179)	(1,396)	(1,637)
Net Change in Total Pension Liability	338,699	308,534	281,778	292,149	382,550	356,778
Total Pension Liability - Beginning	5,265,874	4,957,340	4,675,562	4,383,413	4,000,863	3,644,085
Total Pension Liability - Ending (a)	5,604,573	5,265,874	4,957,340	4,675,562	4,383,413	4,000,863
Plan Net Position						
Contributions - District Government	91,284	105,596	145,631	136,115	103,430	110,766
Contributions - Plan Member	38,243	34,478	33,424	32,785	33,679	32,821
Net Investment (Loss) Income	232,987	316,842	655,310	415,157	(187,283)	338,894
Benefit Payments	(121,342)	(106,794)	(92,537)	(79,137)	(63,634)	(52,784)
Administrative Expense	(9,481)	(11,570)	(12,838)	(12,918)	(11,939)	(9,730)
Refunds	(1,533)	(1,580)	(1,647)	(2,179)	(1,396)	(1,637)
Other Income	2,435	2,356	2,468	2,810	1,012	1,342
Change in Net Position	232,593	339,328	729,811	492,633	(126,131)	419,672
Plan Net Position - Beginning	6,023,770	5,684,442	4,954,631	4,461,998	4,588,129	4,168,457
Plan Net Position - Ending (b)	6,256,363	6,023,770	5,684,442	4,954,631	4,461,998	4,588,129
Net Pension Liability (Asset) - Ending (a) - (b)	$ (651,790)	$ (757,896)	$ (727,102)	$ (279,069)	$ (78,585)	$ (587,266)
Ratio of Plan Net Position to Total Pension Liability (Asset) - (b) / (a)	111.63%	114.39%	114.67%	105.97%	101.79%	114.68%
Covered Payroll	$ 460,686	$ 454,209	$ 441,904	$ 438,114	$ 446,201	$ 426,135
Net Pension Liability (Asset) as a Percentage of Covered	(141.48)%	(166.86)%	(164.54)%	(63.70)%	(17.61)%	(137.81)%

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Schedules of Employer Contributions
(Dollar amounts in thousands)

Teachers' Retirement Fund	2019	2018	2017	2016	2015
Actuarially determined employer contribution	$ 53,343	$ 59,046	$ 56,781	$ 44,469	$ 39,513
Actual employer contributions	53,343	59,046	56,781	44,469	39,513
Annual contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered Payroll	$ 466,792	$ 470,749	$ 447,762	$ 438,079	$ 417,090
Actual contributions as a percentage of covered payroll	11.43%	12.54%	12.68%	10.15%	9.47%

Teachers' Retirement Fund	2014	2013	2012	2011	2010
Actuarially determined employer contribution	$ 31,636	$ 6,407	$ -	$ -	$ -
Actual employer contributions	31,636	6,407	-	-	-
Annual contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered Payroll	$ 378,926	$ 369,071	$ 381,235	$ 384,455	$ 337,516
Actual contributions as a percentage of covered payroll	8.35%	1.74%	0.00%	0.00%	0.00%

Notes to Schedule:
Valuation Date: For the fiscal years on and before FY 2019, actuarially determined contributions amounts are calculated as of the beginning of the fiscal year. Actual contributions are based on valuations as of October 1, two years prior to end of fiscal year in which contributions are reported. Actuarial valuations are performed every year. The assumptions shown below are from the currently approved assumptions and assumptions used to determine all contributions in the past would not have been the same.

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	Remaining amortization periods range from 12 to 20 years
Asset valuation method	5-year smoothed market
Inflation	3.50%
Salary increases	5.50% to 8.63%; includes wage inflation of 4.25%
Investment rate of return	6.50%, net of pension plan investment expense
Mortality	Pre-retirement and post-retirement mortality rates were based on the RPH 2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males. Post-disability mortality rates were based on the RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females.
Cost of Living Adjustments	3.50% for those hired before 11/1/1996 (Limited to 3.0% for those hired on or after 11/1/1996)

Schedules of Employer Contributions
(Dollar amounts in thousands)

Police and Firefighters' Retirement Fund	2019	2018	2017	2016	2015
Actuarially determined employer contribution	$ 91,284	$ 105,596	$ 145,631	$ 136,115	$ 103,430
Actual employer contributions	91,284	105,596	145,631	136,115	103,430
Annual contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 460,686	$ 454,209	$ 441,904	$ 438,114	$ 446,201
Actual contributions as a percentage of covered payroll	19.81%	23.25%	32.96%	31.07%	23.18%

Police and Firefighters' Retirement Fund	2014	2013	2012	2011	2010
Actuarially determined employer contribution	$ 110,766	$ 96,314	$ 116,700	$ 127,200	$ 132,300
Actual employer contributions	110,766	96,314	116,700	127,200	132,300
Annual contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 426,135	$ 413,380	$ 414,877	$ 421,221	$ 423,854
Actual contributions as a percentage of covered payroll	25.99%	23.30%	28.13%	30.20%	31.21%

Notes to Schedule:
Valuation Date: For the fiscal years on and before FY 2019, actuarially determined contributions amounts are calculated as of the beginning of the fiscal year. Actual contributions are based on valuations as of October 1, two years prior to end of fiscal year in which contributions are reported. Actuarial valuations are performed every year. The assumptions shown below are from the currently approved assumptions and assumptions used to determine all contributions in the past would not have been the same.

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	Remaining amortization periods range from 12 to 20 years
Asset valuation method	5-year smoothed market
Inflation	3.5%
Salary increases	4.25% to 6.34%; includes wage inflation of 4.25%
Investment rate of return	6.50%, net of pension plan investment expense
Mortality	Pre-retirement and post-retirement mortality rates were based on the RPH 2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males. Post-disability mortality rates were based on the RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females.
Cost of Living Adjustments	3.50% for those hired before 11/1/1996 (Limited to 3.0% for those hired on or after 11/1/1996)

Schedule of Investment Returns

Annual Money-Weighted Rates of Return

	FY 2019	FY 2018	FY 2017	FY 2016	FY 2015	FY 2014
Total Portfolio	3.840 %	5.340 %	12.970 %	9.346 %	(4.006)%	8.178 %

Note: The rates are shown net of fees. The rates in the prior-year financial statements were shown gross of fees for FY 2017 and 2018 and are restated in these financial statements. This schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

FINANCIAL SECTION - SUPPLEMENTARY INFORMATION

Schedules of Administrative Expenses
For the years ended September 30, 2019 and 2018

	2019	2018
Personal Services		
Salaries	$ 6,057,962	$ 6,419,916
Fringe Benefits	1,481,507	1,832,363
Total personal services	**7,539,469**	**8,252,279**
Nonpersonal Services		
Office Supplies	70,296	93,484
Telephone	45,611	96,286
Rent	1,967,723	1,823,864
Travel	183,023	193,704
Professional Fees	1,148,521	3,666,166
Postage	14,239	65,538
Printing	8,846	78,173
Insurance	116,875	148,879
Dues and Memberships	41,038	39,963
Audit Costs	290,680	191,450
Actuarial Fees	137,533	169,855
Legal Fees	322,963	531,913
Investment Fees	16,807,130	13,076,317
Contractual Services (STAR)	1,967,689	1,808,130
Equipment and Rental	59,474	198,734
Total non-personal services	**23,181,641**	**22,182,456**
Total administrative expenses	**30,721,110**	**30,434,735**
Investment expenses	**(17,800,245)**	**(14,390,879)**
Net administrative expenses	**$ 12,920,865**	**$ 16,043,856**

Schedules of Investment Expenses

For the years ended September 30, 2019 and 2018

	2019	2018
Investment Managers*	$ 15,766,206	$ 12,417,567
Investment Administrative Expense	879,187	753,088
Investment Consultants	751,428	882,058
Investment Custodian	403,424	338,166
Total Investment Expenses	$ 17,800,245	$ 14,390,879

* Fees paid to traditional investment managers only; traditional investment managers are those that invest primarily in public equity and fixed income securities. A significant number of alternative investments are presented net of expenses. Management expenses are netted against investment income and because they are not readily separable from specific investment income as of the financial statement reporting date, amounts are recorded and reported net of management expenses and therefore are not included on this schedule.

Schedules of Payments to Consultants
For the years ended September 30, 2019 and 2018

Professional/Consultant	Nature of Service	FY 2019	FY 2018
Administrative Consultants			
U.S. Treasury Office of D.C. Pensions	Benefit Payment Processing	$ 1,967,689	$ 1,792,130
Morgan, Lewis & Bockius	Legal Counsel	322,963	505,857
Software Information Resource Corp.	Information Technology Consulting	275,015	220,383
Softech & Associates, Inc.	Information Technology Consulting	142,000	190,000
Cavanaugh Macdonald Consulting	Actuarial Services	137,533	174,855
Office of Contract and Procurement	Procurement Services	136,971	-
Equinix, Inc.	Information Technology Consulting	109,311	132,954
Mobomo, LLC	Information Technology Consulting	72,382	386,124
CliftonLarsonAllen LLC	Financial Audit	68,000	57,200
Convergence, Inc.	Investment Consulting	60,000	60,000
DC Net	Information Technology Consulting	56,082	31,968
ODGroup, Inc. dba Orion Development Group	Professional Services	53,556	53,649
NGEN LLC	Audit Costs	44,750	134,250
International Foundation of Employee Benefits	CAPPP Training for Trustees	44,000	-
Capitol Document Solutions	Information Technology Consulting	40,980	38,961
DLT Solutions, Inc.	Information Technology Consulting	40,289	116,462
Advent Software, Inc.	Investment Consulting	39,552	42,337
Diligent Corp	Information Technology Consulting	31,575	31,575
XO Holdings	Information Technology Consulting	27,860	26,469
Election-America, Inc.	Trustee Elections	25,842	-
Kofax, Inc.	Information Technology Consulting	23,874	-
D.C. Office of the Chief Technology Officer	Information Technology Consulting	22,507	-
eVestment Alliance	Online Investment Service	20,689	20,087
TW Telecom	Information Technology Consulting	20,203	40,976
RSM US LLP formerly RSM McGladrey, Inc.	Financial System Consulting	19,314	22,468
SecureAuth Corporation	IT Software Maintenance	18,585	-
Networking for Future, Inc.	Information Technology Consulting	14,155	109,253
Harris, Mackessy & Brennan, Inc.	Information Technology Consulting	13,685	33,010
D.C. Department of Human Resources	Information Technology Consulting	11,882	-
The Newberry Group, Inc.	Information Technology Consulting	9,434	13,353
Incapsulate, LLC	IT Software Maintenance	8,725	-
HBP, Inc.	Graphic Design for Publications	5,906	97,119
Phoenix Graphics, Inc.	Professional Services	3,550	7,200
Groom Law Group	Legal Counsel	5,390	6,306
Treyniqua Dickey	Professional Services	2,840	-
Oquendo Computer Services	Professional Services	2,825	2,175
Neal R. Gross & Co, Inc.	Professional Services	1,089	-
Corporate Investigations, Inc.	Professional Services	1,072	2,565
KMC, Inc.	Information Technology Consulting	-	232,107
Ectam, LLC	Information Technology Consulting	-	177,120
Mark Jackson	Information Technology Consulting	-	99,355
ASI Government, Inc.	Temporary Staffing Services	-	97,718
Yared Desta	Information Technology Consulting	-	83,711
Vonage Business formerly Icore Networks, Inc.	Information Technology Consulting	-	67,135
Diamond Toles dba Dime Solutions, LLC	Professional Services	-	45,990

(Continued on next page)

Professional/Consultant	Nature of Service	FY 2019	FY 2018
PRM Consulting, Inc.	Professional Services	-	40,000
American Arbitration Association	Arbitration Services	-	36,876
CenturyLink Formerly Level 3 Communications	Professional Services	-	33,041
CEM Benchmarking, Inc.	Investment Consultant	-	30,000
Taborda Solutions, Inc.	Professional Services	-	25,976
SHI International Corporation	Information Technology Consulting	-	22,995
Midtown Personnel Inc.	Benefits Consulting	-	21,760
Korn Ferry Hay Group, Inc.	Professional Services	-	7,262
Armstrong Teasdale	Legal Counsel	-	4,223
Emergent Systems Exchange, LLC	Professional Services	-	3,500
Total Administrative Consultants		3,902,075	5,378,455
Investment Consulting			
CEM Benchmarking	Investment consultant	-	30,000
Meketa Investment Group	Traditional investment consulting	620,000	620,000
Insightful Pension Consulting Group, LLC	Investment consultant	113,928	214,558
Abel Solutions	Traditional investment consulting	17,500	-
Zeno Consulting Group, LLC	Traditional investment consulting	-	17,500
Total Investment Consultants		751,428	882,058
Total Payments to Consultants		**$ 4,653,503**	**$ 6,260,513**

This page intentionally left blank

INVESTMENTS SECTION



Report on Investment Activity
Prepared by Patrick Sahm, Acting Chief Investment Officer

The District of Columbia Retirement Board (the "Board") is charged with the responsibility to prudently manage the assets of the District of Columbia Teachers' Retirement Fund and the District of Columbia Police Officers and Firefighters' Retirement Fund (the "Fund"), two defined benefit pension plans. The Board works with an independent investment consultant who possesses specialized experience and resources in asset allocation, investment manager selection, and performance evaluation. The Board's investment consultant and traditional investment managers acknowledge their fiduciary responsibility in writing. Investment managers are accorded full discretion within general and specific investment manager policy guidelines.

Investment Objectives and Policies

The Board targets investment returns that meet or exceed the actuarial investment return at a level of risk commensurate with the expected return level and consistent with prudent investment practices. The current actuarial investment return target is 6.5%, net of investment management fees and administrative expenses. In addition to meeting or exceeding the actuarial return target over the long-term, a secondary return objective is to exceed the annualized total return of the Board's strategic asset allocation benchmarks, which include the "Long-Term Policy Benchmark" and the "Interim Policy Benchmark[1]."

As of September 30, 2019, the Long-Term Policy Benchmark and actual allocation weights were as follows:

Asset Class	Performance Benchmark	Target	Weight
Cash & Fixed Income	Fixed Income Benchmark[2]	30%	33%
U.S. Equities	Russell 3000 Index	20%	22%
Developed Int'l. Markets Equities	MSCI World Index ex-U.S. (net)	16%	18%
Real Assets	CPI-U + 5.5%	11%	8%
Emerging Markets Equities	MSCI Emerging Markets Index (net)	10%	11%
Private Equity	MSCI All-Country World Index + 3% (quarter lag)	9%	5%
Absolute Return	3-Month LIBOR + 5%	4%	4%

As a long-term investor, the Board believes it can generate the highest risk-adjusted returns through a diversified portfolio with an emphasis on equity investments. Although equities are generally more volatile in the short-term than other asset classes, if properly diversified, they are expected to yield higher total returns over the Fund's multi-decade time horizon. In addition, while the Board generally believes in the value of active management, it utilizes lower-cost passive investment strategies (e.g., index funds) in more efficient markets where active managers have a lower likelihood of generating excess returns.

[1] The Interim Policy Benchmark is the best gauge for relative performance over time periods of up to ten years and the Long-Term Policy Benchmark for time periods exceeding ten years.

[2] The Fixed Income Benchmark is a composite of 36.7% Bloomberg Barclays (BB) U.S. Aggregate Index, 20.0% BB U.S. TIPS Index, 13.3% BB U.S. High-Yield Constrained Index, 10.0% Credit Suisse Levered Loan Index; 6.7% BB Global Aggregate ex U.S. Index, and 13.3% JPM GBI-EM Global Diversified Index.

