DC RETIREMENT BOARD
TRUSTEE COMMITTEES LIST

As of June 16, 2016

AUDIT	BENEFITS	FIDUCIARY
Gary W. Hankins, Chair	Edward Smith, Chair	Joseph W. Clark, Chair
Joseph M. Bress, Ex-Officio	Nathan Saunders, Vice Chair	Joseph M. Bress, Ex-Officio
Barbara D. Blum	Joseph M. Bress, Ex-Officio	Lyle M. Blanchard
Michael J. Warren	Mary A. Collins	
Lenda P. Washington	Lenda P. Washington	

INVESTMENTS
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Nathan A. Saunders	Joseph W. Clark
Edward C. Smith	Gary W. Hankins
	Darrick Ross

NOTE: Chairman Joseph M. Bress, is an ex-officio member of every standing committee, except for the Investment Committee. The Investment Committee is a Committee of the Whole. Trustees can only serve on three (3) Committees.

Approved by Board Chairman on June 16, 2016.

Council of Institutional Investors
The Voice of Corporate Governance

Special Invitation for Fund Trustees from CII

Dear [First Name]:

We are contacting you about an exciting new educational program tailored for fund trustees!

CII, in partnership with the CFA Institute, will host a one-day training course just for pension fund trustees, on Wednesday, September 28, in Chicago. This special program—for trustees only, no staff—will be held in conjunction with CII's fall conference, September 28-30, at the Palmer House Hilton. The course presents a unique opportunity for trustees to learn from each other's experiences and ask questions in a "safe" space. It also offers insights on many of the most immediate challenges fund trustees face.

The curriculum has been developed and will be taught by experts at the CFA Institute, a highly respected investor-focused organization with decades of expertise in professional training. Earlier this year, CII conducted an informal survey of member fund trustees about the course and responses were overwhelmingly enthusiastic. Click here to view the current program and to register.

Because it is a pilot program, CII is offering the course to trustees of pension funds that are CII members at a special price of $395. We hope that you and other trustees at your fund will take the course and then stay on after to attend CII's fall conference (no extra charge), also at the Palmer House Hilton. Registration for the conference is now open, click here to view the latest agenda and register to attend.

Please contact Melissa Fader, membership services manager, with any questions about the trustee training program and for assistance with registration at Melissa@cii.org or 202.261.7096.

Thank you for your support for this unique opportunity for you and fellow fund trustees to strengthen your understanding of the important ethical and investment issues you face.

Warm regards,

Theresa Whitmarsh
Chair
Council of Institutional Investors

Ken Bertsch
Executive Director
Council of Institutional Investors

1717 Pennsylvania Avenue NW • Suite 350 • Washington, DC 20006 Main 202.822.0800 • Fax 202.822.0801

Council of Institutional Investors
The Voice of Corporate Governance

Pension Fund Trustee Training
Sept. 28, 2016, 9 AM to 3 PM
Palmer House Hilton Hotel, Chicago

The latest issues and trends in trustee service
Hosted by CII in partnership with the CFA Institute

This one-day course is for pension fund trustees only (no staff) and is being offering to CII member trustees at a special introductory fee of $395 (and $595 for non-CII member trustees). The program precedes CII's fall conference in Chicago, Sept. 28-30, 2016. Trustees of funds that are members of CII are welcome to attend the fall conference at no extra charge.

Curriculum

Back to Basics - An Update on Trustee Ethical Issues
This interactive, case-based course will review recent ethical dilemmas in the pension fund industry and the challenges trustees face with ethical decision-making. Participants will evaluate several fact patterns to sharpen their knowledge and understanding of fiduciary responsibilities, conflicts of interest, duties of care and loyalty regarding plan participants and the consideration of plan sponsor circumstances. The focus will be on gray areas and resolving ethical dilemmas.

Fundamentals - Mastering Basic Investment Skills
In this lecture-format presentation, characteristics of risk and return for a multi-class set of assets will be described. The course will also examine common liability structures for a variety of funds (pension, endowment) ways to set strategic investment objectives. Risk budgeting for funds will be explored and applied in a brief case study that enhances participants' understanding of the tactical and strategic choices that fund stewards must make.

What's New in Active Investing (working lunch)
Pension funds—public funds especially—are increasingly encouraged to focus investment activities on more than just the best, risk-adjusted return for beneficiaries. Plan participants, industry stakeholders, elected officials and others want trustees to consider environmental, social and governance (ESG) factors, and to take a more active approach to the stewardship of pension assets. This session will explore ESG issues and factors trustees should consider when funds integrate these issues into investment decisions.

Navigating Current Challenges and Opportunities
Participants will analyze several cases that demonstrate how due diligence and monitoring can help trustees avoid mistakes in selecting appropriate investments, especially more complex investments. They will also learn how contractual language can affect investor rights.

For further information or to register, please contact Amy Borrus, amy@cii.org or 202.261.7082

Council of Institutional Investors
The Voice of Corporate Governance

CFA Institute

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

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

EXECUTIVE DIRECTOR REPORT
July 21, 2016

Activities	Updates
Joseph Bress Reappointment Resolution	On April 5, 2016, the District Council unanimously adopted Council Resolution 21-444, the "District of Columbia Retirement Board Joseph M. Bress Reappointment Resolution of 2016," reappointing Joseph Bress to the Board. The reappointment was effective retroactive to January 28, 2016, for a four-year term that will end on January 27, 2020. Attached, for your information, is a copy of the June 21, 2016 cover letter transmitting this action to the Board, as well as copies of the Resolution and Certification Record.
EEO Laws and Sexual Harrassment Sensitivity Training	DCRB staff recently received mandatory sexual harassment sensitivity training that was conducted onsite by DCHR. The training was in separate segments for managers and staff. Subsequent feedback reflected that both segments were informative and well received.
Federal Benefits Seminar	On June 29 and 30, OPM offered its annual Federal Benefits Seminar as a live event over the Internet. DCRB took advantage of this opportunity and was able to project the entire seminar onto the screens in our Boardroom so interested staff could attend the sessions that were of interest to them. The Seminar provided sessions on: Policy Operations/Insurance Update, Federal Employee Health Benefits and Medicare, Health Insurance/Retirement Open Forum, and Services On-Line. In the past, Benefits staff members have had to travel to distant cities to attend this program.
Board Governance Manual	As you may recall, a copy of the newly drafted Board Governance Manual was provided to you electronically in Diligent Boardbooks with the May Board materials. Any Trustee who would like to have a hard copy of the Manual should contact Deborah Reaves.
Branding Update	Now that contract issues have concluded between DCRB's branding vendor and IBEW requirements, measurements have been taken for the final branding elements (e.g., name plates, privacy screening, lobby logo, etc.) to be completed. We expect that our vendor will perform those remaining tasks by the end of September.
Staff Travel Policy Amendments	The Staff Travel Policy is under review and is being updated to include references to the treatment of new services, such as, Uber and Lyft. We are also soliciting input from our Travel Coordinators and from staff members who have traveled recently to determine if further adjustments need to be made.

