



A Component Unit of  
The City of Houston, Texas  
Comprehensive Annual Financial Report  
for the years ended June 30, 2016 and June 30, 2015



**HOUSTON POLICE OFFICERS' PENSION SYSTEM**

John E. Lawson, Executive Director  
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Houston, TX 77007  
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[www.hpops.org](http://www.hpops.org)



The mission of the Houston Police Officers' Pension System is to responsibly manage the System in the best interests of the members and beneficiaries so that they may have peace of mind knowing their pension benefits are secure.

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**HOUSTON POLICE OFFICERS'  
PENSION SYSTEM**





# HP OPS

FOR TODAY & TOMORROW



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December 1, 2016

The Membership  
Houston Police Officers' Pension System  
Houston, Texas

The Comprehensive Annual Financial Report (CAFR) of the Houston Police Officers' Pension System (the System) for the fiscal year ended June 30, 2016 is submitted herewith. Responsibility for both the accuracy of the data, and the completeness and fairness of the presentation, rests with the management of the System. We trust that you will find this CAFR helpful in understanding your retirement system, a system that strives to provide responsible stewardship of assets contributed by the members and the City of Houston. This CAFR is divided into five sections:

**PENSION BOARD**

*Terry A. Bratton*  
CHAIRMAN

*George Guerrero*  
VICE CHAIRMAN

*J. Larry Doss*  
SECRETARY

*Michael J. Newsome*  
TRUSTEE

*Dwayne Ready*  
TRUSTEE

*Kelly Dowe*  
CITY TREASURER

*Don A. Sanders*  
MAYOR'S  
REPRESENTATIVE

**EXECUTIVE DIRECTOR**

*John E. Lawson*

- **Introductory Section** – This section contains the administrative organization, the letter of transmittal and Chairman's report.
- **Financial Section** – This section contains the report of the Independent Auditor, Management's Discussion and Analysis, the financial statements of the System and certain required supplementary information.
- **Investment Section** – This section contains a report on investment activity, investment policies, investment results, and various investment schedules.
- **Actuarial Section** – This section contains the Actuary's Certification Letter and summary results of the annual actuarial valuation.
- **Statistical Section** – This section includes historical financial and benefits related data pertaining to the System.

The financial statements and related information included in the *Financial Section* of this report are the responsibility of the Board of Trustees and management of the System. The financial statements have been prepared in accordance with generally accepted accounting principles (GAAP) and presented in accordance with guidance provided by applicable statements issued by the Governmental Accounting Standards Board (GASB). The System's independent auditor, BDO, conducted an independent audit of the basic financial statements in accordance with U.S. generally accepted auditing standards. This audit is described in the *Independent Auditors' Report* found in the *Financial Section*. Management has provided the external auditors with full and unrestricted access to the System's staff to discuss their audit and related findings to facilitate independent validation of the integrity of the plan's financial reporting.

The *Financial Section* also contains *Management's Discussion and Analysis*, which serves as an introduction to and an overview of the financial statements. The System is considered a component unit of the City of Houston for financial reporting purposes and, as such, the financial statements in this report are also included in the *City of Houston's Comprehensive Annual Financial Report*.

In developing and evaluating the System's accounting system, the adequacy of internal accounting controls is a primary concern. The System's controls are designed to provide reasonable assurance regarding the safekeeping of assets and the reliability of financial records. These controls include strategic design of the System's business and accounting systems, the appropriate segregation of duties and responsibilities, sound practices in the performance of those duties, capable personnel, and the structure of the organization. There are limits to internal control, such as the cost to mitigate some risks may outweigh the risk itself, internal controls may be overridden, or collusion may thwart control design. We believe the System's internal controls are adequate and are working as designed.

**Houston  
Police Officers'  
Pension System**

602 Sawyer, Suite 300  
Houston, Texas 77007  
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The System was established in 1947, funded by a \$100,000 Treasury note, and offered retiring members a pension of \$75 per month. Today, the System has investments of \$4.1 billion and offers a variety of pension benefits to members and their beneficiaries. Members have the option to defer their benefits, take a proportionate retirement benefit, or retire under a regular service retirement. Members also may access a disability retirement, either duty or non-duty connected.

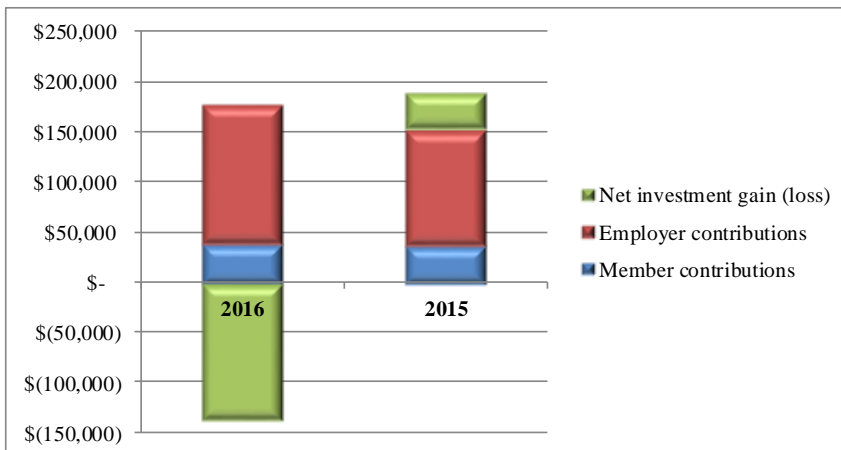
### Additions to Plan Net Position

The System relies on the contributions of members and the City of Houston, as well as income generated from investments, to provide funds needed to finance retirement and disability benefits. The agreement with the City provides for the City’s contribution for fiscal year 2016 to be \$123 million and Once the Funded Ratio of the System reaches 80%, this becomes the new floor, and if it should ever decline below such 80% level, in the fiscal year next following such determination, the City shall pay such additional amounts to the System as shall be necessary to increase the Funded Ratio to 80%. The Funded Ratio was determined to be 79.7% in the July 1, 2015 actuarial valuation, which resulted in a contribution receivable of \$14.3 million. For fiscal year 2017, the City’s contribution is to be a fixed payment of \$133 million, which will increase by \$10 million each subsequent year until the funded ratio reaches 100%.

The number of active members increased slightly in fiscal year 2016 compared to 2015 as the number of new hires to the Houston Police Department (HPD) outpaced retirements. Contributions from members increased in fiscal 2016 as the number of active members hired or rehired after October 9, 2004 increased. These members contribute 10.25% of pay while members hired prior to October 9, 2004 contribute 9.00% of pay. The System experienced a negative investment return of (3.1)% in 2016, as opposed to a positive return of 0.8% in 2015. This decrease was mainly due to weak international equity performance based on concerns about China’s growth, and the United Kingdom’s exit from the Eurozone, and a generally weaker economic climate internationally versus the United States.

Active members:			Increase
	2016	2015	(Decrease)
Fully vested	2,064	2,007	57
Nonvested:			
Hired or rehired before October 9, 2004	918	1,168	(250)
Hired or rehired after October 9, 2004	2,292	2,087	205
	5,274	5,262	12

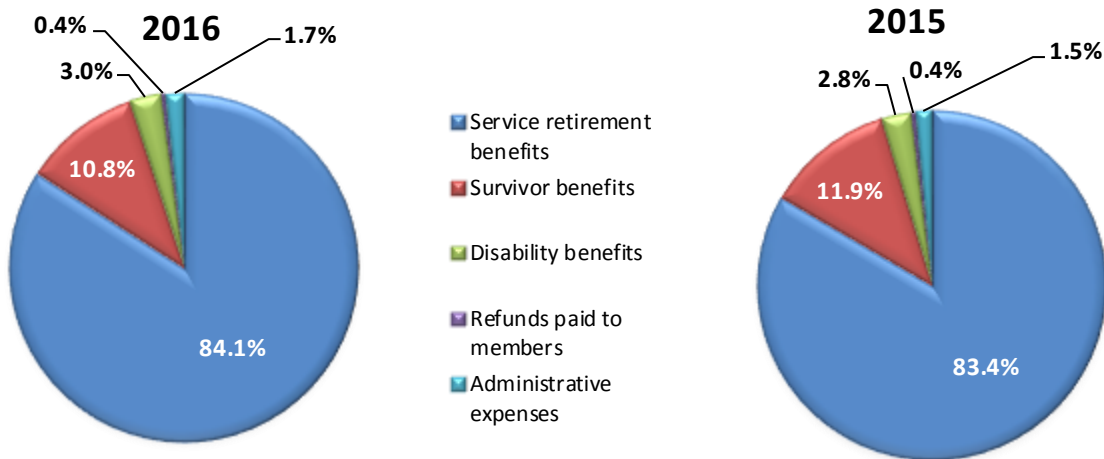
	\$000's		Increase	Increase
	2016	2015	(Decrease) Amount	(Decrease) Percentage
Member contributions	\$ 39,017	\$ 37,719	\$ 1,298	3.4%
Employer contributions	137,392	113,665	23,727	20.9%
Net investment gain (loss)	(135,833)	35,341	(171,174)	-484.3%
Total	\$ 40,576	\$ 186,725	\$ (146,149)	-78.3%



### Deductions from Plan Net Position

The System was created to provide retirement benefits to retired Houston police officers and their dependents. Although this is still the primary purpose of the System, over the course of 69 years the System has also added survivor benefits and disability benefits. The cost of these programs includes benefit payments and refunds of contributions to terminated employees. The cost of administering the System is also paid from System assets.

	\$000's		Increase (Decrease) Amount	Increase (Decrease) Percentage
	2016	2015		
Service retirement benefits	\$ 222,536	\$ 191,907	\$ 30,629	16.0%
Survivor benefits	28,713	27,356	1,357	5.0%
Disability benefits	7,827	6,393	1,434	22.4%
Refunds paid to members	978	945	33	3.5%
Administrative expenses	4,585	3,478	1,107	31.8%
<b>Total</b>	<b>\$ 264,639</b>	<b>\$ 230,079</b>	<b>\$ 34,560</b>	<b>15.0%</b>



Total benefits paid, which include lump sum payments, increased in 2016 as compared to 2015 due mainly to the cost of living increase and an increase in the number of retirees. Administrative expenses increased mainly due to expenses related to the System’s enterprise software system and actuarial services. For further information regarding the System’s financial condition, refer to Management’s Discussion and Analysis in the Financial Section of this report.



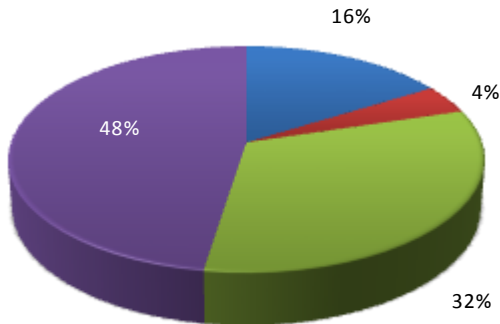
### Investments

The System invests funds entrusted to it exclusively for the benefit of its members. It avows an investment rule commonly known as the “prudent expert” rule, whereby from a procedural as well as substantive standpoint, it acts with the care, skill, prudence and diligence that a “prudent expert” acting in a similar capacity would act under similar circumstances.

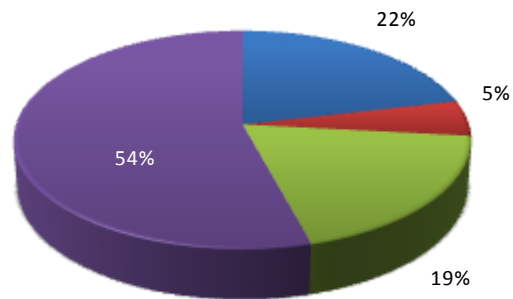
The Board of Trustees believes that the System’s assets should be managed in a way that reflects the uniqueness of the System, and that the System’s assets should be diversified over a spectrum of investment vehicles. The determination of the appropriate asset mix is based on capital market assumptions that incorporate both historical and projected returns, volatility, liquidity and correlations of various asset classes.

	\$000's		Increase (Decrease) Amount	Increase (Decrease) Percentage
	2016	2015		
Short-term investments	\$ 650,902	\$ 915,270	\$ (264,368)	(28.9%)
Fixed income	166,655	225,728	(59,073)	(26.2%)
Equity securities	1,303,740	817,127	486,613	59.6%
Alternative investments	1,919,630	2,319,640	(400,010)	(17.2%)
<b>Total</b>	<b>\$ 4,040,927</b>	<b>\$ 4,277,765</b>	<b>\$ (236,838)</b>	<b>(5.5%)</b>

**2016**



**2015**



■ Short-term investments ■ Fixed income ■ Equity securities ■ Alternative investments

The markets started the year on a down note, with their weakest quarter since 2011. Concerns about the Greek crisis were diminishing but concerns about China were increasing. This was enough to put a damper on world markets during the first half of the year, driving returns negative. As turbulence in China continued into the second half of the year, concern about interest rate increases, a substantial drop in oil and commodities prices, and politics rattled investors and continued to put pressure on returns. The year ended with another economic slowdown in China and the “Brexit” referendum at the end of June, when Britain voted to leave the European Union. The result was unexpected, and markets at first declined sharply as investors tried to determine what impact it may have going forward.

The result of the turmoil and uncertainty in the markets for the System was a negative return of 3.1% during fiscal year 2016, with the System under-performing its benchmark rate of return by 2.5%, primarily due to its allocation to non-US equities and alternative investments. The System's domestic equity allocation outperformed its benchmark by 1.0% while the System's international equity allocation, returning a negative 13.4%, underperformed its benchmark rate of return by 3.2%. The System's alternative investments in private equity outperformed its benchmark by 3.2% while the System's energy and real estate allocations underperformed their benchmarks respectively by 7.5% and 1.3%.

The Board firmly believes that by maintaining a disciplined investment approach and with reasonable diversification, the System will enhance the likelihood of meeting its long-term investment goals. Further details regarding the System's investments are included in the Investment Section of this report.

### **Funding**

It is the System's objective to have enough money in reserve to provide members with promised benefits upon their retirement. The System's actuary conducts a periodic valuation to determine the adequacy of the current employer contribution rates, to describe the current financial condition of the System, and to analyze changes in the System's condition. An actuarial accrued liability is the liability for service already rendered by former and present employees. An actuarial accrued surplus is the excess of the System's actuarial value of assets over the actuarial accrued liability. Any liability or surplus is amortized over 30 years from the valuation date.

The most recent actuarial valuation shows the funded position of the System decreased slightly from 81.0% at July 1, 2014 to 79.7% at July 1, 2015. The actuarial accrued liability increased \$342 million and the actuarial value of assets increased \$208 million. As a result, the System's Unfunded Actuarial Accrued Liability increased \$134 million to \$1,156 million as of July 1, 2015. The increase in the Unfunded Actuarial Accrued Liability is due to a combination of factors including the increase in the actuarial value of assets less than assumed and contributions below the actuarially required amount as more fully described in the footnotes and schedules to the financial statements. Further details regarding the System's actuarial liability are included in the Actuarial Section of this report.

### **Major Initiatives**

The System continues to provide a high level of service to our members. The Financial Planning and Estate Planning services allow members to meet one on one with System professional staff to discuss financial issues and work to prepare different legal documents in order to protect the member's estate. These services are free of charge and continue to be highly valued by System members.

The System's staff completed multiple projects to update and enhance the technology and infrastructure used to administer the System. The Member Website continues to grow and provide members and survivors more information on their benefits and provide them a self-service for standard processes. The System continues to receive positive feedback and increased participation through the Member Website.

### **Professional Services**

The Board of Trustees appoints professional consultants to perform services that are considered essential for the operation of the System. The independent auditor's report, issued by BDO USA, LLP, is included on page 17 of this report. The actuarial report, certified by Gabriel Roeder Smith & Company, is included on page 61. Professional service providers who provided services to the System during the year are listed on the next page.

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**TRANSMITTAL LETTER**

<b>Actuarial</b>	Gabriel Roeder Smith & Company Rudd & Wisdom, Inc.	<b>Legal Service/Lobbyists</b>	HillCo Partners, LLC Locke Lord LLP
<b>Auditing</b>	BDO USA, LLP Bickley Prescott & Co.	<b>Money Management</b>	AQR Capital Management LLC BlackRock Institutional Trust Company Blackstone Alternative Solutions LLC Brevan Howard Capital Management LP Bridgewater Associates, Inc. The Northern Trust Company Parametric Shenkman Capital Management, Inc.
<b>Consulting</b>	Franklin Park Associates, LLC Mercer Investment Consulting Inc.		
<b>Custodian</b>	The Northern Trust Company		
<b>Legal Service</b>	Gibbs & Bruns LLP IceMiller LLP Kasowitz, Benson, Torres & Friedman LLP Klausner, Kaufman, Jensen & Levinson Strasburger & Price, LLP		

**Certificate of Achievement**

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Houston Police Officers' Pension System for its comprehensive annual financial report for the fiscal year ended June 30, 2015. This was the 22st consecutive year that the System has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

**Acknowledgements**

The compilation of this report reflects the combined effort of the System's staff under the guidance of the Board of Trustees. Its goal is to provide complete and reliable information as a basis for management decisions and compliance with legal provisions as well as responsible stewardship of funds contributed by its members and the City of Houston.

We would like to take this opportunity to express our gratitude to the staff, System advisors, and to the many other people who have contributed to the successful operation of the System.

Sincerely,



Board of Trustees



December 1, 2016

To the Members  
Houston Police Officers' Pension System  
Houston, Texas

**PENSION BOARD**

*Terry A. Bratton*  
CHAIRMAN

*George Guerrero*  
VICE CHAIRMAN

*J. Larry Doss*  
SECRETARY

*Michael J. Newsome*  
TRUSTEE

*Dwayne Ready*  
TRUSTEE

*Kelly Dowe*  
CITY TREASURER

*Don A. Sanders*  
MAYOR'S  
REPRESENTATIVE

**EXECUTIVE DIRECTOR**

*John E. Lawson*

The Houston Police Officers' Pension System (HPOPS) is pleased to bring you the fiscal year 2016 Comprehensive Annual Financial Report (CAFR). The CAFR provides a comprehensive picture of HPOPS' finances for the fiscal year ending June 30, 2016, as well as an overview of the year's highlights.

This past year continued to present a challenge to preserving the capital entrusted to the System. Markets remained timid throughout the year in response to political distress in Europe, slowing growth in China, sliding oil and commodity prices, as well as concern over when and by how much the Federal Reserve would raise rates. As the year wound down, oil and commodity prices began to recover and investor confidence returned amid lessening fears, a stronger dollar and strengthening fundamentals in the U.S. However, by year's end, the Brexit vote shocked the markets driving losses as investors tried to determine what impact it may have going forward. The System suffered losses during this tumultuous year, posting a negative return of 3.1%.

HPOPS will continue to diligently maintain perspective with an ever vigilant eye on the opportunities and risks in the coming year. With consideration to changes in the market and returns, the System has adjusted the asset allocation, when compared to our historic allocation, reducing the target hedge fund and risk parity portfolios. The capital from the reduction in the hedge fund and risk parity portfolios will be reallocated to public and private equity, credit and real estate.

The lessons learned over the past few years and our stewardship allow us to fulfill our mission to responsibly manage the System in the best interests of the members and beneficiaries so that they may have peace of mind knowing their pension benefits are secure. I wish to express appreciation to the staff and professional consultants who work so effectively to ensure the continued successful operation of HPOPS.

We at HPOPS continue to plan for the future of all of our current members as well as those members to come. We encourage you to read on to learn more about HPOPS.

Sincerely,

Terry A. Bratton  
Chairman

**Houston  
Police Officers'  
Pension System**  
602 Sawyer, Suite 300  
Houston, Texas 77007  
(713) 869-8734 phone  
(713) 869-7657 fax  
www.hpops.org



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**BOARD OF TRUSTEES AND ADMINISTRATIVE STAFF**

**TRUSTEES ELECTED BY ACTIVE, INACTIVE AND RETIRED POLICE OFFICERS**

---



**TERRY BRATTON**  
*Chairman*



**GEORGE GUERRERO**  
*Vice-Chairman*



**J. LARRY DOSS**  
*Secretary*



**DWAYNE READY**  
*Trustee*



**MICHAEL J. NEWSOME**  
*Trustee*

**TRUSTEES BY STATE STATUTE**

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**KELLY DOWE**  
*City Treasurer*



**DON A. SANDERS**  
*Mayor's Representative*

**POLICE PENSION OFFICE PERSONNEL**

---

**JOHN E. LAWSON**  
*Executive Director*

**TONI DEWILLIS**  
*Administrative Assistant*

**ANGELA CARTWRIGHT**  
*Receptionist*

**CLARK OLINGER**  
*Benefits Director*

**SHERYL BAINES**  
*Benefits Assistant*

**REGINA WARD**  
*Benefits Assistant*

**JUDY G. BAKER**  
*Benefits Manager*

**TIFFANY WILLIAMSON**  
*Benefits Assistant*

**RICHARD GABLE**  
*Financial Planner*

**PATRICK S. FRANEY**  
*Chief Investment Officer*

**STACEY GALO**  
*Investment Analyst*

**NEAL WALLACH**  
*Investment Analyst/Strategist*

**KEVIN T. O'TOOLE**  
*Accounting Director*

**LAJUANA WINTERS**  
*Accountant*

**STEPHANIE SEGURA**  
*Records Manager*

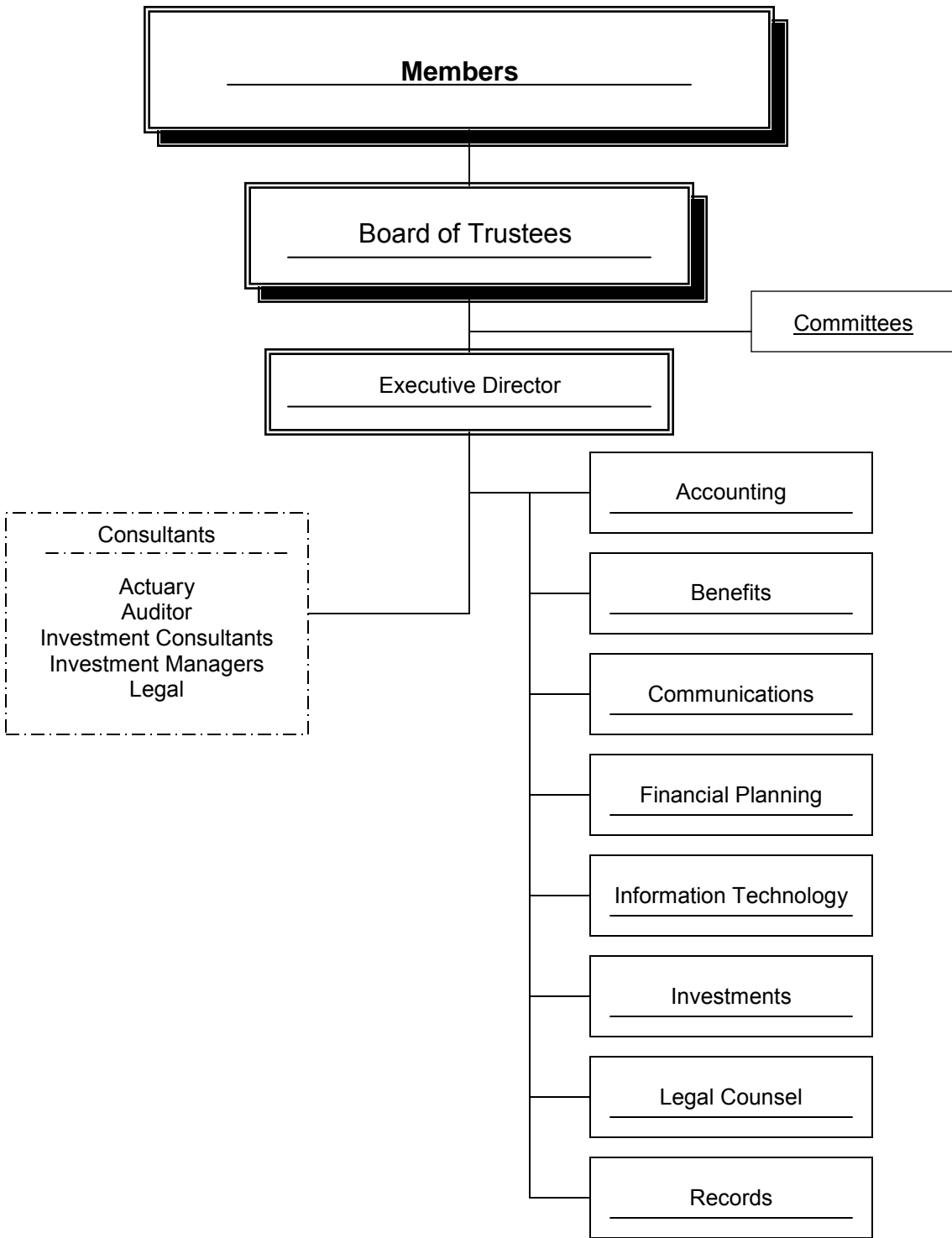
**BRIAN POER**  
*IT Director*

**GREG SIMEON**  
*IT Systems Administrator*

**NICK DANG**  
*General Counsel*

**CHRISTOPHER FLORES**  
*Attorney*

**ORGANIZATION CHART**



See Page 47 – Summary of Investment and Professional Services for a list of Consultants



Government Finance Officers Association

**Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting**

Presented to

**Police Officers Pension System  
of the City of Houston, Texas**

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**June 30, 2015**

Executive Director/CEO

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SECTION TWO

FINANCIAL SECTION

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## Independent Auditor's Report

The Board of Trustees  
Houston Police Officers' Pension System  
Houston, Texas

### *Report on the Financial Statements*

We have audited the accompanying financial statements of Houston Police Officers' Pension System (the System), a component unit of the city of Houston, Texas, which comprise the statements of fiduciary net position as of June 30, 2016 and 2015, and the related statements of changes in fiduciary net position for the years then ended, and the related notes to the financial statements.