Report on Investment Activity

Fiscal Year 2019 Global Market Review

On a cumulative basis, U.S. equities rose 3%, developed international equities declined 1%, and emerging markets equities dropped 2%. The Bloomberg Barclays U.S. Aggregate Bond Index, a broad measure of U.S. fixed income markets, gained 10%.

The fiscal year started with global equity markets falling sharply during the fourth quarter of 2018. Investors felt a growing sense of uncertainty given a multitude of issues, such as rising U.S. interest rates, a slowdown of growth in China, the ongoing trade dispute between the U.S. and China, and ongoing drama over Brexit negotiations. At that time U.S. equity markets, as represented by the Russell 3000 Index[1], declined 14%, developed international markets equity, as represented by the MSCI World ex U.S. Index[2], dropped 13%, and emerging markets equities, as represented by the MSCI Emerging Markets Index[3], fell 7%.[4] It was one of the worst quarters, on a calendar year basis, for the global equity markets in recent history.

Following the sell-off during the end of 2019, equity markets rebounded strongly in the first calendar quarter of 2019, driven by U.S. and European central banks putting a hold on further rate increases and improved prospects of a U.S.-China trade resolution. U.S equity markets experienced their best calendar quarter since the second quarter of 2009, gaining 14%. Developed international and emerging markets equities each increased 10%.

Developed markets extended their gains during the second quarter of 2019, with U.S. stocks increasing 4% and developed international markets equities advancing 3%. Emerging markets equities were flat, despite much volatility. Investors gravitated to the perceived safety of defensive stocks during much of the quarter, until central banks indicated further monetary easing, at which point markets gained strongly.

After a strong first half of the year, the third quarter generated additional gains, leading U.S. stocks to new record levels. Investors continued to pursue the perceived safety of low volatility stocks and new economy growth stocks. This dynamic changed abruptly in September, when markets experienced the largest rotation out of high-momentum stocks and into value stocks since the Financial Crisis. The Russell 3000 gained 1%, developed international market equities declined 1%, and emerging market stocks dropped 4%.

Fiscal Year 2019 Investment Results

As of September 30, 2019, the Fund's total assets stood at $8.5 billion after the payment of all benefits and administrative expenses, a $320 million increase from the end of the prior fiscal year. The Fund generated the following gross returns as of September 30, 2019:[5]

- Fiscal Year: +3.9% per year, underperforming the Interim Policy Benchmark by 0.5%;
- Last 5 Years: +5.4% per year, underperforming the Interim Policy Benchmark by 0.2%;
- Last 10 Years: +7.4% per year, outperforming the Interim Policy Benchmark by 0.1%;
- Last 20 and 30 Years: +5.5% and +7.7% respectively per year, comparable to the Long-Term Policy Benchmark.
- Since Inception:[6] +8.6% per year, underperforming the Long-Term Policy Benchmark by 0.9% and outperforming the current actuarial benchmark (6.5%) by more than 2%.

[1] The Interim Policy Benchmark is the best gauge for relative performance over time periods of up to ten years and the Long-Term Policy Benchmark for time periods exceeding ten years.

[2] The Russell 3000 Index measures the performance of the 3,000 largest public U.S. companies and represents ~98% of the U.S. equity market.
[3] The MSCI World ex U.S. Index measures the equity market performance of 22 developed markets outside of the U.S.
[4] The MSCI Emerging Markets Index measures the equity market performance of 26 emerging markets.
[5] All developed international and emerging markets equity returns are in U.S. dollar terms, i.e., reflect the experience of a U.S. dollar-based investor, such as the District of Columbia Retirement Board.
[6] The Interim Policy Benchmark measures relative performance over time periods of up to ten years.
[7] The Fund's inception date is October 1982

Report on Investment Activity

The Fund's slight underperformance during the fiscal year was driven by asset allocation and manager selection decisions. On the asset allocation side, the Fund suffered from an underweight to U.S. fixed income, which outperformed U.S. equities by a significant margin. On the manager selection side, the Fund's active U.S. equity managers lagged their benchmarks.

Exhibit 1 shows the gross returns for the Fund and each asset class over the one, three, five, and ten-year time periods ending September 30, 2019. The returns were calculated by the Board's custodial bank, The Northern Trust Company ("Northern Trust") and are time-weighted returns computed in compliance with the CFA Institute's Global Investment Performance Standards. Benchmark returns for each asset class are presented for relative performance comparison purposes.

Report on Investment Activity

Exhibit 1: Investment Performance (Gross of Fees)
as of September 30, 2019

Asset Class	1-Year	3-Year	5-Year	10-Year	20-Year	30-Year
Total Fund	3.9%	7.4%	5.4%	7.4%	5.5%	7.7%
Interim Policy Benchmark [1]	4.4%	7.5%	5.6%	7.3%	-	-
Long-Term Policy Benchmark [2]	-	-	-	7.3%	5.5%	7.7%
Cash and Cash Equivalents	2.4%	1.7%	1.1%	0.8%	2.1%	3.8%
3-month U.S. Treasury Bills	2.4%	1.5%	1.0%	0.5%	1.8%	3.0%
Fixed Income	7.2%	3.3%	2.9%	4.1%	5.3%	6.3%
Fixed Income Benchmark [3]	8.5%	3.4%	3.2%	3.8%	5.0%	-
U.S. Equities	1.5%	12.5%	10.1%	13.0%	7.1%	9.7%
Russell 3000 Index	2.9%	12.9%	10.4%	13.1%	6.7%	9.7%
Developed Int'l Markets Equities	-0.3%	6.9%	4.0%	5.8%	4.8%	5.6%
MSCI World Index ex U.S.(net)	-1.0%	6.5%	3.1%	5.0%	4.1%	4.7%
Emerging Markets Equities	-2.2%	5.9%	2.1%	-	-	-
MSCI Emerging Markets Index (net)	-2.0%	6.0%	2.3%	-	-	-
Absolute Return	7.3%	6.8%	3.5%	6.7%		
HFR Fund-Weighted Composite	0.4%	3.8%	2.9%	4.0%	-	-
3-Month LIBOR+5% [4]	7.8%	6.9%	6.3%	3.7%	-	-
Private Equity	11.5%	13.1%	8.5%	11.9%	5.8%	8.6%
Cambridge Associates Global PE & VC Index [5]	13.5%	16.0%	11.9%	14.2%	-	-
MSCI All Country World Index+3% (quarter lag) [6]	8.9%	14.9%	9.3%	13.4%	7.2%	11.8%
Real Assets	7.4%	7.4%	8.6%	8.4%	4.8%	3.4%
Real Assets Interim [7]	7.7%	8.6%	8.0%	-	-	-
CPI-U+5.5% (quarter lag)	-	-	-	-	-	-

[1] As of 9/30/19, the Interim Policy Benchmark is a composite of 21.6% Russell 3000 Index, 17.3% MSCI World Index ex U.S. (net), 10.8% MSCI Emerging Markets (net); 11.7% Barclays U.S. Aggregate Index, 4.3% Barclays U.S. Corporate High Yield Index, 3.2% Credit Suisse Leveraged Loan Index, 2.1% Barclays Global Aggregate ex US Index, 4.3% JPM GBI-EM Global Diversified Index, 7.3% Barclays U.S. TIPS Index, 3.8% HFR Fund-Weighted Composite, 5.4% Cambridge Associates Global Private Equity and Venture Capital Index (1Q lag), 5.3% Real Estate Interim; 1.5% Cambridge Associates Upstream Energy & Royalties and Private Equity Energy Index (1Q lag), 1.5% Cambridge Associates Infrastructure Index (1Q lag).

[2] As of 9/30/19, the Long-Term Policy Benchmark is a composite of 20% Russell 3000 Index, 16% MSCI World Index ex U.S. (net), 10% MSCI Emerging Markets (net); 11% Barclays U.S. Aggregate Index, 4% Barclays U.S. Corporate High Yield Index, 3% Credit Suisse Leveraged Loan Index, 2% Barclays Global Aggregate ex US Index, 4% JPM GBI-EM Global Diversified Index, 6% Barclays U.S. TIPS Index, 4% 3-Month LIBOR+5%, 9% MSCI ACWI + 3%, 11% CPI + 5.5%.

[3] The Fixed Income Benchmark is a composite of 36.7% Barclays U.S. Aggregate Index, 20.0% Barclays U.S. TIPS Index, 13.3% Barclays U.S. High-Yield Constrained Index, 10.0% Credit Suisse Levered Loan Index; 6.7% Barclays Global Aggregate ex U.S. Index, and 13.3% JPM GBI-EM Global Diversified Index.

[4] Prior to 9/30/13, 3-month LIBOR.

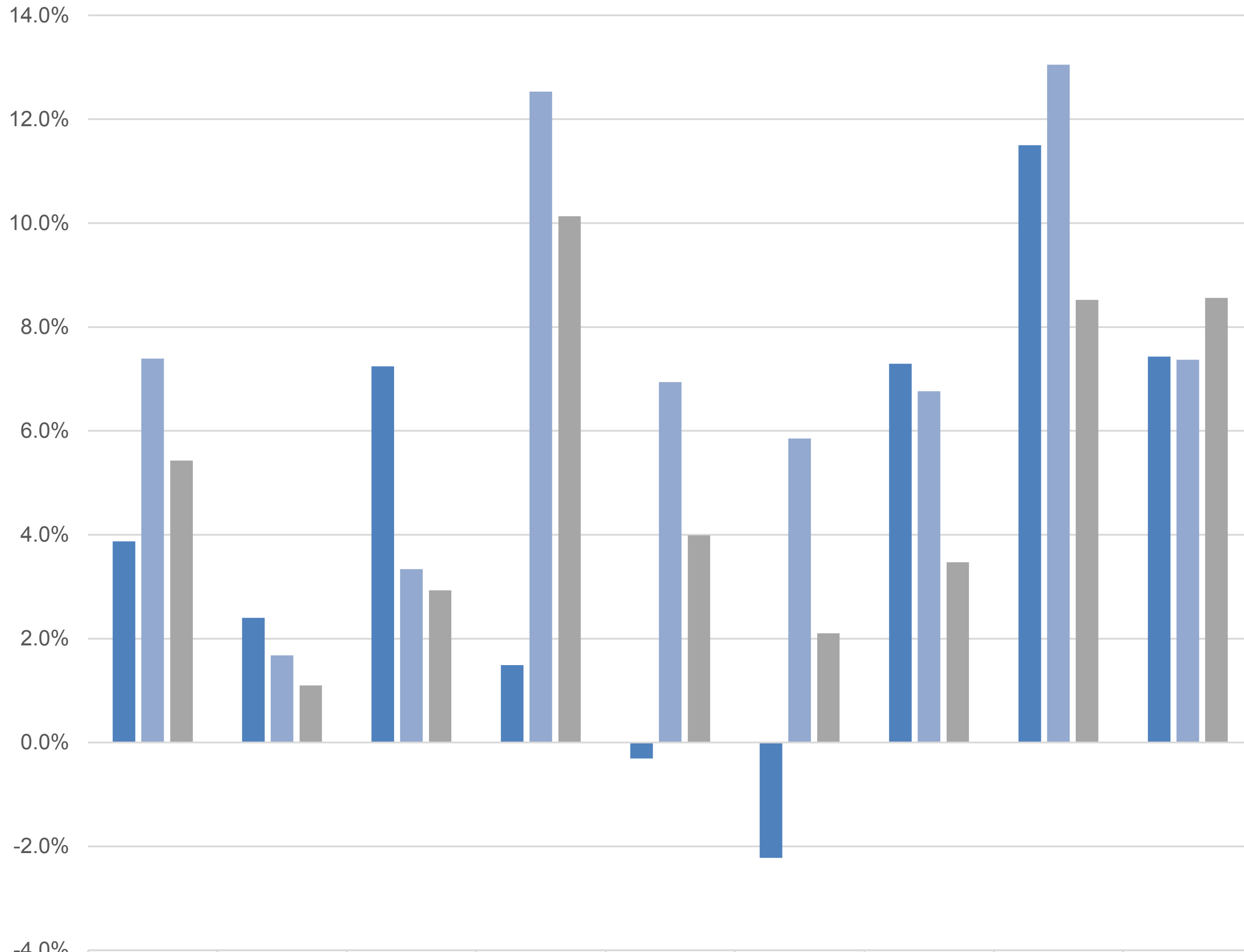
[5] Prior to 12/31/07, Cambridge Associates U.S. Private Equity & Venture Capital Index (1Q lag).

[6] Prior to 12/31/07, Russell 3000 + 3% (quarter lag).

[7] As of 9/30/19, the Real Assets Interim Benchmark is a composite of 36.1% FTSE EPRA/NAREIT Global Net, 28.4% Cambridge Associates Real Estate Index (1Q lag), 17.4% Cambridge Associates Infrastructure Index (1Q lag), and 18.1% Cambridge Associates Upstream Energy & Royalties and Private Equity Energy Index (1Q lag).

Report on Investment Activity

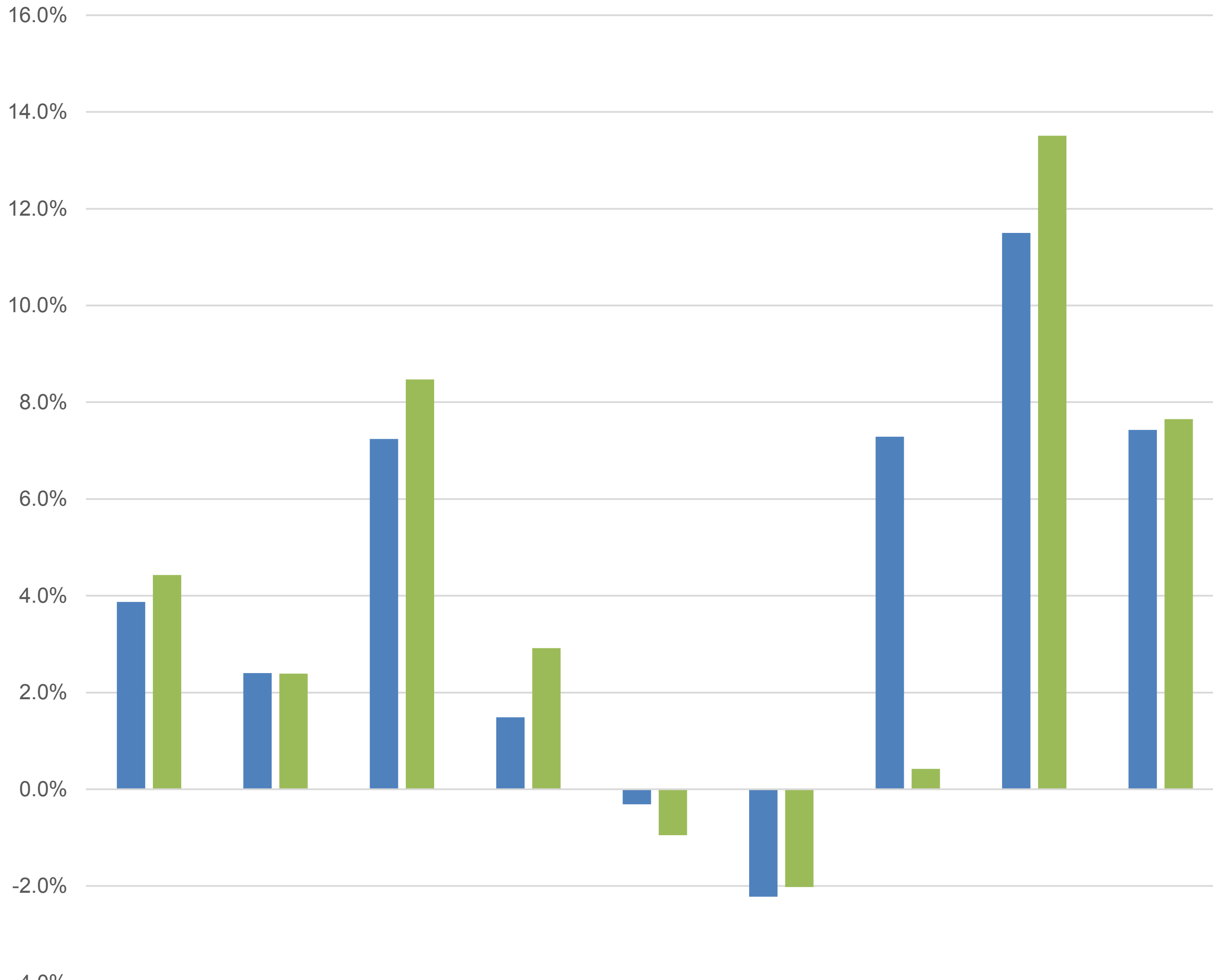
Exhibit 2: Historical Investment Performance
As of September 30, 2019