Staff Compensation	Merit increases and bonuses were paid to DCRB staff, as appropriate, reflecting their performance for calendar year 2015.
Staff Appreciation Day	DCRB's annual Staff Appreciation Day will be held on the rooftop of the IBEW building on Friday, August 19, from noon to 3 p.m. This annual event is funded by the DCRB senior staff. Trustees who have the time available are invited to join us.
Staffing Changes That Occurred Since the Last Board Meeting	**Hires** **Katie Schultz**, who began working for DCRB last October as a Communications contractor, rejoined us full-time on July 5 as a Communication Specialist. Katie previously worked for DCRB as a Special Projects Assistant from 2008 to 2014, working primarily on communications projects. **Shaquja Clark** is an Intern, who will be assisting the Executive Office and the Finance Department this summer with agency projects. She attends Delaware State University and is majoring in mass communications.
Sad News	I would also like to mention the sudden passing of former DCRB employee, **Nichole Holmes,** on July 9, 2016. Nichole joined our administrative staff in September 2006, transferred to the Benefits Department shortly thereafter, and left for an opportunity with Metro in September 2014. Our sincere condolences go out to her family and to her many friends here at DCRB.
Recent Retirement-Related Articles (attached)	"The Funding of State and Local Pensions: 2015 - 2020," Center for Retirement Research at Boston College, Alicia H. Munnell and Jean-Pierre Aubry, June 2016. "Preserving Retirement Income Security for Public Sector Employees," National Institute on Retirement Security, Diane Oakley and Jennifer Erin Brown, July 2016.

COUNCIL OF THE DISTRICT OF COLUMBIA
THE JOHN A. WILSON BUILDING
1350 PENNSYLVANIA AVENUE, N.W.
WASHINGTON, D.C. 20004

June 21, 2016

Eric O. Stanchfield, Executive Director
District of Columbia Retirement Board
900 7th Street NW, 2nd Floor
Washington, D.C. 20001

Dear Mr. Stanchfield:

Enclosed is a copy of Council Resolution 21-444, the "District of Columbia Retirement Board Joseph M. Bress Reappointment Resolution of 2016," adopted by the Council at the April 5, 2016 Legislative Meeting.

If you have any questions regarding this resolution, please contact Nyasha Smith, Secretary to the Council, at 202-724-8080 or nsmith@dccouncil.us.

Sincerely,

Phil Mendelson
Chairman of the Council

enc.

ENROLLED ORIGINAL

A RESOLUTION

21-444

IN THE COUNCIL OF THE DISTRICT OF COLUMBIA

April 5, 2016

To reappoint Mr. Joseph M. Bress to the District of Columbia Retirement Board.

RESOLVED, BY THE COUNCIL OF THE DISTRICT OF COLUMBIA, That this resolution may be cited as the "District of Columbia Retirement Board Joseph M. Bress Reappointment Resolution of 2016".

Sec. 2. The Council of the District of Columbia reappoints:

Mr. Joseph M. Bress
3704 Harrison Street, N.W.
Washington, D.C. 20015
(Ward 3)

as a member of the District of Columbia Retirement Board, established by section 121 of the District of Columbia Retirement Reform Act, approved November 17, 1979 (93 Stat. 869; D.C. Official Code § 1-711), for a 4-year term to end January 27, 2020.

Sec. 3. Transmittal.
The Council of the District of Columbia shall transmit a copy of this resolution, upon its adoption, to the appointee, the chairperson of the District of Columbia Retirement Board, and the Office of the Mayor.

Sec. 4. Effective date.
This resolution shall take effect immediately upon the first date of publication in the District of Columbia Register.

COUNCIL OF THE DISTRICT OF COLUMBIA
WASHINGTON, D.C. 20004

Docket No. PR 21-563

[X] ITEM ON CONSENT CALENDAR
[X] ACTION & DATE — ADOPTED FINAL READING, 04/05/2016
[X] VOICE VOTE
RECORDED VOTE ON REQUEST — APPROVED
ABSENT ______

[ ] ROLL CALL VOTE – Result ______ (______)

Councilmember	Aye	Nay	NV	AB	Councilmember	Aye	Nay	NV	AB	Councilmember	Aye	Nay	NV	AB
Chmn. Mendelson	X				Evans	X				Orange	X			
Alexander	X				Grosso	X				Silverman	X			
Allen	X				May	X				Todd	X			
Bonds	X				McDuffie	X								
Cheh	X				Nadeau	X								

X – Indicate Vote AB – Absent NV – Present, Not Voting

CERTIFICATION RECORD

Secretary to the Council — 6·17·16 Date

[ ] ITEM ON CONSENT CALENDAR
[ ] ACTION & DATE ______
[ ] VOICE VOTE
RECORDED VOTE ON REQUEST ______
ABSENT ______

[ ] ROLL CALL VOTE – Result ______ (______)

Councilmember	Aye	Nay	NV	AB	Councilmember	Aye	Nay	NV	AB	Councilmember	Aye	Nay	NV	AB
Chmn. Mendelson					Evans					Orange				
Alexander					Grosso					Silverman				
Allen					May					Todd				
Bonds					McDuffie									
Cheh					Nadeau									

X – Indicate Vote AB – Absent NV – Present, Not Voting

CERTIFICATION RECORD

Secretary to the Council — Date

[ ] ITEM ON CONSENT CALENDAR
[ ] ACTION & DATE ______
[ ] VOICE VOTE
RECORDED VOTE ON REQUEST ______
ABSENT ______

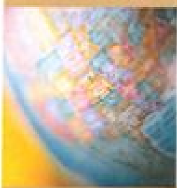
[ ] ROLL CALL VOTE – Result ______ (______)