### *Management's Responsibility for the Financial Statements*

Management is responsible for the preparation and fair presentation of these 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 financial statements that are free from material misstatement, whether due to fraud or error.

### *Auditor's Responsibility*

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the 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 entity's 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 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 financial statements referred to above present fairly, in all material respects, the financial position of the System as of June 30, 2016 and 2015, and the changes in its financial position for the years then ended, in accordance with accounting principles generally accepted in the United States of America.



### *Emphasis of Matter*

The System has adopted the disclosure requirements of GASB 72, Fair Value Measurement & Application in 2016. The provisions of the additional disclosure requirements are discussed in Note 4 to the financial statements. Our opinion is not modified with respect to this matter.

### *Other Matters*

#### *Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that "Management's Discussion and Analysis" and the "Required Supplementary Information" listed on the Table of Contents be presented to supplement the basic financial statements. Such information, although not a part of the 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 basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to these 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 basic financial statements, and other knowledge we obtained during our audits of the 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 audits were conducted for the purpose of forming an opinion on the basic financial statements as a whole. The accompanying supplemental schedules of "Investment, Professional and Administrative Expenses" and "Summary of Investments and Professional Services" are presented for the purpose of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of the System's management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audits of the 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 basic financial statements or to the 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 information is fairly stated in all material respects in relation to the basic financial statements as a whole.

*BDO USA, LLP*

Houston, Texas  
October 12, 2016



# Houston Police Officers' Pension System

## Management's Discussion and Analysis Fiscal Year Ended June 30, 2016

The discussion and analysis of the financial performance of the Houston Police Officers' Pension System (the System), provides an overall review of the System's financial activities for the fiscal years ended June 30, 2016, 2015 and 2014. The intent of this discussion and analysis is to look at the System's financial performance as a whole; readers should review the financial statements, notes to the financial statements, required supplementary information and other schedules, in order to enhance their understanding of the System's financial performance.

### Financial Statements

These financial statements consist of the Statements of Fiduciary Net Position, Statements of Changes in Fiduciary Net Position, Notes to Financial Statements, Schedules, and other unaudited required supplementary information. The System is a single employer contributory defined benefit pension plan. The System is a component unit of the City of Houston, Texas (the City) only to the extent the System receives contributions equal to a fixed amount or percentage of the pensionable pay of active members in accordance with Article 6243g-4, Vernon's Texas Civil Statutes (the Governing Statute), or contracts pursuant to Section 27 thereof, and as such, its reports are included in the Fiduciary Funds of the City as restricted assets.

### Financial Highlights

The System presents its financial statements solely on the accounts of the System. The accrual basis of accounting is used by the System, whereby revenues are recognized when they are earned and collection is reasonably assured, and expenses are recognized when the liability has been incurred. Investments are reported at fair value.

A summary of the Statements of Fiduciary Net Position for the System is as follows (\$000's):

As of June 30:	2016	2015	2014
<b>Assets</b>			
Investments at fair value	\$ 4,040,927	\$ 4,277,765	\$ 4,302,873
Invested securities lending collateral	24,211	50,613	41,986
Receivables	41,949	31,264	90,422
Cash	304	352	701
<b>Total Assets</b>	<b>4,107,391</b>	<b>4,359,994</b>	<b>4,435,982</b>
<b>Liabilities</b>			
Due for purchase of investments	894	3,357	44,602
Securities lending collateral	24,211	50,613	41,986
Accrued investment and professional fees	1,172	878	931
Other liabilities	654	623	586
<b>Total Liabilities</b>	<b>26,931</b>	<b>55,471</b>	<b>88,105</b>
<b>Net position restricted for pensions</b>	<b>\$ 4,080,460</b>	<b>\$ 4,304,523</b>	<b>\$ 4,347,877</b>

*See accompanying independent auditor's report.*

# Houston Police Officers' Pension System

## Management's Discussion and Analysis Fiscal Year Ended June 30, 2016

The System's net position decreased by approximately \$(224,063) thousand in fiscal year 2016 over 2015 during a year of considerable uncertainty in the markets. The year started with diminishing concerns about the Greek crisis but increasing concerns about China, which was more than enough to overshadow reasonably strong fundamentals in the U.S. and improving fundamentals in Europe. This put a damper on world markets during the first half of the year, driving returns negative. This continued into the second half of the year as turbulence in China, interest rate increases, a substantial drop in oil and commodities prices, and politics rattled investors and continued a decrease in returns. Markets bounced back in March, as investor confidence returned amid lessening fears, a stronger dollar and strengthening fundamentals in the U.S. However, the year ended with more uncertainty with another economic slowdown in China and the "Brexit" referendum at the end of June, when Britain voted to leave the European Union. The result was unexpected, and markets at first declined sharply in response but recovered most of their losses as investors tried to determine what impact it may have going forward. The System's net position decreased by approximately \$(43,354) thousand in fiscal year 2015 over 2014 during a year marked by volatility. In the first half of the year, markets gained and lost the same ground month after month based on weak international performance that at times was offset by domestic growth only to see that domestic growth dissipate due to a sharp decline in oil prices, wobbly equity markets and intensifying deflationary pressures. This volatility continued during the second half of the year with markets concerned about China and the rising risks of a Greek exit from the Eurozone, causing stocks to drop and ending the year with a further decline in expected corporate earnings. The System experienced a negative investment return of (3.1)% in 2016 as opposed to a positive return of 0.8% in 2015 and a positive return of 17.4% in 2014. These rates of return calculations were prepared using a time-weighted rate of return in accordance with The CFA Institute's Global Investment Performance Standards and, as such, cannot be recalculated from the information provided herein. Changes in receivables are primarily a result of the timing of investment transactions and of the accrual of \$14,284 thousand for City contributions due to the Funded Ratio dropping below 80% (see Note 2 and Note 5).

A summary of the Statements of Changes in Fiduciary Net Position for the System is as follows (\$000's):

Years ended June 30:	2016	2015	2014
<b>Contributions:</b>			
City	\$ 137,392	\$ 113,665	\$ 103,372
Members	39,017	37,719	37,012
<b>Total contributions</b>	<b>176,409</b>	151,384	140,384
Net income (loss) from investing activities	(136,018)	35,249	649,022
Net income from securities lending activities	185	92	131
<b>Total additions</b>	<b>40,576</b>	186,725	789,537
<b>Deductions:</b>			
Benefits paid to members	259,076	225,656	211,690
Refunds to members	978	945	906
Professional and administrative expenses	4,585	3,478	3,439
<b>Total deductions</b>	<b>264,639</b>	230,079	216,035
Net increase/(decrease)	(224,063)	(43,354)	573,502
Net position restricted for pensions			
Beginning of period	4,304,523	4,347,877	3,774,375
End of period	\$ 4,080,460	\$ 4,304,523	\$ 4,347,877

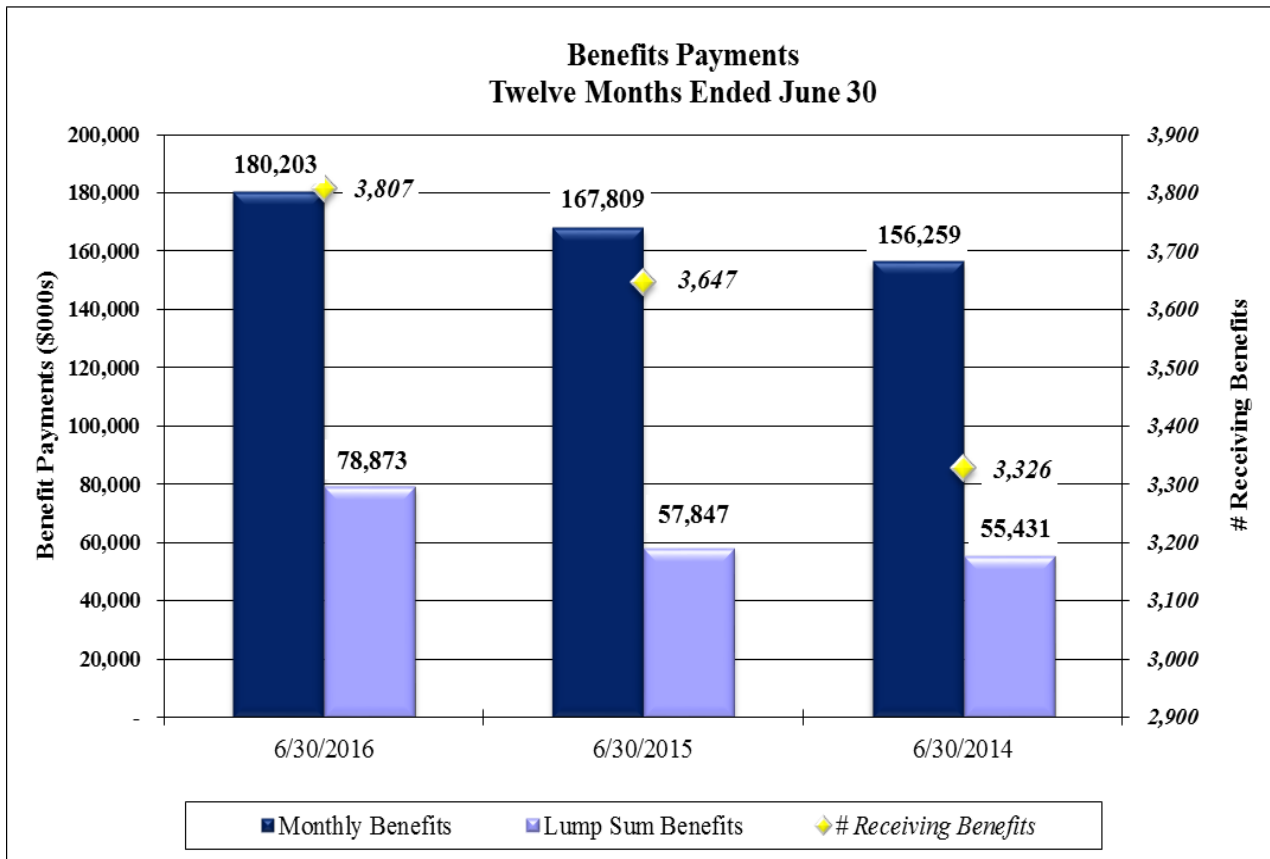
*See accompanying independent auditor's report.*

# Houston Police Officers' Pension System

## Management's Discussion and Analysis Fiscal Year Ended June 30, 2016

The June 30, 2011 Agreement with the City requires contribution payments for fiscal year 2016 equal to a \$123,000 thousand fixed payment. For fiscal year 2015, the City was contractually required to contribute a \$113,000 thousand fixed payment. For fiscal year 2014, the City was contractually required to contribute a \$103,000 thousand fixed payment. These contractual provisions account for the increase in City contributions for the years ended June 30, 2016; June 30, 2015; and June 30, 2014. As discussed in Note 2, the contributions were paid in their entirety from the City budget in 2016, 2015, and 2014.

“Benefits paid to members” consist of both lump sum payments and monthly payments of retirement, disability, and survivor benefits. The System’s benefit payment structure provides that members and survivors have the option to receive distributions from their lump sum accounts either on or after the date they begin receiving monthly benefit payments. Due to this ad hoc nature of lump sum distributions the summary results in the accompanying Statements of Changes in Fiduciary net position will not show any distinct trends in the “Benefits paid to members” category. The chart below compares the components of benefits paid to members for the years ended June 30, 2016, 2015, and 2014.



For each year, the annual cost of living adjustment (COLA) along with the increase in the number of benefit recipients accounts for the majority of the increase in benefit payments. Total benefits paid in 2016 increased from 2015 by approximately \$33,420 thousand or 14.8% compared to an increase of approximately \$13,966 thousand or 6.6% between 2014 and 2015. The increase in 2016 is due to a \$12,394 thousand increase in monthly benefits and a \$21,026 thousand increase in lump sum benefits compared to an \$11,550 thousand increase in monthly benefits and a \$2,416 thousand increase in lump sum benefits in 2015. Average monthly benefit payments were \$15,017 thousand and

# Houston Police Officers' Pension System

## Management's Discussion and Analysis Fiscal Year Ended June 30, 2016

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\$13,984 thousand per month for 2016 and 2015 respectively. The increase of \$1,033 thousand or 7.4% in 2016 was greater than the increase of \$963 thousand or 7.4% in 2015 while the number of members and survivors who are receiving benefits increased by 160 in 2016 and 321 in 2015.

There was an increase of \$1,107 thousand in professional and administrative expenses during 2016 as compared to 2015. This increase is due mainly to an increase of \$679 thousand for improvements to the System's enterprise software system, the expenditure of \$195 thousand for actuarial services and an increase of \$43 thousand for legal services discussed further in Note 7. The upgrade project for the System's enterprise software system and website was completed by the end of the year, allowing members to conduct most pension business through a secure web portal and provide streamlined communication between members and System staff. The increase of \$39 thousand in professional and administrative expenses during 2015 as compared to 2014 was mainly due to an increase for the start-up of the software and website project and to replace old office equipment and a decrease for trustee election related expenses.

### **System Highlights**

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The System's funded ratio pursuant to its most recent actuarial valuation dated July 1, 2015 was 79.7% representing an unfunded actuarial accrued liability of \$1,155,510 thousand. The System's funded ratio as of July 1, 2014 was 81.0% representing an unfunded actuarial accrued liability of \$1,021,056 thousand. The System's Agreement with the City provides that once the Funded Ratio reaches 80%, this becomes the new floor and if it should ever decline below such 80% level, in the fiscal year next following such determination, the City shall pay such additional amounts to the System as shall be necessary to increase the Funded Ratio to 80%. Therefore, the City will be required in fiscal year 2017 to make such a payment as discussed in Note 2 and Note 5.

The System anticipates changes to the System's Governing Statute by the Texas Legislature in the upcoming 85th legislature regular session that may affect the benefit structure and contributions by the City and members.

### **Contacting the System's Management**

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This financial report is designed to provide members and other users with a general overview of the System's finances and to show the System's accountability for the funding it receives. If you have questions about this report, you may contact the System's Executive Director at 602 Sawyer, Suite 300, Houston, TX 77007 or by phone at 713-869-8734.



**Houston Police Officers' Pension System**  
**Statements of Fiduciary Net Position (\$000's)**

<i>June 30,</i>	<b>2016</b>	<b>2015</b>
<b>Assets</b>		
<b>Investments, at fair value</b> (Note 3 and Note 4)		
Short term investments	\$ 650,902	\$ 915,270
Fixed income investments	166,655	225,728
Equity securities	1,303,740	817,127
Alternative investments	1,919,630	2,319,640
<b>Total Investments</b>	<b>4,040,927</b>	<b>4,277,765</b>
<b>Invested securities lending collateral</b> (Note 4)	<b>24,211</b>	<b>50,613</b>
<b>Receivables</b>		
City (Note 2 and Note 5)	14,284	25,500
Members	1,396	1,169
Investments	2,613	2,873
Due from sale of investments	23,643	1,713
Other receivables	13	9
<b>Total Receivables</b>	<b>41,949</b>	<b>31,264</b>
<b>Cash</b>	<b>304</b>	<b>352</b>
<b>Total Assets</b>	<b>\$ 4,107,391</b>	<b>\$ 4,359,994</b>
<b>Liabilities</b>		
<b>Payables</b>		
Due for purchase of investments	894	3,357
Securities lending collateral (Note 4)	24,211	50,613
Accrued investment and professional fees	1,172	878
Other liabilities	654	623
<b>Total Liabilities (Note 9)</b>	<b>26,931</b>	<b>55,471</b>
<b>Net position restricted for pensions</b>	<b>\$ 4,080,460</b>	<b>\$ 4,304,523</b>

*See accompanying independent auditor's report and notes to financial statements.*

**Houston Police Officers' Pension System**  
**Statements of Changes in Fiduciary Net Position (\$000's)**

<i>Years ended June 30,</i>	<b>2016</b>	<b>2015</b>
<b>Contributions</b> (Note 2 and Note 5)		
City	\$ 137,392	\$ 113,665
Members	39,017	37,719
<b>Total contributions</b>	<b>176,409</b>	<b>151,384</b>
<b>Investment income</b>		
Net appreciation (depreciation) in fair value of investments	(152,667)	21,504
Interest:		
Short-term investments	2,218	993
Fixed income investments	10,104	15,163
<b>Total interest income</b>	<b>12,322</b>	<b>16,156</b>
Dividends	18,714	20,714
<b>Total investment income (loss)</b>	<b>(121,631)</b>	<b>58,374</b>
Less: investment expense	(14,387)	(23,125)
<b>Net income (loss) from investing activities</b>	<b>(136,018)</b>	<b>35,249</b>
<b>Securities lending activities</b> (Note 4)		
Securities lending income	250	123
Securities lending expense	(65)	(31)
<b>Net income from securities lending activities</b>	<b>185</b>	<b>92</b>
<b>Total additions</b>	<b>40,576</b>	<b>186,725</b>
<b>Deductions</b>		
Benefits paid to members	259,076	225,656
Refunds to members (Note 1)	978	945
Professional and administrative expenses	4,585	3,478
<b>Total deductions</b>	<b>264,639</b>	<b>230,079</b>
Net decrease in net position	(224,063)	(43,354)
<b>Net position restricted for pensions</b>		
Beginning of period	4,304,523	4,347,877
End of period	\$ 4,080,460	\$ 4,304,523

*See accompanying independent auditor's report and notes to financial statements.*

# Houston Police Officers' Pension System

## Notes to Financial Statements

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### 1. Plan Description and Contribution Information

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*General* – The Houston Police Officers' Pension System (the System) was created in 1947 by an act of the Fiftieth Legislature of the State of Texas, and is governed by Article 6243g-4, Vernon's Texas Civil Statutes (the Governing Statute) and contracts pursuant to Section 27 thereof. The System is a single employer contributory defined benefit pension plan covering police officers employed full time by the City of Houston (the City) that provides for service, disability and death benefits for eligible members and their beneficiaries. The System is a local governmental plan and, therefore, is not subject to the Employee Retirement Income Security Act of 1974 (ERISA). The System is a component unit of the City only to the extent the System receives contributions equal to an amount or percentage of pay of active members in accordance with the Governing Statute.

The System's Board of Trustees in accordance with the Governing Statute is responsible for the general administration, management, and operation of the pension system, including the direction of investment and oversight of the fund's assets. The System's Board of Trustees is composed of seven members as follows: (1) the administrative head of the City or the administrative head's authorized representative; (2) three employees of the police department having membership in the pension system, elected by the active, inactive, and retired members of the pension system; (3) two retired members who are receiving pensions from the system and are not officers or employees of the City, elected by the active, inactive, and retired members of the pension system; and (4) the treasurer of the City or the person discharging the duties of the City treasurer.

At June 30, the System's membership consisted of the following:

June 30,	2016	2015
Retirees and beneficiaries:		
Currently receiving benefits	3,807	3,647
Not yet receiving benefits	22	22
Active members:		
Fully vested	2,064	2,007
Nonvested:		
Hired or rehired before October 9, 2004	918	1,168
Hired or rehired after October 9, 2004	2,292	2,087
<b>Total members</b>	<b>9,103</b>	<b>8,931</b>

The following sections describe the benefit structure in effect at June 30, 2016 and 2015. On September 29, 2004, the System and the City entered into an agreement (the October 9, 2004 Agreement) that altered the benefit structure of the System. On June 30, 2011, the System and the City entered into an agreement (the June 30, 2011 Agreement) that altered the City payment schedule and extended the contract term which began on October 9, 2004, through June 30, 2023 and thereafter renews for one-year terms through June 30, 2040 unless either party terminates the agreement. The benefits described below include those for members hired or rehired on or before October 9, 2004 as well as benefits for members hired or rehired subsequent to October 9, 2004.

*Eligibility* – Members become eligible to receive a service pension upon retirement with 20 years of service. Members also have the option to select a Delayed Retirement, which allows for vesting after 10 years of service with a pension benefit payable at age 60. Members hired or rehired subsequent to October 9, 2004 are eligible to receive a service pension upon attaining age 55 and 10 years of service.

*Benefits* – Retirement benefits are equal to 2.75% of the member's pensionable pay for each of the member's first 20 years of service plus 2.00% of pensionable pay for each year in excess of 20 years with no maximum percentage. Members hired or rehired subsequent to October 9, 2004 accrue benefits equal to 2.25% of the member's pensionable pay for each of the member's first 20 years of service plus 2.00% of the member's pensionable pay for each year in excess of 20 years subject to a maximum of 80%. Retired members and surviving spouses are entitled to receive an additional \$150 per month in order to defray group medical insurance costs.

*Pensionable Pay* - Eligible members of the System will have their retirement or DROP benefit (see below) calculated on pensionable pay, which is referred to as Final Average Pay, and is defined as the average of all pay types received by a member over the three years prior to retirement or entrance into DROP exclusive of all categories of overtime.

# Houston Police Officers' Pension System

## Notes to Financial Statements

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*Deferred Retirement Option Plan* – The Deferred Retirement Option Plan (DROP) provides for an optional method of accruing pension benefits. Generally, members with at least 20 years of service are eligible to participate in the DROP. Members hired or rehired subsequent to October 9, 2004 are not eligible to participate in DROP or Back-DROP. Upon termination of employment participating members receive their pension benefit in the form of an annuity and a lump sum benefit. The annuity is the member's pension benefit at the time of enrollment in the DROP plus any subsequent cost of living adjustments. The lump sum benefit is the accumulated balance in the member's notional DROP account which is equal to an amount calculated as if the member's annuity, employee contributions and an interest component had been deposited in a separate account in the member's name during the member's participation in DROP. Prior to October 9, 2004, 100% of a member's contributions were credited to his or her notional DROP account. Subsequent to that date, an eligible member contributes 9.00% of pensionable pay with 8.75% of pensionable pay credited to his or her notional DROP account and the additional 0.25% credited to the System's general fund.

A Back-DROP benefit is also available for all eligible participants. The Back-DROP option allows a DROP member to recalculate his or her DROP notional account by selecting a different entrance date than that originally selected by the member upon entrance into DROP. The Back-DROP entry date cannot be prior to the later of October 21, 1995 or the date the member attained 20 years of credited pension service.

*Cost of Living Adjustments* – Pension benefits and the monthly DROP benefits are adjusted each year equal to 80% of the increase in the Consumer Price Index for all Urban Consumers for the preceding year subject to minimum and maximum increases of 2.4 % and 8.0%, respectively.

*Disability Benefits* – Duty connected disability benefits are equal to the greater of 55% of pensionable pay or the accrued service pension. Disabled members who qualify for a Catastrophic Disability, as defined, receive a disability benefit equal to 100% of pensionable pay. Members hired or rehired subsequent to October 9, 2004 are eligible for a duty connected disability benefit equal to the greater of 45% of the member's pensionable pay or the accrued service pension.

Members determined to be eligible for a non duty-connected disability benefit are entitled to a benefit of either 27.5% of pensionable pay, if the member has 10 or fewer credited years of service, or 2.75% per year for credited service in excess of 10 years. Members hired or rehired subsequent to October 9, 2004 are eligible for a non-duty connected disability benefit equal to the greater of 22.5% of the member's pensionable pay or 2.25% per year for credited service equal to or in excess of 10 years up to 20 years and 2.00% per year for credited service equal to or in excess of 20 years.

*Death Benefits* – Death benefits are available to a surviving spouse, dependent children or a dependent parent in the event of the death of a member either after disability or service retirement, or prior to retirement.

*Refunds of Member Contributions* – A member with less than 20 years of credited pension service may elect to obtain a refund of member contributions upon termination of service with the Houston Police Department (HPD). This refund does not include interest. Members with at least 10 but less than 20 years of credited pension service, who terminate service with the HPD, have the option of a Delayed Retirement benefit. Members hired or rehired subsequent to October 9, 2004 are eligible for a refund of contributions until they attain age 55 and 10 years of service.

*Delayed Retirement* – A member with at least 10 but less than 20 years of credited pension service at termination of employment with the HPD has the option of either a refund of member contributions, without interest, or a Delayed Retirement benefit. The Delayed benefit is payable at age 60 and is calculated at 2.75% of pensionable pay for each year of credited pension service. Members hired or rehired subsequent to October 9, 2004 with more than 10 years of service are eligible for a Delayed Retirement payable at age 55 calculated at 2.25% of pensionable pay for each year of credited pension service.

*Supplemental Monthly Benefit* (13<sup>th</sup> check) – In years in which certain investment performance and actuarial funding requirements are met, the System issues a supplemental monthly benefit payment to retired members and a supplemental credit to DROP participants' accounts in an amount equal to their normal monthly benefit. This benefit is not available for any year in which the System's funded ratio is less than 120%. Members hired or rehired subsequent to October 9, 2004 are not eligible for this benefit.

*Lump Sum Benefit* – Members retiring with a service or disability benefit receive a one-time \$5,000 lump sum benefit. Members hired or rehired subsequent to October 9, 2004 are not eligible for this benefit.

*Reciprocal Retirement Program* – Members who have not attained the necessary years of service for retirement are eligible to participate in the System's Reciprocal Retirement Program if they also have pension service with other City

# Houston Police Officers' Pension System

## Notes to Financial Statements

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departments. This program allows members with the necessary cumulative years of service to combine their service credit with other City retirement systems and receive a proportionate retirement benefit from the System.

*Post Retirement Option Plan* – The Post Retirement Option Plan (PROP) allows retired members to have all or a portion of their monthly retirement and DROP lump sum credited to a notional account maintained by the System which accumulates interest and can be disbursed to the member under certain options as designated by the System. Surviving spouses can transfer a DROP or PROP balance to a PROP account of their own but are not eligible to credit all or a portion of their survivor benefit to a PROP account. Members hired or rehired subsequent to October 9, 2004 are not eligible for this benefit.