	Total Fund	Cash and Cash Equivalents	Fixed Income	U.S. Equities	International Developed Markets Equities	Emerging Markets Equities	Absolute Return	Private Equity	Real Assets
1-Year	3.9%	2.4%	7.2%	1.5%	-0.3%	-2.2%	7.3%	11.5%	7.4%
3-Year	7.4%	1.7%	3.3%	12.5%	6.9%	5.9%	6.8%	13.1%	7.4%
5-Year	5.4%	1.1%	2.9%	10.1%	4.0%	2.1%	3.5%	8.5%	8.6%

Report on Investment Activity

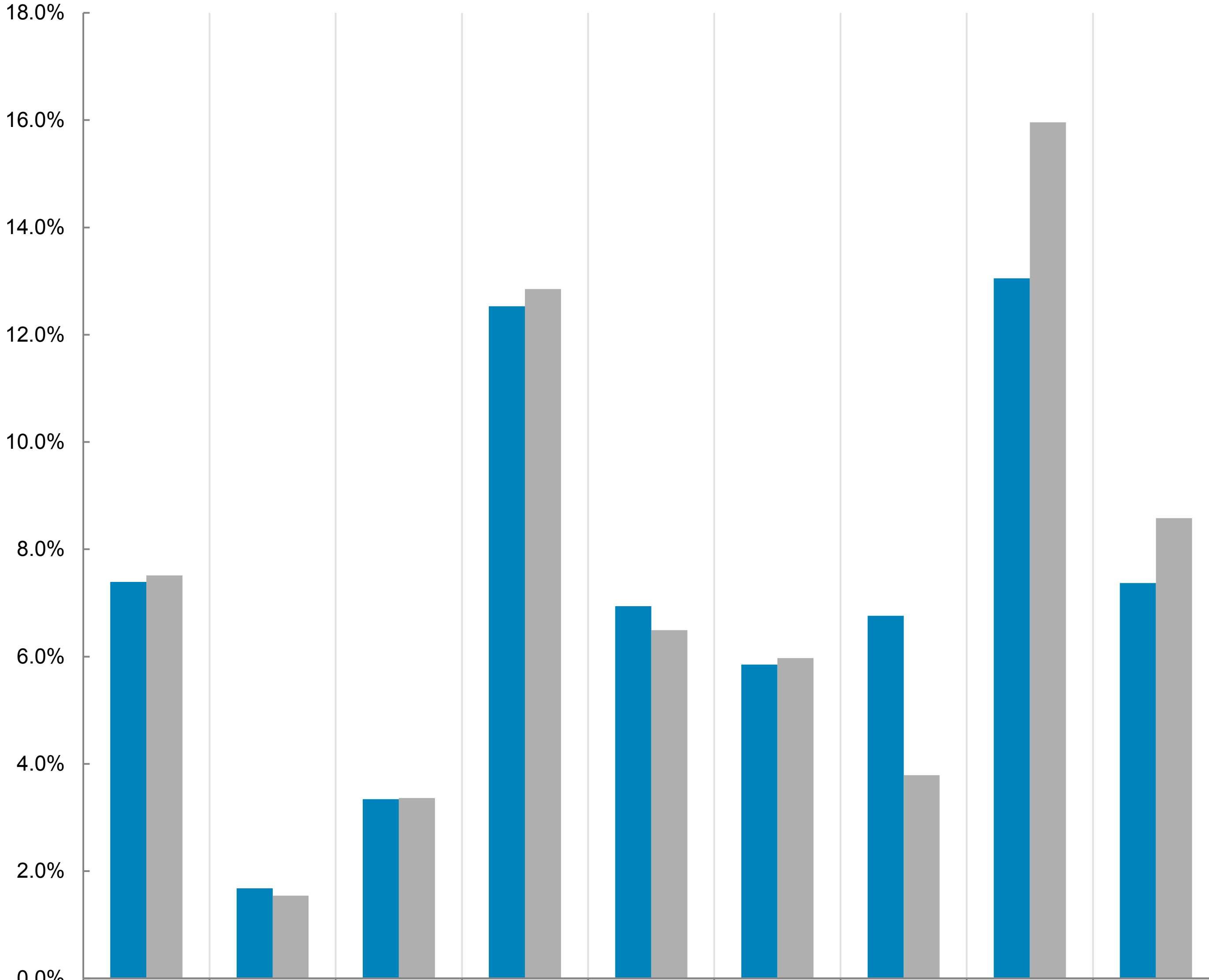
Exhibit 3: 1-Year Performance vs. Benchmark
As of September 30, 2019



	Total Fund	Cash and Cash Equivalents	Fixed Income	U.S. Equities	International Developed Markets Equities	Emerging Markets Equities	Absolute Return	Private Equity	Real Assets
1-Year	3.9%	2.4%	7.2%	1.5%	-0.3%	-2.2%	7.3%	11.5%	7.4%
Benchmark	4.4%	2.4%	8.5%	2.9%	-1.0%	-2.0%	0.4%	13.5%	7.7%

Report on Investment Activity

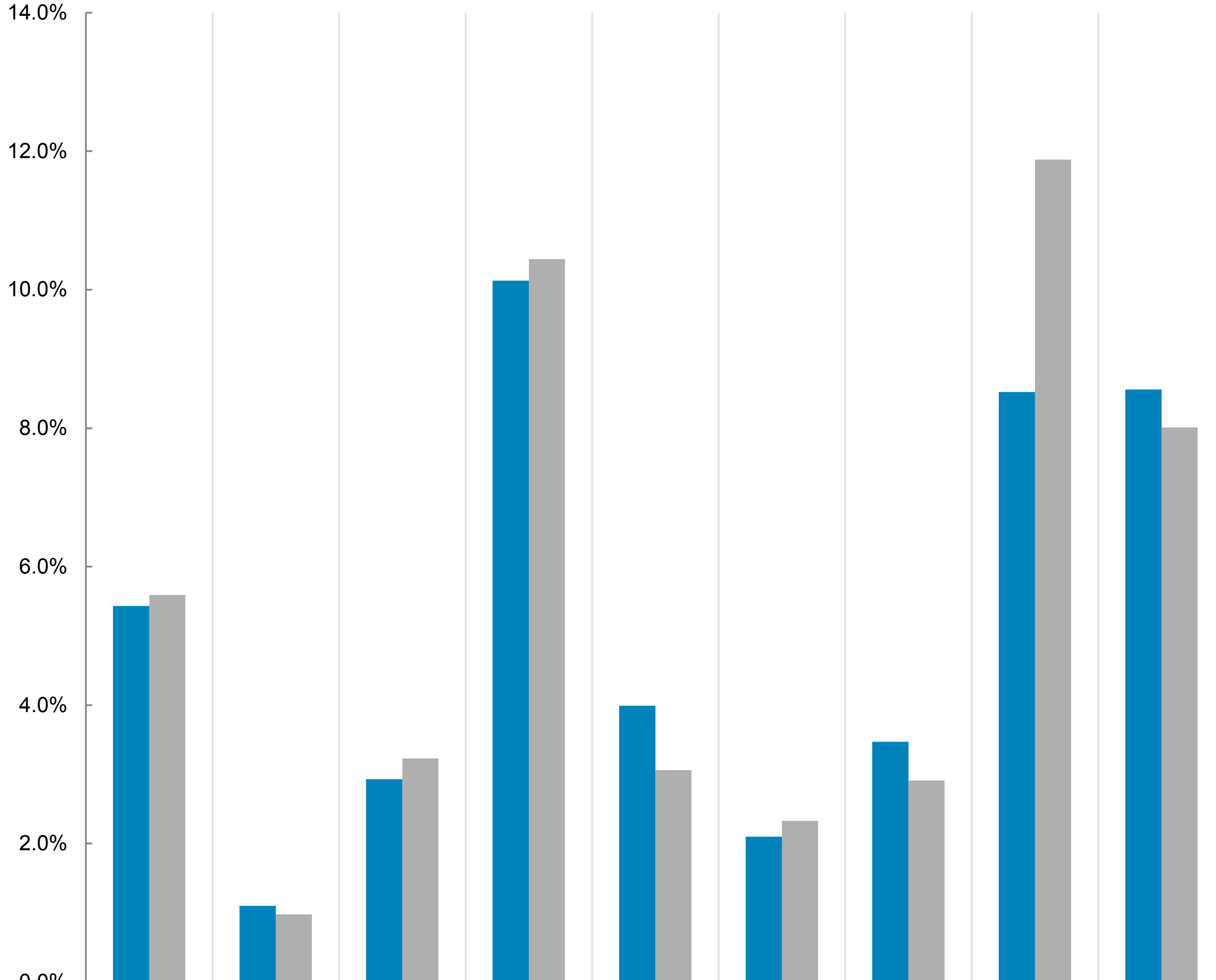
Exhibit 4: 3-Year Performance vs. Benchmark
As of September 30, 2019



	Total Fund	Cash and Cash Equivalents	Fixed Income	U.S. Equities	International Developed Markets Equities	Emerging Markets Equities	Absolute Return	Private Equity	Real Assets
3-Year	7.4%	1.7%	3.3%	12.5%	6.9%	5.9%	6.8%	13.1%	7.4%
Benchmark	7.5%	1.5%	3.4%	12.9%	6.5%	6.0%	3.8%	16.0%	8.6%

Report on Investment Activity

Exhibit 5: 5-Year Performance vs. Benchmark
As of September 30, 2019



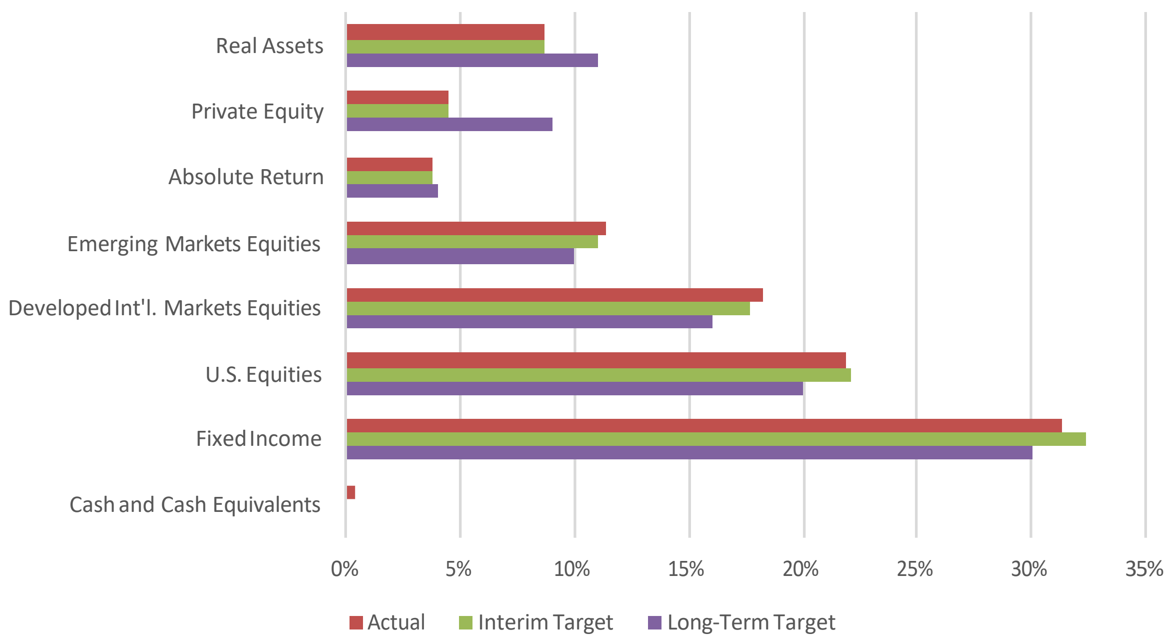
	Total Fund	Cash and Cash Equivalents	Fixed Income	U.S. Equities	International Developed Markets Equities	Emerging Markets Equities	Absolute Return	Private Equity	Real Assets
5-Year	5.4%	1.1%	2.9%	10.1%	4.0%	2.1%	3.5%	8.5%	8.6%
Benchmark	5.6%	1.0%	3.2%	10.4%	3.1%	2.3%	2.9%	11.9%	8.0%

Report on Investment Activity

Asset Allocation

As of September 30, 2019, all the Fund's asset classes were within their respective target allocation ranges. Exhibit 6 shows the Fund's Actual, Interim, and Long-Term Asset Allocation targets. The Interim Policy target distributes the underweight to alternative investments (absolute return, private equity, and real assets) across the traditional investments (fixed income and public equities) in line with the Fund's Long-Term Policy target.

Exhibit 6: Actual, Interim Target and Policy Asset Allocations as of September 30, 2019



The underweight in private equity is driven by a deliberate pace of new commitments and a high volume of realizations from more mature funds over the last few years. The current underweight should moderate by 2021-2022, as new funds draw capital and mature funds reduce distributions. In the meantime, the Board is focused on a consistent pace of new commitments, subject to the availability of compelling opportunities, strong fit with the existing investment program, and attractive market characteristics.

Report on Investment Activity

Other Updates

During the fiscal year, the Board didn't make any strategic asset allocation changes. Over the course of the year, the Team and Meketa Investment Group ("Meketa"), the Board's investment consultant focused on monitoring and rebalancing the Fund's asset allocation, completing nearly 30 rebalancing transactions. In addition, the Investment Team worked with Meketa on building out the private market investment program, adding core-plus real estate as an allowable investment strategy, and designing an emerging and diverse manager program. The Team and Meketa also spent a significant amount of time monitoring the Board's existing investment managers and renegotiated fee structures with several firms.

In Fiscal Year 2020, the Board will focus on reviewing the long-term asset allocation and building out its investment and operational due diligence framework, among other activities.

Environmental, Social, and Governance (ESG)

The Team and Meketa continued the incorporation of the Board's ESG policy, adopted in November 2013, into the investment and operational due diligence processes. This area continues to be a focus when evaluating prospective and existing investment managers.

Private Market Commitments

Within the alternative investments program, the Board committed a total of $200 million to five private equity and real assets limited partnerships during Fiscal Year 2019. In private equity, this included funds focused on European credit opportunities and U.S. growth equity. In real assets, the Board committed to two U.S real estate funds and a U.S. farmland fund.