Councilmember	Aye	Nay	NV	AB	Councilmember	Aye	Nay	NV	AB	Councilmember	Aye	Nay	NV	AB
Chmn. Mendelson					Evans					Orange				
Alexander					Grosso					Silverman				
Allen					May					Todd				
Bonds					McDuffie									
Cheh					Nadeau									

X – Indicate Vote AB – Absent NV – Present, Not Voting

CERTIFICATION RECORD

Secretary to the Council — Date



CENTER *for* RETIREMENT RESEARCH *at* BOSTON COLLEGE

STATE AND LOCAL PENSION PLANS

NUMBER 50, JUNE 2016

THE FUNDING OF STATE AND LOCAL PENSIONS: 2015-2020

*By Alicia H. Munnell and Jean-Pierre Aubry**

INTRODUCTION

The funded status of state and local pension plans based on the Governmental Accounting Standards Board's traditional rules (GASB 25) increased slightly in 2015. The main reason is that, despite the poor stock market performance in 2015, returns over the last five years have been strong. Conversely, the funded status based on the new GASB 67 rules, with assets at market value, showed a slight decline in the funded rate primarily due to the subpar 2015 returns.

In 2015, most plan sponsors continued to maintain the traditional GASB rules (with smoothed assets and expected long-run returns for discounting) in their actuarial reports for the purposes of funding. For reporting in their financial documents, however, all plans adopted the new GASB rules of valuing assets at market, and 10 plans in the *Public Plans Database* also used a blended discount rate to account for a projected exhaustion of assets. This *brief* focuses more on the data in the actuarial reports used for funding purposes, because they provide the basis for historical comparisons and for funding decisions.

The discussion is organized as follows. The first section reports that the ratio of assets to liabilities for the 160 plans in the *Public Plans Database* increased slightly from 73 percent in 2014 to 74 percent in 2015. The second section shows that the required contribution, for the sample as a whole, increased to 18.6 percent of payrolls, while the percentage of required contribution paid increased to 91 percent from 86 percent in 2014. Given the controversy about the appropriate discount rate, the third section revalues liabilities and recalculates funded ratios using a variety of discount rates. The fourth section briefly examines the plans that, for reporting purposes, use a blended

* *Alicia H. Munnell is director of the Center for Retirement Research at Boston College (CRR) and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. Jean-Pierre Aubry is the associate director of state and local research at the CRR.* *The authors thank Christine Manuelo for extraordinary data collection. The authors thank David Blitzstein, Keith Brainard, Emily Brock, Alex Brown, and Steven Kreisberg for helpful comments.*

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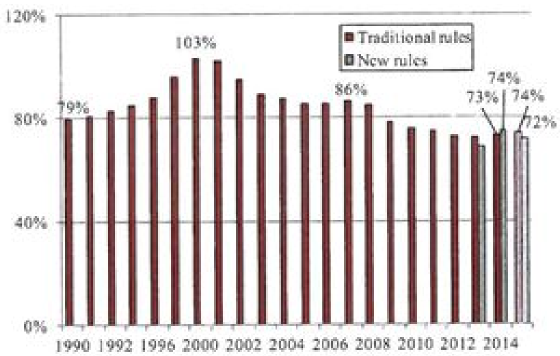
discount rate under the new GASB standards. The fifth section projects reported funded ratios for our sample plans for 2016-20 under the assumption that plans meet their expected returns and under an alternative assumption that they realize the substantially lower returns projected by many investment firms. The final section concludes that, if plans realize their assumed returns, the public pension landscape should continue to improve over the next few years; but if returns fall short, funded levels will deteriorate.

Funded Status in 2015

This section reports funded ratios under both the traditional GASB rules and the new GASB rules, which first went into effect in 2014. The new rules involve two major changes relating to the valuation of assets and liabilities used to measure reported funded ratios. First, assets are reported at market value rather than actuarially smoothed. Second, projected benefit payments are discounted by a combined rate that reflects: 1) the expected return for the portion of liabilities that is projected to be covered by plan assets; and 2) the return on high-grade municipal bonds for any portion that is to be covered by other resources.[1]

Figure 1. State and Local Pension Funded Ratios, FY 1990-2015



Notes: The 2013 funded ratio under the new rules was reported by plans to show the change between 2013 and 2014. 2015 involves projections for about one third of plans.
Sources: 2015 actuarial valuations; *Public Plans Database* (PPD) (2001-2015); and Zorn (1990-2000).

In fiscal year (FY) 2015, the estimated aggregate ratio of assets to liabilities for our sample of 160 state and local pension plans was 74 percent under the traditional rules and 72 percent under the new rules (see Figure 1).[2] (The ratio for each individual plan appears in the Appendix).

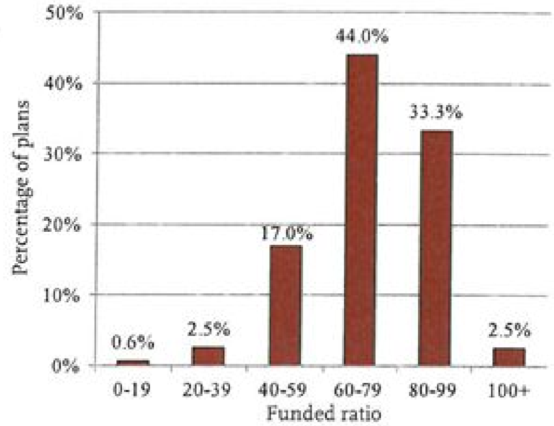
The 74-percent funded level from the actuarial reports reflects liabilities of $4.5 trillion and smoothed asset values of $3.4 trillion; the 72-percent level under the new rules reflects very similar liabilities but assets of $3.2 trillion. The difference in asset values is due to the performance of the stock market. The last five years have been a combination of three terrific years and two weak years; 2015 was one of the weak years (see Figure 2).

Figure 2. Percentage Change in Wilshire 5000 Index, FY 2001-2015

Note: Data for 2015 available through May 30, 2015.
Source: Wilshire Associates (2016).

In 2015, as in earlier years, funded levels among plans vary substantially. Figure 3 (on the next page) shows the distribution of funding for the sample of 160 plans under the traditional rules. Although many of the poorly-funded plans are relatively small, several large plans, such as three in Illinois (SERS, Teachers, and Universities) and one in Connecticut (SERS), had funded levels below 50 percent.