*Partial Lump Sum Option Plan* – The Partial Lump Sum Option Plan (PLOP) provides for an optional lump sum payment of a portion of a member's retirement benefit. A lump sum payment of not more than 20% of the actuarial value of the member's accrued pension at retirement shall be made available to persons who become active members of the System subsequent to October 9, 2004. The benefit shall be actuarially neutral. Thus, the value of the pension the member receives shall be reduced actuarially to reflect the lump sum payment.

### **2. Contributions and Reserves**

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Contributions – Members hired prior to October 9, 2004 are required to contribute 9.00% of pay and members hired or rehired subsequent to October 9, 2004 contribute 10.25% of pay. Contributions are made on a pre-tax basis pursuant to Governing Statutes.

In the October 9, 2004 Agreement, it was agreed that in lieu of contributions to the System made pursuant to actuarial valuations, the City will make cash payments to the System in accordance with a payment schedule as provided for in such Agreement. In the June 30, 2011 Agreement, it was agreed that for fiscal year 2016 the amount to be contributed was a \$123,000 thousand fixed payment. For fiscal year 2015, the amount to be contributed was a \$113,000 thousand fixed payment, and for fiscal year 2014 the amount to be contributed was a \$103,000 thousand fixed payment. For fiscal year 2017, it requires a \$133,000 thousand fixed payment.

The June 30, 2011 Agreement with the City provided that for fiscal year 2014 the amount to be contributed would be a \$93,000 thousand fixed payment, with any shortfall in the fixed payment not to exceed \$8,500 thousand, and for fiscal year 2013, an \$83,000 thousand fixed payment, with any shortfall in the fixed payment not to exceed \$17,000 thousand. Therefore, the System showed a contribution receivable of \$25,500 thousand at the end of fiscal year 2015, which the City paid on July 1, 2016.

For all subsequent fiscal years, and until the funded ratio reaches 100%, City payments shall increase each fiscal year by \$10,000 thousand until said 100% funding is reached. Once the System reaches a 100% funded ratio, the City will pay the actuarially required rate, but not less than 16.00% of payroll. In addition, once the Funded Ratio reaches 80%, this becomes the new floor and if it should ever decline below such 80% level, in the fiscal year next following such determination, the City shall pay such additional amounts to the System as shall be necessary to increase the Funded Ratio to 80%. The Funded Ratio was determined to be 79.7% in the July 1, 2015 actuarial valuation. Therefore, the City is required to pay an additional amount of \$14,284 thousand in fiscal year 2017. At the System's current asset level, a 5% decline in the funded ratio below the floor would require the City to pay approximately \$285,307 thousand.

City contributions in the Statements of Changes in Fiduciary Net Position may be greater than the contractually agreed amounts, as members are allowed to contribute accumulated sick and vacation pay to the System upon retirement and such contributions are classified as City contributions.

Pursuant to the terms of the June 30, 2011 Agreement and based on the July 1, 2015 actuarial valuation, the City contribution rates and the Actuarial Determined Contributions (ADC) are as shown in the table on the following page for the current year and the ten years ending June 30, 2025.

# Houston Police Officers' Pension System

## Notes to Financial Statements

(\$000's)

Years Ended June 30,	Actuarial Determined Contribution (ADC)	Cash Payments Required by Agreements	Cash Payments as a Percentage of ADC	Actuarial Determined Contribution as a Percentage of Pay
2016	\$ 160,828	\$ 123,000	76.5	39.6
2017	162,715	147,284	90.5	39.7
2018	163,809	143,000	87.3	39.4
2019	165,208	153,000	92.6	39.0
2020	166,025	163,000	98.2	38.5
2021	166,176	173,000	104.1	37.8
2022	165,344	183,000	110.7	36.9
2023	163,649	193,000	117.9	35.8
2024	161,343	203,000	125.8	34.5
2025	158,296	213,000	134.6	33.2

The System anticipates changes to the System's Governing Statute by the Texas Legislature in the upcoming 85th legislature regular session that may affect the benefit structure and contributions by the City and members.

### 3. Summary of Significant Accounting Policies

*Basis of Presentation* – As defined by generally accepted accounting principles established by the Governmental Accounting Standards Board (GASB), the accompanying financial statements include solely the accounts of the System, which include all programs, activities and functions relating to the accumulation and investment of the assets and related income necessary to provide the service, disability and death benefits required under the terms of the Governing Statutes and amendments thereto.

*Basis of Accounting* - Basis of accounting is the method by which revenues and expenses are recognized in the accounts and are reported in the financial statements. The accrual basis of accounting is used for the System. Under the accrual basis of accounting, revenues are recognized when they are earned and collection is reasonably assured, and expenses are recognized when the liability is incurred. Member contributions are recognized in the period in which the contributions are due. Employer contributions are recognized when due and the employer has made a legally required commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the Governing Statute. Dividend income is recorded on the ex-dividend date. Income from other investments is recorded when earned. Gains and losses on sales of securities are recognized on the trade date. The cost of investments sold is determined using the average cost method.

*Administrative Costs* – All administrative costs of the System are paid from the System's assets.

*Federal Income Tax* – A favorable determination that the System is qualified and exempt from Federal income taxes was received on September 24, 2014. The System's Board of Trustees believes that the System is designed and continues to operate in compliance with the applicable requirements of the Internal Revenue Code.

*Use of Estimates* – The preparation of the System's financial statements, in conformity with accounting principles generally accepted in the United States of America, requires management to make significant estimates and assumptions that affect the reported amounts and net plan assets at the date of the financial statements and the actuarial information included in the footnotes to the financial statements as of the benefit information date, the changes in the System's net position during the reporting period and, when applicable, disclosures of the contingent assets and liabilities at the date of the financial statements. Actual results could differ from those estimates.

*Subsequent Events* – The System has evaluated subsequent events through October 12, 2016, the date the financial statements were available for issuance.



# Houston Police Officers' Pension System

## Notes to Financial Statements

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### 4. Investments

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*Investment Policy* – The System’s policy in regard to the allocation of invested assets is established and may be amended by the System’s Board of Trustees by a majority vote of its members. It is the policy of the System’s Board of Trustees to pursue an investment strategy with a view toward the long term that maximizes the return on the System’s assets with acceptable target levels of leverage, loss of capital, and volatility risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The System’s investment policy discourages the use of cash equivalents, except for liquidity purposes. The following was the Board’s adopted asset allocation policy as of June 30, 2016:

<u>Asset Class</u>	<u>Target Allocation</u>
Domestic equity	28.50 %
International equity	21.75
Fixed income	-
Credit	12.00
Alternative investments:	
Private equity	17.50
Real estate	10.00
Risk parity	4.50
Opportunistic	5.00
Hedge funds	10.75
Cash	(10.00)
<u>Total</u>	<u>100.00 %</u>

*Investment Valuation* - Statutes of the State of Texas authorize the System to invest surplus funds in a manner provided by the Government Code, Title 8, Subtitle A, Subchapter C. These statutes stipulate that the governing body of the System is responsible for the management and administration of the funds of the System and shall determine the procedure it finds most efficient and beneficial for the management of the reserve fund of the System. The governing body may directly manage the investments of the System or may choose and contract for professional investment management services. Investments are reported at fair value in accordance with GASB 72, Fair Value Measurement and Application, which defines fair value, establishes a framework for measuring fair value, and establishes disclosures about fair value measurements.

GASB 72 establishes a hierarchal disclosure framework which prioritizes and ranks the level of market price observability used in measuring investments at fair value. Market price observability is impacted by a number of factors, including the type of investment and the specific characteristics of the investment. Fair value represents the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Investments with readily available actively quoted prices or for which fair value can be measured from actively quoted prices generally will have a higher degree of market price observability and lesser degree of judgment used in measuring fair value.

Investments measured and reported at fair value are classified and disclosed in one of the following categories:

Level 1 – Investments traded in an active market with available quoted prices for identical assets as of the reporting date.

Level 2 – Investments not traded on an active market but for which observable market inputs are available for an asset, either directly or indirectly, as of the reporting date.

Level 3 – Investments not traded in an active market and for which no significant observable market inputs are available as of the reporting date.

The System has established a framework to consistently measure the fair value of the System’s assets and liabilities in accordance with applicable accounting, legal, and regulatory guidance. This framework has been provided by

# Houston Police Officers' Pension System

## Notes to Financial Statements

establishing valuation policy and procedures that will provide reasonable assurance that assets and liabilities are carried at fair value. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, an investment's level within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement. The System's assessment of the significance of a particular input to the fair value measurement requires judgment and considers factors specific to the investment.

The following table summarizes the valuation of the System's investments in accordance with the above mentioned fair value hierarchy levels as of June 30, 2016.

### Investments Measured at Fair Value (\$000's)

	Fair Value Measurements Using			
	6/30/2016	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<b>Investments by fair value level</b>				
Short term investments				
US Treasury bills	\$ 63,217	\$ 63,217	\$ -	\$ -
Short term investment funds	587,685	-	587,685	-
Total short term investments	650,902	63,217	587,685	-
Fixed income				
Corporate bonds	113,471	-	113,471	-
High yield funds	53,184	-	53,184	-
Total fixed income	166,655	-	166,655	-
Equity securities				
Domestic equities	824,102	7,287	816,815	-
International equities	479,638	-	479,638	-
Total equity securities	1,303,740	7,287	1,296,453	-
Alternative investments				
Private equity				
Leveraged buyouts	229,708	-	-	229,708
Energy	90,906	-	-	90,906
Special situations	85,218	-	-	85,218
Private equity secondaries	45,099	-	-	45,099
Venture capital	36,157	-	-	36,157
Other alternatives				
Real estate	243,717	-	-	243,717
Credit	133,531	-	-	133,531
Hedge funds - long/short credit	19,491	-	19,491	-
Hedge funds - long/short Equity	18,197	-	18,197	-
Total alternative investments	902,024	-	37,688	864,336
Total investments by fair value level	3,023,321	\$ 70,504	\$ 2,088,481	\$ 864,336
<b>Investments measured at the net asset value (NAV)</b>				
Portable alpha hedge funds	448,393			
Global macro hedge funds	246,024			
Multi-strategy hedge funds	182,656			
Long/short equity hedge funds	55,395			
Long/short credit hedge funds	85,138			
Total investments measured at the NAV	1,017,606			
Total investments measured at fair value	\$ 4,040,927			

Short-term investments include funds held in short-term investment funds of the System's custodian and asset managers.

# Houston Police Officers' Pension System

## Notes to Financial Statements

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Fixed income investments include US corporate bonds, foreign securities such as dollar denominated and non-dollar denominated issues of private corporations, plus units of commingled fixed income funds of US government securities.

Equity securities consist of individual shares of equity securities plus units of commingled stock funds of both US and foreign entities.

Alternative investments consist of investments in hedge funds, real estate, and private equity. These investments are in various investment vehicles including limited partnerships and commingled funds.

The System's custodian bank provides security valuations for equity and fixed income securities utilizing vendor supplied pricing. Based upon the procedures described below, equity securities and short term investments that are valued based on quoted prices in active markets are generally classified as Level 1 while fixed income securities are generally considered to be Level 2 or Level 3 investments. Vendor supplied pricing data for equity securities is based upon the daily closing price from the primary exchange of each security while vendor supplied pricing data for fixed income securities is based upon a combination of market maker quotes, recent trade activity, and observed cash flows. To minimize the potential for inaccurate valuations, multiple price types are obtained from multiple providers and whenever possible prices are put through tolerance checks with exceptions researched and resolved on a same day basis as part of the pricing process. An integral part of the custodian's pricing process is to allow portfolio managers and interested third parties to challenge custodian provided prices which provides additional validation to the custodian's pricing. The evaluation process is handled by the custodian's internal pricing system, which automatically validates substantially all of the System's securities, leaving only exceptions and missing prices for human intervention. The rules this system applies are multi-dimensional and can be applied at a number of different levels, ranging from general to security specific in nature. Consistent with the System's valuation policy, the System's staff maintains and documents an understanding of the custodian's and underlying manager's valuation process and has implemented a program to review and evaluate the reconciliation process and the fair value estimates provided by the custodian and the investment manager.

The System's custodian values commingled funds at the net asset value provided by the commingled fund's custodian or administrator, as is applicable. Based upon the procedures described below, the unit value for these commingled funds is considered to be a Level 2 price unless such commingled fund is traded in an active market with available quoted prices, in which case it is considered to be a Level 1 price. The unit values of commingled funds are calculated by the custodian or administrator by dividing the commingled fund's net asset value on the calculation date by the number of units of the commingled fund that are outstanding on the calculation date. The commingled fund's net asset value is calculated by the commingled fund's custodian or administrator by using Level 1, Level 2 or Level 3 prices, as appropriate, to value each security and/or other asset held by the commingled fund on the calculation date, pursuant to the commingled fund's valuation policy. In short, the net asset value of the commingled fund is calculated based on a compilation of primarily observable market information. The number of units of a commingled fund that are outstanding on the calculation date is derived from observable purchase and redemption activity in the commingled fund. Consistent with the System's valuation policy, the System's staff maintains and documents an understanding of the underlying fund's valuation process and has implemented a program to review and evaluate the fair value estimates provided by the commingled fund.

The System's custodian values the System's investment in limited partnerships at the dollar value provided by the general partners. Based upon the procedures described below, these limited partnerships are generally considered to be Level 3 assets. The fair value of securities held by limited partnerships has been estimated by the general partners in the absence of readily ascertainable fair values. The general partners utilize valuation methods which rely on significant assumptions and inputs of the portfolio company's most recent financial information such as EBITDA and debt and the equity structure of the portfolio company. Valuations may be derived by reference to observable valuation measures for comparable companies and may be adjusted for differences between the investment and the referenced comparables. General partners also utilize relevant information such as discounted cash flow analysis, pending recent transactions and potential initial public offering values in the determination of fair value. Consistent with the System's valuation policy, the System's staff maintains and documents an understanding of the general partner's valuation process and has implemented a program to review and evaluate the fair value estimates provided by each partnership.

# Houston Police Officers' Pension System

## Notes to Financial Statements

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) is presented on the following table.

### Investments Measured at the NAV (\$000's)

	<u>Fair Value</u>	<u>Unfunded Commitments</u>	<u>Redemption Frequency (If Currently Eligible)</u>	<u>Redemption Notice Period</u>
Portable alpha hedge funds <sup>(1)</sup>	\$ 448,393		Quarterly/Semi-Annually	60-90 days
Global macro hedge funds <sup>(2)</sup>	246,024		Monthly/Quarterly	60-90 days
Multi-strategy hedge funds <sup>(3)</sup>	182,656	\$ 6,029	Various up to two years	60-90 days
Long/short equity hedge funds <sup>(4)</sup>	55,395		Quarterly	60-90 days
Long/short credit hedge funds <sup>(5)</sup>	85,138		Quarterly/Annually	60-90 days
Total investments measured at the NAV	<u>\$ 1,017,606</u>			

1. *Portable Alpha Funds* - This type invests in three funds that are invested in both risk parity strategies and global macro hedge fund strategies. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the investments. These strategies generally have quarterly or semi-annual liquidity.
2. *Global Macro Hedge Funds* - This type invests in four hedge funds that take long and short positions in global equity, credit, interest rate, and currency markets. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the investments. Three of these funds have monthly liquidity and one fund has quarterly liquidity. The fund with quarterly liquidity is in the process of liquidation.
3. *Multi-Strategy Hedge Funds* - This type invests in ten hedge funds that pursue multiple strategies to diversify risks and reduce volatility. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the investments. Three of these funds have quarterly liquidity, one fund has semi-annual liquidity, one fund has annual liquidity, and one fund has liquidity every two years. All but one of these funds is in the process of liquidation.
4. *Long / Short Equity Hedge Funds* - This type includes investments in three hedge funds that invest both long and short primarily in U.S. common stocks. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the investments. These funds generally have quarterly liquidity. Three of these funds are in the process of liquidation.
5. *Long / Short Credit Hedge Funds* - This type includes investments in five hedge funds that invest both long and short primarily in U.S. credit instruments. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the investments. Two of these strategies have quarterly liquidity and two funds have annual liquidity. Two of these funds are in the process of liquidation.

*Concentrations* – As of June 30, 2016, the System did not have any single investment in any one organization which represented greater than 5% of plan net assets.

*Rate of return* – For the year ended June 30, 2016, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was (3.2)%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

# Houston Police Officers' Pension System

## Notes to Financial Statements

*Investment Risk* – The System's investments have been categorized to address deposit and investment risks related to custodial credit risk, credit risk, concentration of credit risk, interest rate risk, and foreign currency risk.

- *Custodial Credit Risk for Deposits and Investments* – Custodial credit risk for investments is the risk that in the event of a failure of the counterparty, the System will not be able to recover the value of the investment or collateral in possession of the counterparty. The System does not have an investment policy regarding custodial credit risk. The System considers only demand deposits as cash. As of June 30, 2016 and June 30, 2015, the System had a balance of \$304 thousand and \$352 thousand, respectively, on deposit at a financial institution. The Federal Depository Insurance Corporation (FDIC) covered cash on deposit up to \$250 thousand at this financial institution. Therefore, as of June 30, 2016, \$54 thousand of the System's bank balance of \$304 thousand was exposed to custodial credit risk. At June 30, 2016, the System did not have any other investments with other financial institutions subject to custodial credit risk.
- *Credit Risk* – Credit risk is the risk that the counterparty will not fulfill its obligations. As of June 30, 2016, the System's fixed income assets that are not U.S. government guaranteed represented 100% of the System's fixed income plus short term investments portfolio. The tables below and on the following page summarize the System's fixed income portfolio and short term investment exposure levels and credit qualities.

**Average Credit Quality and Exposure Levels of  
Non-U.S. Government Guaranteed Securities  
June 30, 2016**

Fixed Income Security Type	Fair Value (\$000's)	Percent of Total	Weighted Average Credit Quality
Corporate Bonds	\$ 113,471	13.9	B
Mutual Bond Funds	53,184	6.5	B
Short Term Investment Funds	650,902	79.6	Not Rated
<b>Total</b>	<b>\$ 817,557</b>	<b>100.0</b>	

**Ratings Dispersion Detail  
June 30, 2016  
(\$000's)**

Credit Rating Level	Corporate Bonds	Mutual Bond Funds	Short Term Investment Funds
BBB	\$ 2,722	\$ -	\$ -
BB	45,556	-	-
B	52,608	53,290	-
CCC	10,762	-	-
NR	1,823	(106)	650,902
<b>Total</b>	<b>\$ 113,471</b>	<b>\$ 53,184</b>	<b>\$ 650,902</b>

# Houston Police Officers' Pension System

## Notes to Financial Statements

The System's investment policy allows investment managers full discretion in adopting investment strategies to deal with these risks. Unless otherwise provided in the individual investment manager agreement, the average quality rating of each individual fixed income portfolio on a weighted value basis shall be A-rated or higher, and no issue should have a rating below investment grade (Baa or higher). Certain managers, such as high yield managers, may be exempted from these requirements as provided for in their contracts.

Credit risk for derivative instruments held by the System results from counterparty risk, which is essentially that the counterparty will be unable to fulfill its obligations, which are then assumed by the System. Information regarding the System's credit risk related to derivatives is found under the derivatives disclosures.

Policies regarding credit risk pertaining to credit risk associated with the System's securities lending program are found under the securities lending disclosures.

- *Concentration of Credit Risk* – Concentration of credit risk is the risk of loss attributable to the magnitude of the System's investment in a single issue. The System's investment policy for each specific portfolio limits investments in any one single domestic equity issue to 15% of each portfolio at market value and for any one single international equity issue to 5% of the System's investments. For fixed income investments, the System's policy limits, by each specific portfolio, investment in any one single fixed income security to 10% of each portfolio at market value. As of June 30, 2016, the System did not have any single investment in any one organization which represented greater than 5% of plan net assets.
- *Interest Rate Risk* – Interest rate risk is the risk that changes in interest rates will adversely affect the fair values of the System's financial instruments. This risk is managed within the portfolio using the modified duration methodology. It is widely used in the management of fixed income portfolios and estimates the sensitivity of a bond's price to interest rate changes. The System does not have an investment policy specifically regarding interest rate risk. Investment managers have full discretion in adopting investment strategies to deal with these risks, and all of the System's fixed income portfolios are managed in accordance with guidelines that are specific as to the degree of interest rate risk taken. The reporting of modified duration found in the tables below and on the following page quantifies the interest rate risk of the System's fixed income and short term investments. Interest rate risks associated with derivative instruments are found in the derivatives disclosures of these notes.

### Modified Duration by Security Type

June 30, 2016

Security Type	Fair Value (\$000's)	Percent of Total	Weighted Average Modified Duration (years)
Corporate Bonds	\$ 113,471	13.9	5.3
Mutual Bond Funds	53,184	6.5	4.4
Short Term Investment Funds	650,902	79.6	0.0
Total	\$ 817,557	100.0 %	1.0

# Houston Police Officers' Pension System

## Notes to Financial Statements

### Modified Duration Analysis by Security Type

June 30, 2016

	Fair Value (\$000's)	Average Modified Duration	Contribution to Modified Duration
<b>Corporate Bonds</b>			
Less than 1 year	\$ 11	0.0	0.0
1 to 5 years maturities	28,691	3.0	0.7
5 to 10 years maturities	83,756	6.2	4.5
Greater than 10 years maturities	1,013	7.4	0.1
<b>Total</b>	<b>\$ 113,471</b>		<b>5.3</b>
<b>Mutual Bond Funds</b>			
5 to 10 years maturities	\$ 53,184	4.4	4.4
<b>Short Term Investment Funds</b>			
Less than 1 year	\$ 612,216	0.0	0.0
1 to 5 years maturities	38,686	0.0	0.0
<b>Total</b>	<b>\$ 650,902</b>		<b>0.0</b>

- Foreign Currency Risk* – Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. The books and records of the System are maintained in US dollars. Foreign currencies and non-US dollar denominated investments are translated into US dollars at the bid prices of such currencies against US dollars at each balance sheet date. Realized and unrealized gains and losses on investments which result from changes in foreign currency exchange rates have been included in the net appreciation in fair value of investments. Net realized foreign currency gains and losses resulting from changes in exchange rates include foreign currency gains and losses between trade date and settlement date of investment securities transactions, foreign currency transactions and the difference between the amounts of interest and dividends recorded on the books of the System and the amount actually received. International and global managers have the permission to use currency forward and futures contracts to hedge currency against the U.S. dollar. Currency forwards and futures used for the purpose of hedging currency shall be subject to the following guidelines: 1) net forward and futures sales of any currency may not exceed total market value of the assets denominated in that currency. This limitation does not apply to global fixed income managers and currency overlay managers if provided for in their contracts, 2) foreign currency exchange contracts with a maturity exceeding 12 months are not permitted, 3) currency options may be entered into in lieu of or in conjunction with forwards sales of currencies with the same limitations as currency forwards and futures. Cross hedging, the selling of one foreign currency for another foreign currency, which may or may not be the base currency of the portfolio, is permitted. The System's exposure to foreign currency risk in U.S. dollars as of June 30, 2016, is shown in the table on the following page.



# Houston Police Officers' Pension System

## Notes to Financial Statements

### Foreign Currency Exposure by Asset Class (\$000's) June 30, 2016

Currency	Short Term Investments	Equities	Alternative Investments	Total
Euro	\$ (111,492)	\$ 223,074	\$ 11,661	\$ 123,243
Japanese yen	(82,024)	170,602	-	88,578
British pound sterling	(72,852)	150,957	-	78,105
Swiss franc	-	68,659	-	68,659
Australian dollar	-	51,267	10,525	61,792
Canadian dollar	1,438	32,909	-	34,347
Chinese yuan renminbi	-	26,076	-	26,076
Hong Kong dollar	-	24,203	-	24,203
Swedish krona	-	21,833	-	21,833
South Korean won	-	15,476	-	15,476
New Taiwan dollar	-	13,823	-	13,823
Danish krone	-	12,376	-	12,376
Singapore dollar	-	10,669	-	10,669
South African rand	-	8,628	-	8,628
Indian rupee	-	8,387	-	8,387
Brazilian real	-	8,244	-	8,244
Other (less than \$5 million)	-	35,546	-	35,546
<b>Total</b>	<b>\$ (264,930)</b>	<b>\$ 882,729</b>	<b>\$ 22,186</b>	<b>\$ 639,985</b>

*Securities Lending Program* – The System’s Board of Trustees’ policies permit the System to lend securities (domestic and international equities and fixed income) to securities firms on a temporary basis through its custodian bank. The System receives fees for all loans and retains the right to all interest and dividend payments while the securities are on loan. Cash, letters of credit or various government securities having market values equal to or exceeding 102% and 105% of the value of the loaned securities for domestic and international securities, respectively, collateralize all security loan agreements. Whenever the market value of the securities on loan changes, the borrower must adjust the collateral accordingly. The System’s bank pools all collateral received from securities lending transactions and invests any cash collateral. The System holds an undivided share of the collateral provided by the borrowers of the securities. At June 30, 2016 the weighted-average maturity of the collateral pool was 30 days. The relationship between the maturities of the collateral pool and the System’s loans has not been determined. Cash collateral invested in the custodian bank collateral pool at June 30, 2016 and 2015, was \$24,211 thousand and \$50,613 thousand, respectively. The System also had non-cash collateral at June 30, 2016 and 2015, of \$884 thousand and \$4,392 thousand respectively, consisting of treasury securities and letters of credit. The System cannot sell or pledge the collateral unless the borrower fails to return the securities borrowed.

The market value of securities on loan at June 30, 2016 and 2015 was \$24,737 thousand and \$53,846 thousand, respectively. At June 30, 2016, the System had no credit risk exposure to borrowers because the amounts the System owes the borrowers, \$25,095 thousand, exceeds the amounts the borrowers owe the System, \$24,737 thousand.