Investment Activity Summary

During Fiscal Year 2019, there were no investment-related service provider changes.

Report on Investment Activity

List of Largest Holdings

Top 10 Fixed Income Holdings (Dollar amounts in thousands)							
Rank	Security Name	Moody's Quality Ratin	Par Value		Interest Rate (%)	Maturity Date	Market Value
1	UNITED STATES OF AMER INFL INDXD TREAS N	Aaa	$	28,642	0.27	01/15/2025	$ 28,706
2	UNITED STATES TSY INFL IX TREAS BOND	Aaa	$	26,741	0.69	01/15/2024	$ 27,123
3	UNITED STATES TREAS INFL INDEXED NTS .12	Aaa	$	25,377	0.14	07/15/2022	$ 25,261
4	TSY INFL IX N/B 0.375%	Aaa	$	23,564	0.39	07/15/2027	$ 23,909
5	TSY INFL IX N/B US GVT NATIONAL 0.375%01	Aaa	$	23,648	0.40	01/15/2027	$ 23,886
6	UNITED STATES TREAS INFL INDXED NTS .12	Aaa	$	24,073	0.14	01/15/2023	$ 23,866
7	UNITED STATES TREAS NTS 0.375% DTD	Aaa	$	22,920	0.41	07/15/2025	$ 23,207
8	UNITED STATES OF AMER TREAS NOTES INFL I	Aaa	$	22,923	0.14	04/15/2021	$ 22,660
9	US TREAS NTS INFL INDXD DTD 04-15-2017 0.1	Aaa	$	22,768	0.13	04/15/2022	$ 22,522
10	UNITED STATES TREAS NTS TIPS	Aaa	$	21,671	0.41	07/15/2023	$ 21,781

Top 10 Public Equity Holdings (Dollar amounts in thousands)			
Rank	Security Name	Shares	Market Value
1	Samsung Electronics Co Ltd	907,672	$39,544,152
2	Alibaba Group Holding Limited	218,881	$36,603,448
3	Tencent Holdings Limited	766,773	$32,296,932
4	Amazon.com, Inc.	26,409	$45,843,674
5	Taiwan Semiconductor Manufacturing Co Lt	3,289,463	$28,839,590
6	Apple Inc.	232,406	$52,051,948
7	Nestle S.A.	298,763	$32,442,506
8	Alphabet Inc.	36,403	$44,418,662
9	Facebook, Inc.	146,135	$26,023,702
10	Microsoft Corporation	410,585	$57,083,609

Report on Investment Activity

Schedule of Fees and Commissions

During fiscal year 2019, the Board paid the following fees and commissions:

Expense Category	Amount thousands)	Percent of Fund
Investment Managers*	$15,847,456	0.186%
Investment Consultants	$873,574	0.010%
Investment Administrative Expense	$757,041	0.009%
Custodian	$322,174	0.004%
Brokerage Commissions**	$752,660	0.009%
Total	**$18,552,905**	**0.218%**

** Includes fees paid to traditional investment managers only. Traditional investment managers are those that invest primarily in public equity and fixed income securities*

*** Includes separate account and commingled fund relationships.*

Total	Total Shares Traded	Total Commission (Dollar Value)	Total Commission (Cost Per Share)	Commission (Basis Points)	Number of Trades	Trade Value (Dollars in millions)
Channing Capital Management	7,559,588	$ -182,136	-2.4	-8	1,515	$ 243
Sands Capital Management	458,754	-9,874	-2.2	-2	191	61
Altrinsic	11,971,036	-209,657	-1.8	-16	524	135
LSV Emerging Markets	60,271,571	-41,904	-0.1	-5	3,116	83
Northern Truest Global REIT	53,835,329	-50,966	-0.1	-3	3,105	171
Northern Trust R3000	58,244,105	-52,703	-0.1	0	23,315	2,322
State Street Global Advisors-CAD	653,534	-3,629	-0.6	-2	836	16
State Street Global Advisors-EAFE	16,381,934	-45,690	-0.3	-2	10,189	226
State Street Global Advisors-EM	119,368,724	-156,103	-0.1	-6	11,649	250
Total	**328,744,575**	**$ -752,662**	**-0.2**	**-2**	**54,440**	**$ 3,507**

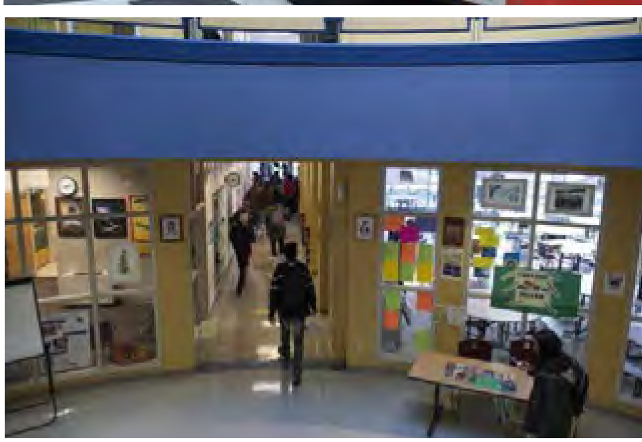
Report on Investment Activity

Investment Summary

(Dollar amounts in thousands)

Asset Class		Market Value $(000)	% of Fund
Cash and Short-Term Investments	$	76,434	1%
Fixed Income		2,690,008	32%
U.S. Equities		2,284,339	27%
International Markets Equities		2,328,879	27%
Private Equity		465,263	5%
Real Assets		685,113	8%
Total	**$**	**8,530,036**	**100%**

ACTUARIAL SECTION



Bolton
Employee Benefits, Actuarial & Investment Consulting

March 9, 2020

Board Members
District of Columbia Retirement Board
900 7th Street NW, Suite 200
Washington, DC 20001

RE: Actuarial Certification of October 1, 2019 Valuation for D.C. Retirement Board

Dear Board Members:

Bolton Partners, Inc., under contract with the District of Columbia Retirement Board (DCRB), performed actuarial valuations of the District of Columbia (D.C.) Police Officers and Firefighters' Retirement Plan and the D.C. Teachers' Retirement Plan as of October 1, 2019. The date of the most recent valuation prior to this was October 1, 2018. Valuations are conducted annually for DCRB. In this study, we relied on participant and financial data supplied by DCRB staff, the D.C. Office of Pay and Retirement Services, and the U.S. Department of the Treasury. We examined such data for reasonableness and consistency.

Actuarial funding of the Plans is based on the Entry Age Normal Cost method. Under this method, the District must contribute the level percent of pay that – combined with the actuarial value of assets, expected investment earnings, and future employee contributions – will pay for the benefits of the current participants by the time the current workforce leaves employment as well as a payment to amortize any unfunded accrued liability.

The funding policy adopted by the Board in 2012 and revised in 2017 has two main goals:

- To maintain an increasing or stable ratio of Plan assets to accrued liabilities and reach a 100 percent minimum funded ratio;
- To develop a pattern of stable or declining contribution rates when expressed as a percentage of member payroll as measured by valuations prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, with a minimum employer contribution equal to the lesser of the normal cost determined under the Entry Age Normal cost method and the current active member contribution rate.

The funding policy not only states the overall funding goals and benchmarks for the Plan, but also sets the methods and assumptions. In 2017 the funding policy was revised to:

- Amortize the legacy Unfunded Actuarial Accrued Liability (UAAL) as of October 1, 2017 over a closed 15-year period on a level dollar basis.
- In subsequent valuations, all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation will be amortized over a closed 20- year period from the date it is established.

Bolton
Employee Benefits, Actuarial & Investment Consulting

In addition, the amortization of the unfunded accrued liability uses the level dollar approach.

For actuarial valuation purposes, Plan assets are determined at Actuarial Value, recognizing 20% of the difference between the expected market value and the actual end of year market value of assets. The purpose of this is to smooth contributions, allowing investment gains and losses to offset each other over time.

We provided certain information used in the supporting schedules in the Actuarial Section for the 2019 Comprehensive Annual Financial report (CAFR), as well as the Schedule of Funding Progress and the employer contributions shown in the Schedule of Employer Contributions in the Financial Section of the 2019 CAFR. The listing attached identifies the supporting schedules provided by Bolton Partners, Inc. We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices.

The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in the subject valuation report.

Respectfully Submitted,

Thomas Vicente

Tom Vicente, FSA, EA, MAAA
Senior Consulting Actuary

Tom Lowman, FSA, EA
Principal, President of Bolton Retirement

Ann M Sturner

Ann Sturner, FSA, EA, MAAA
Senior Consulting Actuary

CAFR Schedule Listing

Schedules provided by Bolton Partners, Inc.

BoltonUSA.com | 410.547.0500 | 36 S. Charles Street, Suite 1000 | Baltimore, MD 21201

Outline of Actuarial Assumptions and Methods

(Demographic assumptions adopted on June 22, 2018)

(Economic assumptions adopted on June 22, 2018)

Valuation date: All assets and liabilities are computed as of October 1, 2019. Demographic information was collected as of June 30, 2019.

Investment rate of return: 6.50% per annum, compounded annually (net of investment expenses).

Inflation assumption: 3.50% per annum.

Payroll growth assumption: 4.25% per annum.

Percent married: 64% of Teachers are assumed to be married and 80% of Police Officers and Firefighters are assumed to be married, with a wife 3 years younger than a husband. Active members are assumed to have one dependent child aged 10.

Actuarial method: The valuation is completed on the entry age normal cost method calculated on an individual basis with level percentage of pay normal cost.

Amortization of Unfunded Actuarial Accrued Liability: The unfunded actuarial accrued liability (UAAL) is amortized on a level dollar basis based on the following funding policy adopted by the Board in 2012 and amended in 2017:

- Amortize the legacy UAAL as of October 1, 2017 over a closed 15-year period.
- Amortize the assumption and method changes and experience gains for October 1, 2017 valuation over a closed 20-year period from the valuation date.
- Amortize all subsequent benefit changes, assumption and method changes and experience gain and losses over a closed 20-year period from the date established.

Assets: The method of valuing assets is intended to recognize a "smoothed" market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return on market value is recognized over a five-year period. The actuarial value of assets is constrained to an 80% to 120% corridor around market value of assets. In addition, there is an adjustment made for the effect of the adjustment pursuant to D.C. Code §1- 907.02(c).

Withdrawal assumption: For Teachers and Firefighters, it was assumed that 15% of the vested members who terminate elect to withdraw their contributions while the remaining 85% elect to leave their contributions in the Plan in order to be eligible for a benefit at their retirement date. For Police Officers, it was assumed that 25% of the vested members who terminate elect to withdraw their contributions while the remaining 75% elect to leave their contributions in the plan.

Other assumptions: To value the pre-retirement death benefit for Police Officers and Firefighters, the benefit form for all retirements (normal or disabled) is assumed to be a 67.8% Joint and Survivor Annuity for all participants (based on 40% of average pay survivor benefits). One-fourth of all Police Officer and Firefighter active deaths are assumed to occur in the line of duty.

Cost-of-living adjustment (COLA): The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 3.5% per year for members hired before November 1, 1996 and 3.0% per year for members hired on or after November 1, 1996.

Military service: All Police and Fire members are assumed to have 0.40 years of military service at retirement.

Administrative expenses: For Teachers, budgeted administrative expenses of 1.2% of payroll are added to the normal cost rate. For Police Officers and Firefighters, budgeted administrative expenses of 2.1% of payroll are added to the normal cost rate.

Outline of Actuarial Assumptions and Methods
Teachers

Salary Increases: Representative values of the assumed annual rates of future salary increases are as follows and include inflation at 4.25% per annum:

Pay Increase Assumptions for an Individual Member			
Years of Service	Merit & Seniority	Inflation & Productivity (Economy)	Total Increase (Next Year)
5	4.20%	4.25%	8.63%
10	3.20	4.25	7.59
15	1.20	4.25	5.50
20	1.20	4.25	5.50
25	1.20	4.25	5.50
30	1.20	4.25	5.50
35	1.20	4.25	5.50

Separations from Active Service: Representative values of the assumed annual rates of withdrawal, service retirement, and disability are shown in the following tables:

Percent of Members Separating Within the Next Year					
	Withdrawal (5 years of service & up)		Service Retirement		
Sample Ages	Male	Female	Under 30 yrs service Retirement	30 & up years service Retirement	30 & up years service Retirement
25	18.00 %	18.00 %			0.01 %
30	16.00	16.00			0.02
35	12.00	10.00			0.03
40	12.00	8.00			0.07
45	8.00	6.50			0.12
50	8.00	6.50	5.00 %	5.00 %	0.20
55	8.00	6.50	9.0	22.0	0.25
60	-	-	27.0	28.0	0.30
62	-	-	22.0	25.0	
65	-	-	25.0	35.0	
70	-	-	30.0	30.0	
71	-	-	25.0	30.0	
75	-	-	100.0	100.0	

1. Members of any age with less than 5 years of service have withdrawal rates of 18% to 26% for males, and 16% to 23% for females.

Mortality: The RPH-2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males is used for healthy active members, retirees, and beneficiaries. The RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females is used for disabled retirees. Mortality improvement is anticipated under these assumptions.

Outline of Actuarial Assumptions and Methods
Police Officers

Salary Increases: Police Officers are assumed to receive longevity increases applied to individual base pay after 25 and 30 years of service. Representative values of the assumed annual rates of future salary increases before longevity increases are as follows and include inflation at 4.25% per annum:

Pay Increase Assumptions for an Individual Member			
Years of Service	Merit & Seniority	Inflation & Productivity (Economy)	Total Increase (Next Year)
5	2.00%	4.25%	6.34%
10	2.00	4.25	6.34
15	2.00	4.25	6.34
20	1.75	4.25	6.07
25	0.75	4.25	5.03
30	0.00	4.25	4.25

Separations from Active Service: Representative values of the assumed annual rates of withdrawal, service retirement, and disability are shown in the following tables:

Percent of Members Separating Within the Next Year						
Sample Ages	Withdrawal (5 years of service & up)[1]		Disability Retirement[2]		Years of Service	Service Retirement[3]
20	5.00%	5.00%	0.03%	0.02%	-	-
25	5.00	5.00	0.06	0.05	-	-
30	4.25	4.50	0.11	0.10	-	-
35	2.75	3.50	0.16	0.15	-	-
40	1.50	1.50	0.23	0.30	20%	15.0%
45	1.50	1.50	0.32	0.40	25	22.0
50	1.50	1.50	0.42	0.60	30	38.0
55	1.50	1.50	0.44	0.70	35	18.0
60	1.50	1.50	0.51	1.00	40	16.0

1. Members of any age with less than 5 years of service have withdrawal rates of 6% to 13% for males, and 5% to 11% for females
2. It is assumed that 75% of the disabilities are due to accidents in the line of duty and the “percent of disability” is assumed to be 100%.
3. 100% of active members are assumed to retire at age 65, regardless of service.

Outline of Actuarial Assumptions and Methods

Police Officers

Mortality: The RPH-2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males is used for healthy active members, retirees, and beneficiaries. The RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females is used for disabled retirees. Mortality improvement is anticipated under these assumptions.

Disabled Mortality		
Age	Male	Female
20	0.03 %	0.28 %
30	0.79	0.48
40	0.81	1.07
50	1.38	1.49
60	2.29	2.28
70	3.22	4.75
80	5.41	10.63
90	10.91	22.87
100	23.77	41.08

Mortality improvement is anticipated under these assumptions as recent mortality experience shows actual deaths are approximately 7% greater for healthy lives and 6% greater for disabled lives than expected under the selected tables.