FIGURE 3. DISTRIBUTION OF FUNDED RATIOS FOR PUBLIC PLANS UNDER TRADITIONAL RULES, FY 2015



Sources: 2015 actuarial valuations; and authors' calculations from PPD (2015).

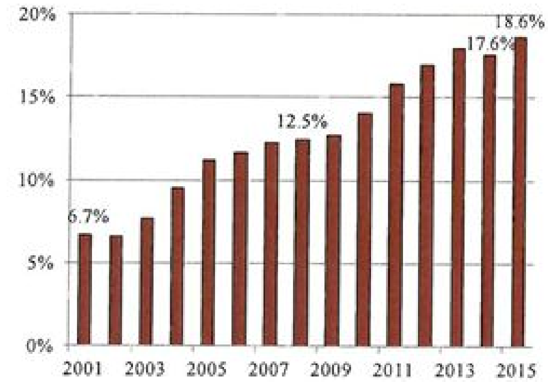
THE ADEC (FORMERLY THE ARC)

Last year, the new GASB standards replaced the Annual Required Contribution (ARC) with the Actuarially Determined Employer Contribution (ADEC). Unlike with assets and liabilities, plans do not seem to be maintaining two sets of required-contribution numbers – one for the actuarial valuation and one for the financial statements – but rather have shifted to using the ADEC for both purposes.

While both the ARC and ADEC are meant to capture the employer's "required contribution" to keep the plan on a steady path toward full funding, the two concepts differ slightly. First, while GASB limited the range of allowable assumptions and methods that could be used to calculate the ARC, GASB allows more flexibility for calculating the ADEC. Second, for single-employer and agent plans that use a statutory contribution rate, GASB allows for the ADEC to reflect the statutory contribution rather than an actuarially calculated contribution. While conceptually these differences could cause a discontinuity between the ARC and the ADEC, in practice they do not appear to be consequential. Thus, it seems reasonable to extend our prior ARC series using the ADEC.

Both the ARC and the ADEC equal normal cost – the present value of the benefits accrued in a given year – plus a payment to amortize the unfunded liability, generally over 20-30 years. These measures have increased mainly because the financial crisis led to higher unfunded liabilities and, thereby, a higher amortization component of the calculation. In 2015, the ADEC was 18.6 percent of payroll for the sample as a whole, up sharply from 2014 (see Figure 4).

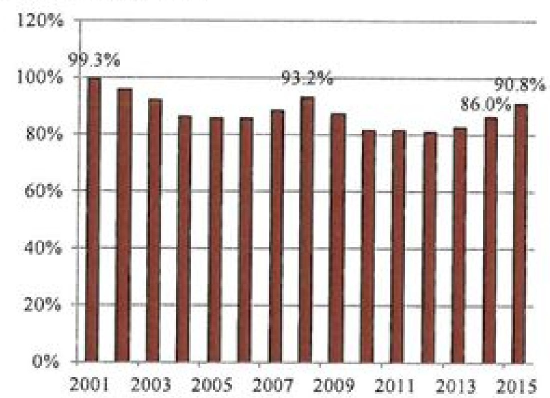
FIGURE 4. REQUIRED CONTRIBUTION AS A PERCENTAGE OF PAYROLL, FY 2001-2015



Notes: The 2001-13 measure is the ARC ; the 2014-15 measure is the ADEC. The 2015 value involves projections for about one third of plans.
Sources: 2015 actuarial valuations; and PPD (2001-2015).

Despite the increase in the ADEC as a percentage of payroll, sponsors are paying an increasing share of their required contribution, rising to 91 percent in 2015 (see Figure 5). This improvement mirrors the

FIGURE 5. PERCENTAGE OF REQUIRED CONTRIBUTION PAID, FY 2001-2015



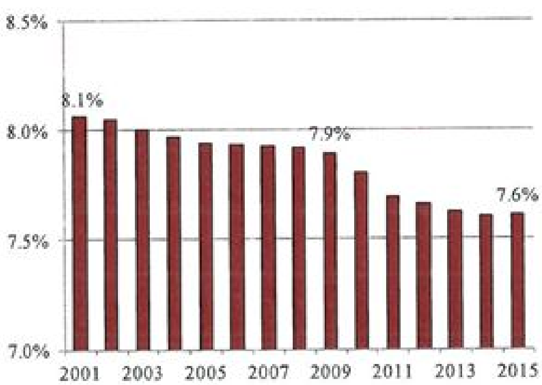
Notes: The 2001-2013 measure is the ARC; the 2014-15 measure is the ADEC. The 2015 value is authors' estimate.
Sources: 2015 actuarial valuations; and PPD (2001-2015).

pattern of decline and recovery in the percentage of required contribution paid in the wake of the bursting of the dot.com bubble at the turn of the century.

Sensitivity of Funded Status to Assumed Discount Rate

Under GASB's traditional rules for funded ratios, assets are reported on an actuarially smoothed basis and the discount rate is the long-run expected rate of return. The discount rate has declined in recent years from around 8.0 percent to 7.6 percent in 2015 (see Figure 6).

Figure 6. Discount Rates for Public Plans under Traditional Rules, FY 2001-2015



Sources: 2015 actuarial valuations; and PPD (2001-2015).

Financial economists argue that – *for reporting purposes* – future streams of payment should be discounted at a rate that reflects their risk rather than at the expected return.[3] Moreover, even many who agree that the expected return may be appropriate for funding purposes are concerned about the level of assumed returns in the current financial market environment. Hence, Table 1 shows liabilities and funded ratios under alternative discount rate assumptions.

Table 1. Aggregate State and Local Pension Measures under Alternative Discount Rates, FY 2015, Trillions of Dollars

Measure	Discount rate				
	7.6%	7%	6%	5%	4%
Total liability	$4.5	$5.1	$5.8	$6.6	$7.5
Actuarial assets	3.4	3.4	3.4	3.4	3.4
Unfunded liability	1.2	1.8	2.5	3.3	4.1
Percent funded (Traditional rules)	74%	65%	58%	51%	45%

Sources: 2015 actuarial valuations; and authors' calculations from PPD (2015).

GASB 67

As discussed, the new GASB 67 rules require plans to report their assets at market value and to use a blended discount rate if they expect to exhaust all of their assets. In 2015, 10 plans in our sample adopted a significantly lower blended rate (see Table 2). These 10 include the seven that had adopted a blended rate in 2014 plus Cincinnati ERS, Cook County, and Dallas Police & Fire – plans that were added as the sample was expanded from 150 to 160. Although the blended rate dramatically reduces the funded status of these plans, the change has only a small effect on overall funding because these plans account for only 6 percent of sample assets.