*Derivatives* – The System’s investment managers may invest in derivatives if permitted by the guidelines established by the System’s Board of Trustees. The System’s staff monitors guidelines and compliance. From time to time the System’s investment managers will invest in equity, fixed income and short term futures contracts along with foreign currency forward contracts. No derivatives are purchased with borrowed funds.

# Houston Police Officers' Pension System

## Notes to Financial Statements

The fair value balance of posted margin and collateral and notional amounts of derivative instruments outstanding at June 30, 2016, classified by type, and the changes in fair value of such derivative instruments for the year then ended is shown in the table below. The Change in Fair Value figures are reported as a component of net appreciation (depreciation) in the Statement of Changes in Fiduciary Net Position.

(\$000's)	Year ending	As of June 30, 2016		
	June 30, 2016	Posted Margin	Collateral Held at	Notional
	Changes in Fair Value		Custodian Bank	Value
Equity Futures	\$ (78,661)	\$ 61,726	\$ 434,294	\$ 831,091
Currency Futures	(3,071)	10,096	22,689	268,153
Options	8,874	-	38,546	209,597

Futures are used to obtain market exposure and to take advantage of mis-pricing opportunities. When a position is taken in a futures contract, a margin is posted and the contract is subject to daily mark-to-market adjustments. For options, no margin is posted. Instead, options are purchased at a premium, which is either forfeited or recouped, depending on the gain or loss on the contract. Foreign currency contracts are used to hedge against the currency risk in the System's investments in foreign equity and fixed income securities. To liquidate the contract prior to expiration an offsetting position in the same contract must be taken. These derivatives are used to enhance yields and provide incremental income.

These derivative instruments are subject to the following risks:

- *Custodial Credit Risk* – Custodial credit risk for derivative instruments is the risk that, in the event of the failure of the counterparty to a transaction, the System will not be able to recover the value of the derivative instruments or collateral securities that are in the possession of an outside party. Consistent with the System's investment policy, the System's derivative instruments were held by the counterparty that was acting as the System's agent.
- *Credit Risk* – Credit risk is the risk that the counterparty will not fulfill its obligations. The System does not have an investment policy specifically regarding credit risk for derivative instruments. The System's investment policy allows investment managers full discretion in adopting investment strategies to deal with this risk. The System's investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures.
- *Interest Rate Risk* – Interest rate risk is the risk that changes in interest rates will adversely affect the fair values of the System's derivative instruments.
- *Foreign Currency Risk* – Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of derivative instruments. The System's exposure to foreign currency risk derives from its positions in foreign currency denominated international equity and fixed income investments as outlined in the following schedule. The System has a currency hedging program in place that hedges fifty percent of the exposure to the Euro, Pound, and Yen exposure in these investment programs. This hedging program is disclosed elsewhere in this footnote. The System's derivative instruments exposure to foreign currency risk in U.S. dollars as of June 30, 2016, is shown in the table on the following page.

# Houston Police Officers' Pension System

## Notes to Financial Statements

Currency	(\$000's)		
	Equity Derivatives	Currency Derivatives	Total
Swiss franc	\$ 37,065	\$ -	\$ 37,065
Australian dollar	27,676	-	27,676
Hong Kong dollar	13,066	-	13,066
Swedish krona	11,787	-	11,787
Japanese yen	92,099	(82,024)	10,075
Euro	120,601	(111,492)	9,109
British pound sterling	81,494	(72,864)	8,630
Danish krone	6,681	-	6,681
Singapore dollar	5,759	-	5,759
Other (less than \$5 million)	10,209	1,774	11,983
<b>Total</b>	<b>\$ 406,437</b>	<b>\$ (264,606)</b>	<b>141,831</b>

*Alternative Investments* – As of June 30, 2016 and 2015, the System was invested in various partnerships, separate accounts and commingled funds across various types of alternative investments as detailed in the table below.

Investment Type	Fair Value (\$000's)	
	June 30, 2016	June 30, 2015
<i>Private Equity</i>		
Leveraged Buyouts	\$ 229,708	\$ 185,294
Energy	90,906	77,522
Special Situations	85,218	82,867
Private Equity Secondaries	45,099	25,457
Venture Capital	36,157	52,573
<i>Other Alternatives</i>		
Real Estate	243,717	125,932
Credit	133,531	124,939
<i>Hedge Funds</i>		
Portable alpha hedge funds	448,393	901,023
Global macro hedge funds	246,024	333,237
Multi-strategy hedge funds	182,656	179,142
Long/short credit hedge funds	104,629	144,644
Long/short equity hedge funds	73,592	87,010
	<b>\$ 1,919,630</b>	<b>\$ 2,319,640</b>

Supplemental Information on investment and professional expenses included in Schedule II on page 32 herein does not include the investment management fees and performance fees embedded in the structure of the private equity and other limited partnership investments listed above. Rather, these fees are a component of the Net appreciation in fair value of investments in the accompanying Statement of Changes in Fiduciary Net Position.

# Houston Police Officers' Pension System

## Notes to Financial Statements

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### 5. Contributions Receivable

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The June 30, 2011 Agreement with the City provided that once the Funded Ratio of the System reaches 80%, this becomes the new floor and if it should ever decline below such 80% level, in the fiscal year next following such determination, the City shall pay such additional amounts to the System as shall be necessary to increase the Funded Ratio to 80%. The Funded Ratio was determined to be 79.7% in the July 1, 2015 actuarial valuation. The contribution receivable of \$14,284 thousand for fiscal year 2016 is the amount necessary to increase the Funded Ratio to 80% and will be paid bi-weekly by the City in fiscal year 2017.

The June 30, 2011 Agreement with the City provided for a shortfall in the fiscal year 2012 and 2013 contribution fixed payment of \$17,000 thousand and \$8,500 thousand respectively for the total contribution receivable of \$25,500 thousand reported in fiscal year 2015, which the City paid on July 1, 2016.

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### 6. Deferred Retirement Option Program (DROP) Balances

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The Deferred Retirement Option Plan (DROP) is an optional method of accruing pension benefits under the System's benefit structure. Members with at least 20 years of service and who were hired prior to October 9, 2004, are eligible to participate in the DROP. The lump sum benefit is the accumulated balance in the member's notional DROP account which is equal to an amount calculated as if the member's annuity, employee contributions and an interest component had been deposited in a separate account in the member's name during the member's participation in DROP. Prior to October 9, 2004, 100% of a member's contributions were credited to his or her notional DROP account. Subsequent to that date, an eligible member contributes 9.00% of pensionable pay with 8.75% of pensionable pay credited to his or her notional DROP account and the additional 0.25% credited to the System's general fund. The following table shows the change in DROP accounts during the year ended June 30, 2016.

#### **DROP Activity**

#### **Year ended June 30, 2016**

	DROP Accounts (\$000's)		DROP Participants
Balance at June 30, 2015	\$ 921,438	Participants at June 30, 2015	1,991
Accumulations	51,316	Entrants	253
Distributions	(15,431)	Withdrawals	(186)
Balance at June 30, 2016	<u>\$ 957,323</u>	Participants at June 30, 2016	<u>2,058</u>

The Post Retirement Option Plan (PROP) allows retired members to have all or a portion of their monthly retirement and DROP lump sum credited to a notional account maintained by the System which accumulates interest and can be disbursed to the member under certain options as designated by the System. Surviving spouses can transfer a DROP or PROP balance to a PROP account of their own but are not eligible to credit all or a portion of their survivor benefit to a PROP account. Members hired or rehired subsequent to October 9, 2004 are not eligible for this benefit. The table on the following page shows the change in PROP accounts during the year ended June 30, 2016.

# Houston Police Officers' Pension System

## Notes to Financial Statements

### PROP Activity

Year ended June 30, 2016

	PROP Accounts (\$000's)		PROP Participants
Balance at June 30, 2015	\$ 742,309	Participants at June 30, 2015	1,422
Accumulations	190,703	Entrants	158
Distributions	(61,580)	Withdrawals	(11)
Balance at June 30, 2016	<u>\$ 871,432</u>	Participants at June 30, 2016	<u>1,569</u>

### 7. Net Pension Liability

The net pension liability is measured as the total pension liability, less the amount of the pension plan's fiduciary net position. The components of the net pension liability at June 30, 2016 were as follows (\$000's):

Total pension liability	\$ 6,621,290
Plan fiduciary net position	<u>4,080,460</u>
System's net pension liability	<u>\$ 2,540,830</u>
 Plan fiduciary net position as a percentage of the total pension liability	 61.63%

*Actuarial assumptions* – The total pension liability was determined by an actuarial valuation as of July 1, 2016, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.75%
Salary Increases	0.00% to 12.00% , plus a 2.00% inflation and productivity component
Investment Rate of Return	8.00%, net of pension plan investment expense, including inflation
Mortality	<p>Healthy retirees - The Gender-distinct RP2000 Combined Healthy Mortality Tables with Blue Collar Adjustment are used with male rates multiplied by 109% and female rates multiplied by 103%. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements.</p> <p>Disabled males and females – The gender-distinct RP2000 Disabled Retiree Mortality Tables are used without adjustment. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements.</p> <p>Active members - The Gender-distinct RP2000 Combined Healthy Mortality Tables with Blue Collar Adjustment are used with male rates multiplied by 54% and female rates multiplied by 51%. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements. An additive factor of .0003 is applied to all active mortality rates.</p>

The actuarial assumptions used in the July 1, 2016 valuation were last updated in the July 1, 2014 valuation pursuant to an experience study of the five-year period ending June 30, 2013.

# Houston Police Officers' Pension System

## Notes to Financial Statements

The long-term expected rate of return on the System's investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of June 30, 2016 (see the discussion of the pension plan's investment policy) are summarized in the table on the following page:

<u>Asset Class</u>	<u>Long-Term Expected Real Rate of Return</u>
Domestic equity	2.90 %
International equity	3.30
Fixed income	-
Credit	4.70
Alternative investments:	
Private equity	6.30
Real estate	4.80
Risk parity	7.60
Hedge funds	6.30
Cash	(2.25)

*Discount rate* – A single discount rate of 8.00% was used to measure the total pension liability for the June 30, 2016 measurement date. This single discount rate was based on the expected rate of return on pension plan investments of 8.00% and the current municipal bond rate of 2.85%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates specified in the 2011 Meet & Confer Agreement. Based on these 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, a single discount rate of 8.00% was applied to all periods of projected benefit payments to determine the total pension liability. For the June 30, 2015 measurement date, the single discount rate used was 7.08%. The increase in the single discount rate resulted in an decrease in the total pension liability of approximately \$676 million.

*Sensitivity of the net pension liability to changes in the discount rate* – The following table presents the net pension liability, calculated using the discount rate of 8.00%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (7.00%) or 1-percentage-point higher (9.00%) than the current rate:

(\$000's)	<u>1% Decrease (7.00%)</u>	<u>Current Discount Rate (8.00%)</u>	<u>1% Increase (9.00%)</u>
Net pension liability	\$ 3,282,145	\$ 2,540,830	\$ 1,934,220

### 8. Litigation

In May 2015, HPOPS, along with hundreds of other entities, was named as a defendant in a bankruptcy adversary proceeding, Official Committee of Unsecured Creditors of Motors Liquidation Co. f/k/a/ General Motors Corp. v. JPMorgan Chase Bank, N.A., 09-00504 (Bankr. S.D.N.Y. 2009). In this litigation, the Unsecured Creditors' Committee for the General Motors (GM) bankruptcy is attempting to claw back funds used to pay off a piece of GM term debt that HPOPS held in 2009. HPOPS plans to move to dismiss the complaint and may also bring a cross-claim against JP Morgan Chase Bank N.A.—the entity that actually received the debt payoff funds at issue—to substitute for HPOPS as the proper party or to reimburse HPOPS's legal fees. Both

# Houston Police Officers' Pension System

## Notes to Financial Statements

filings would be due November 16, 2015. A total of \$587,248 is potentially at stake, but if a clawback were ordered, JP Morgan admits that it would be obligated to reimburse HPOPS for all but \$15,948 of that amount.

### 9. Commitments and Contingencies

As described in Note 1, there are 3,226 non-vested active members of the System who are entitled to refunds of their accumulated contributions, without interest, upon termination of employment with the City prior to being eligible for pension benefits. At June 30, 2016 and 2015, aggregate contributions from these members of the System were approximately \$153,090 thousand and \$157,937 thousand, respectively. The portion of these contributions that might be refunded to members who terminate prior to pension eligibility has not been determined.

At June 30, 2016 and 2015, the total accumulated lump sum benefit due to DROP members was approximately \$957,323 thousand and \$921,438 thousand, respectively.

At June 30, 2016 and 2015, the total accumulated lump sum benefit due to PROP participants was \$871,432 thousand and \$742,309 thousand, respectively.

The System has outstanding investment commitments to various limited partnerships totaling \$951,416 thousand and \$788,938 thousand, as of June 30, 2016 and 2015, respectively.

The System has a lease for the office it occupies through October 31, 2020. The monthly base rental and outstanding lease commitment is as detailed in the following chart (\$000's).

<u>Period</u>	<u>Monthly Base Rent</u>	<u>Fiscal Year</u>	<u>Total Rent</u>
May 2015 - April 2016	\$ 20	2017	\$ 246
May 2016 - April 2017	20	2018	253
May 2017 - April 2018	21	2019	259
May 2018 - April 2019	22	2020	265
May 2019 - April 2020	22	2021	90
May 2020 - October 2020	23	Beyond 2021	-
			<u>\$ 1,113</u>



**Houston Police Officers' Pension System**  
**Required Supplementary Information (Unaudited)**

**Schedule of Changes in the Net Pension Liability and Related Ratios**  
**For Last Three Fiscal Years**  
**(\$000's)**

Fiscal year ending June 30,	2016	2015	2014
<b>Total Pension Liability</b>			
Service Cost	\$ 66,098	\$ 56,062	\$ 52,844
Interest	488,223	473,065	466,649
Benefit Changes	-	-	-
Difference between Expected and Actual Experience	10,390	26,706	(41,034)
Assumption Changes	(676,151)	664,974	162,849
Benefit Payments	(259,076)	(225,656)	(211,690)
Refunds	(978)	(945)	(906)
<b>Net Change in Total Pension Liability</b>	<b>(371,494)</b>	<b>994,206</b>	<b>428,712</b>
<b>Total Pension Liability - Beginning</b>	<b>6,992,784</b>	<b>5,998,578</b>	<b>5,569,866</b>
<b>Total Pension Liability - Ending (a)</b>	<b>\$6,621,290</b>	<b>\$6,992,784</b>	<b>\$5,998,578</b>
<b>Plan Fiduciary Net Position</b>			
Employer Contributions	\$ 137,392	\$ 113,665	\$ 103,372
Employee Contributions	39,017	37,719	37,012
Pension Plan Net Investment Income	(135,833)	35,341	649,153
Benefit Payments	(259,076)	(225,656)	(211,690)
Refunds	(978)	(945)	(906)
Pension Plan Administrative Expense	(4,585)	(3,478)	(3,439)
Other	-	-	-
<b>Net Change in Plan Fiduciary Net Position</b>	<b>(224,063)</b>	<b>(43,354)</b>	<b>573,502</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>4,304,523</b>	<b>4,347,877</b>	<b>3,774,375</b>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$4,080,460</b>	<b>\$4,304,523</b>	<b>\$4,347,877</b>
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>\$2,540,830</b>	<b>\$2,688,261</b>	<b>\$1,650,701</b>
<b>Plan Fiduciary Net Position as a Percentage of</b>			
<b>Total Pension Liability</b>	61.63%	61.56%	72.48%
<b>Covered Employee Payroll</b>	\$ 407,058	\$ 395,360	\$ 388,756
<b>Net Pension Liability as a Percentage of Covered</b>			
<b>Employee Payroll</b>	624.19%	679.95%	424.61%

**Houston Police Officers' Pension System**  
**Required Supplementary Information (Unaudited)**

**Schedule of Employer Contributions**  
**(\$000's)**

<b>Measurement Year Ending June 30,</b>	<b>Actuarially Determined Contribution</b>	<b>Actual Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll</b>	<b>Actual Contribution as a % of Covered Payroll</b>
2014	\$ 139,991	\$ 103,372	\$ 36,619	\$ 388,756	26.59 %
2015	150,949	113,665	37,284	395,360	28.75
2016	161,154	137,392	23,762	407,058	33.75

**Notes to Schedule**

Valuation Date: July 1, 2016

Actuarially determined contribution rates are determined in accordance with the Meet and Confer Agreement of 2011. Under the terms of the 2011 Meet and Confer Agreement, the FY 2017 contribution is already set at \$133 million preceded by a City contribution of \$123 million for FY 2016. The FY 2016 contribution includes an additional appropriation of \$14,284 million from the City in relation to the 80% trigger. A \$148.576 million appropriation is due from the City for FY2017 based on the July 1, 2016 valuation. For more information regarding the actuarially determined Contribution, refer to the July 1, 2016 HPOPS Valuation Report.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Projected Unit Credit
Amortization Method	Level Percentage of Payroll, Open
Remaining Amortization Period	30 years
Asset Valuation Method	The actuarial value of assets is equal to the market value of assets less a five-year phase in of the excess (shortfall) between expected investment return and actual income.
Inflation	2.75%
Salary Increases	0.00% to 12.00% , plus a 2.00% inflation and productivity component
Investment Rate of Return	8.00%
Retirement Age	Experience-based table of rates based on age and years of service. The assumption was last updated in the July 1, 2014 valuation pursuant to an experience study of the five-year period ending June 30, 2013.
Mortality	<p>Healthy retirees - The Gender-distinct RP2000 Combined Healthy Mortality Tables with Blue Collar Adjustment are used with male rates multiplied by 109% and female rates multiplied by 103%. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements.</p> <p>Disabled males and females – The gender-distinct RP2000 Disabled Retiree Mortality Tables are used without adjustment. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements.</p> <p>Active members - The Gender-distinct RP2000 Combined Healthy Mortality Tables with Blue Collar Adjustment are used with male rates multiplied by 54% and female rates multiplied by 51%. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements. An additive factor of .0003 is applied to all active mortality rates.</p>

Houston Police Officers' Pension System  
Required Supplementary Information (Unaudited)

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**Schedule of Investment Returns**

<u>Fiscal Year Ended June 30,</u>	<u>Annual Money-weighted Rate of Return, net of Investment Expense</u>
2014	17.4 %
2015	0.8 %
2016	(3.2)%

# Houston Police Officers' Pension System

## Schedule I - Investment, Professional and Administrative Expenses (\$000's)

<i>Year ended June 30,</i>	2016	2015
<b>Investment services:</b>		
Custodial services	\$ 233	\$ 223
Money management services	12,651	21,394
Consulting services	1,009	1,000
Department Operating Expense	494	508
<b>Total investment services</b>	<b>14,387</b>	<b>23,125</b>
<b>Professional services:</b>		
Actuarial services	293	98
Auditing services	94	104
Election audit services	20	5
Legal services	105	61
Lobbyist services	384	376
<b>Total professional services</b>	<b>896</b>	<b>644</b>
<b>Administrative expenses:</b>		
Information technology	1,077	390
Education	22	34
Fiduciary insurance	92	88
Office rent	208	187
Other office costs	2,290	2,135
<b>Total administrative expenses</b>	<b>3,689</b>	<b>2,834</b>
	<b>\$ 18,972</b>	<b>\$ 26,603</b>

*See accompanying independent auditor's report.*

# Houston Police Officers' Pension System

## Schedule II - Summary of Investment and Professional Services (\$000's)

<i>Twelve Months Ended June 30, 2016</i>	Official System Position	Expense	Nature of Services
Franklin Park Associates, LLC	Consultant	\$ 400	Consulting
Mercer Investment Consulting, LLC	Consultant	609	Consulting
The Northern Trust Company	Custodian	233	Custodian
AQR Capital Management LLC	Money Manager	4,004	Money Management
BlackRock Institutional Trust Company, NA	Money Manager	544	Money Management
Blackstone Alternative Solutions LLC	Money Manager	165	Money Management
Brevan Howard Capital Management LP	Money Manager	1,119	Money Management
Bridgewater Associates, Inc.	Money Manager	4,104	Money Management
Dimensional Fund Advisors	Money Manager	30 *	Money Management
First Quadrant LP	Money Manager	55	Money Management
The Northern Trust Company	Money Manager	924	Money Management
PanAgora Asset Management, Inc.	Money Manager	19	Money Management
Parametric	Money Manager	1,199	Money Management
Shenkman Capital Management, Inc.	Money Manager	488	Money Management
Gabriel Roeder Smith & Co.	Actuary	223	Actuarial
Rudd & Wisdom, Inc.	Actuary	70	Actuarial
BDO USA, LLP	Auditors	94	Auditing
Gibbs & Bruns LLP	Attorneys	15	Legal Service
IceMiller LLP	Attorneys	9	Legal Service
Kasowitz, Benson, Torres & Friedman LLP	Attorneys	1	Legal Service
Klausner, Kaufman, Jensen & Levinson	Attorneys	2	Legal Service
Strasburger & Price, LLP	Attorneys	76	Legal Service
HillCo Partners, LLC	Attorneys	157	Lobbyists
Locke Lord LLP	Attorneys	226	Lobbyists
Bickley Prescott & Co.	Consultant	20	Election Auditing
Other	Other	3	Other
<b>Total investment and professional services</b>		<b>\$ 14,789</b>	

*See accompanying independent auditor's report.*

\* The System invests in a mutual fund managed by Dimensional Fund Advisors. This figure represents estimated annual fees incurred by the System based upon the System's average monthly balance.

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SECTION THREE

INVESTMENT SECTION

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**Responsibilities of the Board of Trustees**

The primary fiduciary fiscal responsibility of the Board of Trustees is to insure that the System's assets are responsibly managed in accordance with the actuarial needs of the System, and also with sound, generally accepted financial investment procedures. The determination of the appropriate asset mix is based on capital market assumptions that incorporate historical returns, volatility and correlation of various asset classes as well as the consideration of current and forward-looking market conditions.

The Standard of Investment for the System in making investments is to exercise the judgment and care in the circumstances then prevailing which persons of prudence, discretion and intelligence exercise in the management of their own affairs. The Trustees' responsibility is to invest the System's funds solely in the interest of the membership and their beneficiaries, and for the exclusive purpose of providing benefits to the membership and their beneficiaries and defraying reasonable expenses of administering the System.

**Investment Philosophy and Objectives**

The Board of Trustees believes that the System's assets should be managed in a way that reflects the uniqueness of the System and that the System's assets should be diversified over a spectrum of investment strategies. Specifically, the Board recognizes and adheres to the following philosophical positions:

- Diversification should be based upon the prudent allocation of risk rather than solely the allocation of capital.
- Asset classes are priced to have long-term expected returns above cash and their return above cash is proportional to their risk (they have similar Sharpe Ratios). Since asset classes have similar expected Sharpe Ratios, they can be made competitive through the prudent use of leverage or leverage-like techniques.
- Over the long term, the risk of owning equities has been, and should continue to be, rewarded with a somewhat greater return than that available from fixed income investments.
- Fixed income investments provide the System with an investment strategy that contributes diversification, liquidity and a predictable stream of income; and that dampens volatility in investment returns.
- Diversification into alternative investments provides the System with an opportunity to enhance returns and to achieve broader diversification of the System's assets.

**Investment Policy**

The Board of the Houston Police Officers' Pension System (HPOPS) has established an Investment Policy with the following broad guidelines and objectives.

- Establish overall financial objectives and set investment policy
- Select appropriate investment options
- Select qualified investment manager(s) and consultants
- Select a qualified custodian
- Communicate on a structured and ongoing basis with those responsible for investment results; and
- Monitor performance to assure that objectives are being met and that policy and guidelines are being followed.

This Investment Policy represents the formal document for HPOPS and is to be communicated to the appointed Investment Manager(s) and is their principal source for developing an appropriate investment strategy and, in addition, serves as the basis for these Managers' and the System's future performance evaluation.

**Investment Strategy and Performance**

The System’s asset allocation strategy is reviewed periodically by the Board and is changed in anticipation of or in response to changing market conditions. The current asset allocation targets and the actual asset allocation of the System at June 30, 2016 are as follows:

	<b>Target % of Fund</b>	<b>Current Actual % of Fund</b>	<b>Dollars Invested (000's)</b>
Domestic Equity	28.0%	29.9%	\$ 1,029,827
International Equity	21.8%	22.1%	789,765
<b>Total Equity</b>	<b>49.8%</b>	<b>52.1%</b>	<b>1,819,592</b>
Credit	12.0%	8.1%	329,120
<b>Total Fixed Income</b>	<b>12.0%</b>	<b>8.1%</b>	<b>329,120</b>
Private Equity	15.0%	9.7%	396,148
Risk Parity	10.3%	12.1%	493,477
Hedge Funds	10.0%	14.1%	572,677
Real Estate	10.0%	6.0%	243,717
Energy	2.5%	2.4%	98,420
<b>Total Alternatives</b>	<b>47.8%</b>	<b>44.4%</b>	<b>1,804,439</b>
<b>Total Cash</b>	<b>-9.5%</b>	<b>-4.5%</b>	<b>112,440</b>
<b>Total Fund</b>	<b>100.0%</b>	<b>100.0%</b>	<b>\$ 4,065,591</b>

Fiscal year 2016 began on a sour note, as markets had their weakest quarter since 2011. Investors remained timid throughout the year in response to political distress in Europe, slowing growth in China, sliding oil and commodity prices, as well as concern over when and by how much the Federal Reserve would raise rates. Oil and commodity prices began to recover during the third quarter, however any hope this may have ignited in investors was extinguished in June by the shocking results of the Brexit vote. The System suffered losses during this tumultuous year, returning negative 3.1%.