Outline of Actuarial Assumptions and Methods
Firefighters

Salary Increases: Firefighters are assumed to receive a longevity increase applied to individual base pay after 15, 20, 25, and 30 years of service, respectively. Representative values of the assumed annual rates of future salary increases before longevity increases are as follows and include inflation at 4.25% per annum:

Pay Increase Assumptions for an Individual Member			
Years of Service	Merit & Seniority	Inflation & Productivity (Economy)	Total Increase (Next Year)
5	3.00 %	4.25 %	7.38 %
10	3.00	4.25	7.38
15	3.00	4.25	7.38
20	1.25	4.25	5.55
25	1.25	4.25	5.55
30	1.25	4.25	5.55
35	1.25	4.25	5.55

Separations from Active Service: Representative values of the assumed annual rates of withdrawal, service retirement, and disability are shown in the following tables:

Percent of Members Separating Within the Next Year				
Sample Ages	Withdrawal (5 years of service & up)[1]	Disability Retirement[2]	Years of Service	Service Retirement[3]
20	3.00%	0.01%	-	-
25	3.00	0.05	-	-
30	2.60	0.18	-	-
35	1.80	0.25	-	-
40	1.40	0.30	20	12.50%
45	1.20	0.35	25	12.50
50	1.20	0.40	30	22.00
55	0.80	0.45	35	40.00
60	0.60	0.50	40	40.00

1. Members of any age with less than 5 years of service have withdrawal rates of 4.0% to 7.5%.
2. It is assumed that 75% of the disabilities are due to accidents in the line of duty and the “percent of disability” is assumed to be 100%.
3. 100% of active members are assumed to retire at age 60, regardless of service.

Outline of Actuarial Assumptions and Methods
Firefighters

Mortality: The RPH-2014 Blue Collar Mortality Table projected generationally with Scale BB, set back 1 year for males is used for healthy active members, retirees, and beneficiaries. The RPH-2014 Disabled Mortality Table set back 6 years for males and set forward 7 years for females is used for disabled retirees. Mortality improvement is anticipated under these assumptions.

Disabled Mortality		
Age	Male	Female
20	0.03 %	0.28 %
30	0.79	0.48
40	0.81	1.07
50	1.38	1.49
60	2.29	2.28
70	3.22	4.75
80	5.41	10.63
90	10.91	22.87
100	23.77	41.08

Mortality improvement is anticipated under these assumptions as recent mortality experience shows actual deaths are approximately 7% greater for male and 1% greater for female healthy lives and 8% greater for disabled lives than expected under the selected tables. Police Officers and Firefighters are combined in the valuation results and the female healthy life population is much greater for Police Officers than Firefighters, so the smaller margin under Firefighters is not an issue at this time.

Provisions as Interpreted for Valuation Purposes
Teachers' Retirement Plan

Effective Date
Established on July 1, 1997. The U.S. Treasury is responsible for paying all benefits accrued before this date.

Definitions

Affiliated Employers
District of Columbia Public Schools, Public Charter Schools

Covered Members
Permanent, temporary, and probationary teachers for the District of Columbia public day schools become members automatically on their date of employment. Other employees covered by the Retirement of Public School Teachers Act – including librarians, principals, and counselors – also become members on their date of employment. Substitute teachers and employees of the Department of School Attendance and Work Permits are not covered. Some former D.C teachers working at charter schools are eligible to remain in the Program.

Service Credit
One year of school service is given for each year of employment with DCPS. After five years of service are accrued, additional service may be purchased or credited for service outside of DCPS. For purposes of eligibility and benefit accrual, eligible federal service is included in the calculation of the normal retirement benefit.

Average Salary
Highest 36 consecutive months of pay, divided by three.

Vested
Members who accrue five or more years of Service Credit are vested for benefits. If these members leave service, they may leave their Member Contribution Accounts with the Plan for a future benefit when reaching eligibility (deferred vested in this report).

Contributions

Member Contributions
Members hired before November 1, 1996, are required to contribute 7% of annual pay. Members hired on or after November 1, 1996, contribute 8% of annual pay. Interest is not credited to each Member's accumulated contributions.

Refund of Member Contributions
In the event a member leaves service for a reason other than death or retirement, member contribution accounts are refunded upon request.

Provisions as Interpreted for Valuation Purposes

Teachers' Retirement Plan

Service Retirement

Eligibility

The Age and Service Credit requirements to be eligible for a full Service Retirement are listed below:

Members Hired Before November 1, 1996:	
Age	**Service Credit**
55	30 years, including 5 years school service
60	20 years, including 5 years school service
62	5 years school service

Members Hired On and After November 1, 1996:	
Age	**Service Credit**
Any Age	30 years, including 5 years school service
60	20 years, including 5 years school service
62	5 years school service

Benefit

For members hired before November 1, 1996:

- 1.5% of Average Salary times service through 5 years, plus
- 1.75% of Average Salary times service from 6 through 10 years, plus
- 2.0% of Average Salary times service over 10 years.

For members hired on or after November 1, 1996:

- 2.0% of Average Salary times service.

All members receive a minimum benefit of 1.0% of Average Salary plus $25 for each year of service.

Provisions as Interpreted for Valuation Purposes
Teachers' Retirement Plan

Involuntary Service Retirement

Eligibility
The Age and Service Credit requirements to be eligible for an Involuntary Service Retirement are listed below:

All Members, regardless of date of hire

Age	Service Credit
Any age	25 years, including 5 years school service
50	20 years, including 5 years school service

Benefit
Service Retirement Benefit is reduced by 1/6% per month (or 2% per year) that the date of retirement precedes age 55.

Disability Retirement

Eligibility
Active members with five or more years of school service credit are eligible (vested) for disability retirement. To be eligible, the member must be found to be incapable of satisfactorily performing the duties of his/her position.

Benefit
Equal to Service Retirement benefit. Minimum benefit is the lesser of a) or b):

a) 40% of Average Salary

b) Calculated benefit amount projecting service to age 60.

Survivor Benefits

Lump Sum
Eligibility
Death before completion of 18 months of school service or death without an eligible spouse, domestic partner, dependent child or parent.

Benefit
Refund of member contributions.

Provisions as Interpreted for Valuation Purposes

Teachers' Retirement Plan

Survivor Benefits

Spouse or Domestic Partner Only

Eligibility

Death before retirement and married/recognized domestic partner for at least two years or have a child by the marriage or partnership.

Benefit

55% of Service Retirement benefit. Minimum benefit is the lesser of a) or b):

a) 55% of 40% of Average Salary

b) 55% of the calculated benefit amount projecting service to age 60.

Spouse or Domestic Partner & Dependent Children

Eligibility

Death before retirement and married/recognized domestic partnership for at least two years or have a child by the marriage or partnership. Children must be unmarried and under age 18, or 22 if a full-time student; also, any dependent child who incurred a disability before age 18. Death does not have to occur before retirement for the children's benefit.

Spouse or Domestic Partner Benefit

55% of Service Retirement benefit. Minimum benefit is the lesser of a) or b):

a) 55% of 40% of Average Salary

b) 55% of the calculated benefit amount projecting service to age 60.

Child Benefit

A benefit per child is equal to the smallest of a) or b) or c):

a) 60% of Average Salary divided by the number of eligible children

b) $7,210* (if hired before 1/1/1980), $6,963* (if hired between 1/1/1980 and 10/31/1996), or $6,781* (if hired on or after 11/1/1996) per child

c) $21,805* (if hired before 1/1/1980), $21,057* (if hired between 1/1/1980 and 10/31/1996), or $20,507* (if hired on or after 11/1/1996) divided by the number of children.

*Survivor benefit amounts are as of 2019 and are subject to annual inflation adjustments.

Provisions as Interpreted for Valuation Purposes
Teachers' Retirement Plan

Survivor Benefits

Dependent Children Only
Eligibility
Children must be unmarried and under age 18, or 22 if a full-time student; also, any dependent child with a disability incurred before age 18. Death does not have to occur before retirement for the children's benefit.

Benefit
A benefit per child equal to the smallest of a) or b) or c):

a) 75% of Average Salary divided by the number of eligible children

b) $8,812* (if hired before 1/1/1980), $8,486* (if hired between 1/1/1980 and 10/31/1996), or $7,384* (if hired on or after 11/1/1996) per child

c) $26,646* (if hired before 1/1/1980), $25,664* (if hired between 1/1/1980 and 10/31/1996), or $24,876* (if hired on or after 11/1/1996) divided by the number of children.

Parents Only
Eligibility
Death before retirement and no eligible spouse or children, and parents must receive at least one-half of their total income from member.

Benefit
55% of Service Retirement benefit. Minimum benefit is the lesser of a) or b):

a) 55% of 40% of Average Salary

b) 55% of the calculated benefit amount projecting service to age 60.

*Survivor benefit amounts are as of March 2019 and are subject to annual inflation adjustments.

Deferred Vested Retirement

Eligibility
Active members with five or more years of school service credit.

Benefit
Benefit is calculated in the same manner as a Service Retirement benefit and may be collected starting at age 62.

Provisions as Interpreted for Valuation Purposes

Teachers' Retirement Plan

Options

Retirement and disability benefits are payable for the life of the retired member. Optional reduced benefits may be elected at the time of retirement to provide for continuation of a reduced benefit amount to a designated beneficiary. Optional forms include:

a) Unreduced Annuity
Full benefit is paid to the member, with no survivor benefit.

b) Reduced Annuity with a Maximum Survivor Annuity (to Spouse or Recognized Domestic Partner)
Reduced benefit paid to the member so that upon the member's death, the spouse or domestic partner will receive 55% of the unreduced normal life annuity. Member's benefit is reduced by 2.5% of retirement benefit, up to $3,600, plus 10% of any retirement benefit over $3,600.

c) Reduced Annuity with a Partial Survivor Annuity (to Spouse or Recognized Domestic Partner)
Reduced benefit paid to member so that upon the member's death, the spouse or domestic partner will receive a partial annuity that can range from $1 up to less than 55% of the unreduced normal life annuity amount. The member's benefit is reduced by the same amount as option b, multiplied by the ratio of the chosen benefit percent to the maximum benefit percent (of less than 55%).

d) Reduced Annuity with a Life Insurance Benefit
Member elects a life insurance amount, payable in a lump sum to designated beneficiary upon member's death. The unreduced annuity is reduced by the amount required to pay for the life insurance premium.

e) Reduced Annuity with a Survivor Annuity to a Person with an Insurable Interest
A 55% Joint and Survivor Annuity where the original benefit is reduced by 10% plus an additional 5% for each full 5 years, up to 25 years, that the designated beneficiary is younger than the member. Maximum reduction is 40% for any beneficiary who is 25 or more years younger than the member.

Cost-of-Living Adjustments (COLA)

Each year on March 1st, benefits which have been paid for at least twelve months preceding March 1st may be increased. The increase is equal to the change in the CPI-W for the prior calendar year. COLA's are included in benefit payments on and after April 1st. If a member's retirement is effective March 1 of the preceding year, the COLA amount will be prorated.

For members hired on or after November 1, 1996, the cost-of-living increase is limited to 3% per year.

Provisions as Interpreted for Valuation Purposes

Police Officers and Firefighters' Retirement Plan

Effective Date

Established on July 1, 1997. The U.S. Department of the Treasury is responsible for paying all benefits accrued before this date.

Definitions

Affiliated Employers

The District of Columbia Metropolitan Police Department (MPD) and the District of Columbia Department of Fire and Emergency Medical Services (FEMS).

Covered Members

Sworn Police Officers and Firefighters become members on their first day of active duty (cadets are not eligible). Membership is not automatic for uniformed EMT Firefighters.

Service Credit

One year of service is given for each year of employment with MPD or FEMS. Additional service may be purchased or credited for lateral transfer service, EMT service, prior military service, and certain civilian service. For purposes of retirement eligibility and benefit accrual, creditable Federal and District service is aggregated in determining total creditable service.

Average Salary

For members hired before February 15, 1980, the highest 12 consecutive months of pay. For members hired on or after February 15, 1980, the highest 36 consecutive months of pay, divided by 3. Base pay does not include overtime, holiday or military.

Vested

Members who accrue five or more years of Service Credit are vested for benefits. If these members leave service, they may leave their Member Contribution Accounts with the Plan for a future benefit when reaching eligibility.

Contributions

Member Contributions

Members hired before November 10, 1996, contribute 7.0% of salary. Members hired on or after November 10, 1996, contribute 8.0% of salary. Member contributions, together with any purchased service credit payments, are credited to individual Member Contribution Accounts. No interest is accrued on contributions.

Refund of Member Contributions

In the event a member leaves service for a reason other than death or retirement, member contribution accounts are refunded upon request.

Provisions as Interpreted for Valuation Purposes
Police Officers and Firefighters' Retirement Plan

Service Retirement

Eligibility
The Age and Service Credit requirements to be eligible for a full service Retirement are listed below:

Members hired before November 10, 1996	
Age	**Service Credit**
Any age	20 (only if hired before 2/15/1980)
50	25 years departmental service
60	5 years departmental service

Members hired on and after November 10, 1996	
Age	**Service Credit**
Any age	25 years departmental service
60	5 years departmental service

Benefit
For members hired before November 10, 1996:
- 2.5% of Average Salary times departmental service up to 25 years (20 years if hired before 2/15/1980), plus
- 3.0% of Average Salary times departmental service over 25 years (or 20 years if hired before 2/15/1980), plus
- 2.5% of Average Salary times purchased or credited service.

For members hired on or after November 10, 1996:
- 2.5% of Average Salary times total service.

All members are subject to a maximum benefit of 80% of Average Salary.

Service-Related Disability Retirement

Eligibility
Disabled as a result of an injury or disease that permanently disables him/her for the performance of duty.

Benefit
For members hired before February 15, 1980:
2.5% of Average Salary times total years of service, subject to a minimum of 66-2/3% of Average Salary and a maximum of 70% of Average Salary.

For members hired on or after February 15, 1980:
70% of final pay times percentage of disability, subject to a minimum of 40% of final pay.

Provisions as Interpreted for Valuation Purposes
Police Officers and Firefighters' Retirement Plan

Nonservice-Related Disability Retirement

Eligibility
Active members with five or more years of departmental service are eligible (vested) for disability retirement. The member is eligible if found that the disability precludes further service with his/her department.

Benefit
For members hired before February 15, 1980:
2.0% of Average Salary times total years of service, subject to a minimum of 40% of Average Salary and a maximum of 70% of Average Salary.

For members hired on or after February 15, 1980:
70% of final pay times percentage of disability, subject to a minimum of 30% of final pay.

Survivor Benefits

Lump Sum
Eligibility
Death before retirement without an eligible spouse or child.

Benefit
Refund of member contributions according to Plan's order of precedence.

Lump Sum – Death In Line of Duty
Eligibility
Death occurring in the line of duty, not resulting from willful misconduct.

Benefit
$50,000

Spouse Only – Death in Line of Duty
Eligibility
Member killed in line of duty, after December 29, 1993.

Benefit
100% of final pay.

Provisions as Interpreted for Valuation Purposes
Police Officers and Firefighters' Retirement Plan

Survivor Benefits

Spouse Only – Death Not In Line Of Duty
Eligibility
Member death, not in line of duty, after December 29, 1993. If retired, must be married for at least one year or have a child by the marriage.

Benefit
40% of the greater of a) or b):

a) Average Salary

b) Salary for step 6 salary class 1 of the DC Police and Fireman's Salary Act in effect, adjusted for cost-of-living increases if death occurs after retirement.

Benefit cannot be higher than rate of pay at death (or retirement if death occurs after retirement).