Table 2. Plans Adopting a Significantly Lower GASB 67 Blended Rate, 2015

Plan	Rate		Funded status	
	Actuarial	GASB 67	Actuarial	GASB 67
Cincinnati ERS	7.5%	5.6%	64.3%	57.5%
Cook County Employees	7.5	4.5	57.6	41.4
Dallas Police & Fire	7.3	4.5	63.8	38.2
Duluth Teachers	8.0	5.4	56.9	46.8
Kentucky Teachers	7.5	4.9	55.3	42.5
New Jersey PERS	7.9	4.9	59.5	38.2
New Jersey Police & Fire	7.9	6.3	72.6	52.8
New Jersey Teachers	7.9	4.7	51.1	28.7
Texas ERS	8.0	6.9	76.3	64.4
Texas LECOS	8.0	5.0	72.0	47.8

Sources: 2015 actuarial valuations; and PPD (2015).

Looking Beyond 2015

Future funded levels depend on three factors: 1) cash flows (contributions and benefits); 2) the growth in liabilities; and 3) the performance of the stock market. Both contributions and benefits rise slowly over time, so their average growth for the period 2016-2020 is assumed to equal their average growth over 2001-15.[4] Growth in liabilities, which will likely be restrained by the long-term benefit cutbacks enacted in recent years, is assumed to hold steady at the 2015 level of 4.2 percent.[5]

Public pensions currently hold about 70 percent of their assets in risky investments, including more than half of their assets in equities. As discussed, on average, plans assume a nominal return of 7.6 percent on their whole portfolios, which implies nominal stock returns of 9.6 percent. In contrast, many investment firms project much lower equity returns (see Table 3). To address uncertainty about the future performance of plan assets over the next five years, projections are made under two scenarios. Under the baseline scenario, plans achieve their assumed nominal returns of 7.6 percent on average. Under the alternative scenario, which assumes a 5.5-percent nominal return on risky assets, plans earn a return of 4.6 percent on their overall portfolio.

Table 3. Expected Nominal Returns for U.S. Equities from Selected Investment Firms

Firm	Average annual nominal returns (%)	Horizon (years)
Bogle and Nolan[a]	7	10
Charles Schwab	6.3	10
Goldman Sachs	4.7-5.5	5
GMO	-0.1	7
JP Morgan	7	10-15
McKinsey	Slow: 6.0-6.5 Recovery: 8.0-9.0	20
Morningstar[b]	6-7	Next few decades
Research Affiliates[c]	3.2	10

[a] The authors are affiliated with Vanguard's Bogle Center.
[b] Josh Peters, Director of Equity-Income Strategy.
[c] 1.2 percent real return + (our assumed) 2-percent inflation.
Sources: Bogle and Nolan (2015); GMO (2016); Goldman Sachs (2016); JP Morgan (2015); McKinsey Global Institute (2016); Morningstar (2015); and Research Affiliates (2016).

The projected funded ratios are shown in Table 4. After 2015 – if plans achieve their assumed returns – funded ratios drift slightly higher, as asset growth continues to exceed assumed liability growth.[6] If, instead, returns are at the lower rates predicted by the investment firms, funding starts to decline.

Table 4. Projected Funded Ratios under Traditional Rules for Two Scenarios of Asset Returns, FY 2016-2020

Year	Baseline	Alternative
2015 (actual)	74.1%	74.1%
2016	74.9	74.7
2017	75.2	74.2
2018	75.5	73.3
2019	76.3	72.3
2020	77.6	71.2

Source: Authors' projections.

Conclusion

The year 2015 produced little change in the funded status of state and local pension plans. Based on actuarial valuations, funding rose from 73 percent in 2014 to 74 percent in 2015. Under the new GASB rules, where assets are valued at market, funding declined slightly, reflecting the poor stock market performance in 2015.

2015 was the second year that the new rules were in effect for financial reporting. Under these provisions, funded ratios were based on market asset values and 10 plans – those with assets projected to be insufficient to cover future benefits – adopted a blended rate to calculate liabilities. As a result of these two provisions, the overall ratio of assets to liabilities was lower under the new rules than under the traditional rules.

What happens from here on out depends very much on investment performance. In 2020, assuming expected returns are realized, plans should be 78 percent funded. If returns are lower, as predicted by many investment firms, funding will drift lower.

Endnotes

1 In addition, the entry age normal/level percentage of payroll would be the sole allocation method used for reporting purposes (roughly three quarters of plans already use this method).

2 The sample represents about 90 percent of the assets in state-administered plans and 30 percent of those in plans administered at the local level.

3 The analysis of choice under uncertainty in economics and finance identifies the discount rate for riskless payoffs with the riskless rate of interest. See Gollier (2001) and Luenberger (1997). This correspondence underlies much of the current theory and practice for the pricing of risky assets and the setting of risk premiums. See Sharpe, Alexander, and Bailey (2003); Bodie, Merton, and Cheeton (2008); and Benninga (2008).

4 The focus here is on contributions, where growth remains fairly steady, rather than on the percentage of required contributions paid, which is more variable.

5 See Munnell et al. (2013). From 2001-2014, liabilities have grown an average of 5.6 percent annually. In 2014, liabilities grew by 4.9 percent in aggregate. For the 90 or so plans that did report in 2015, liabilities grew by 4.0 percent. For the remaining plans, we assume a 4.5-percent growth rate, resulting in aggregate liability growth of 4.2 percent for 2015.

6 Given the poor investment performance in 2016, nominal investment returns from 2017-2020 will need to be 9.7 percent for plans to realize their assumed return from 2015 to 2020.