The System under-performed its benchmark rate of return by 2.5% due primarily to its allocation to non-US equity and alternative investments in combination with an underweight exposure to interest rates. During the fiscal year, non-US equity markets significantly underperformed US markets and both the System’s relative overweight to non-US equity and the overweight to non-US equity in its hedge fund and risk parity exposures all detracted from performance. In addition, the System had a significant underweight to interest rates in favor of exposure to world equity markets which also contributed to the underperformance.

A notable change to the System’s asset allocation, when compared to our historic allocation, is a significant reduction in the target hedge fund and risk parity portfolios. Hedge funds typically have higher fees, less transparency and less liquidity when compared to some other asset classes. Given these characteristics and the challenging return environment it was determined that the System had a better chance of meeting its objectives investing elsewhere.

The decision was made to decrease the allocation to risk parity based on the strategies underperformance, low or negative interest rates, weak commodity markets and low equity return expectations. The capital from the reduction in the hedge fund and risk parity portfolios will be reallocated to public and private equity, credit and real estate.

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**INVESTMENT SECTION***Domestic Equity*

The System's domestic equity allocation was increased by 4.0% during the year, to 28.0%. The U.S equity portfolio generated a 3.1% return, outperforming its benchmark, the Russell 3000, by 1.0%. This outperformance of the System's domestic equity portfolio versus the benchmark was primarily due to the System's allocation to the Blackrock S&P 500 fund. The Blackrock S&P 500 fund is a passive strategy that seeks to replicate the return of the S&P 500 index. During FY 2016 the S&P 500 index outperformed the Russell 3000 by 1.8%

Assets under management, annualized rates of return and fees paid to domestic equity managers for the fiscal year ending June 30, 2016 are as follows (dollars in 000's):

<b>Manager</b>	<b>Style</b>	<b>Assets</b>	<b>% Returns</b>	<b>Fees</b>
BlackRock	S&P 500 Index	379,093	4.1%	74
Parametric <sup>1</sup>	Russell 3000 Futures	506,704	2.0%	428
		<u>\$ 885,797</u>		<u>\$ 502</u>

<sup>1</sup> - See footnote 4 to the financial statements for disclosure of leverage in this strategy

*International Equity*

The System's non-U.S. equity allocation was increased by 1.8% during the year, to 21.8%. The international equity portfolio returned negative 13.4%, underperforming the negative 10.2% return of the MSCI ACWI ex U.S. benchmark for the fiscal year. This underperformance was primarily due to the leverage in the non-U.S. futures.

Assets under management, annualized rates of return and fees paid to international equity managers for the fiscal year ending June 30, 2016 are on the following page (dollars in 000's):

<b>Manager</b>	<b>Style</b>	<b>Assets</b>	<b>% Returns</b>	<b>Fees</b>
BlackRock	World Equity ex-US	479,638	-10.4%	453
Parametric	World Equity ex-US Futures <sup>1</sup>	310,071	-17.1%	217
Parametric	Currency Hedge	35,679	-1.9%	156
Causeway Capital	EAFE <sup>2</sup>	14	NA	-
		<u>\$ 825,401</u>		<u>\$ 826</u>

<sup>1</sup> See footnote 4 to the financial statements for disclosure of leverage in this strategy.

<sup>2</sup> Terminated 10/31/2012

*Credit*

HPOPS has a dedicated allocation to credit strategies designed to take advantage of perceived opportunities in the credit markets. Credit investments are segregated by HPOPS as a separate investment category with a target allocation of 12.0% of the System's total assets.

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**INVESTMENT SECTION**

The System has reduced its allocation to high yield to 3.0% in favor of opportunistic strategies. Given where we are in the economic cycle the structure of the illiquid credit funds appear more attractive. The opportunity set remains extensive due to reduced lending within the banking industry, there is potential outperformance versus high yield resulting from the illiquidity premium; the funds should be less volatile and distribute current income.

Assets under management, annualized rates of return and fees paid to credit-oriented managers for the fiscal year ending June 30, 2016 are listed below (dollars in 000's):

<b>Manager</b>	<b>Style</b>	<b>Assets</b>	<b>% Returns</b>	<b>Fees</b>
MacKay Shields	High Yield <sup>1</sup>	\$ 436	NA	\$ -
Shenkman Capital Mgmt	High Yield	115,467	0.8%	488
Northern Trust	High Yield	53,290	-1.1%	62
DW Partners	Opportunistic Credit	26,396	-12.3%	719
Silver Point	Opportunistic Credit	44,505	1.2%	1,178
SP Speciality Credit	Opportunistic Credit	8,081	9.9%	48
OZ Structured Products II	Opportunistic Credit	31,407	-7.8%	382
Golub X	Opportunistic Credit	12,779	2.4%	33
Monroe Capital II	Opportunistic Credit	9,425	7.7%	94
Anchorage Illiquid III	Opportunistic Credit	24,662	4.6%	922
Anchorage Illiquid V	Opportunistic Credit	2,672	7.1%	167
		<u>\$ 329,120</u>		<u>\$ 4,093</u>

<sup>1</sup> Terminated May 30, 2014

#### *Alternative Investments*

The System's alternative investment program consists of allocations to private equity, energy assets, real estate, hedge funds, and risk parity strategies. The private equity program is now managed by Franklin Park, although the portfolio still contains funds recommended by Abbott Capital who managed the asset class from 1997 – 2008, as well as funds recommended by Mercer (formerly Hammond Associates) who served as the interim manager between Abbott Capital and Franklin Park. Although the private equity program is a relatively mature strategy, it remains underfunded by approximately 2.8% due primarily to the increased allocation to the asset class and also to distributions exceeding drawdowns in previous years. The System had investments in, or commitments to, 106 individual private equity and energy partnerships with 59 general partners as of June 30, 2016. The current allocation within this strategy is approximately 46% leveraged buyouts, 17% special situation funds, 7% venture capital, 9% secondary and 20% in energy funds. This program required \$102.0 million of additional funding during fiscal 2016 while at the same time generating distributions of \$81.6 million for the same period. The private equity program generated a 7.4% return for the 2016 fiscal year versus a return of 3.2% for its benchmark, the Cambridge Private Equity Index. The System's energy allocation returned negative 11.5%, underperforming its benchmark, the S&P 500 Energy Index by 7.5%. This extreme underperformance of the energy portfolio is due to the valuation methodology of the illiquid funds, which did not immediately reflect the rapid recovery in the sector.

As of June 30, 2016 the market value of real estate assets comprised 6.0% of the System's total assets. The 4.0% shortfall between the target allocation and the current allocation is due to the increased target allocation during the previous year, in addition to the timing and relatively immature nature of the portfolio. The System began committing to the asset class during 2007, immediately prior to the great recession. During the recession, capital was not called due to extreme market uncertainty, essentially delaying investment into the asset class for approximately two years. The System had investments in, or commitments to, 25 individual real estate partnerships with 17 general partners as of June 30, 2016. This program required \$134.5 million of

**INVESTMENT SECTION**

additional funding during fiscal 2016 while at the same time generating distributions of \$37.7 million for the same period. The System’s real estate portfolio returned 10.5% during fiscal year 2016, underperforming its benchmark the NCREIF Property Index by 1.3%.

The target hedge fund allocation is now 10.0% and the System had \$527.7 million invested as of June 30, 2016. Hedge funds generated fiscal year performance of approximately negative 5.9%, underperforming the HFR Fund of Funds Composite Index by 0.5%. Hedge fund performance has been hindered by low interest rates, over crowded trades, and bets on macro-economic trends that have failed to materialize in addition to liquidity pressure from redemption requests.

The System decreased its allocation to risk parity from 18.0% to 10.3% during the year, as discussed above. Risk parity funds underperformed their benchmark, a 60% S&P 500 / 40% BC US Aggregate mix, by returning negative 2.8% versus a positive 5.0%, respectively.

Assets under management, annualized rates of return and fees paid to alternative investments managers for the fiscal year ending June 30, 2016 are listed below page (dollars in 000’s):

<b>Manager</b>	<b>Style</b>	<b>Assets</b>	<b>% Returns</b>	<b>Base Fee</b>
Bridgewater	Risk Parity <sup>1</sup>	\$ 184,987	-4.7%	\$ 1,574
AQR	Risk Parity <sup>1,2</sup>	308,491	1.7%	4,004
Bridgewater	Hedge Funds <sup>3</sup>	190,374	-12.4%	2,530
Mercer	Hedge Funds <sup>4</sup>	267,609	-2.5%	-
Brevan Howard	Hedge Fund	47,927	-4.4%	1,119
Blackstone Opportunistic	Hedge Fund	25,124	-0.8%	302
Parametric Defensive	Hedge Fund	41,643	13.4%	367
Mercer	Real Estate <sup>4</sup>	243,717	10.5%	609
Franklin Park	Private Equity <sup>5</sup>	396,148	7.4%	400
Franklin Park	Energy <sup>6</sup>	98,420	-11.5%	-
		<u>\$ 1,804,439</u>		<u>\$ 10,906</u>

<sup>1</sup> Risk parity plus alpha overlay.

<sup>2</sup> Include the Multi Strategy Fund VIII and the Multi Strategy Fund XI.

<sup>3</sup> Includes the Pure Alpha and Pure Alpha Major Markets funds.

<sup>4</sup> Fees consist of the Mercer \$609 thousand annual fee.

<sup>5</sup> Fees consist of the \$400 thousand annual fee.

<sup>6</sup> Fees included in the \$400 thousand private equity fee.

*Cash*

The System has a cash securitization program which was initiated in order to more closely track our strategic asset allocation through the securitization of excess cash. During September 2008, the System switched to a “government only” STIF fund at its custodian bank, thereby avoiding many of the liquidity issues experienced by many STIF funds during the credit crisis.

<b>Manager</b>	<b>Style</b>	<b>Assets (000s)</b>	<b>% Returns</b>	<b>Base Fee (000s)</b>
Parametric Clifton	Cash Securitization	\$ 112,440	-1.1%	\$ 31
		<u>\$ 112,440</u>		<u>\$ 31</u>

*Securities Lending*

The System’s master custodian, Northern Trust, operates the Securities Lending program on behalf of HPOPS. Securities are loaned on a short-term basis to brokers in exchange for (generally) cash collateral. Northern Trust then invests this collateral and the investment income is divided between HPOPS and Northern Trust in accordance with agreed-upon percentages.

This program generates incremental income for HPOPS but is subject to certain risks. These risks include (1) the possibility that the borrower cannot return the securities and (2) that the investments in which Northern invests the collateral lose money. This first risk is controlled by strict guidelines on which borrowers will be approved to participate in the program and daily adjustment of the collateral for changes in the market value of the securities that are out on loan. The second risk is controlled by strict quality and duration guidelines on the securities that the collateral can be invested in. In June 2008 the System switched to a “government only” collateral pool thus avoiding exposure to the liquidity issues experienced by many securities lending collateral pools during the credit crisis.

Vendors other than Northern Trust could be used for this program which could generate additional income but this is not likely without what has been determined to be an unacceptable increase in risk. Northern's participation in the Securities Lending program also allows for a reduction in custody fees.

Following is a chart of securities lending activity for the most recent three fiscal years (dollars in 000’s).

	<u>2016</u>	<u>2015</u>	<u>2014</u>
<b>Avg Securities on Loan</b>	\$ 76,158	\$ 42,928	\$ 76,375
<b>Avg Eligible Securities</b>	\$ 543,467	\$ 284,593	\$ 373,065
<b>% on Loan</b>	14.0%	15.1%	20.5%
<b>HPOPS Net Earnings</b>	\$ 186	\$ 92	\$ 131
<b>Duration of Collateral Pool (days)</b>	33	40	44

**Report Preparation**

This report was prepared by the Investment Department of the Houston Police Officers’ Pension System.

**Compound Annualized Rates of Return by Year (%)**  
**Periods Ended June 30, 2016**

Year	System Total	Composite Benchmark	Domestic Equity	Russell 3000	Int'l Equity	MSCI		Citigroup HY	Alternative Investments
						ACWI ex U.S.	Credit		
2	-1.2	1.3	3.2	4.7	-8.1	-7.8	0.5	0.0	0.3
3	4.7	6.4	10.0	11.1	0.6	1.2	4.7	3.6	6.0
5	5.0	6.4	10.7	11.6	-0.5	0.1	7.3	5.5	6.0
10	5.4	5.5	6.2	7.4	0.9	1.9	7.7	7.2	7.4

**Rates of Return by Year (%)**  
**Years Ended June 30th**

Year	System Total	Composite Benchmark	Domestic Equity	Russell 3000	Int'l Equity	MSCI		Citigroup HY	Alternative Investments
						ACWI ex U.S.	Credit		
2012	3.0	3.3	2.8	3.8	-14.2	-14.6	8.6	7.6	8.0
2013	7.9	12.1	21.5	21.5	11.9	13.6	13.4	9.2	4.1
2014	17.4	18.7	24.9	25.2	20.5	21.8	13.5	11.3	18.5
2015	0.8	3.1	3.2	7.3	-2.5	-5.3	2.4	-0.9	1.9
2016	-3.1	-0.6	3.1	2.1	-13.4	-10.2	-1.5	0.9	-1.4

These calculations were prepared using a time-weighted rate of return in accordance with The CFA Institute's Global Investment Performance Standards. The System's total rates of return are net of fees. All other rates of return are presented gross of fees. Though these standards do not apply to plan sponsors per se, we have used them herein for purposes of presenting investment rates of return. The Composite Benchmark returns are calculated as if the System's current asset allocation had been in place for all time periods.



**INVESTMENT SECTION**

**Schedule of Ten Largest Equity Holdings**

*As of June 30, 2016*

<b>Shares</b>	<b>Description</b>	<b>Market Value (\$000's)</b>	<b>% of Total Equity</b>
22,535,341	Blackrock ACWI Ex-US Superfund A	\$ 479,638	28.03%
2,276,288	Vanguard Index Funds S&P 500 ETF	437,548	25.57%
520,314	Blackrock Equity Index Fd	379,099	22.15%
52,485	Mlp Enterprise Prods Partners L P Com Unit	1,536	0.09%
18,802	Mlp Energy Transfer Partners L P Unit Ltd Partnership Int	716	0.04%
8,918	Mlp Magellan Midstream Partners Lp Com Unit Repstg Ltd Partner Int	678	0.04%
16,061	Qualys Inc	479	0.03%
14,918	Mlp Plains All American Pipeline L.P. Unit Ltd Partnership Int	410	0.02%
5,096	Mlp Buckeye Partners L P Unit Ltd Partnership Ints	358	0.02%
9,769	Mlp Williams Partners L P New Com Unit Ltd Partnership Int	338	0.02%

**Schedule of Ten Largest Fixed Income Holdings**

*As of June 30, 2016*

<b>Shares</b>	<b>Description</b>	<b>Market Value (\$000's)</b>	<b>% of Total Equity</b>
1,886,360	NTGI COLTV Daily Hi Yield Fxd Inc Fd	\$ 53,290	16.19%
1,200,000	Pvtpl Psignode Indl Group Us Inc 6.375% 05-01-2022	1,148	0.35%
1,000,000	Gray T.V. Inc 7.5% Due 10-01-2020	1,043	0.32%
875,000	Iron Mountain Inc Del 5.75 Due 08-15-2024	884	0.27%
925,000	Pvtpl Cequel Communications Hldgs I Llc / Cequ Sr Nt 144a 5.125	881	0.27%
875,000	AES Corp 5.5% Due 04-15-2025	877	0.27%
850,000	Pvtpll Cablevision Sys Sr Nt 8 Due 04-15-2020	872	0.26%
790,000	Hughes Satellite 7.625% Due 06-15-2021	850	0.26%
900,000	Pvtpl Mallinckrodt Fin/Sb 5.625% 10-15-2023	838	0.25%
800,000	Pvtpl Wavedivision Escrow / Wave 8.125 Due 09-01-2020/08-21-2012	832	0.25%

A complete list of all individual holdings is available upon request.

**Schedule of Equity Trading Brokerage Commissions Paid**

*For the year ended June 30, 2016*

<b>Brokers</b>	<b>Shares</b>	<b>Commissions</b>	<b>Principle</b>	<b>Commissions Per Share</b>
UBS Warburg	3,720,989	\$ 37,186	\$ 214,635,562	\$ 0.010
Merrill Lynch	1,591,606	14,257	53,332,960	0.009
Goldman Sachs	2,346,189	8,107	430,686,664	0.003
ITG Inc	281,188	3,784	7,309,468	0.013
Citigroup	185,754	3,715	4,912,732	0.020
J.P. Morgan	364,683	2,438	7,283,007	0.007
Credit Suisse First Boston	150,956	1,510	4,700,001	0.010

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SECTION FOUR  
ACTUARIAL SECTION

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**HOUSTON POLICE OFFICERS' PENSION SYSTEM**  
ACTUARIAL VALUATION REPORT  
FOR THE YEAR BEGINNING JULY 1, 2015



October 19, 2015

Board of Trustees  
Houston Police Officers' Pension System  
602 Sawyer  
Suite 300  
Houston, TX 77007

**Subject: Actuarial Valuation Report as of July 1, 2015**

Dear Members of the Board:

We are pleased to present our Report of the actuarial valuation of the Houston Police Officers' Pension System ("HPOPS" or "the System") for the plan year commencing July 1, 2015. This Report describes the current actuarial condition of HPOPS, determines the calculated employer contribution rate (the actuarially required rate), and analyzes changes in this contribution rate from the prior year. Valuations are prepared annually, as of July 1<sup>st</sup>, the first day of the HPOPS' plan year.

**Financing objectives and funding policy**

Under the HPOPS statute, the employer contribution rate is determined actuarially, based on the Board's funding policy and HPOPS' governing law. The contribution rate determined by a given actuarial valuation and implemented by the Board becomes effective twelve months after the valuation date, i.e., the rates determined by this July 1, 2015 actuarial valuation will be used by the Board when determining the employer contribution rate for the year beginning July 1, 2016 and ending June 30, 2017.

Under the 2011 Meet & Confer Agreement between the Board and the City of Houston, a funding schedule was implemented resulting in a minimum \$83 million employer contribution for the fiscal year ending June 30, 2012, increasing by \$10 million each year thereafter until HPOPS' funded ratio reaches 100%. However, for FY2012, the City of Houston was allowed to contribute \$17 million less than required and for FY2013, the City was allowed to contribute \$8.5 million less than required bringing the total contribution receivable to \$25.5 million which is to be financed at an annual interest rate of 8.5% and was scheduled to be made up for in FY2015 in addition to a fixed payment of \$113 million, according to the terms of the Meet & Confer Agreement. In addition, once the System reaches an 80% funded status (the ratio of the actuarial value of assets to the actuarial accrued liability), the City will make additional payments in the fiscal year following a determination that the System has fallen below this 80% threshold. Finally, once the System reaches the actuarially determined rate, the City will pay the actuarially determined rate, but not less than 16.0% of payroll.

Given the above schedule, the actual employer contribution amount for the fiscal year ending June 30, 2017 will not be set by this actuarial valuation as of July 1, 2015. Therefore, the actuarially calculated contribution rate determined by this valuation will not be contributed by the City of Houston. Based upon projected active member payroll of approximately \$410 million for FY2016, the City's calculated contribution amount should be about \$161 million. Instead, the City will only contribute \$123 million for FY2016 under the terms of the above funding schedule, as detailed in the 2011 Meet & Confer Agreement. **In addition, the funded ratio has fallen below the 80% threshold, and thus there should be an additional appropriation to the System from the City of \$14.284 million, per the 2011 Meet & Confer Agreement.**

The contribution rate and liabilities are computed using the Projected Unit Credit (PUC) actuarial cost method. The employer contribution rate is the sum of two pieces: the employer normal cost rate and the amortization rate. The normal cost rate is determined as a percentage of active member payroll, with the employer normal cost being the difference between the total normal cost and the weighted member contribution rate. The amortization rate is determined as a level percentage of active member payroll. It is the amount required to amortize the unfunded actuarial accrued liability (UAAL) over an open period (30 years as of July 1, 2015). The amortization period is set by statute, and was modified under the Meet and Confer Agreement.

### **Progress toward realization of financing objectives**

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. In the absence of benefit improvements, it should increase over time, until it reaches 100%. The funded ratio as of July 1, 2015 is 79.7%. The funded ratio measured on the market value of assets is a lower percentage at 75.4% as of July 1, 2015. Based on the current scheduled funding policy as set forth in the 2011 Meet and Confer Agreement, the System is projected to be 100% funded in approximately 23 years, or in year 2038. However, this amortization schedule is based upon proportionately larger contributions in future years, again, according to the current Meet and Confer Agreement. Using the FY2016 City contribution level amount only, and projecting this same contribution level going forward, would calculate to a single equivalent amortization period that would not be a determinable number.

The calculated employer (City of Houston) contribution rate for FY 2017 is 40.10%. This rate is greater than the 38.18% rate calculated in the July 1, 2014 actuarial valuation report. This is primarily due to the loss associated with the 6.65% return on the actuarial value of assets compared to an assumed rate of 8.00%, but it also stems from the calculated contribution rate not being consistently contributed to the System by the City. Please see Table 6 under Section III of our Report for a detailed analysis of the change in the calculated employer contribution rate from the prior year to this year.

The contribution rate is determined using an actuarial value of assets rather than market value. The actuarial value of assets recognizes 20% of the difference (typically referred to as "five year



Houston Police Officers' Pension System

October 19, 2015

Page 3

smoothing”) between the market value of assets and the expected actuarial value of assets, based upon the assumed valuation rate of return of 8.00% per annum. There are currently \$246.1 million in asset losses being deferred that will be recognized in the future and provide some headwinds to improvement in the funded status absent future asset gains. As can be seen in Table 7 of Section III, in the absence of any future gains or losses the employer contribution rate is expected to increase next year but then begin a steady downward trend to under 32% in approximately 2025.

### **Benefit provisions**

The benefit provisions reflected in this valuation are those which were in effect on July 1, 2015. There were no changes in the benefit provisions since the prior valuation. The benefit provisions are summarized in Appendix B of our Report.

### **Assumptions and methods**

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the System’s actuary. The assumptions used in this valuation were adopted by the Board based on the recommendations from GRS during the Actuarial Experience Investigation Study review following the July 1, 2013 actuarial valuation and were first used in the July 1, 2014 valuation. There were no changes from the assumptions used in the prior valuation.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. The actuarial calculations presented in our Report are intended to provide information for rational decision making.

The actuarial assumptions and methods used in this Report all comply with the parameters for financial disclosure that appear in Governmental Accounting Standards Board (GASB) Statement Number 67.

All assumptions and methods are described in Appendix A of our Report.

### **Data**

Member data for retired, active and inactive members was supplied as of July 1, 2015 by the HPOPS staff. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. GRS is not responsible for the accuracy or completeness of the information provided to us.

Asset and all financial information as of July 1, 2015 were supplied to us by the HPOPS staff, as well.



### Plan Experience

As part of each valuation, we examine the System's experience relative to the assumptions. The aggregate results of these analyses are disclosed in Tables 5 & 6 under Section III of our Report.


### Actuarial Certification

All of the tables contained in this actuarial valuation report and in the actuarial section of the HPOPS Comprehensive Annual Financial Report (CAFR) were prepared by Gabriel, Roeder, Smith & Company. Historical information for years prior to 2008 was prepared by the prior actuarial firm and was not subjected to our actuarial review. We certify that the information presented herein is accurate and fairly portrays the actuarial position of HPOPS as of July 1, 2015.

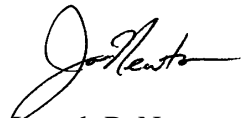
All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of State law and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries and consultants. All of the undersigned are Enrolled Actuaries, Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,

**Gabriel, Roeder, Smith & Company**



Mark R. Randall, FCA, EA, MAAA  
Chief Executive Officer



Joseph P. Newton, FSA, EA, MAAA  
Senior Consultant



Bradley E. Stewart, ASA, EA, MAAA  
Consultant

## Executive Summary

Item	July 1, 2015	July 1, 2014
Membership (millions)		
• Number of:		
- Active members	5,261	5,343
- Retirees and beneficiaries	3,698	3,475
- Inactive members	<u>28</u>	<u>28</u>
- Total	8,987	8,846
• Annualized Payroll supplied by HPOPS	\$ 395,360	\$ 388,756
Calculated Contribution rates		
• Employer	40.10%	38.18%
• Member <sup>1</sup>	9.41%	9.37%
Assets (\$000s)		
• Market value	\$ 4,304,521	\$ 4,347,877
• Actuarial value	4,550,620	4,342,936
• Estimation of return on market value	0.8%	17.3%
• Estimation of return on actuarial value	6.7%	8.5%
• Employer contribution	\$ 113,665	\$ 103,372
• Member contribution	\$ 37,719	\$ 37,012
• Ratio of actuarial value to market value	105.7%	99.9%
Actuarial Information (\$000s)		
• Employer normal cost %	21.07%	21.54%
• Unfunded actuarial accrued liability (UAAL)	\$ 1,155,510	\$ 1,021,057
• Amortization rate	19.03%	16.64%
• Funding period	30.0 years	30.0 years
• Funded ratio	79.7%	81.0%
Projected employer contribution based on calculated rate		
• Fiscal year ending June 30,	2016	2015
• Projected payroll (millions)	\$ 406.2	\$ 399.4
• Projected employer contribution (millions)	\$ 162.9	\$ 152.5
(actual contribution rate set by Meet & Confer)		

<sup>1</sup> Employee contribution rate is 9.00%. Members hired after October 9, 2004 contribute 10.25% of pay.