Spouse & Dependent Children
Eligibility
Member death, not in line of duty, after December 29, 1993. If retired, must be married for at least one year or have a child by the marriage. Children must be unmarried and under age 18, or 22 if full-time student. Also, any dependent child because of a disability incurred before age 18. Death does not have to occur before retirement for the children's benefit.

Spouse Benefit
40% of the greater of a) or b):

a) Average Salary

b) Salary for step 6 salary class 1 of the DC Police and Fireman's Salary Act in effect, adjusted for cost-of-living increases if death occurs after retirement.

Benefit cannot be higher than rate of pay at death (or retirement if death occurs after retirement).

Survivor Benefits

Child Benefit
A benefit per child is equal to the smallest of a) or b) or c):

a) 60% of Average Salary divided by the number of eligible children

b) $4,242* (if hired before 11/10/1996) or $4,150* (if hired on or after 11/10/1996) per child

c) $12,726* (if hired before 11/10/1996) or $12,450* (if hired on or after 11/10/1996) divided by the number of children.

*Survivor benefit amounts are as of March 2019 and are subject to annual inflation adjustments.

Provisions as Interpreted for Valuation Purposes

Police Officers and Firefighters' Retirement Plan

Dependent Children Only

Eligibility

Children must be unmarried and under age 18, or 22 if full-time student. Also, any dependent child because of a disability incurred before age 18. Death does not have to occur before retirement for the children's benefit.

Benefit

75% of Average Salary divided by the number of eligible children, adjusted for cost-of-living increases.

Deferred Vested Retirement

Eligibility

Active members with five or more years of departmental service.

Benefit

Benefit is calculated in the same manner as Service Retirement benefit and may be collected starting at age 55.

Options

Retirement and disability benefits are payable for the life of the retired member. This includes an unreduced Joint and Survivor Annuity as defined above in the "Survivor Benefits – Spouse and Dependent Children" section.

An optional reduced benefit may be elected at the time of retirement to provide for an additional survivor benefit to a designated beneficiary. Member's original annuity is reduced by 10% and an increased benefit based on the value of that amount is added to the survivor's benefit. If the designated beneficiary is more than five years younger than the member, the additional amount will be reduced by 5% for each full five years that the beneficiary is younger than the member, subject to a maximum reduction of 40%.

Cost-of-Living Adjustments (COLA)

Each year on March 1st, benefits which have been paid for at least twelve months preceding March 1st may be increased. The amount is equal to the increase in the CPI-U for the prior calendar year. COLA's are included in benefit payments on and after April 1st. If a member's retirement is effective after March 1 of the preceding year, the COLA amount will be prorated.

For members hired on or after November 10, 1996, the cost of living increase is limited to 3% per year. Members hired before February 15, 1980, receive equalization pay, which is defined as the percentage increase of active employees' salary increases. Equalization increases are not paid to beneficiaries.

Schedule of Active Member Valuation Data
(Dollar amounts in thousands)

Teachers' Plan				
Valuation Date	Number	Annual Payroll	Annual Average Pay	% increase in Average Pay
September 30, 2019	5,226	$ 516,609	$ 98.9	6.46 %
September 30, 2018	5,066	470,749	92.9	7.90
September 30, 2017	5,199	447,762	86.1	1.06
September 30, 2016	5,141	438,079	85.2	(0.58)
September 30, 2015	4,866	417,090	85.7	1.78
September 30, 2014	4,499	378,926	84.2	(0.12)
September 30, 2013	4,379	369,071	84.3	(0.59)
September 30, 2012	4,495	381,235	84.8	4.69
September 30, 2011	4,747	384,455	81.0	13.92
September 30, 2010	4,749	337,516	71.1	(2.85)

Police Officers' Plan				
Valuation Date	Number	Annual Payroll	Annual Average Pay	% increase in Average Pay
September 30, 2019	3,566	$ 327,734	$ 91.9	10.32 %
September 30, 2018	3,567	297,283	83.3	(0.24)
September 30, 2017	3,583	299,535	83.5	2.20
September 30, 2016	3,651	298,442	81.7	1.74
September 30, 2015	3,829	307,373	80.3	2.42
September 30, 2014	3,902	305,765	78.4	3.02
September 30, 2013	3,846	292,494	76.1	(0.65)
September 30, 2012	3,810	291,780	76.6	(1.29)
September 30, 2011	3,775	292,785	77.6	2.37
September 30, 2010	3,915	296,837	75.8	(2.05)

Schedule of Active Member Valuation Data
(Dollar amounts in thousands)

Firefighters' Plan				
Valuation Date	Number	Annual Payroll	Annual Average Pay	% increase in Average Pay
September 30, 2019	1,840	$ 168,076	$ 91.3	3.75 %
September 30, 2018	1,782	156,926	88.0	6.93
September 30, 2017	1,729	142,370	82.3	0.61
September 30, 2016	1,708	139,672	81.8	0.62
September 30, 2015	1,708	138,828	81.3	1.12
September 30, 2014	1,649	132,650	80.4	10.74
September 30, 2013	1,664	120,886	72.6	0.28
September 30, 2012	1,700	123,097	72.4	0.70
September 30, 2011	1,786	128,436	71.9	1.55
September 30, 2010	1,793	127,017	70.8	0.22

Schedule of Retirees Added-to and Removed-from Rolls
(Dollar amounts in thousands)

Fiscal Year Ended	Plan	New Members Added Number	Annual Allowances	New Members Removed Number	Annual Allowances	Changes due to Plan Amendments	Number	Annual Allowances	Percentage Increase in Annual Allowances	Average Annual Allowances
9/30/2019	Teachers	141	$ 4,693	72	$ 1,278	$ 1,890	4,059	$ 81,840	6.90 %	$20
	Police/Fire	301	15,917	43	821	1,993	3,699	128,913	14.80	35
9/30/2018	Teachers	160	4,892	69	977	1,419	3,990	76,535	7.50	19
	Police/Fire	271	13,179	45	909	1,868	3,441	111,824	13.80	33
9/30/2017	Teachers	96	2,599	79	1,211	1,023	3,899	71,201	3.50	31
	Police/Fire	252	11,287	10	678	1,339	3,215	97,686	14.00	31
9/30/2016	Teachers	222	6,844	58	1,021	68	3,882	68,790	9.36	8
	Police/Fire	441	18,205	47	1,022	(1,659)	3,003	85,738	18.10	29
9/30/2015	Teachers	183	4,950	66	822	84	3,718	62,899	7.18	17
	Police/Fire	284	12,818	39	424	(630)	2,610	70,214	20.13	27
9/30/2014	Teachers	218	6,079	65	955	597	3,601	58,687	10.80	16
	Police/Fire	237	9,465	55	895	350	2,365	58,450	18.01	25
9/30/2013	Teachers	202	5,289	39	436	706	3,448	52,966	11.73	15
	Police/Fire	174	6,054	30	298	344	2,183	49,530	14.05	23
9/30/2012	Teachers	204	4,807	49	594	1,198	3,285	47,407	12.88	14
	Police/Fire	234	8,034	51	557	423	2,039	43,430	22.23	21
9/30/2011	Teachers	226	4,374	37	490	497	3,130	41,996	12.73	13
	Police/Fire	326	6,847	22	238	205	1,856	35,530	23.72	19
9/30/2010	Teachers	203	4,225	32	337	1,489	2,941	37,254	16.76	13
	Police/Fire	127	3,511	24	208	3,003	1,552	28,717	27.04	19
9/30/2009	Teachers	406	7,361	27	281	(70)	2,770	31,907	28.16	12

Analysis of Financial Experience
(Dollar amounts in millions)

Teachers' Retirement Plan

Gains & Losses in Accrued Liabilities Resulting from Difference Between Assumed Experience & Actual Experience

Type of Activity	Gain (or Loss) For Year Ending 10/1/2019	Gain (or Loss) For Year Ending 10/1/2018
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ (8.4)	$ (1.5)
Disability Retirements. If disability claims are fewer than assumed, there is a gain. If more claims, a loss.	(1.1)	0
Death-in Service Benefits. If survivor claims are fewer than assumed, there is a gain. If more claims, there is a loss.	(2.4)	(0.6)
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(11.5)	6.5
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	1	(16.8)
New Members. Additional unfunded accrued liability will produce a loss.	(45.3)	(31.6)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	(10.4)	18.3
Death After Retirement. If retirees live longer than assumed, there is a loss. If not as long, a gain.	14.7	0
COLA/CPI. If inflation is different than expected, gains or losses can occur.	9.9	NA
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	(8.4)	6.2
Gain (or Loss) During Year From Financial Experience	(61.9)	(19.5)
Non-Recurring Items. Adjustments for plan amendments, assumption changes, method changes or asset transfer to U.S. Treasury.	0	0
Adjustment to Prior Year's Valuation	(9.0)	NA
Composite Gain (or Loss) During Year	$ (70.9)	$ (19.5)

Analysis of Financial Experience
(Dollar amounts in millions)

Police Officers and Firefighters' Retirement Plan

Gains & Losses in Accrued Liabilities Resulting from Difference Between Assumed Experience & Actual Experience

Type of Activity	Gain (or Loss) For Year Ending 10/1/2019	Gain (or Loss) For Year Ending 10/1/2018
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ (46.2)	$ 15.4
Disability Retirements. If disability claims are fewer than assumed, there is a gain. If more claims, a loss.	5.8	3.2
Death-in Service Benefits. If survivor claims are fewer than assumed, there is a gain. If more claims, there is a loss.	(14.7)	1.8
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(3.1)	11.9
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	-130.7	23.9
New Members. Additional unfunded accrued liability will produce a loss.	(20.9)	(22.7)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	43.8	70.5
Death After Retirement. If retirees live longer than assumed, there is a loss. If not as long, a gain.	42.6	0.1
COLA/CPI. If inflation is different than expected, gains or losses can occur.	34.1	NA
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	103.0	6.2
Gain (or Loss) During Year From Financial Experience	13.7	110.3
Non-Recurring Items. Adjustments for plan amendments, assumption changes, method changes or asset transfer to U.S. Treasury.	0	0
Adjustment to Prior Year's Valuation	52.9	NA
Composite Gain (or Loss) During Year	$ 66.6	$ 110.3

Valuation Balance Sheet
Teachers' Retirement Plan
(Dollar amounts in thousands)

As of October 1, 2019

Present and Prospective Assets		
Actuarial value of present assets	$	2,271,160
Present value of future members' contributions		355,343
Present value of future employer contributions:		
Normal contributions		309,413
Unfunded accrued liability contributions		223,131
Total prospective employer contributions	$	532,544
Total present and prospective assets	$	3,159,047

Actuarial Liabilities		
Present value of prospective benefits payable on account of present value of benefits payable on account of retired members	$	1,107,126
Present value of prospective benefits payable on account of present inactive members		156,487
Present value of prospective benefits payable on account of present active members:		
Service retirement benefits		1,500,092
Disability retirement benefits		36,673
Survivor benefits		21,494
Separation benefits		337,174
Total present value of prospective benefits payable on account		1,895,433
Total Actuarial Liabilities	$	3,159,047

Valuation Balance Sheet

Police Officers and Firefighters' Retirement Plan
(Dollar amounts in thousands)

As of October 1, 2019

Present and Prospective Assets		
Actuarial value of present assets	$	6,269,628
Present value of future members' contributions		454,717
Present value of future employer contributions:		
Normal contributions		1,896,459
Unfunded accrued liability contributions		(665,055)
Total prospective employer contributions	$	1,231,404
Total present and prospective assets	$	7,955,749
Actuarial Liabilities		
Present value of prospective benefits payable on account of Present value of benefits payable on account of retired members	$	2,497,165
Present value of prospective benefits payable on account of present inactive members		49,973
Present value of prospective benefits payable on account of present active members:		
Service retirement benefits		4,845,200
Disability retirement benefits		246,444
Survivor benefits		94,638
Separation benefits		222,329
Total present value of prospective benefits payable on account		5,408,611
Total Actuarial Liabilities	$	7,955,749

Valuation Solvency Test
(Dollar amounts in thousands)

	Aggregate Accrued Liabilities				Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
Valuation Date	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	Members (Employer Financed Portion)	Reported Assets	(1)	(2)	(3)
Teachers' Retirement Plan							
10/1/2010	136,055	622,253	569,991	1,570,968	100.0	100.0	97.6
10/1/2011	138,874	718,884	687,107	1,573,654	100.0	100.0	70.3
10/1/2012	137,698	819,842	723,008	1,503,346	100.0	100.0	75.5
10/1/2013	141,792	883,495	733,756	1,622,376	100.0	100.0	81.4
10/1/2014	141,943	968,446	738,841	1,746,030	100.0	100.0	86.0
10/1/2015	144,927	1,053,078	755,300	1,670,976	100.0	100.0	62.6
10/1/2016	152,459	1,108,032	769,149	1,822,113	100.0	100.0	73.0
10/1/2017	156,263	1,154,696	831,532	2,051,006	100.0	100.0	89.0
10/1/2018	165,629	1,234,796	900,889	2,193,598	100.0	100.0	88.0
10/1/2019	228,893	1,263,613	1,001,785	2,264,428	100.0	100.0	77.1
Police Officers and Firefighters' Retirement Plan							
10/1/2010	211,961	583,338	2,371,531	3,418,796	100.0	100.0	89.6
10/1/2011	224,928	708,364	2,376,533	3,593,716	100.0	100.0	92.3
10/1/2012	235,924	849,982	2,371,070	3,681,526	100.0	100.0	100
10/1/2013	247,202	966,862	2,430,021	4,168,457	100.0	100.0	100
10/1/2014	255,735	1,149,515	2,593,287	4,588,319	100.0	100.0	100
10/1/2015	262,674	1,388,908	2,631,511	4,462,228	100.0	100.0	100
10/1/2016	260,786	1,650,195	2,587,532	4,454,464	100.0	100.0	100
10/1/2017	261,428	1,990,699	2,626,132	5,629,911	100.0	100.0	100
10/1/2018	267,845	2,258,695	2,697,220	6,015,953	100.0	100.0	100
10/1/2019	338,775	2,547,138	2,828,542	6,256,213	100.0	100.0	100

Schedule of Funding Progress

Valuation Date	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability	(3) Percentage Funded (1) / (2)	(4) Unfunded Actuarial Liability (2) - (1)	(5) Annual Covered Payroll	(6) Unfunded Actuarial Liability as a Percentage of Covered Payroll (4) / (5)
TEACHERS' RETIREMENT PLAN						
10/1/2010	$ 1,570,968	$ 1,328,299	118.3 %	$ (242,669)	$ 337,516	-71.9 %
10/1/2011	1,573,654	1,544,864	101.9	(28,790)	384,455	-7.5
10/1/2012	1,585,626	1,680,548	94.4	94,922	381,235	24.9
10/1/2013	1,585,775	1,759,043	90.1	173,268	369,071	46.9
10/1/2014	1,638,583	1,849,230	88.6	210,647	378,926	55.6
10/1/2015	1,732,017	1,953,305	88.7	221,288	417,090	53.1
10/1/2016	1,845,476	2,029,640	90.9	184,164	438,079	42.0
10/1/2017	1,982,019	2,142,491	92.5	160,472	447,762	35.8
10/1/2018	2,139,911	2,301,314	93.0	161,403	470,749	34.3
10/1/2019	2,271,160	2,494,291	91.1	223,131	516,609	43.2
POLICE OFFICERS AND FIREFIGHTERS' RETIREMENT PLAN						
10/1/2010	$ 3,418,796	$ 3,166,830	108.0 %	$ (251,966)	$ 423,854	-59.4 %
10/1/2011	3,593,716	3,309,825	108.6	(283,891)	421,221	-67.4
10/1/2012	3,804,853	3,456,976	110.1	(347,877)	414,877	-83.9
10/1/2013	4,013,534	3,644,085	110.1	(369,449)	413,380	-89.4
10/1/2014	4,288,727	3,998,537	107.3	(290,190)	438,415	-66.2
10/1/2015	4,607,300	4,283,093	107.6	(324,207)	446,201	-72.7
10/1/2016	4,985,051	4,498,513	110.8	(486,538)	438,114	-111.1
10/1/2017	5,406,366	4,878,260	110.8	(528,106)	441,905	-119.5
10/1/2018	5,848,576	5,223,760	112.0	(624,816)	454,209	-137.6
10/1/2019	6,269,628	5,604,573	111.9	(665,055)	495,809	-134.1
TOTAL						
10/1/2010	$ 4,990,764	$ 4,495,129	111.0 %	$ (494,635)	$ 761,370	-65.0 %
10/1/2011	5,167,370	4,854,689	106.4	(571,681)	805,676	-71.0
10/1/2012	5,390,479	5,137,524	104.9	(252,955)	796,112	-31.8
10/1/2013	5,599,307	5,403,128	103.6	(196,181)	782,451	-25.1
10/1/2014	5,927,310	5,847,767	101.4	(79,543)	817,341	-9.7
10/1/2015	6,339,317	6,236,398	101.7	(102,919)	863,291	-11.9
10/1/2016	6,830,527	6,528,153	104.6	(302,374)	876,193	-34.5
10/1/2017	7,388,385	7,020,751	105.2	(367,634)	889,667	-41.3
10/1/2018	7,988,487	7,525,074	106.2	(463,413)	924,958	-50.1
10/1/2019	8,540,788	8,098,864	105.5	(441,924)	1,012,418	-43.7

STATISTICAL SECTION

Summary

Introduction
The objective of the *Statistical Section* is to provide information to assist readers in understanding and assessing DCRB's overall financial condition when viewing the Financial Statements, Notes to the Financial Statements, the Required Supplementary Information and the Supplementary Information. The data presented throughout this section incorporates information from prior CAFRs and is useful in evaluating how the financial condition of the Plans has changed over time.