References

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APPENDIX

Appendix: Funded Ratio Under Traditional Rules for State and Local Plans, 2001, 2004, 2007, and 2010-2015

Plan name	2001	2004	2007	2010	2011	2012	2013	2014	2015
Alabama ERS	100.2	89.7	79.0	68.2	65.8	65.7	65.7	66.9	69.2*
Alabama Teachers	101.4	89.6	79.5	71.1	67.5	66.5	66.2	67.5	69.8*
Alameda County Employee's Retirement Association	105.8	82.1	89.2	77.5	76.6	73.9	75.9	74.8	76.0*
Alaska PERS	100.9	70.2	77.8	62.4	61.9	57.1	54.5	59.7	58.6*
Alaska Teachers	95.0	62.8	68.2	54.3	54.0	49.9	48.1	54.5	53.1*
Arizona Public Safety Personnel	126.9	92.4	66.4	67.7	63.7	60.2	58.7	49.2	49.0
Arizona SRS	115.1	92.5	83.3	76.4	75.5	75.3	75.4	76.3	77.1
Arizona State Corrections Officers	140.0	104.8	84.6	83.8	76.6	70.7	66.9	57.3	57.3
Arkansas PERS	105.6	88.7	89.1	74.1	70.7	68.9	74.3	77.8	79.1
Arkansas Teachers	95.4	83.8	85.3	73.8	71.8	71.2	73.3	77.3	80.0*
Atlanta General Employees Pension Fund		61.3	52.2	53.7	51.2	51.0	51.2	55.5	54.7*
Baltimore Fire and Police Employees Retirement System	100.1	96.8	91.9	83.2	82.0	77.6	76.6	74.2	72.8
Baton Rouge City Parish Retirement System	90.2	83.6	84.6	73.9	72.2	72.0	73.0	71.0	68.8*
Boston Retirement Board[a]	70.3	63.3	67.6	63.1	61.4	61.9	59.5	61.0	60.9*
California PERF	111.9	87.3	87.2	83.4	82.6	83.1	75.2	76.3	74.5*
California Teachers	98.0	82.5	88.8	71.5	69.3	67.2	66.9	68.5	69.0*
Chicago Municipal Employees	93.3	72.0	69.1	50.8	45.2	37.6	37.0	40.9	37.2*
Chicago Police	70.5	55.9	51.5	40.4	36.2	31.3	29.7	26.1	26.8*
Chicago Teachers	100.0	85.8	80.1	66.9	59.7	53.9	49.5	51.5	51.8
Cincinnati Employees Retirement System	115.4	94.7	86.2	75.1	66.8	61.3	63.2	64.3	65.6*
City of Austin ERS	96.4	80.8	78.3	69.6	65.8	63.9	70.4	70.9	67.3*
Colorado Municipal	104.3	77.2	81.2	73.0	69.3	74.5	73.1	78.7	80.8*
Colorado School	98.2	70.1	75.5	64.8	60.2	62.1	60.3	60.9	62.5*
Colorado State	98.2	70.1	73.3	62.8	57.7	59.2	57.5	57.8	59.3*
Connecticut Municipal	109.3	102.9	103.7	88.4	88.3	85.0	87.5	87.8	87.8
Connecticut SERS	63.1	54.5	53.6	44.4	47.9	42.3	41.2	41.5	43.3
Connecticut Teachers		65.3		61.4		55.2		59.0	58.8*
Contra Costa County	87.6	82.0	89.9	80.3	78.5	70.6	76.4	81.7	84.1*
Cook County Employees	88.9	70.9	77.3	60.7	57.5	53.5	56.6	57.5	56.1*
Dallas Police and Fire	84.5	80.8	89.4	79.5	74.0	78.1	75.6	63.8	57.3*
DC Police & Fire			101.0	108.0	108.6	110.1	110.1	107.3	107.6
DC Teachers			111.6	118.3	101.9	94.4	90.1	88.6	88.7
Delaware State Employees	112.4	103.0	103.7	96.0	94.0	91.5	91.1	92.3	91.6
Denver Employees	99.5	99.1	98.2	85.0	81.6	76.4	76.4	76.4	74.7*
Denver Schools	96.5	88.2	87.7	88.9	81.5	84.0	81.2	82.6	84.8*
Detroit Police and Fire Retirement System	112.6	79.7	110.5	102.3	99.9	96.1	89.3	81.0	73.1*

Plan name	2001	2004	2007	2010	2011	2012	2013	2014	2015
Duluth Teachers	107.6	91.8	86.8	81.7	73.2	63.4	54.0	56.9	
Fairfax County Schools	103.0		86.4	75.6	76.4	75.6	75.4	76.7	77.7
Florida RS	117.9	112.1	105.6	88.0	86.9	86.4	85.4	86.6	86.5
Georgia ERS	101.7	97.6	93.0	80.1	76.0	73.1	71.4	72.8	72.8**
Georgia Teachers	103.9	100.9	94.7	85.7	84.0	82.3	81.1	81.9	85.4*
Hawaii ERS	90.6	71.7	67.5	61.4	59.4	59.2	60.0	61.4	62.2
Houston Firefighters	112.9	88.2	91.1	93.4	90.6	87.0	86.6	90.5	92.6*
Idaho PERS	97.2	91.7	105.5	78.9	90.2	84.7	85.3	93.9	90.4
Illinois Municipal	106.4	94.3	96.1	83.3	83.0	84.3	87.6	87.3	89.0*
Illinois SERS	65.8	54.2	54.2	37.4	35.5	34.7	34.2	33.7	36.2
Illinois Teachers[b]	59.5	61.9	63.8	48.4	46.5	42.1	40.6	40.6	42.0
Illinois Universities	72.1	66.0	68.4	46.4	44.3	42.1	41.5	42.3	43.3
Indiana PERF	105.0	100.1	98.2	85.2	80.5	76.6	80.2	82.4	78.6
Indiana Teachers[c]	43.0	44.8	45.1	44.3	43.8	42.7	45.7	48.1	46.4
Iowa Municipal Fire and Police		84.2	87.2	81.1	78.2	73.7	73.9	77.8	80.8
Iowa PERS	97.2	88.6	90.2	81.4	79.9	79.9	81.0	82.7	83.7
Jacksonville General Employee Pension Plan	96.5	82.6	89.9	75.9	71.3	62.4	62.3	65.8	63.9*
Kansas PERS	88.3	75.2	69.4	63.7	62.2	59.2	59.9	62.3	64.5*
Kentucky County	141.0	101.0	80.1	65.5	62.9	60.0	59.5	61.9	59.7
Kentucky ERS	125.8	85.8	58.4	40.3	35.6	29.7	25.8	23.9	21.9
Kentucky Teachers	90.8	80.9	71.9	61.0	57.4	54.5	51.9	53.6	55.3
Kern County Employees Retirement Association	103.3	93.6	75.7	62.7	60.8	60.5	61.1	60.8	62.4
LA County ERS	100.0	82.8	93.8	83.3	80.6	76.1	75.0	79.5	83.3
Los Angeles City Employees' Retirement System	108.1	82.5	81.7	75.9	72.4	69.0	68.7	67.4	69.2*
Los Angeles Fire and Police	118.9	103.0	99.2	91.6	86.3	83.7	83.1	86.6	89.0*
Los Angeles Water and Power	109.9	97.3	91.9	81.5	80.3	78.1	78.8	80.9	86.9*
Louisiana Municipal Police	101.1	72.9	89.1	59.9	58.1	59.8	64.2	68.1	69.9
Louisiana Schools	103.0	75.8	80.0	61.0	59.9	61.6	62.1	66.9	70.7
Louisiana SERS	74.2	59.6	67.2	57.7	57.6	55.9	60.2	59.3	62.1
Louisiana State Parochial Employees		93.5	96.9	97.2	97.6	86.8	92.5	96.9	96.0*
Louisiana Teachers	78.4	63.1	71.3	54.4	55.1	55.4	56.4	57.4	60.9
Maine Local	108.2	112.1	113.6	96.3	93.5	88.8	88.4	91.2	91.1*
Maine State and Teacher	73.1	68.5	74.1	66.0	77.6	77.0	77.7	81.4	81.4*
Maryland PERS	102.2	91.2	79.5	62.8	62.8	62.5	63.3	65.9	66.7
Maryland Teachers	95.3	92.8	81.1	65.4	66.3	65.8	67.1	70.7	71.9
Massachusetts SRS	91.8	83.9	85.1	76.5	81.0	73.8	69.1	70.3	67.5
Massachusetts Teachers	79.2	69.6	71.0	63.0	66.3	60.7	55.7	56.3	54.3
Michigan Municipal	84.3	76.7	77.3	74.5	72.6	71.4	71.7	70.6	70.5*
Michigan Public Schools	96.5	83.7	88.7	71.1	64.7	61.3	59.6	59.9	58.5*
Michigan SERS	107.6	84.5	86.2	72.6	65.5	60.3	60.3	61.6	60.9*