## Historical Solvency Test (\$000)

Valuation Date	Aggregated Accrued Liabilities for				Actuarial Value of Assets	by Reported Assets		
	Active Members Contributions	Retirees Beneficiaries and Vested Terminations <sup>1</sup>	Members (City Financed Portion)			(5)/(2)	[(5)-(2)]/(3)	[(5)-(2)-(3)]/(4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
July 1, 1994	\$ 123,471	\$ 416,053	\$ 460,899	\$ 1,038,256	100.0%	100.0%	100%	
July 1, 1995	91,687	764,518	343,543	1,168,056	100.0%	100.0%	91%	
July 1, 1996	95,615	812,498	350,104	1,329,570	100.0%	100.0%	100%	
July 1, 1998	99,298	1,017,723	432,320	1,518,081	100.0%	100.0%	93%	
July 1, 1999	107,008	1,157,882	508,939	1,746,312	100.0%	100.0%	95%	
July 1, 2000	111,099	1,324,079	531,225	2,013,491	100.0%	100.0%	100%	
July 1, 2001	138,248	707,152	1,461,027	2,226,307	100.0%	100.0%	95%	
July 1, 2002	145,255	718,779	1,729,696	2,337,157	100.0%	100.0%	85%	
July 1, 2003	153,634	838,090	1,883,014	2,394,411	100.0%	100.0%	74%	
July 1, 2004	153,088	995,841	2,190,295	2,466,070	100.0%	100.0%	60%	
July 1, 2005	249,804	1,259,243	1,883,927	2,508,794	100.0%	100.0%	53%	
July 1, 2006	262,514	1,421,330	1,949,301	2,681,375	100.0%	100.0%	51%	
July 1, 2007	275,990	1,575,900	2,005,790	3,004,927	100.0%	100.0%	57%	
July 1, 2008	294,678	1,726,121	2,058,165	3,337,612	100.0%	100.0%	64%	
July 1, 2009	312,489	1,872,226	2,183,786	3,430,946	100.0%	100.0%	57%	
July 1, 2010	149,252	1,998,683	2,084,797	3,526,703	100.0%	100.0%	66%	
July 1, 2011	160,828	2,146,222	2,181,093	3,718,052	100.0%	100.0%	65%	
July 1, 2012	167,739	2,320,239	2,259,195	3,888,504	100.0%	100.0%	62%	
July 1, 2013	163,660	2,501,745	2,344,556	4,070,951	100.0%	100.0%	60%	
July 1, 2014	162,982	2,834,747	2,366,263	4,342,936	100.0%	100.0%	57%	
July 1, 2015	157,344	3,131,654	2,417,132	4,550,620	100.0%	100.0%	52%	

Note: Dollar amounts in \$000

<sup>1</sup> Column (3) included AAL for DROP participants until 2000, now in Column (4)

## Schedule of Funding Progress (\$000)

Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
July 1, 1994	\$ 1,038,256	\$ 1,000,423	\$ (37,833)	103.8%	\$ 174,761	(21.6%)
July 1, 1995	1,168,056	1,199,748	31,692	97.4%	182,251	17.4%
July 1, 1996	1,329,570	1,258,217	(71,353)	105.7%	187,134	(38.1%)
July 1, 1998	1,518,081	1,549,341	31,260	98.0%	196,364	15.9%
July 1, 1999 *	1,746,312	1,773,829	27,517	98.4%	246,569	11.2%
July 1, 2000	2,013,491	1,966,404	(47,087)	102.4%	250,691	(18.8%)
July 1, 2001	2,226,307	2,306,427	80,120	96.5%	264,226	30.3%
July 1, 2002	2,337,157	2,593,730	256,573	90.1%	286,150	89.7%
July 1, 2003	2,394,411	2,874,738	480,327	83.3%	300,405	159.9%
July 1, 2004	2,466,070	3,339,224	873,154	73.9%	329,840	264.7%
July 1, 2005	2,508,794	3,392,974	884,180	73.9%	321,057	275.4%
July 1, 2006	2,681,375	3,633,145	951,770	73.8%	327,080	291.0%
July 1, 2007	3,004,927	3,857,680	852,753	77.9%	336,029	253.8%
July 1, 2008	3,337,612	4,078,963	741,351	81.8%	351,525	210.9%
July 1, 2009	3,430,946	4,368,501	937,556	78.5%	366,924	255.5%
July 1, 2010**	3,526,703	4,232,732	706,029	83.3%	377,779	186.9%
July 1, 2011	3,718,052	4,488,142	770,090	82.8%	388,409	198.3%
July 1, 2012	3,888,504	4,747,173	858,669	81.9%	389,884	220.2%
July 1, 2013	4,070,951	5,009,961	939,010	81.3%	391,957	239.6%
July 1, 2014	4,342,936	5,363,992	1,021,056	81.0%	399,447	255.6%
July 1, 2015	4,550,620	5,706,130	1,155,510	79.7%	406,233	284.4%

\* Definition of covered payroll changed from base pay to total direct pay less overtime

\*\* Change to Projected Unit Credit cost method. Prior results were provided based on Entry Age Normal.

**Houston Police Officers' Pension System  
Actuarial Valuation – July 1, 2015**

Table 17

**Historical Active Participant Data**

Valuation Date	Active Count	Average Age	Average Svc	Covered Payroll	Average Salary	Percent Changes
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1989	4,105	35.7	N/A	\$122,803	\$29,915	4.2%
1990	4,073	36.2	N/A	\$126,665 <sup>(1)</sup>	\$31,099	4.0%
1992	4,120	36.8	N/A	\$143,020	\$34,714	11.6%
1993	4,498	36.7	N/A	\$159,321	\$35,420	2.0%
1994	4,705	36.8	N/A	\$162,143	\$34,462	-2.7%
1995	4,921	36.9	N/A	\$174,761	\$35,513	3.0%
1996 <sup>(2)</sup>	4,395	35.1	N/A	\$150,903	\$34,335	-3.3%
1997	4,282	35.5	N/A	\$149,631	\$34,944	1.8%
1998	4,247	35.9	N/A	\$153,479	\$36,138	3.4%
1999	4,253	36.3	N/A	\$187,967 <sup>(3)</sup>	\$44,196 <sup>(3)</sup>	22.3% <sup>(3)</sup>
2000	4,137	36.7	N/A	\$179,415	\$43,368	-1.9%
2001 <sup>(4)</sup>	5,325	40.2	N/A	\$264,226 <sup>(5)</sup>	\$49,620 <sup>(5)</sup>	14.4% <sup>(5)</sup>
2002	5,352	40.7	N/A	\$286,150	\$53,466	7.8%
2003	5,387	41.3	N/A	\$300,405	\$55,765	4.3%
2004	5,225	41.7	N/A	\$329,840	\$63,127	13.2%
2005	4,867	42.0	N/A	\$321,057 <sup>(6)</sup>	\$65,966 <sup>(6)</sup>	4.5% <sup>(6)</sup>
2006	4,785	42.3	N/A	\$327,080	\$68,355	3.6%
2007	4,879	42.1	N/A	\$336,029	\$68,873	0.8%
2008	5,065	42.0	15.7	\$351,525	\$69,403	0.8%
2009	5,245	41.8	15.4	\$366,924	\$69,957	0.8%
2010	5,347	41.9	15.3	\$377,779	\$70,652	1.0%
2011	5,312	42.3	15.7	\$388,409	\$73,119	3.5%
2012	5,326	42.5	15.7	\$389,884	\$73,204	0.1%
2013	5,364	42.6	15.7	\$391,957	\$73,072	-0.2%
2014	5,343	42.6	15.7	\$399,447	\$74,761	2.3%
2015	5,261	42.8	15.9	\$406,233	\$77,216	3.3%

<sup>(1)</sup> Reflects the November 1, 1990 pay increase.

<sup>(2)</sup> For the July 1, 1996 to July 1, 2000 valuations, includes those participants currently accruing benefits (i.e. excludes current DROP participants).

<sup>(3)</sup> Definition of covered payroll changed from base pay to total direct pay less overtime.

<sup>(4)</sup> Beginning July 1, 2001, includes active participants eligible for DROP.

<sup>(5)</sup> Beginning July 1, 2001, the definition of total direct pay changed from the average of the last 26 pay periods to the highest bi-weekly pay period.

<sup>(6)</sup> Beginning October 9, 2004, pensionable pay is the total of the last 26 pay periods, excluding CMEPP and SOSP.

Houston Police Officers' Pension System  
Actuarial Valuation – July 1, 2015

Table 18

**Retirees, Beneficiaries, and Disabled Participants Added to and Removed from Rolls**

Valuation July 1, (1)	Added to Rolls		Removed from Rolls		Rolls-End of Year		% Increase in Annual Allowances (8)	Average Annual Allowances (9)
	Number (2)	Annual Allowances (3)	Number (4)	Annual Allowances (5)	Number (6)	Annual Allowances (7)		
1994	107	\$ 2,425	48	\$ 847	1,478	\$ 29,464	8.0%	\$ 19,935
1995	893	19,109	36	602	2,335	48,624	65.0%	20,824
1996 *	182	3,481	29	618	2,488	52,772	8.5%	21,211
1998	159	3,483	28	589	2,619	63,957	21.2%	24,420
1999	150	3,770	46	1,001	2,723	70,432	10.1%	25,866
2000	233	6,421	36	857	2,920	76,401	8.5%	26,165
2001 **	131	3,755	1,250	33,892	1,801	54,006	(29.3%)	29,987
2002	104	2,809	46	1,113	1,859	55,013	1.9%	29,593
2003	106	2,967	47	1,109	1,918	61,531	11.8%	32,081
2004	220	9,172	33	1,014	2,105	70,307	14.3%	33,400
2005	353	15,962	55	1,776	2,403	86,933	23.6%	36,177
2006	254	10,195	66	2,197	2,549	96,812	11.4%	37,980
2007	175	8,056	49	1,809	2,717	105,481	9.0%	38,823
2008	149	11,889	57	1,995	2,809	115,375	9.4%	41,073
2009	154	9,639	63	2,275	2,900	122,738	6.4%	42,324
2010	165	8,891	56	2,355	3,009	129,274	5.3%	42,963
2011	171	10,567	59	2,218	3,121	137,623	6.5%	44,096
2012	180	11,934	71	2,820	3,230	146,737	6.6%	45,429
2013	183	11,674	64	2,345	3,349	156,066	6.4%	46,601
2014	217	13,857	63	2,627	3,503	167,296	7.2%	47,758
2015	288	16,132	65	2,762	3,726	180,666	8.0%	48,488

\* From June 30, 1996 through June 30, 2001 includes DROP participants.

\*\* Beginning July 1, 2001 excludes active participants eligible for DROP.

Note: Dollar amounts in \$000

## Membership Data

	July 1, 2015 (1)	July 1, 2014 (2)	July 1, 2013 (3)
1. Active members			
a. Number	5,261	5,343	5,364
b. Number in DROP	1,991	1,920	1,871
c. Total payroll	\$ 406,232,842	\$ 399,446,734	\$ 391,957,035
Payroll in DROP	\$ 178,870,056	\$ 167,464,715	\$ 160,525,437
d. Average salary	77,216	74,761	73,072
e. Average age	42.8	42.6	42.6
f. Average service	15.9	15.7	15.7
2. Inactive participants			
a. Vested	28	28	26
b. Total annual benefits (deferred)	\$ 780,588	\$ 741,618	\$ 700,082
c. Average annual benefit	27,878	26,486	26,926
3. Service retirees			
a. Number	2,873	2,737	2,592
b. Total annual benefits	\$ 145,247,137	\$ 134,837,893	\$ 124,620,427
c. Average annual benefit	50,556	49,265	48,079
d. Average age	64.6	64.4	64.0
4. Disabled retirees			
a. Number	154	148	146
b. Total annual benefits	\$ 6,904,802	\$ 6,420,044	\$ 6,308,203
c. Average annual benefit	44,836	43,379	43,207
d. Average age	55.5	54.9	54.3
5. Beneficiaries and spouses			
a. Number	671	590	585
b. Total annual benefits	\$ 27,733,955	\$ 25,296,561	\$ 24,437,628
c. Average annual benefit	41,332	42,876	41,774
d. Average age	68.9	69.3	69.3

## Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the July 1, 2015 actuarial valuation report.

### 1. Valuation Date

The valuation date is as of July 1<sup>st</sup>, the first day of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

### 2. Actuarial Cost Method

The actuarial valuation uses the Projected Unit Credit (PUC) actuarial cost method. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) a rate that will amortize the unfunded actuarial accrued liability (UAAL).

- a. The valuation is prepared on the projected benefit basis, under which the present value, at the investment return rate assumed to be earned in the future (currently 8.00%), of each participant's expected benefit payable at retirement or death is determined, based on his/her age, service, gender and compensation. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability, or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable for the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the System on account of the present group of participants and beneficiaries.
- b. The employer contributions required to support the benefits of the System are determined using a level funding approach, and consist of a normal cost contribution and an accrued liability contribution.
- c. The normal cost is the present value of the portion of projected benefits that is attributable to service accrued in the current year. Under the PUC cost method, if actual plan experience is close to assumptions, the normal cost will increase each year for each employee as he or she approaches retirement age. However, if the age/service/gender characteristics of the active group remain relatively constant, the total normal cost can be expected to remain somewhat level as a percentage of payroll.



- d. The accrued liability is the portion of the present value of projected benefits attributable to service credited prior to the valuation date. The unfunded actuarial accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability and amortizing the result over 30 years from the valuation date.

The contribution rate determined by this valuation will not be effective until one year later, but the determination of the rate does not reflect this deferral. It is assumed that there will be no change in the employer normal cost rate due to the deferral, and it is assumed that payments are made uniformly throughout the year.

### 3. Actuarial Value of Assets

The actuarial value of assets is equal to the market value of assets less a five-year phase in of the excess (shortfall) between expected investment return and actual income. The actual calculation is based on the difference between actual market value and the expected actuarial value of assets each year, and recognizes the cumulative excess return (or shortfall) over at a minimum rate of 20% per year. Each year a base is set up to reflect this difference. If the current year's base is of opposite sign to the deferred bases then it is offset dollar for dollar against the deferred bases. Any remaining bases are then recognized over the remaining period for the base (5 less the number of years between the bases year and the valuation year). This is intended to ensure the smoothed value of assets will converge towards the market value in a reasonable amount of time. Expected earnings are determined using the assumed investment return rate and the beginning of year actuarial value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of investment expenses.

4. Economic Assumptions

- a. Investment return: 8.00% per year, compounded annually, composed of an assumed 2.75% inflation rate and a 5.25% net real rate of return. This rate represents the assumed return, net of all investment expenses.
- b. Cost of Living Adjustment (COLA): Monthly benefits for participants receiving payments are increased each April 1 by 80% of the increase in the Consumer Price Index for All Urban Consumers (CPI-U) for the preceding year, with a minimum of 2.40% and a maximum of 8.00%. For this valuation, the annual COLA is assumed to be 2.70%.
- c. Salary increase rate: A service-related component, plus a 2.00% inflation and productivity component, as follows:

Years of Service	Service-related Component	Total Annual Rate of Increase Including 2.00% Inflation & Productivity Component
(1)	(2)	(3)
1	12.00%	14.00%
2	9.00%	11.00%
3	7.25%	9.25%
4	6.00%	8.00%
5	5.50%	7.50%
6	5.00%	7.00%
7	4.25%	6.25%
8	4.00%	6.00%
9	3.50%	5.50%
10	3.25%	5.25%
11	3.00%	5.00%
12	2.75%	4.75%
13	2.50%	4.50%
14	2.25%	4.25%
15	2.00%	4.00%
16	1.75%	3.75%
17	1.50%	3.50%
18 and Over	0.00%	2.00%

- d. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 2.75% per year. This increase rate is solely due to the effect of inflation on salaries, with no allowance for future membership growth.

5. Demographic Assumptions

## a. Retirement Rates

Age	Service		
	<25	25 - 29	30+
40-49	4.0%	6.0%	10.0%
50-54	4.0%	6.0%	10.0%
55-59	6.8%	10.2%	17.0%
60-64	9.6%	14.4%	24.0%
65 +	100.0%	100.0%	100.0%

For members hired after October 9, 2004, 30% is added to the retirement rate at age 55.

## b. DROP Participation

100% of eligible active participants are assumed to elect the DROP.

## c. DROP Entry Date

Active members (not already in DROP) are assumed to take advantage of the DROP and enter when first eligible. Participants are assumed to elect the maximum duration for the back DROP, up to 20 years.

## d. DROP Interest Credit

A minimum of 3.00% interest will be credited to existing DROP accounts with a maximum of 7.00%. If the System's actuary certifies that past service costs are fully funded, the credit may be as high as 10.00%. For this actuarial valuation, the drop interest credit is assumed to be 6.40%.

## e. Withdrawal of DROP and PROP Balances

Members are assumed to withdraw balances in equal annual installments over 10 years.

## f. Mortality rates (for active and retired members)

- Healthy retirees - The Gender-distinct RP2000 Combined Healthy Mortality Tables with Blue Collar Adjustment are used with male rates multiplied by 109% and female rates multiplied by 103%. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements.
- Disabled males and females – The gender-distinct RP2000 Disabled Retiree Mortality Tables are used without adjustment. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements.
- Active members - The Gender-distinct RP2000 Combined Healthy Mortality Tables with Blue Collar Adjustment are used with male rates multiplied by 54% and female rates multiplied by 51%. The rates are projected on a fully generational basis by scale BB to account for future mortality improvements. An additive factor of .0003 is applied to all active mortality rates.

Sample rates are shown below for 2014:

Age	Healthy Retired Males	Healthy Retired Females	Disabled Males	Disabled Females	Healthy Active Males	Healthy Active Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)
25	0.04%	0.02%	2.16%	0.71%	0.05%	0.04%
30	0.08%	0.03%	2.16%	0.71%	0.07%	0.04%
35	0.11%	0.05%	2.16%	0.71%	0.09%	0.06%
40	0.14%	0.09%	2.16%	0.71%	0.10%	0.07%
45	0.19%	0.14%	2.16%	0.71%	0.12%	0.10%
50	0.25%	0.19%	2.77%	1.10%	0.15%	0.13%
55	0.44%	0.27%	3.39%	1.53%	0.25%	0.16%
60	0.81%	0.44%	3.78%	1.88%	0.43%	0.25%
65	1.41%	0.89%	4.19%	2.34%	0.73%	0.47%
70	2.33%	1.60%	4.99%	3.14%	1.18%	0.82%
75	3.75%	2.65%	6.54%	4.36%	1.89%	1.34%
80	6.13%	4.21%	8.72%	6.03%	3.07%	2.11%

## g. Termination Rates and Disability Rates

Termination rates (for causes other than death, disability or retirement) are a function of the member's service and are not applied after a member becomes eligible for a retirement benefit. Disability rates are age-based and not applied for members in the DROP or those members eligible to back DROP. Rates at selected ages and service levels are shown below.

Service Based Rates of Termination		
Service	Male	Female
1	2.71%	2.71%
3	1.95%	1.95%
5	1.40%	1.40%
7	1.01%	1.01%
9	0.72%	0.72%
11	0.52%	0.52%
13	0.37%	0.37%
15	0.27%	0.27%
17	0.19%	0.19%
19	0.14%	0.14%
20 +	0.10%	0.10%

Age Based Rates of Disability		
Age	Male	Female
20	0.1149%	0.1149%
25	0.1145%	0.1145%
30	0.1197%	0.1197%
35	0.1321%	0.1321%
40	0.1516%	0.1516%
45	0.1785%	0.1785%
50	0.2126%	0.2126%
55	0.2538%	0.2538%
60	0.3023%	0.3023%

## 6. Other Assumptions

- a. Percent married: 90% of employees are assumed to be married. (No beneficiaries other than the spouse assumed.)
- b. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
- c. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.
- d. Percent electing deferred termination benefit: 50% of vested terminating members are assumed to elect a refund rather than take a deferred benefit at age 60.
- e. There will be no recoveries once disabled.
- f. No surviving spouse will remarry.
- g. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available.
- h. Administrative expenses: Administrative expenses are accounted for as an explicit component on the normal cost rate.
- i. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
- j. Decrement timing: Decrements of all types are assumed to occur mid-year.
- k. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
- l. Decrement relativity: Decrement rates are converted to probabilities in order to account for multiple decrements.
- m. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in our Report, and the actual payroll payable at the time contributions are made.

- n. Benefit Service: All members are assumed to accrue one year of service each year. Exact fractional service is used to determine the amount of benefit payable.

## 7. Participant Data

Participant data was supplied in electronic files. There were separate files for (i) active members, (ii) inactive members, and (iii) members and beneficiaries receiving benefits.

The data for active members included birth date, gender, most recent hire date, salary paid during last fiscal year, hours worked by the employee, and employee contribution amounts. For retired members and beneficiaries, the data included date of birth, gender, amount of monthly benefit, and date of retirement. Also included was the member's Group and for members participating in DROP, their account balances and monthly DROP income.

All healthy and disabled retirees are assumed to have 100% joint and survivor annuities, prorated by the 90% marriage assumption and reflecting the three year spousal age differential described above. All beneficiaries are assumed to have life annuity only benefits.

Salary supplied for the current year was based on the earnings for the year preceding the valuation date. This salary was adjusted by the salary increase rate for one year.

In fiscal years when a 27<sup>th</sup> pay period occurs the individual pays for employees who were employed throughout the year will be adjusted by multiplying their reported pay by the ratio of 26/27. In years that have only 26 pay periods no adjustment would be needed.

Assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

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## **APPENDIX B**

### SUMMARY OF PLAN PROVISIONS

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## Summary of Plan Provisions

### Covered Members

All police officers sworn before September 1, 1975 are covered under Plan 1, except those who elected by December 31, 1981 to participate in Plan 3.

All police officers sworn on or after September 1, 1975, but before September 1, 1981 are covered under Plan 2, except those who elected by December 31, 1981 to participate in Plan 3 and those Plan 1.

All other police officers are covered by Plan 3, except those from Police Cadet Classes 70 and 71 who elected to pay additional contributions and transfer to Plan 1.

### Final Compensation

Prior to November 28, 1998

Monthly base salary paid to the participant in his/her last month of service. For any participant from a position held for less than 3 years, final compensation is the average monthly base salary for the 3 years prior to retirement.

After November 28, 1998 but prior to July 1, 2001

Monthly total direct pay less overtime paid to the participant in his/her last month of service. For any participant from a position held for less than 3 years, final compensation is the average monthly base pay for the 3 years prior to retirement plus the other current components of total direct pay.

After July 1, 2001 but prior to October 9, 2004

Highest biweekly pay period (excluding overtime) during the last 26 pay periods annualized. Amounts not paid on a biweekly basis are deducted from period paid. Annual amounts are divided by 26 and added to the highest pay period, including motorcycle allowances.

After October 9, 2004

Average of the last three years of compensation (excluding exempt time, overtime and strategic officer staffing pay). This average will be phased in beginning with the pay period ending after October 9, 2004 until the new definition is fully phased in after 78 pay periods.

### Service Retirement

#### Eligibility

- ▶ Sworn prior to October 9, 2004 20 years of service.
- ▶ Sworn on or after October 9, 2004 Age 55 with 10 years of service.

## Benefit

- ▶ Prior to November 1, 1955 \$75 per month plus \$2 per month for each year of service in excess of 25 years.
- ▶ After November 1, 1955 but prior to January 13, 1968 30% of final compensation plus 1 % of final compensation for each year of service in excess of 20 years.
- ▶ After January 13, 1968 but prior to July 1, 1986  
Plans 1 and 2: 30% of final compensation plus 2% of final compensation for each year of service in excess of 20 years.  
Plan 3: 2% of final compensation for each year of service up to 40 years, reduced 0.42% for each month benefit commencement precedes age 55.
- ▶ After July 1, 1986 but prior to July 1, 1988 2% of final compensation for each year of service up to 40 years.
- ▶ After July 1, 1988 but prior to September 1, 1997 45% of final compensation plus 2% of final compensation for each year of service in excess of 20 years; maximum 80% of final compensation. Benefit based on prior formula is payable until July 1, 1991 and recomputed benefit is payable thereafter.
- ▶ After September 1, 1997 but prior to July 1, 2001 50% of final compensation plus 2% of final compensation for each year of service in excess of 20 years; maximum 80% of final compensation.
- ▶ After July 1, 2001 but prior to October 9, 2004 55% of final compensation plus 2% of final compensation for service in excess of 20 years.  
The Pension System recomputed the benefit of each person who retired before July 1, 2001. The retiree's benefit was increased by the result of multiplying the difference between 55% and the percentage used at the time of retirement in computing the retiree's benefit for the first 20 years of service by the base salary of the retiree at the time of retirement. Retroactive cost-of-living increases were not applied to the increased benefit. This recomputed benefit is effective for all payments on or after July 1, 2001.

- ▶ After October 9, 2004
- Participants sworn prior to October 9, 2004 will receive the highest of the following alternatives using Final Average Compensation effective after October 9, 2004, from October 9, 2004 through October 7, 2007:
- 1) 2.25% of Final Average Compensation for each of the first 20 years of service plus 2% of Final Average Compensation for each year of service in excess of 20 years, with a maximum of 80% of Final Average Compensation.
  - 2) Benefit participant would have received had participant retired or entered the DROP immediately before October 9, 2004
  - 3) Benefit calculated using a sliding average of the pay received for the pay periods elapsed since October 9, 2004.

New participants after October 9, 2004:

2.25% of Final Average Compensation for each of the first 20 years of service plus 2% of Final Average Compensation for each year of service in excess of 20 years, with a maximum of 80% of Final Average Compensation.

**Additional Benefits**

An extra monthly benefit of \$150.00 is payable for life. Effective November 28, 1998, a \$5,000 lump sum is payable upon retirement for members sworn prior to October 9, 2004.

**Terminated Vested  
Pension Benefit**

**Eligibility**

More than 10 but less than 20 years of service. Termination on or after November 28, 1998.

**Benefit**

2.75% of final compensation times years of service. This benefit commences at age 60 or at termination of service if later.