Financial Trends
The financial trend schedules show financial information about the growth of DCRB's assets and provide a context for how DCRB's financial position has changed over the past 10 years. The financial trend schedules presented are:

- Changes in Net Pension
- Changes in the Net Pension Liability and Related Ratios
- Investment Expenses
- Money-Weighted Investment Returns
- Funding Progress
- Administrative Expenses

Operating Information
The following schedules provide data of the environment in which DCRB operates. The schedules presented include:

- Employer Contributions
- Annual Salaries and Benefits
- Participant Data
- Average Benefit by Type
- Schedule of Retired Members by Benefit Type and Option Selected

Schedules of Changes in Net Position
(Dollar amounts in thousands)

Teacher Retirement Fund	2019	2018	2017	2016	2015
Additions					
Contributions:					
District Government	$ 53,343	$ 59,046	$ 56,781	$ 44,469	$ 39,513
District employees	40,432	40,324	34,364	33,591	31,621
Total contributions	93,775	99,370	91,145	78,060	71,134
Total net investment income (loss)	85,047	94,129	239,554	152,262	(72,647)
Other income	883	1,038	907	1,033	385
Total additions (reductions)	$ 179,705	$ 194,537	$ 331,606	$231,355	$ (1,128)
Deductions					
Benefit payments	81,471	78,430	72,069	68,634	64,076
Retirement benefits payable to U.S. Treasury	-	-	-	459	
Refunds*	6,418	6,126	6,166	6,205	5,576
Administrative expenses	3,440	4,474	4,721	4,746	4,543
Total deductions	91,329	89,030	82,956	80,044	74,195
Changes in Net Position	**$ 88,376**	**$ 105,507**	**$ 248,650**	**$151,311**	**$ (75,323)**

Teacher Retirement Fund	2014	2013	2012	2011	2010
Additions					
Contributions:					
District Government	$ 31,636	$ 6,407	$ -	$ -	$ -
District employees	28,751	28,129	28,639	27,739	29,940
Total contributions	60,387	34,536	28,639	27,739	29,940
Total net investment income (loss)	132,086	168,117	190,002	44,364	125,756
Other income	522	796	672	616	695
Total additions (reductions)	$ 192,995	$ 203,449	$ 219,313	$ 72,719	$ 156,391
Deductions					
Benefit payments	59,832	48,145	48,145	42,532	37,611
Retirement benefits payable to U.S. Treasury	-		-	-	-
Refunds*	5,790	5,514	5,514	4,060	3,374
Administrative expenses	3,787	2,880	3,627	2,885	2,327
Total deductions	69,409	84,560	56,539	49,477	43,312
Changes in Net Position	**$ 123,586**	**$ 118,889**	**$ 162,774**	**$ 23,242**	**$ 113,079**

*Refunds included in Benefit Payments prior to 2009.

Schedules of Changes in Net Position
(Dollar amounts in thousands)

Police Officers and Firefighters' Retirement Fund	2019	2018	2017	2016	2015
Additions					
Contributions:					
District Government District	91,284	105,596	145,631	136,115	103,430
employees	38,243	34,478	33,424	32,785	33,679
Total contributions	129,527	140,074	179,055	168,900	137,109
Total net investment income (loss)	232,987	316,842	655,310	415,157	(187,283)
Other income	2,435	2,356	2,468	2,810	1,012
Total additions (reductions)	$ 364,949	$ 459,272	$ 836,833	586,867	$ (49,162)
Deductions			$		
Benefit payments	121,342	106,794	92,537	78,920	63,634
Retirement benefits payable to U.S. Treasury	-	-	-	217	-
Refunds*	1,533	1,580	1,647	2,179	1,396
Administrative expenses	9,481	11,570	12,838	12,918	11,939
Total deductions	132,356	119,944	107,022	94,234	76,969
Changes in Net Position	**$ 232,593**	**$ 339,328**	**$ 729,811**	**$ 492,633**	**$ (123,131)**

Police Officers and Firefighters' Retirement Fund	2014	2013	2012	2011	2010
Additions					
Contributions:					
District Government	110,766	96,314	116,700	127,200	132,300
District employees	32,821	30,581	30,398	30,474	31,607
Total contributions	143,587	126,895	147,098	157,674	163,907
Total net investment income (loss)	338,894	423,581	452,881	81,973	270,277
Other income	1,342	2,047	1,584	1,435	1,555
Total (reductions) additions	$ 483,823	$ 552,523	$ 601,563	$ 241,082	$ 435,739
Deductions					
Benefit payments	52,784	45,656	38,924	30,766	27,872
Retirement benefits payable to U.S. Treasury	-	9,391	-	-	-
Refunds*	1,637	1,960	1,534	1,913	1,974
Administrative expenses	9,730	8,913	6,718	6,678	5,145
Total deductions	64,151	65,920	47,176	39,357	34,991
Changes in Net Position	**$ 419,672**	**$ 486,603**	**$ 554,387**	**$ 201,725**	**$ 400,748**

*Refunds included in Benefit Payments prior to 2009.

Schedule of Changes in Net Pension Liability and Related Ratios
(Dollar amounts in thousands)

Teachers' Retirement Fund	2019	2018	2017	2016	2015	2014
Total pension liability						
Service Cost	$ 72,429	$ 67,877	$ 65,911	$ 61,599	$ 53,297	$ 50,409
Interest	144,165	137,704	131,657	124,370	118,378	112,204
Benefit changes						
Difference between expected and actual experience	103,719	(19,505)	(37,230)	2,656	(7,246)	-
Changes of assumptions			14,106			
Benefits payments	(81,471)	(78,430)	(72,069)	(69,093)	(64,076)	(59,832)
Refunds of contributions	(6,418)	(6,126)	(6,166)	(6,205)	(5,576)	(5,790)
Net change in total pension liability	232,424	101,520	96,209	113,327	94,777	96,991
Total pension liability - beginning of year	2,261,867	2,160,347	2,064,138	1,950,811	1,856,034	1,759,043
Total pension liability - end of year (a)	2,494,291	2,261,867	2,160,347	2,064,138	1,950,811	1,856,034
Plan net position						
Contributions - employer	53,343	59,046	56,781	44,469	39,513	31,636
Contributions - member	40,432	40,324	34,364	33,591	31,621	28,751
Net investment income	85,047	94,129	239,554	152,262	(72,647)	132,086
Benefits payments	(81,471)	(78,430)	(72,609)	(69,093)	(64,076)	(59,832)
Administrative expense	(3,440)	(4,474)	(4,721)	(4,746)	(4,543)	(3,787)
Refunds of contributions	(6,418)	(6,126)	(6,166)	(6,205)	(5,576)	(5,790)
Other	883	1,038	907	1,033	385	522
Net change in plan net position	$ 88,376	$ 105,507	$ 248,650	$ 151,311	$ (75,323)	$ 123,586
Plan net position - beginning of year	2,176,106	2,070,599	1,821,949	1,670,638	1,745,961	1,622,375
Plan net position - end of year (b)	2,264,482	2,176,106	2,070,599	1,821,949	1,670,638	1,745,961
Net pension liability end of year (a-b)	229,809	85,761	89,748	242,189	280,173	110,073
Ratio of plan net position to total pension liability (b/a)	90.79%	96.21%	95.85%	88.27%	85.64%	94.07%
Covered employee payroll	$ 466,792	$ 470,749	$ 447,762	$ 438,079	$ 417,090	$ 378,926
Net pension liability as a percentage of covered-employee payroll	49.23%	18.22%	20.04%	55.28%	67.17%	29.05%

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Schedule of Changes in Net Pension Liability and Related Ratios
(Dollar amounts in thousands)

Police Officers and Firefighters' Retirement Plan	2019	2018	2017	2016	2015	2014
Total pension liability						
Service Cost	$ 180,928	$ 182,641	$ 196,628	$ 198,020	$ 192,114	$ 176,102
Interest	338,288	318,719	300,626	282,285	257,943	235,097
Benefit changes						-
Difference between expected and actual experience	(57,642)	(84,452)	(188,549)	(106,840)	(2,477)	-
Changes of assumptions			67,256		-	-
Benefits payments	(121,342)	(106,794)	(92,537)	(79,137)	(63,634)	(52,784)
Refunds of contributions	(1,533)	(1,580)	(1,647)	(2,179)	(1,396)	(1,637)
Net change in total pension liability	338,699	308,534	281,778	292,149	382,550	356,778
Total pension liability - beginning of year	5,265,874	4,957,340	4,675,562	4,383,413	400,863	3,644,085
Total pension liability - end of year (a)	5,604,573	5,265,874	4,957,340	4,675,562	4,383,413	4,000,863
Plan net position						
Contributions - employer	91,284	105,596	145,631	136,115	103,430	110,766
Contributions - member	38,243	34,478	33,424	32,785	33,679	32,821
Net investment income	232,987	316,842	655,310	415,157	(187,283)	338,894
Benefits payments	(121,342)	(106,794)	(92,537)	(79,137)	(63,634)	(52,784)
Administrative expense	(9,481)	(11,570)	(12,838)	(12,918)	(11,939)	9,730
Refunds of contributions	(1,533)	(1,580)	(1,647)	(2,179)	(1,396)	(1,637)
Other	2,435	2,356	2,468	2,810	1,012	1,342
Net change in plan net position	$ 232,593	$ 339,328	$ 729,811	$ 492,633	$ (126,131)	$ 419,672
Plan net position - beginning of year	6,023,770	5,684,442	4,954,631	4,461,998	4,588,129	4,168,457
Plan net position - end of year (b)	6,256,363	6,023,770	5,684,442	4,954,631	4,461,998	4,588,129
Net pension liability end of year (a-b)	(651,790)	(757,896)	(727,102)	(279,069)	(78,585)	(587,266)
Ratio of plan net position to total pension liability (b/a)	111.63%	114.39%	114.67%	105.97%	101.79%	114.68%
Covered employee payroll	$ 460,686	$ 454,209	$ 441,904	$ 438,114	$ 446,201	$ 426,135
Net pension liability as a percentage of covered-employee payroll	-141.48%	-166.86%	-164.54%	-63.70%	-17.61%	-137.81%

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Schedules of Investment Expenses
(Dollar amounts in thousands)

Fiscal Year	Investment Managers*	Investment Administrative Expenses	Investment Consultants	Investment Custodian	Total Investment
2019	$ 15,766	$ 879	$ 751	$ 403	$ 17,800
2018	12,418	753	882	338	14,391
2017	14,361	785	910	237	16,293
2016	11,811	1,051	1,017	275	14,154
2015	10,118	879	1,030	229	12,256
2014	11,400	868	1,019	369	13,656
2013	5,499	934	975	131	7,539
2012	7,116	1,011	686	210	9,023
2011	10,622	874	334	285	12,115
2010	11,980	790	455	254	13,479

*Fees paid to traditional investment managers only; traditional investment managers are those that invest primarily in public equity and fixed income securities. A significant number of alternative investments are presented net of expenses. Management expenses are netted against investment income and because they are not readily separable from specific investment income as of the financial statement reporting date, amounts are recorded and reported net of management expenses and therefore are not included on this schedule.

Schedule of Annual Money-Weighted Rates of Return
(Dollar amounts in thousands)

Fiscal Year	Total Portfolio
2019	3.840%
2018	5.455%
2017	12.785%
2016	9.346%
2015	-4.006%
2014	8.178%
2013	-
2012	-
2011	-
2010	-
2009	-

Note: This is a 10-year schedule. However, the information in this schedule is not required to be presented retroactively. Years will be added in the future fiscal years until 10 years of information is available.

Schedules of Administrative Expenses
(Dollar amounts in thousands)

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Personal services											
Salaries	$ 3,058	$6,420	$6,513	$6,181	$4,760	$4,401	$3,955	$4,114	$3,907	$3,263	$2,889
Fringe benefits	1,482	1,832	1,613	1,318	1,301	1,244	1,135	954	1,030	907	716
Total personal services	7,539	8,252	8,126	7,499	6,061	5,645	5,090	5,068	4,937	4,170	3,605
Non-personal services											
Office supplies	70	94	107	99	126	115	187	157	166	120	120
Telephone	46	96	107	91	71	56	50	49	14	13	17
Rent	1,968	1,824	1,800	1,754	1,634	1,554	1,513	1,465	1,444	1,419	1,379
Office support		-	-	-	-	-	-	1	68	114	60
Travel	183	194	218	209	206	181	177	148	38	45	67
Professional fees	1,149	3,666	5,263	6,379	6,225	4,292	3,790	3,069	2,867	2,329	2,371
Postage	14	66	60	27	29	25	138	29	38	10	73
Printing	9	78	15	53	14	15	91	33	35	35	19
Insurance	117	149	149	151	150	121	114	121	129	131	111
Dues and memberships	41	40	42	41	32	34	28	26	37	51	60
Audit costs	291	191	72	63	85	49	76	71	64	66	66
Actuarial fees	138	170	138	180	153	66	146	153	164	108	93
Legal fees	323	532	590	337	524	365	529	292	30	37	246
Investment fees	16,807	13,076	15,037	12,862	11,377	12,788	6,587	7,753	10,907	12,234	11,138
Contractual services (STAR)*	1,968	1,808	1,866	1,697	1,077	872	941	-	-	-	-
Equipment and rental	59	199	261	376	966	995	619	179	734	65	63
Depreciation		-	-	-	-	-	3	6	6	6	18
Total non-personal services	23,182	22,182	25,726	24,320	22,676	21,528	14,989	13,552	16,741	16,783	15,901
Total administrative expenses	**$30,721**	**$30,435**	**$33,852**	**$31,819**	**$28,738**	**$27,173**	**$20,079**	**$18,620**	**$21,678**	**$20,953**	**$19,506**

*Contractual services (STAR) were included in Professional fees prior to fiscal year 2013

Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided.