Plan name	2001	2004	2007	2010	2011	2012	2013	2014	2015
Milwaukee City ERS	137.2	116.7	131.2	104.4	96.0	90.8	94.8	97.2	98.8*
Minneapolis ERF	93.3	92.1	85.9	65.6	73.5	69.1	74.4	82.0	76.3
Minnesota GERF	87.0	76.7	73.3	76.4	75.2	73.5	72.8	73.5	76.3
Minnesota Police and Fire Retirement Fund	120.5	101.2	91.7	87.0	82.9	78.3	81.2	80.0	83.6
Minnesota State Employees	112.1	100.1	92.5	87.3	86.3	82.7	82.0	83.0	85.7
Minnesota Teachers	105.8	100.0	87.5	78.5	77.3	73.0	71.6	74.1	77.1
Mississippi PERS	87.5	74.9	73.7	64.2	62.2	58.0	57.7	61.0	60.4
Missouri DOT and Highway Patrol	66.1	53.4	58.2	42.2	43.3	46.3	46.2	49.2	52.9
Missouri Local	104.0	95.9	96.1	81.0	81.6	83.5	86.5	91.7	94.4
Missouri PEERS	103.1	82.7	83.2	79.1	85.3	82.5	81.6	85.1	86.8
Missouri State Employees	97.0	84.6	86.8	80.4	79.2	73.2	72.7	75.1	75.0
Missouri Teachers	99.4	82.0	83.5	77.7	85.5	81.5	80.1	82.8	83.9
Montana PERS		86.7	91.0	74.2	70.2	67.4	80.2	74.4	76.1
Montana Teachers		77.4	80.4	65.4	61.5	59.2	66.8	65.4	67.5
Nashville-Davidson Metropolitan Employees Benefit Trust Fund	94.1	93.2	89.6	90.8	88.7	84.7	82.6	89.7	93.4*
Nebraska Schools	87.2	87.2	90.5	82.4	80.4	76.6	77.1	82.7	88.0
Nevada Police Officer and Firefighter	78.9	71.7	71.1	67.8	68.4	70.1	71.1	74.3	70.3*
Nevada Regular Employees	85.5	80.5	78.8	71.2	70.6	71.2	68.9	70.8	72.5*
New Hampshire Retirement System[d]	85.0	71.1	67.0	58.5	57.4	56.1	56.7	60.7	63.3*
New Jersey PERS	117.1	91.3	76.0	69.5	66.8	63.6	62.1	60.9	59.5
New Jersey Police & Fire	100.8	84.0	77.6	77.1	75.0	74.3	73.1	72.6	72.6
New Jersey Teachers	108.0	85.6	74.7	67.1	62.8	59.5	57.1	54.0	51.1
New Mexico Educational	91.9	75.4	70.5	65.7	63.0	60.7	60.1	63.1	63.7
New Mexico PERA	105.4	93.1	92.8	78.5	70.5	65.3	72.9	75.8	74.9
New York City ERS	117.4	94.5	79.0	64.2	65.0	66.3	68.4	70.3	76.2*
New York City Fire	84.7	63.9	55.1	48.2	50.3	52.3	54.3	56.6	59.0*
New York City Police	104.5	80.1	68.9	60.1	61.1	63.7	66.8	66.9	68.7*
New York City Teachers	98.0	81.1	69.6	58.9	58.2	57.6	57.7	57.7	68.7*
New York State Teachers	125.0	99.2	104.2	100.3	96.7	89.8	87.5	92.9	93.6*
North Carolina Local Government[e]	99.3	99.3	99.5	99.5	99.6	99.8	99.8	99.8	99.8
North Carolina Teachers and State Employees[f]	112.8	108.1	106.1	95.9	95.4	94.0	94.2	94.8	95.6
North Dakota PERS	110.6	94.0	93.3	73.4	70.5	65.1	62.0	64.5	68.6
North Dakota Teachers	96.4	80.3	79.2	69.8	66.3	60.9	58.8	61.8	61.6
NY State & Local ERS	120.1	100.5	105.8	93.9	90.2	87.2	88.5	92.0	93.8
NY State & Local Police & Fire	132.6	104.1	106.5	96.7	91.9	87.9	89.5	93.1	93.2
Ohio PERS	102.6	87.6	96.3	79.1	77.4	80.9	82.4	83.8	81.4*
Ohio Police & Fire	92.7	80.9	81.7	69.4	63.1	64.2	66.7	70.8	64.3*
Ohio School Employees	95.0	78.1	80.8	72.6	65.2	62.8	65.3	68.1	69.3*
Ohio Teachers	91.2	74.8	82.2	59.1	58.8	56.0	66.3	69.3	69.3