**Deferred Retirement  
Option Plan (DROP)**

**Eligibility**

20 years of service and sworn in prior to October 9, 2004.

**Benefit**

- ▶ After September 1, 1995 but prior to September 1, 1997
- Eligible participants may elect to participate in the DROP until they leave active service. The member's retirement pension will be calculated based on service and earnings at the time the DROP is elected.

A notional account will be maintained for each DROP participant. This account will be credited with the following amounts while the member is participant of the DROP:

- The member's monthly retirement pension, including applicable cost-of-living adjustments,
- The member's contribution to the Pension System, and
- Investment earnings/losses at the rate of the Pension System's earnings/losses averaged over a five-year period. Effective July 1, 2001, this rate is subject to a minimum of 0%.

A benefit equal to the DROP account balance is paid at the time the member leaves active service. The payment is made as a single lump sum.

If a DROP participant suffers an on-duty disability resulting in the inability to perform his/her usual and customary duties as a police officer or dies in the line of duty, he (or his survivors) are allowed to revoke the DROP election and to receive the more generous on-duty disability or death benefits.

- ▶ After September 1, 1997 but prior to December 1, 1998

The Pension System recomputed the benefit of each person who entered the DROP before September 1, 1997. The benefit was increased in the same manner as the retiree's benefit.

- ▶ After December 1, 1998 but prior to July 1, 2001

The Pension System recomputed the benefit of each person who entered the DROP before December 1, 1998. The benefit was recalculated based on Total Direct Pay less overtime upon entry to the DROP. This recomputed benefit is effective for all payments on or after December 1, 1998.

- ▶ After July 1, 2001 but prior to October 9, 2004

The Pension System recomputed the benefit of each person who entered the DROP before July 1, 2001. The member's benefit was increased by the result of multiplying the difference between 55% and the percentage used at the time of DROP entry in computing the member's benefit for the first 20 years of service by the base salary of the member at the time of DROP entry. Retroactive cost-of-living increases were applied to the increased benefit. The account balance for each participant was recomputed as if this new benefit had been effective since DROP entry.

- ▶ After October 9, 2004

A minimum of 3.00% interest will be credited to existing DROP accounts with a maximum of 7.00%. If the actuary certifies that past service costs are fully funded, the credit may be as high as 10.00%.

Benefit Recalculation Effective July 1, 2001, monthly benefit at retirement will be recalculated to be the greater of (i) current monthly benefit, or (ii) monthly benefit based on service at DROP entry and Final Compensation at retirement date.

Back DROP Option Effective on July 1, 2001, a back DROP option is available for all eligible participants. The DROP account is recalculated under the option based on what the account balance would have been had the participant elected the DROP earlier than he/she actually did. The initial DROP entry date cannot be backdated prior to September 1, 1995 or prior to 20 years of credited service, and must be on the first of the month selected.

### Postretirement Option Plan (PROP)

Eligibility Retired from DROP and sworn in prior to October 9, 2004.

#### Benefit

- ▶ After November 28, 1998 but prior to July 1, 2001 A retired member is allowed to leave all or a portion of their DROP account in the System. These accounts are credited every calendar year with the 30-year Treasury bond rate as of June of the preceding year.
- ▶ After July 1, 2001 The interest rate earned on PROP accounts will be the same as the interest rate credited to DROP accounts, including a minimum credited rate of 0%.

### Partial Lump Sum Optional Payment (PLOP)

Eligibility Participant on or after October 9, 2004.

#### Benefit

- ▶ After October 9, 2004 Up to 20% of the actuarial value of the accrued pension at retirement.

### Disability Retirement

Eligibility Effective July 1, 2001, participant partially or totally disabled is eligible for Disability Retirement as defined below:

- Total: Disability is defined as “unable to perform his/her usual and customary duties as a police officer”.
- Partial: Disability is an impairment which renders the participant unable to work as a police officer and which is expected to last 12 months.

**Benefit**

- ▶ Duty-connected  
Total: The service retirement benefit accrued to date of disability (or 20 years, if greater).  
Partial: 35% of final compensation is payable for life or as long as he remains incapacitated.
- ▶ Not duty-connected  
Total or partial: The disability benefit is 2.75% of final compensation times years of service up to 20, minimum 27.5% of final compensation.

**Additional Benefits**

For participants before October 9, 2004, an education allowance equal to 100% of final compensation less disability benefit is payable for up to four years for off-duty or duty-related disability. Proportionate members injured while on-duty as a municipal worker will receive immediate off-duty benefit upon Board approval.

**Survivor Benefits****Eligibility**

Surviving spouses and dependent children and parents of participants, including surviving spouses of retired or disabled participants who were not married at the time of retirement or disability, provided the spouse was married to the participant for at least 5 years at the time of death.

**Benefit**

- ▶ Prior to September 1, 1997  
If duty-connected: monthly lifetime benefit equal to 100% of final compensation at date of death.  
If not duty-connected: monthly lifetime benefit equal to 100% of the service retirement benefit the participant had accrued at the time of death.  
Spouse's benefit upon death after retirement: monthly lifetime benefit equal to actual benefit payable at time of death.  
Dependent children's benefit if no surviving spouse: the benefit that would have been payable to the spouse is divided equally among the dependent children.  
If there is a surviving spouse, the dependent children of Plan 1 and Plan 2 participants receive \$25 per month. Dependent children include unmarried children who are under age 18, and for Plan 3, full-time students under age 22, or permanently disabled children.

	Dependent parent's income if no surviving spouse or children, but there is a dependent parent: the benefit that would have been payable to the spouse will be paid to the dependent parent.
▶ After September 1, 1997 but prior to July 1, 2001	The Pension System recomputed the benefit of each survivor whose original benefit was computed prior to September 1, 1997. The benefit was increased in the same manner as the retiree's benefit.
▶ After July 1, 2001	The Pension System recomputed the benefit of each survivor whose original benefit was computed prior to July 1, 2001. The benefit was increased in the same manner as the retiree's benefit.
Additional Benefits	Effective December 1, 1998, a \$5,000 lump sum is paid upon the death of an active member who was sworn in prior to October 9, 2004.  Effective July 1, 2001, an extra monthly benefit of \$150.00 is payable for life. Children receiving equivalent of the spouse's benefit do not receive this additional benefit.
<b>Benefit Adjustments</b>	
Cost-of-Living	
▶ Prior to October 9, 2004	Monthly benefits for participants receiving payments are increased each April 1 by 2/3 of the increase in the Consumer Price Index for All Urban Consumers (CPI-U) for the preceding calendar year. Effective September 1, 1997 this increase is subject to a minimum of 3.0% per year compounded and a maximum increase of 8.0% per year compounded.
▶ After October 9, 2004	Monthly benefits for participants receiving payments are increased each April 1 by 80% of the increase in the Consumer Price Index for All Urban Consumers (CPI-U) for the preceding year, with a minimum of 2.4% and a maximum of 8%.
13th Benefit Check	Effective November 28, 1998, a 13th benefit check is paid to current retirees and DROP members when: <ul style="list-style-type: none"> <li>– The assets on the fund equal or exceed the liabilities after the 13th benefit check is paid.</li> <li>– The return on investments for the preceding fiscal year exceeds 9.25%.</li> <li>– The payment of the benefit will not cause the City of Houston's contribution to the System to increase.</li> <li>– Effective October 9, 2004, the funded ratio of the plan must be at least 120% for the 13th check to be paid out.</li> </ul>

Service Adjustments

Effective November 28, 1998, participants with previous service with the City in non-classified positions may use that service to satisfy the service requirement of 20 years for retirement purposes only.

Effective July 1, 2001, participants who have service credit in more than one City of Houston Pension Plan may use their combined service to qualify for DROP participation.

Effective July 1, 2001, participants involuntarily transferred to the System from the Houston Municipal Employees System will receive service under this plan for years worked while serving as a City Marshall, Airport Police or Park Police.

### Contributions

#### Employee Contributions

- ▶ Prior to December 1, 1998      Each participant contributes 8.75% of base salary.
- ▶ After December 1, 1998 but before October 9, 2004      Each participant contributes 8.75% of average total direct pay less overtime.
  
- ▶ After October 9, 2004
- Members sworn in prior to October 9, 2004      Each participant contributes 9.00% of pay. The additional 0.25% will be credited to the Plan's general fund.
- Others      Each participant contributes 10.25% of pay, which will be credited to the Plan's general fund.

#### Refunds

Refunds of contributions are made if

- (i) The participant dies before 10 years of service and the death is not duty-connected,
- (ii) The participant dies with no eligible survivor,
- (iii) A Plan 1 or 2 participant leaves service before eligibility for retirement after completing 5 years of service, or
- (iv) A Plan 3 participant leaves service with less than 20 years of service.

Contributions are refunded without interest.



Employer Contribution	The City of Houston will follow the following contribution schedule:	
	Fiscal Year Ending (June 30 <sup>th</sup> )	City Contribution Amount
	2001	\$ 30,645,000
	2002	32,645,000
	2003	34,645,000
	2004	36,645,000
	2005	36,645,000
	2006	16% of total compensation, with a minimum of \$53,000,000
	2007-2011	\$5,000,000 above the prior year's payment
	2012	83,000,000 fixed payment with any shortfall not to exceed 17,000,000*
	2013	93,000,000 fixed payment with any shortfall not to exceed 8,500,000*
	2014	103,000,000 fixed payment

\*Any shortfall shall be financed at 8.5% interest and paid in FYE 2015.

For all subsequent Fiscal Years, and until the Funded Ratio reaches 100%, City payments shall increase each City Fiscal Year by \$10,000,000 until said 100% of funding is reached. Once the Funded Ratio has reached 100%, City payments each City Fiscal Year shall be in amounts equivalent to the greater of 16% of pay, as defined herein, or the ARC. The 2011 Meet & Confer Agreement is to remain in effect until June 30, 2023.

In addition, on the first day of City Fiscal Year 2012, once the Funded Ratio reaches 80%, if it should ever be subsequently determined that the Funded Ratio has declined below such 80%, then in the City Fiscal Year next following such determination, the City shall pay such additional amounts to the Houston Police Officers' Pension System as necessary to increase the Funded Ratio to 80%.

#### **Changes in Plan Provisions from the Prior Valuation**

There were no changes to the plan provisions from the prior actuarial valuation.

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## STATISTICAL SECTION

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## **Summary**

This section of the System's comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial statements, note disclosures, and required supplementary information says about the System's overall financial health. All information presented was derived from the comprehensive annual financial reports for the relevant year and/or the System's benefits administration system.

### *Financial Trends*

The **Changes in Fiduciary Net Position** schedule on page 89 shows the additions and deductions from plan net assets and the resulting changes in plan net assets for the ten years ending June 30, 2016. Contributions from members and the City have grown steadily, increasing 102% during this ten year period, while deductions from plan net assets, which are primarily for benefits paid to members, have increased 93% during this time. The System's investment income during this ten year period, even with losses in 2009 and 2016, provides 60% of additions to plan net assets.

City and member contributions to the System are external sources of the additions to plan net assets. **Contribution Rates** on page 90 show what percent the City's and the members' contributions are of payroll for the ten years ending June 30, 2016. The accompanying chart of **Contributions and Benefits Paid** compares the total contributions made and the benefits paid for the ten years ending June 30, 2016. While the growth in benefits paid exceeds the growth in contributions, the City's contributions under the June 30, 2011 Agreement are scheduled to continue to increase over the coming years.

Contributions are not the only source from which benefits are paid. Earnings from the System's investments are the fund's internal sources of and, in most years, the largest component of additions to plan net assets. The **Investment Income** schedule on page 91 provides details of the System's net investment gain/loss for the ten years ending June 30, 2016.

**Deductions from Net Position for Benefits and Refunds by Type** on page 92 presents a detailed view of the benefits paid to members and refunds for the ten years ending June 30, 2016, and the chart on page 93 graphically represents this data. Service retirements account for the majority of benefit payments, growing over the last several years as the number of retirees has increased. Lump sum benefits are payments members and survivors receive at their discretion from their lump sum accounts either on or after the date they begin receiving monthly benefit payments, and therefore vary from year to year.

On page 94, **Valuation of Assets as a Percent of Pension Liabilities** shows the percentage of the pension liability that is funded and **Net Assets Compared to Pension Liability** compares the actuarial value of the System's assets to the actuarial accrued liability. These charts graphically represent the funding progress of the System for the ten years ending June 30, 2015. The existence of an unfunded actuarial liability does not necessarily indicate financial problems. The System and the City entered into an agreement on June 30, 2011, which if maintained and adequate earnings and gains are provided on investments, the System is projected to improve its funded status.

### *Participant Information*

The **Membership** schedule on page 95 provides a breakdown of the plan membership for the ten years ending June 30, 2016. For fiscal year 2016, active members increased by 12 to 5,274 and retired members and their beneficiaries increased by 160.

*Operating Information*

The **Pensions in Force** and **Pensions Awarded** schedules on page 96 provide the number of pensions by type, age and payment amount. The **Average Monthly Benefit Amounts by Years Credited Service** on page 97 presents the average final average salary and the number of retired members, in five-year increments of credited service, for the ten years ended June 30, 2016. The **DROP and PROP Activity** schedules on page 98 provide information about the total amount in DROP and PROP accounts and the total number of participants as well as the changes to those totals for the ten years ending June 30, 2016.

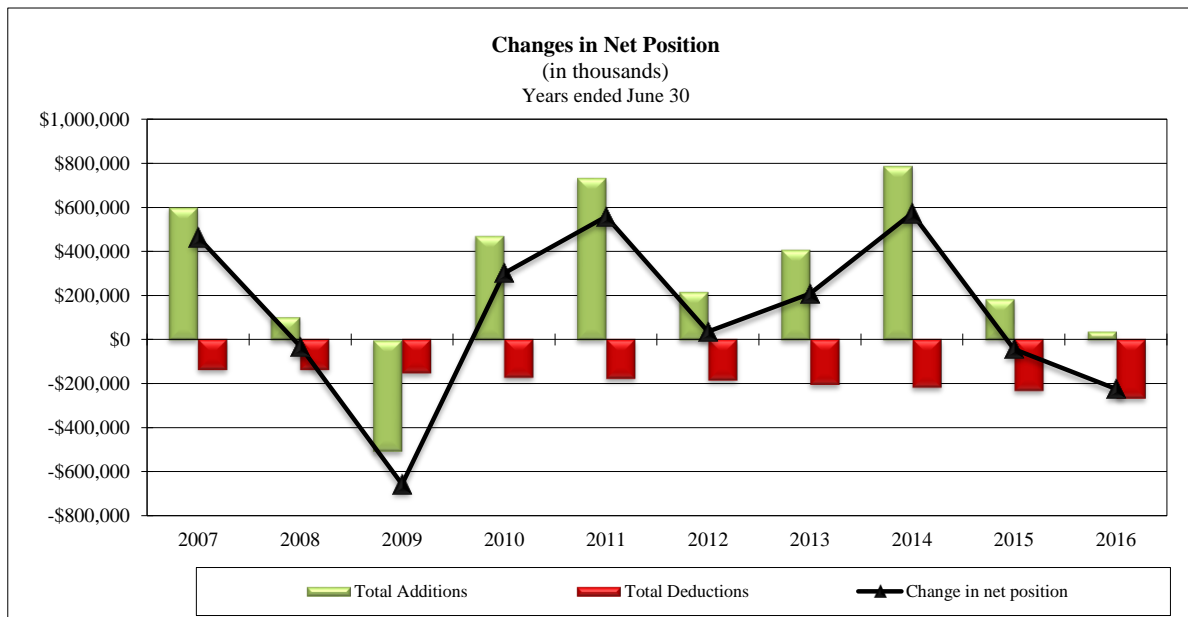


**STATISTICAL SECTION**

**Changes in Fiduciary Net Position  
Previous Ten Fiscal Years  
(\$000's)**

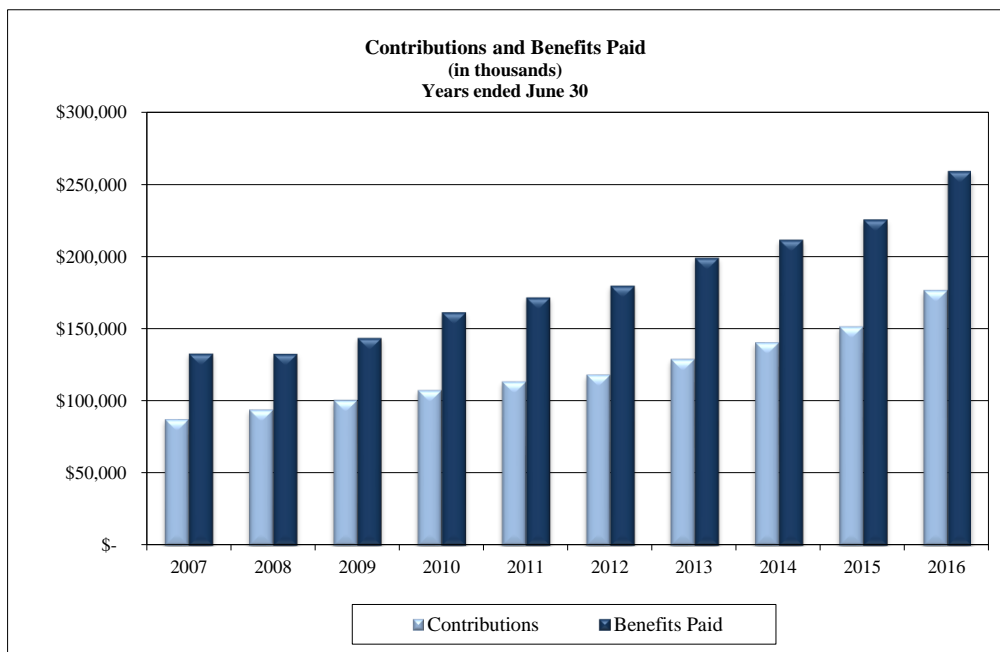
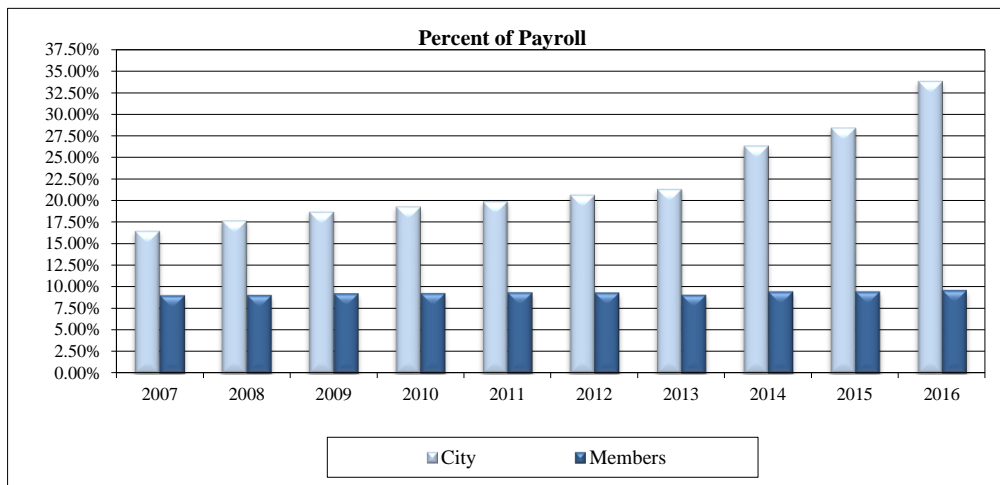
Fiscal Year	2007	2008	2009	2010	2011
<b>Additions</b>					
City contributions	\$ 58,000	\$ 63,000	\$ 68,000	\$ 73,192	\$ 78,287
Members contributions	29,489	31,003	32,519	34,218	35,122
Investment income (net of expenses)	512,873	9,350	(607,482)	364,650	621,557
Securities lending income (net of expenses)	1,239	2,392	1,427	473	449
<b>Total additions to plan net assets</b>	<b>601,601</b>	<b>105,745</b>	<b>(505,536)</b>	<b>472,533</b>	<b>735,415</b>
<b>Deductions:</b>					
Benefits paid to members	133,351	133,049	144,112	161,735	172,041
Refunds to members	739	500	618	547	420
Professional and administrative expense	2,950	3,564	7,311	8,945	4,364
<b>Total deductions from plan net assets</b>	<b>137,040</b>	<b>137,113</b>	<b>152,041</b>	<b>171,227</b>	<b>176,825</b>
<b>Change in net position</b>	<b>\$ 464,561</b>	<b>\$ (31,368)</b>	<b>\$ (657,577)</b>	<b>\$ 301,306</b>	<b>\$ 558,590</b>

Fiscal Year	2012	2013	2014	2015	2016
<b>Additions</b>					
City contributions	\$ 83,027	\$ 93,392	\$ 103,372	\$ 113,665	\$ 137,392
Members contributions	35,151	35,586	37,012	37,719	39,017
Investment income (net of expenses)	102,095	281,724	649,022	35,249	(136,018)
Securities lending income (net of expenses)	485	269	131	92	185
<b>Total additions to plan net assets</b>	<b>220,758</b>	<b>410,971</b>	<b>789,537</b>	<b>186,725</b>	<b>40,576</b>
<b>Deductions:</b>					
Benefits paid to members	180,014	199,255	211,690	225,656	259,076
Refunds to members	704	641	906	945	978
Professional and administrative expense	3,689	3,668	3,439	3,478	4,585
<b>Total deductions from plan net assets</b>	<b>184,407</b>	<b>203,564</b>	<b>216,035</b>	<b>230,079</b>	<b>264,639</b>
<b>Change in net position</b>	<b>\$ 36,351</b>	<b>\$ 207,407</b>	<b>\$ 573,502</b>	<b>\$ (43,354)</b>	<b>\$ (224,063)</b>



**STATISTICAL SECTION**  
**Contribution Rates**  
**Previous Ten Fiscal Years**

Fiscal Year	Percent of Payroll	
	City	Members
2007	16.53%	8.99%
2008	17.73%	9.02%
2009	18.75%	9.23%
2010	19.34%	9.25%
2011	19.95%	9.33%
2012	20.72%	9.30%
2013	21.38%	9.05%
2014	26.37%	9.44%
2015	28.46%	9.44%
2016	33.82%	9.60%



STATISTICAL SECTION

**Investment Income**  
**Previous Ten Fiscal Years**  
**(\$000's)**

Fiscal Year	2007	2008	2009	2010	2011
<b>Investing activities</b>					
Net appreciation (depreciation) in fair value of investments	\$ 459,957	\$ (26,749)	\$ (643,053)	\$ 330,724	\$ 594,052
Interest	38,304	34,603	31,452	30,029	31,180
Dividends	27,581	19,540	13,170	16,608	18,998
Other income	147	142	57	72	365
<b>Total</b>	<b>525,989</b>	<b>27,536</b>	<b>(598,374)</b>	<b>377,433</b>	<b>644,595</b>
Less investment expense	(13,116)	(18,186)	(9,108)	(12,783)	(23,038)
<b>Net income (loss) from investing activities</b>	<b>512,873</b>	<b>9,350</b>	<b>(607,482)</b>	<b>364,650</b>	<b>621,557</b>
<b>Securities lending activities</b>					
Securities lending income	1,652	3,189	1,903	631	599
Securities lending expense	(413)	(797)	(476)	(158)	(150)
<b>Net income from securities lending activities</b>	<b>1,239</b>	<b>2,392</b>	<b>1,427</b>	<b>473</b>	<b>449</b>
<b>Total investment income (loss)</b>	<b>514,112</b>	<b>11,742</b>	<b>(606,055)</b>	<b>365,123</b>	<b>622,006</b>

Fiscal Year	2012	2013	2014	2015	2016
<b>Investing activities</b>					
Net appreciation (depreciation) in fair value of investments	\$ 53,935	\$ 241,324	\$ 625,973	\$ 21,504	\$ (152,667)
Interest	47,121	32,330	25,288	16,156	12,322
Dividends	19,200	20,238	18,119	20,714	18,714
Other income *	1,135	2,550	2,167	-	-
<b>Total</b>	<b>121,391</b>	<b>296,442</b>	<b>671,547</b>	<b>58,374</b>	<b>(121,631)</b>
Less investment expense	(19,296)	(14,718)	(22,525)	(23,125)	(14,387)
<b>Net income (loss) from investing activities</b>	<b>102,095</b>	<b>281,724</b>	<b>649,022</b>	<b>35,249</b>	<b>(136,018)</b>
<b>Securities lending activities</b>					
Securities lending income	646	359	175	123	250
Securities lending expense	(161)	(90)	(44)	(31)	(65)
<b>Net income from securities lending activities</b>	<b>485</b>	<b>269</b>	<b>131</b>	<b>92</b>	<b>185</b>
<b>Total investment income (loss)</b>	<b>\$ 102,580</b>	<b>\$ 281,993</b>	<b>\$ 649,153</b>	<b>\$ 35,341</b>	<b>\$ (135,833)</b>

\* The June 30, 2011 Agreement with the City allowed for a shortfall in the City's fixed payment for contributions for fiscal years 2012 and 2013, for which the City started making quarterly interest payments of \$361 thousand in fiscal year 2012 and \$542 thousand in fiscal year 2013. These payments are included in Other income.