Schedule of Employer Contributions
(Dollar amounts in millions)

Teachers' Retirement Fund			Police Officers and Firefighters' Retirement Fund		Total Fund	
Year Ending	Annual Required Contribution	Percentage Contributed	Annual Required Contribution	Percentage Contributed	Annual Required Contribution	Percentage Contributed
September 30, 2019	$ 53.3	100 %	$ 91.3	100 %	$ 144.6	100 %
September 30, 2018	59.0	100	105.6	100	164.6	100
September 30, 2017	56.8	100	145.6	100	202.4	100
September 30, 2016	44.5	100	136.1	100	180.6	100
September 30, 2015	39.5	100	103.4	100	142.9	100
September 30, 2014	31.6	100	110.8	100	142.4	100
September 30, 2013	6.4	100	96.3	100	102.7	100
September 30, 2012	-	100	116.7	100	116.7	100
September 30, 2011	-	100	127.2	100	127.2	100
September 30, 2010	-	100	132.3	100	132.3	100

Schedule of Benefits and Refunds

	Teachers' Retirement Fund	Police Officers and Fire Fighers' Retirement Fund	Total
Benefits			
Regular Retiree	$ 77,681	$ 105,933	$ 183,614
Disability	2,404	11,979	14,383
Survivor	1,386	3,430	4,816
Total Benefits	81,471	121,342	202,813
Refunds of Member Contributions	6,418	1,533	7,951
Total Benefits and Refunds	$ 87,889	$ 122,875	$ 210,764

Schedule of Annual Salaries and Benefits
(Dollar amounts in millions)

Fiscal Year	Teachers	Police Officers and Firefighters	Total	Teachers	Police Officers and Firefighters	Total
2019	$467	$461	$928	$82	$129	$211
2018	471	454	925	77	112	189
2017	448	442	890	71	98	169
2016	438	438	876	69	86	155
2015	417	446	863	63	70	133
2014	379	438	817	59	58	117
2013	369	413	782	53	50	103
2012	381	415	796	47	43	90
2011	384	421	805	42	36	78
2010	338	424	762	37	29	65

Schedule of Participant Data

	Active			Retired Members, Beneficiaries, Disabled			
Fiscal Year	Teachers	Police Officers and Firefighters	Subtotal	Teachers	Police Officers and Firefighters	Subtotal	Total
2019	5,226	5,406	10,632	4,059	3,699	7,758	18,390
2018	5,066	5,349	10,415	3,990	3,441	7,431	17,846
2017	5,199	5,312	10,511	3,899	3,215	7,114	17,625
2016	5,141	5,359	10,500	3,882	3,003	6,885	17,385
2015	4,866	5,537	10,403	3,718	2,609	6,327	16,730
2014	4,499	5,551	10,050	3,601	2,365	5,966	16,016
2013	4,379	5,510	9,889	3,448	2,183	5,631	15,520
2012	4,495	5,510	10,005	3,285	2,039	5,324	15,329
2011	4,747	5,561	10,308	3,130	1,856	4,986	15,294
2010	4,749	5,708	10,457	2,941	1,552	4,493	14,950

Schedule of Average Benefit by Type

Teachers' Retirement Plan							
		Years of Credited Service					
Retirement Effective Dates		5-9	10-14	15-19	20-24	25-30	30+
	Average Monthly Benefit	$998	$2,093	$2,776	$3,507	$4,707	$5,937
2019	Average Final Average Salary	$91,494	$88,397	$95,039	$97,463	102,012	$103,292
	Number of Active Recipients	5	16	22	25	34	35
	Average Monthly Benefit	$959	$2,152	$2,727	$3,444	$4,619	$5,832
2018	Average Final Average Salary	$92,306	$91,506	$95,038	$97,624	$102,000	$103,292
	Number of Active Recipients	5	16	22	26	35	30
	Average Monthly Benefit	$938	$2,112	$2,685	$3,371	$4,520	$5,707
2017	Average Final Average Salary	$92,306	$91,910	$95,233	$97,440	102,000	$103,292
	Number of Active Recipients	5	15	22	28	35	35
	Average Monthly Benefit	$920	$2,192	$2,695	$3.37	$4,431	$5,595
2016	Average Final Average Salary	$92,306	$92,608	$96,609	$97,857	$102,000	$103,292
	Number of Active Recipients	5	12	21	23	35	35
	Average Monthly Benefit	$1,050	$2,140	$2,774	$3,338	$4,387	$5,805
2015	Average Final Average Salary	$82,018	$95,786	$97,605	$97,032	$100,959	$103,420
	Number of Active Recipients	15	20	8	26	22	43
	Average Monthly Benefit	$899	$1,950	$2,375	$3,551	$4,153	$5,669
2014	Average Final Average Salary	$79,848	$89,912	$88,883	$100,082	$98,560	$102,092
	Number of Active Recipients	16	21	18	26	47	56
	Average Monthly Benefit	$1,205	$1,741	$2,499	$3,441	$4,035	$5,427
2013	Average Final Average Salary	$82,567	$84,521	$90,461	$94,689	$94,689	$97,032
	Number of Active Recipients	17	18	10	44	36	64
	Average Monthly Benefit	$951	$1,637	$2,631	$3,333	$4,025	$5,406
2012	Average Final Average Salary	$76,185	$82,578	$90,729	$93,622	$94,547	$96,692
	Number of Active Recipients	19	17	8	47	33	62
	Average Monthly Benefit	$947	$1,628	$2,361	$3,097	$3,774	$5,216
2011	Average Final Average Salary	$80,717	$82,641	$84,659	$89,318	$90,961	$93,310
	Number of Active Recipients	11	16	17	46	39	65
	Average Monthly Benefit	-	-	-	-	-	-
2010	Average Final Average Salary	-	-	-	-	-	-
	Number of Active Recipients	-	-	-	-	-	-

Information prior to fiscal year 2011 not available at the time of this report.

Schedule of Average Benefit by Type

Police Officers and Firefighters' Retirement Plan							
		Years of Credited Service					
Retirement Effective Dates		5-9	10-14	15-19	20-24	25-30	30+
2019	Average Monthly Benefit	$3,804	$3,030	$2,654	$4,319	$5,662	$7,092
	Average Final Average Salary	$54,568	$69,463	$71,425	$85,435	$94,780	$100,784
	Number of Active Recipients	10	7	5	5	251	10
2018	Average Monthly Benefit	$3,672	$3,115	$2,605	$4,221	$5,562	$6,954
	Average Final Average Salary	$54,499	$69,691	$71,425	$86,720	$94,770	$100,699
	Number of Active Recipients	10	6	5	4	251	54
2017	Average Monthly Benefit	$3,596	$2,918	$2,469	$4,070	$5,451	$6,811
	Average Final Average Salary	$54,499	$69,463	$72,552	$83,882	$94,800	$100,699
	Number of Active Recipients	10	7	6	6	254	54
2016	Average Monthly Benefit	$3,701	$2,862	$2,707	$3,987	$5,347	$6,677
	Average Final Average Salary	$54,240	$69,463	$72,901	$83,882	$94,768	$100,699
	Number of Active Recipients	10	7	7	6	253	54
2015	Average Monthly Benefit	$2,363	$3,407	$3,471	$3,860	$5,526	$6,922
	Average Final Average Salary	$45,567	$66,727	$70,827	$76,421	$96,104	$104,521
	Number of Active Recipients	6	7	5	6	182	62
2014	Average Monthly Benefit	$2,343	$4,168	$1,950	$3,776	$5,241	$6,403
	Average Final Average Salary	$54,678	$65,126	$73,476	$80,064	$92,091	$95,990
	Number of Active Recipients	6	1	1	6	143	29
2013	Average Monthly Benefit	$2,773	$2,333	-	$2,561	$5,439	$6,906
	Average Final Average Salary	$40,134	$64,784	-	$77,175	$94,464	$103,254
	Number of Active Recipients	4	4	-	4	97	48
2012	Average Monthly Benefit	$1,795	$2,686	$4,404	$3,622	$5,409	$6,504
	Average Final Average Salary	$46,574	$65,588	$74,368	$78,462	$92,618	$96,968
	Number of Active Recipients	3	2	3	4	96	38
2011	Average Monthly Benefit	$2,195	$25,164	$3,048	$3,090	$5,600	$6,679
	Average Final Average Salary	$61,882	$66,531	$78,270	$82,825	$95,099	$99,070
	Number of Active Recipients	8	4	3	19	104	33
2010	Average Monthly Benefit	-	-	-	-	-	-
	Average Final Average Salary	-	-	-	-	-	-
	Number of Active Recipients	-	-	-	-	-	-

Information prior to fiscal year 2011 not available at the time of this report.

Schedule of Retired Members by Type of Benefit and Option Selected

Teachers' Retirement Plan												
	Number of Members by Retirement Type							Number of Members by Option Selected				
Monthly Benefit Payment	A	B	D	E	F	G	Grand Total	1	2	3	4	Grand Total
$1-250	11			27	1	2	41	17	24			41
$251-500	40			18	3	2	63	43	18	1	1	63
$501-750	68	2	1	13	12		96	70	22	1	3	96
$751-1,000	86	6	2	13	4	2	113	82	25	3	3	113
$1,001-1,250	68	4	2	12	12	2	100	63	32		5	100
$1,251-1,500	77	4	4	19	28	3	135	77	37	4	17	135
$1,501-1,750	67	11	13	28	9	1	129	75	47	1	6	129
$1,751-2,000	66	9	15	31	8		129	84	39	2	4	129
$2,001-3,000	482	46	128	117	12	2	787	557	224	4	2	787
$3,001-4,000	1071	105	78	38	4		1296	950	336	7	3	1296
$4,001-5,000	1641	102	12	2			1757	1388	365	4		1757
$5,001-6,000	758	44	2				804	619	183	2		804
$6,001-7,000	260	13	1	1			275	217	57	1		275
$7,001-8,000	84	4					88	74	14			88
$8,001-9,000	43	2					45	38	7			45
$9,001-10,000	8	1					9	7	2			9
over $10,000	5						5	3	2			5
Grand Total	**4835**	**353**	**258**	**319**	**93**	**14**	**5872**	**4364**	**1434**	**30**	**44**	**5872**

Type of Retirement:

A - Retired From Affiliate or Resignation
B - Termination - Early Involuntary
C - Partial Total Disability
D - Disabled not in the Line of Duty
E - Survivor of a Retired Teacher
F - Survivor of an Active Teacher
G - Qualified Domestic Relations Order

Option Selected:

1 - Unreduced Annuity
2 - Reduced Annuity with Survivor Option
3 - Reduced Annuity with Life Insurance Benefit
4 - Reduced Annuity with Insurable Interest

Schedule of Retired Members by Type of Benefit

Police and Firefighters' Retirement Plan							
	Number of Members by Retirement Type						
Monthly Benefit Payment	A	C	D	E	F	G	Grand Total
$1-250						3	3
$251-500	1			24	23	4	52
$501-750	8			4		22	34
$751-1,000	5			3		31	39
$1,001-1,250	4		1	3	3	26	37
$1,251-1,500	3			3		33	39
$1,501-1,750	6	2	9	3		31	51
$1,751-2,000	9	23	10	20	3	27	92
$2,001-3,000	96	143	135	1216	22	69	1681
$3,001-4,000	840	199	43	322	13	18	1435
$4,001-5,000	1052	407	43	60	3	3	1568
$5,001-6,000	1257	116	12	18	1	3	1407
$6,001-7,000	870	33	4	5	2		914
$7,001-8,000	472	18	2	2	1		495
$8,001-9,000	232	1		1			234
$9,001-10,000	112	2			1		115
over $10,000	166	3					169
Grand Total	**5133**	**947**	**259**	**1684**	**72**	**270**	**8365**

Type of Retirement

A - Retired From Affiliate or Resignation
B - Termination - Early Involuntary
C - Partial Total Disability
D - Disabled not in the Line of Duty
E - Survivor of a Retired Police Officer or Firefighter
F - Survivor of an Active Police Officer or Firefighter
G - Qualified Domestic Relations Order

This page intentionally left blank

ADDITIONAL DISCLOSURES

Schedules of Transactions - Board of Trustees

Trustee Name	Expenditures FY 2019	FY 2018
Janice Adams	$ -	$ -
Lyle Blanchard	7,789	9,966
Joseph Bress	8,447	5,587
Joseph Clark	9,999	9,932
Mary Collins	9,999	9,897
Denise Daniels	9,347	-
Gary Hankins	9,999	9,276
Tracy Harris	9,275	-
Darrick Ross	5,000	9,932
Greggory Pemberton	6,087	-
Nathan Saunders	9,983	9,983
Edward Smith	7,318	8,069
Thomas Tippett	6,521	6,345
Michael Warren	9,999	-
Lenda Washington	5,454	4,759
Total	**$ 115,217**	$ **83,746**

Names and Addresses of the Board of Trustees

Janice Adams
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Lyle M. Blanchard
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Joseph M. Bress
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Joseph W. Clark
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Mary A. Collins
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Denise Daniels
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Bruno Fernandes
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Gary W. Hankins
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Tracy S. Harris
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Greggory Pemberton
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Edward C. Smith
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Thomas N. Tippett
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Michael J. Warren
District of Columbia Retirement Board
900 7th Street, NW, Second Floor
Washington, D.C. 20001

Schedule of Trustee Sponsored Activities

No members of the DCRB Board of Trustees attended events sponsored by outside entities, in either FY 2018 or FY 2019.

Acknowledgments and Credits

On the Cover, clockwise:
DC Public School Classroom: Photograph by John McDonnell, courtesy, The Washington Post
District of Columbia (DC) Flag, courtesy NBC4 Washington
Fire Hazmat unit, photo by DCRB staff
Police officers, courtesy Metropolitan Police Department

Page 1, Introductory Section:
Teacher and students, courtesy DC Public Schools
Metropolitan Police Department Recruit graduation – 2016, Courtesy, Metropolitan Police Department
Battalion Fire Chief Edward Smith, outside The John Wilson Building, photo by DCRB staff.

Page 15, Financial Section:
Fire engines near the U.S. Capitol: Courtesy, Fire and EMS Department
Police vehicles, photo by DCRB staff
Roosevelt High School building: Courtesy, DC Public Schools

Page 59, Investment Section:
DC Firefighter in response, courtesy Fire and EMS Department
Police officers, photo by Metropolitan Police Department
Dunbar High School student hall, courtesy DC Public Schools

Page 73, Actuarial Section:
DC Police Logo, courtesy Metropolitan Police Department
Police vehicles, photo by DCRB staff
Interior of Luke Moore High School: Photograph by Nikki Khan; courtesy, The Washington Post
Fire Hazmat unit, courtesy Fire and EMS Department

Page 103, Statistical Section:
Police motorcycle motorcade, courtesy Metropolitan Police Department
Student at Randle Highlands Elementary, courtesy DC Public Schools
Fire house and fire engine, photo by DCRB staff

District of Columbia Retirement Board
900 7th Street NW
2nd Floor
Washington, D.C. 20001