STATISTICAL SECTION

**Deductions from Net Position for Benefits and Refunds by Type  
Previous Ten Fiscal Years  
(\$000's)**

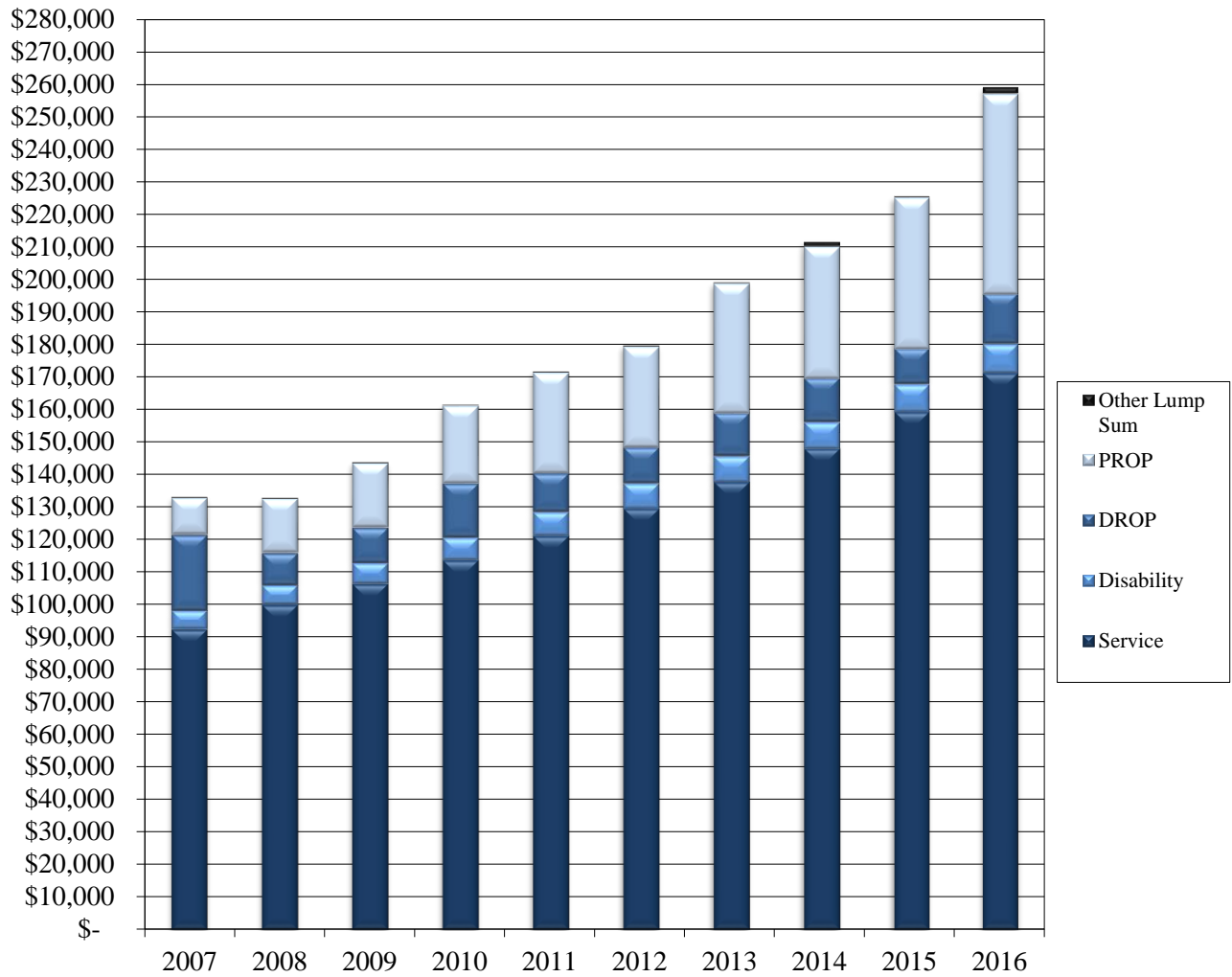
Fiscal Year	2007	2008	2009	2010	2011
<b>Type of Benefit</b>					
Service					
Retirees	\$ 77,639	\$ 83,925	\$ 89,226	\$ 95,198	\$ 101,854
Survivors	14,965	16,203	17,291	18,612	19,425
Disability					
Retirees - duty	4,003	4,154	4,334	4,675	4,989
Retirees - nonduty	313	371	444	516	493
Survivors	1,517	1,531	1,715	1,868	1,960
Lump Sum					
DROP distributions	23,315	9,937	10,889	16,682	11,941
PROP distributions	11,303	16,680	19,922	24,035	31,125
Other *	296	248	291	149	254
<b>Total benefits</b>	<b>\$ 133,351</b>	<b>\$ 133,049</b>	<b>\$ 144,112</b>	<b>\$ 161,735</b>	<b>\$ 172,041</b>
<b>Type of Refund</b>					
Death	\$ -	\$ -	\$ 3	\$ -	\$ -
Separation	739	500	615	547	420
<b>Total refunds</b>	<b>\$ 739</b>	<b>\$ 500</b>	<b>\$ 618</b>	<b>\$ 547</b>	<b>\$ 420</b>

Fiscal Year	2012	2013	2014	2015	2016
<b>Type of Benefit</b>					
Service					
Retirees	\$ 108,886	\$ 116,217	\$ 125,616	\$ 135,705	\$ 145,866
Survivors	20,694	21,586	22,333	23,510	25,244
Disability					
Retirees - duty	5,218	5,378	5,517	5,678	6,119
Retirees - nonduty	538	546	598	626	629
Survivors	2,147	2,120	2,195	2,290	2,344
Lump Sum					
DROP distributions	11,078	13,334	13,526	11,054	15,431
PROP distributions	31,180	39,857	40,623	46,575	61,580
Other *	273	217	1,282	218	1,863
<b>Total benefits</b>	<b>\$ 180,014</b>	<b>\$ 199,255</b>	<b>\$ 211,690</b>	<b>\$ 225,656</b>	<b>\$ 259,076</b>
<b>Type of Refund</b>					
Death	\$ -	\$ -	\$ -	\$ -	\$ -
Separation	704	641	906	945	978
<b>Total refunds</b>	<b>\$ 704</b>	<b>\$ 641</b>	<b>\$ 906</b>	<b>\$ 945</b>	<b>\$ 978</b>

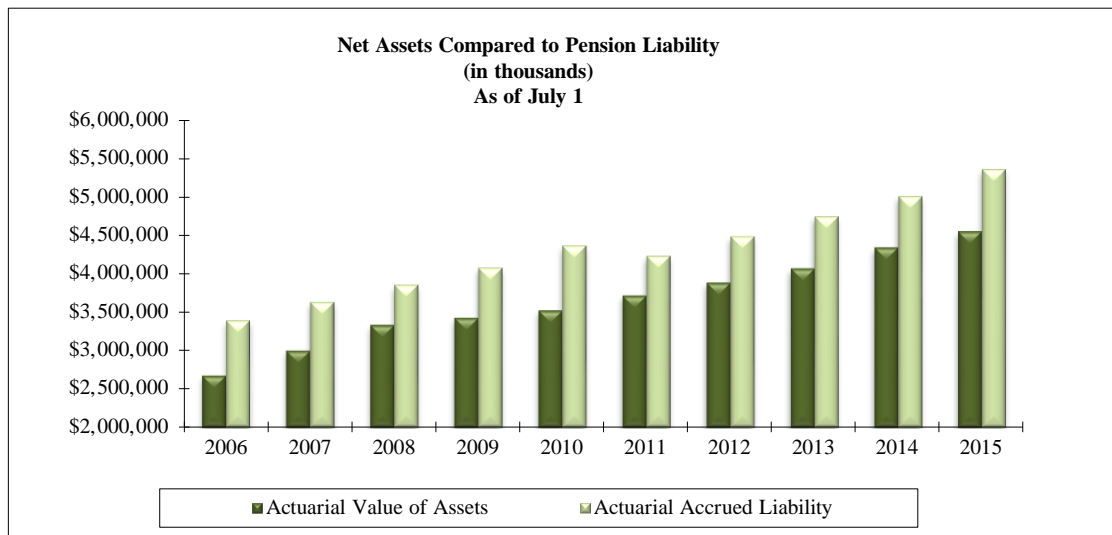
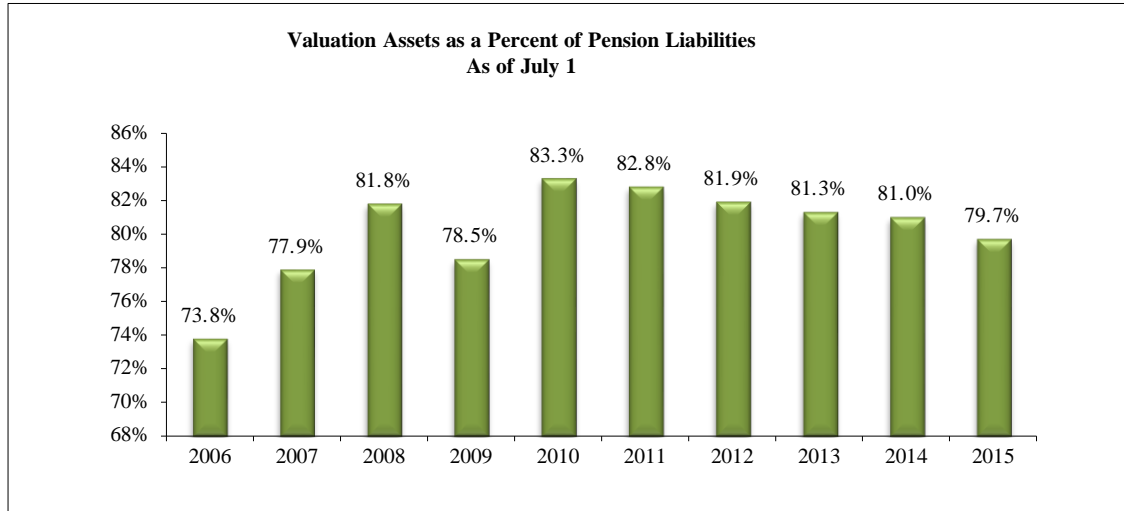
\* Lump Sum, Other: Under the provisions of Article 6243g-4, Vernon's Annotated Texas Statutes (VATS), Sec. 12(b) and Sec. 15(c) a member who retires, including a member who was a DROP participant, and begins to receive a monthly service pension shall receive a one-time lump sum payment of \$5,000. This benefit became effective November 23, 1998 with the first payments in 1999. All one-time lump sum payments of \$5,000 are reported with the DROP distributions.

Article 6243g-4, Vernon's Annotated Texas Statutes (VATS), Sec. 15(h) provides for the payment of an additional monthly disability benefit in the form of a lump sum to assist members retired due to disability with the costs of an education or training program. Payment of the additional monthly disability benefit occurs only after the member successfully completes each semester.

**Total Benefit Payments by Type**  
 (in thousands)  
 Years ended June 30



**STATISTICAL SECTION**

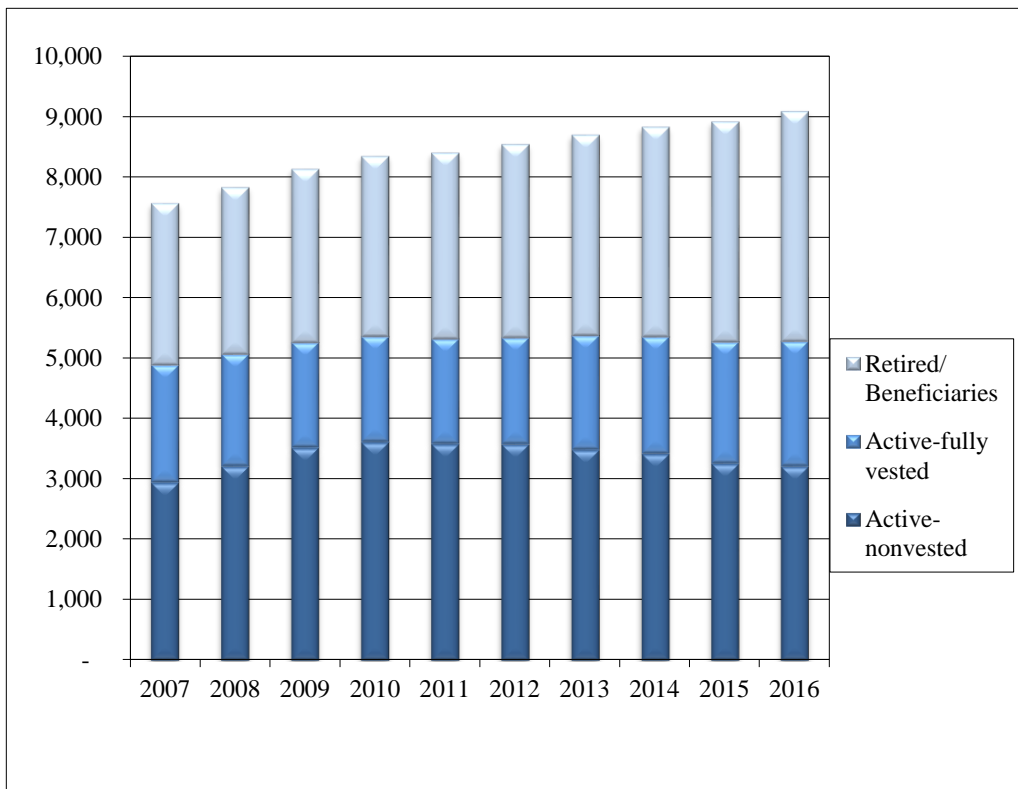


Charts through most recent actuarial valuation dated July 1, 2015.

**STATISTICAL SECTION**

**Membership  
Last Ten Fiscal Years**

Fiscal Year	Active		Retired/ Beneficiaries	Terminated Vested	Totals
	Nonvested	Fully Vested			
2007	2,942	1,940	2,683	15	7,580
2008	3,211	1,849	2,768	16	7,844
2009	3,516	1,735	2,876	19	8,146
2010	3,609	1,745	2,989	20	8,363
2011	3,578	1,733	3,087	23	8,421
2012	3,572	1,758	3,207	22	8,559
2013	3,481	1,885	3,326	24	8,716
2014	3,416	1,931	3,477	24	8,848
2015	3,255	2,007	3,647	22	8,931
2016	3,210	2,064	3,807	22	9,103



STATISTICAL SECTION

**Total Pensions in Force by Type and by Age  
Year Ended June 30, 2016**

Age on June 30,	Total	Type of Pension		
		Service	Disability	Survivor
Under 40	30	-	7	23
40-44	21	6	9	6
45-49	93	50	28	15
50-54	342	279	36	27
55-59	675	605	30	40
60-64	780	694	22	64
65-69	806	682	19	105
70-74	410	310	4	96
75-79	290	182	6	102
80-84	209	134	-	75
85 and over	151	66		85
<b>Total</b>	<b>3,807</b>	<b>3,008</b>	<b>161</b>	<b>638</b>

**Pensions Awarded in Current Year by Type and by Age  
Year Ended June 30, 2016**

Age on June 30,	Total	Type of Pension		
		Service	Disability	Survivor
Under 40	4	-	2	2
40-44	5	4	-	1
45-49	15	12	3	-
50-54	45	45	-	-
55-59	83	80	1	2
60-64	36	32	-	4
65-69	20	9	-	11
70-74	9	2	-	7
75-79	11	-	-	11
80-85	5	-	-	5
85 and over	2	-	-	2
<b>Total</b>	<b>235</b>	<b>184</b>	<b>6</b>	<b>45</b>

**Pensions Awarded in Current Year by Type and by Monthly Amount  
Year Ended June 30, 2016**

Monthly Amount	Total	Type of Pension		
		Service	Disability	Survivor
Under \$1000	-	-	-	-
\$1000-\$2000	7	6	1	-
\$2000-\$3000	16	5	1	10
\$3000-\$4000	91	73	3	15
\$4000-\$5000	88	76	1	11
\$5000-\$6000	26	21	-	5
\$6000 and over	7	3	-	4
<b>Total</b>	<b>235</b>	<b>184</b>	<b>6</b>	<b>45</b>

STATISTICAL SECTION

Average Monthly Benefit Amounts  
Previous Ten Fiscal Years

Member Retiring During Fiscal Years	Years Credited Service										All Members
	<5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	>45	
2007 Avg monthly benefit	\$ -	\$ 2,463	\$ 2,742	\$ -	\$ 3,272	\$ 3,472	\$ 3,450	\$ 4,329	\$ 4,219	\$ -	\$ 3,447
Avg final Avg salary	\$ -	\$ 4,478	\$ 4,930	\$ -	\$ 5,841	\$ 6,284	\$ 5,977	\$ 6,455	\$ 5,676	\$ -	\$ 6,004
Avg DROP Balance	\$ -	\$ 5,000	\$ 5,000	\$ -	\$ 131,167	\$ 379,358	\$ 578,912	\$ 739,378	\$ 740,515	\$ -	\$ 367,727
Number of retirees	-	1	7	-	58	46	44	16	1	-	173
2008 Avg monthly benefit	\$ -	\$ 1,665	\$ 2,502	\$ 3,803	\$ 3,498	\$ 3,359	\$ 3,771	\$ 4,031	\$ 5,045	\$ -	\$ 3,520
Avg final Avg salary	\$ -	\$ 4,405	\$ 5,037	\$ 6,914	\$ 5,910	\$ 3,021	\$ 6,461	\$ 6,286	\$ 6,949	\$ -	\$ 6,052
Avg DROP Balance	\$ -	\$ 5,000	\$ 5,000	\$ 5,000	\$ 144,905	\$ 399,403	\$ 654,515	\$ 772,141	\$ 947,241	\$ -	\$ 381,261
Number of retirees	-	3	3	1	39	29	23	10	2	-	110
2009 Avg monthly benefit	\$ -	\$ -	\$ -	\$ 3,064	\$ 3,698	\$ 3,518	\$ 3,677	\$ 4,396	\$ 4,266	\$ -	\$ 3,669
Avg final Avg salary	\$ -	\$ -	\$ -	\$ 6,415	\$ 2,559	\$ 5,242	\$ 6,623	\$ 6,635	\$ 6,165	\$ -	\$ 5,150
Avg DROP Balance	\$ -	\$ -	\$ -	\$ 5,000	\$ 221,852	\$ 359,788	\$ 720,598	\$ 980,656	\$ 969,869	\$ -	\$ 477,574
Number of retirees	-	-	-	2	29	50	36	8	3	-	128
2010 Avg monthly benefit	\$ -	\$ -	\$ 2,832	\$ 3,909	\$ 3,474	\$ 3,779	\$ 3,851	\$ 4,130	\$ 3,973	\$ -	\$ 3,770
Avg final Avg salary	\$ -	\$ -	\$ 5,149	\$ 5,888	\$ 6,016	\$ 6,382	\$ 6,932	\$ 6,895	\$ 5,871	\$ -	\$ 6,457
Avg DROP Balance	\$ -	\$ -	\$ 5,000	\$ 5,000	\$ 194,752	\$ 382,059	\$ 759,037	\$ 988,599	\$ 987,988	\$ -	\$ 501,842
Number of retirees	-	-	2	4	26	48	32	15	3	-	130
2011 Avg monthly benefit	\$ 926	\$ -	\$ 2,562	\$ 3,009	\$ 3,679	\$ 3,929	\$ 3,640	\$ 4,062	\$ 3,941	\$ -	\$ 3,816
Avg final Avg salary	\$ 4,117	\$ -	\$ 4,658	\$ 5,472	\$ 6,457	\$ 6,572	\$ 6,581	\$ 7,107	\$ 6,063	\$ -	\$ 6,584
Avg DROP Balance	\$ -	\$ -	\$ 5,000	\$ 5,000	\$ 131,819	\$ 442,433	\$ 698,025	\$ 1,065,857	\$ 1,047,127	\$ -	\$ 536,243
Number of retirees	1	-	1	1	15	68	28	17	1	-	132
2012 Avg monthly benefit	\$ 972	\$ 4,489	\$ -	\$ 2,605	\$ 3,681	\$ 4,011	\$ 3,696	\$ 4,148	\$ 4,008	\$ 5,642	\$ 3,908
Avg final Avg salary	\$ 4,320	\$ 4,489	\$ -	\$ 5,920	\$ 6,606	\$ 6,844	\$ 6,663	\$ 7,047	\$ 6,047	\$ 5,961	\$ 6,726
Avg DROP Balance	\$ -	\$ -	\$ -	\$ 5,000	\$ 146,704	\$ 466,282	\$ 729,916	\$ 1,066,076	\$ 1,179,404	\$ 1,536,548	\$ 584,831
Number of retirees	1	1	-	1	17	70	33	15	3	2	143
2013 Avg monthly benefit	\$ -	\$ -	\$ -	\$ -	\$ 3,900	\$ 4,024	\$ 4,167	\$ 4,076	\$ 3,983	\$ 5,535	\$ 4,068
Avg final Avg salary	\$ -	\$ -	\$ -	\$ -	\$ 6,728	\$ 6,554	\$ 7,171	\$ 7,208	\$ 6,113	\$ 7,236	\$ 6,860
Avg DROP Balance	\$ -	\$ -	\$ -	\$ -	\$ 59,940	\$ 514,240	\$ 775,272	\$ 1,161,766	\$ 1,318,435	\$ 1,674,363	\$ 653,105
Number of retirees	-	-	-	-	19	58	43	23	2	1	146
2014 Avg monthly benefit	\$ -	\$ -	\$ -	\$ 2,375	\$ 3,769	\$ 4,117	\$ 4,162	\$ 4,029	\$ 3,802	\$ -	\$ 4,073
Avg final Avg salary	\$ -	\$ -	\$ -	\$ 5,106	\$ 6,713	\$ 6,728	\$ 6,841	\$ 7,217	\$ 6,019	\$ -	\$ 6,834
Avg DROP Balance	\$ -	\$ -	\$ -	\$ 5,000	\$ 87,531	\$ 578,735	\$ 762,664	\$ 1,135,941	\$ 1,309,578	\$ -	\$ 689,150
Number of retirees	-	-	-	1	21	51	82	26	1	-	182
2015 Avg monthly benefit	\$ -	\$ 2,069	\$ 1,246	\$ 3,454	\$ 3,811	\$ 4,022	\$ 4,286	\$ 3,994	\$ 4,346	\$ -	\$ 4,092
Avg final Avg salary	\$ -	\$ 4,491	\$ 5,277	\$ 6,361	\$ 6,786	\$ 6,608	\$ 7,112	\$ 7,083	\$ 7,076	\$ -	\$ 6,929
Avg DROP Balance	\$ -	\$ -	\$ -	\$ 5,000	\$ 132,108	\$ 524,044	\$ 751,329	\$ 1,153,557	\$ 1,443,545	\$ -	\$ 685,507
Number of retirees	-	2	1	4	33	42	78	27	5	-	192
2016 Avg monthly benefit	\$ 2,042	\$ 1,744	\$ 3,258	\$ 2,578	\$ 3,864	\$ 3,928	\$ 4,405	\$ 4,345	\$ 4,584	\$ -	\$ 4,183
Avg final Avg salary	\$ 4,432	\$ 3,785	\$ 5,784	\$ 6,687	\$ 6,831	\$ 6,812	\$ 7,198	\$ 7,939	\$ 8,747	\$ -	\$ 7,199
Avg DROP Balance	\$ -	\$ -	\$ -	#####	\$ 106,042	\$ 552,746	\$ 897,392	\$ 1,303,984	\$ 1,842,540	\$ -	\$ 779,406
Number of retirees	1	1	1	3	41	17	92	25	5	-	192
Ten Years Ended June 30, 2016											
Avg Monthly Benefit	\$ 1,314	\$ 3,840	\$ 3,079	\$ 3,090	\$ 3,806	\$ 3,809	\$ 3,686	\$ 4,087	\$ 3,850	\$ 5,606	\$ 3,789
Avg Final Avg Salary	\$ 4,290	\$ 6,965	\$ 5,661	\$ 5,900	\$ 6,326	\$ 6,237	\$ 6,286	\$ 6,859	\$ 5,967	\$ 6,386	\$ 6,394
Avg DROP Balance	\$ -	\$ 6,875	\$ 5,333	\$ 41,861	\$ 137,393	\$ 445,998	\$ 692,053	\$ 993,306	\$ 1,068,327	\$ 1,582,486	\$ 538,038
Number of Retirees	3	8	15	17	298	479	491	182	26	3	1,528

The above chart includes all Service, Proportionate and Disability retirements. It does not include Survivor benefits or pending Delayed Retirements. The DROP Balance includes \$5,000 lump sum benefit.

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STATISTICAL SECTION

**DROP Activity**  
**(dollars in thousands)**  
**Years ended June 30**

Fiscal Year	DROP Accounts			DROP Participants		
	Accumulations	Distributions	Total	Entrants	Withdrawals	Total
2007	\$ 80,863	\$ (23,315)	\$ 492,662	120	(157)	1,936
2008	95,543	(9,937)	578,268	15	(100)	1,851
2009	81,590	(10,889)	648,969	13	(126)	1,738
2010	75,874	(16,682)	708,161	106	(117)	1,727
2011	67,927	(11,941)	764,147	128	(112)	1,743
2012	66,898	(11,078)	819,967	148	(129)	1,762
2013	61,634	(13,334)	868,267	253	(143)	1,872
2014	33,171	(13,526)	887,912	232	(183)	1,921
2015	44,580	(11,054)	921,438	256	(186)	1,991
2016	51,316	(15,431)	957,323	253	(186)	2,058

**PROP Activity**  
**(dollars in thousands)**  
**Years ended June 30**

Fiscal Year	PROP Accounts			PROP Participants		
	Accumulations	Distributions	Total	Entrants	Withdrawals	Total
2007	\$ 56,938	\$ (11,303)	\$ 192,253	115	(16)	547
2008	44,696	(16,680)	220,269	73	(19)	601
2009	75,482	(19,922)	275,829	113	(14)	700
2010	71,913	(24,035)	323,707	95	(22)	773
2011	80,849	(31,125)	373,431	115	(29)	859
2012	98,886	(31,180)	441,137	144	(23)	980
2013	114,392	(39,857)	515,672	162	(33)	1,109
2014	144,224	(40,623)	619,367	176	(28)	1,257
2015	169,517	(46,575)	742,309	176	(11)	1,422
2016	190,703	(61,580)	871,432	158	(11)	1,569



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