Plan name	2001	2004	2007	2010	2011	2012	2013	2014	2015
Oklahoma PERS	82.6	76.1	72.6	66.0	80.7	80.2	81.6	88.6	93.6
Oklahoma Police Pension and Retirement System	91.4	81.1	79.9	74.9	93.0	90.2	89.3	94.6	98.2
Oklahoma Teachers	51.4	47.3	52.6	47.9	56.7	54.8	57.2	63.2	66.6
Omaha School Employee Retirement System	89.2	83.8	89.0	73.5	73.2	72.5	72.6	74.1	73.0
Orange County ERS	94.7	70.9	74.1	69.8	67.0	62.5	66.0	69.8	71.6*
Oregon PERS	97.6	97.0	110.5	85.8	86.9	82.0	90.7	95.9	83.6
Pennsylvania Municipal Retirement System		105.6	105.9	102.4	103.8	99.1	98.4	99.4	97.7*
Pennsylvania School Employees	114.4	91.2	85.8	75.1	69.1	66.3	63.8	62.0	60.5
Pennsylvania State ERS	116.3	96.1	97.1	75.2	65.3	58.8	59.2	59.4	54.5*
Philadelphia Municipal Retirement System	77.5	59.8	53.9	45.4	47.3	45.8	47.4	45.8	44.6
Phoenix ERS	102.5	84.2	83.9	69.3	66.6	62.2	64.2	58.7	55.4
Portland Fire and Police Disability Retirement Fund[g]	1.3	1.1	0.5	0.6	1.0	0.8	0.6	0.7	0.9*
Rhode Island ERS	77.6	59.4	56.2	48.4	58.8	57.8	57.3	58.7	57.9
Rhode Island Municipal	118.1	93.2	90.3	73.6	84.3	82.5	82.1	84.1	83.8
Sacramento County ERS	107.7	93.3	93.4	87.7	87.0	83.3	82.8	85.2	85.3*
San Diego City ERS	89.9	65.8	78.8	67.1	68.5	68.6	70.4	74.2	76.5*
San Diego County	106.8	81.1	89.7	84.3	81.5	78.7	79.0	80.9	80.5
San Francisco City & County	129.0	103.8	110.2	91.1	87.7	82.6	80.6	85.3	85.6
Seattle Employees Retirement System		85.9		62.0	74.3	68.3	63.5	64.2	66.0
South Carolina Police	94.6	87.7	84.7	74.5	72.8	71.1	69.2	69.5	69.2
South Carolina RS[h]	87.4	80.3	69.7	65.5	67.4	64.7	62.5	62.7	62.0
South Dakota RS[i]	96.4	97.7	97.1	96.3	96.4	92.6	100.0	100.0	100.0
St. Louis School Employees	80.5	86.3	87.6	88.6	84.9	84.3	84.4	82.7	79.0*
St. Paul Teachers	81.9	71.8	73.0	68.0	70.0	62.0	60.4	61.8	62.6
Texas County & District	89.3	91.0	94.3	89.4	88.8	88.2	89.4	90.5	92.6*
Texas ERS	104.9	97.3	95.6	85.4	84.5	82.6	79.6	77.2	76.3
Texas LECOS	131.6	109.3	98.0	86.3	86.4	82.0	73.3	73.2	72.0
Texas Municipal	85.0	82.8	73.7	82.9	85.1	87.2	84.1	85.8	88.1*
Texas Teachers	102.5	91.8	89.2	82.9	82.7	81.9	80.8	80.2	80.2
TN Political Subdivisions	90.4		89.5		89.1		95.0	94.5	96.2*
TN State and Teachers	99.6		96.2		92.1		93.3	92.9	94.5*
University of California	147.7	117.9	104.8	86.7	82.5	78.7	75.9	80.0	81.7
Utah Noncontributory	102.8	92.3	95.1	83.8	80.1	77.4	82.0	84.1	83.6*
Utah Public Safety	100.8	88.3	90.7	77.1	75.4	73.0	79.3	82.8	82.3*
Vermont State Employees	93.0	97.6	100.8	81.2	79.6	77.7	76.7	77.9	75.1
Vermont Teachers	89.0	90.2	84.9	66.5	63.8	61.6	60.5	59.9	58.6
Virginia Retirement System[j]	107.3	90.3	82.3	72.4	69.9	65.8	65.9	69.6	73.3
Washington LEOFF Plan 2	154.4	116.9	128.8	119.0	118.7	119.0	114.6	107.1	109.3*
Washington PERS 2/3	179.1	134.4	119.9	112.7	111.6	111.3	102.3	90.0	90.9*

Plan name	2001	2004	2007	2010	2011	2012	2013	2014	2015
Washington School Employees Plan 2/3	197.0	136.9	126.1	112.5	110.2	109.9	101.9	91.4	92.3*
Washington Teachers Plan 2/3	197.4	152.6	130.4	115.5	113.4	114.1	104.9	93.6	95.2*
West Virginia PERS	84.4	80.0	97.0	74.6	78.4	77.6	79.7	83.1	87.8*
West Virginia Teachers	21.0	22.2	51.3	46.5	53.7	53.0	57.9	66.2	67.3*
Wisconsin Retirement System	96.5	99.4	99.6	99.8	99.9	99.9	99.9	100.0	100.2*
Wyoming Public Employees	103.2	96.0	94.0	84.6	81.9	78.6	77.6	79.0	79.8*

Notes: The years reported for this table reflect the fiscal year end of the annual financial report for the plan, not the actuarial valuation date. For plans with valuation dates that are different from the fiscal year end dates of the annual financial reports, data are for the most recent valuation as of the fiscal year end date. Municipal agency plans such as Michigan Municipal and Illinois Municipal do not have a single funded ratio, as they are made up of individual retirement systems that each maintain their own liabilities and funded ratios. For these types of plans, the funded ratios reported above represent an aggregate of assets and liabilities of the individual systems.

* Numbers are authors' estimates. ** Received from plan administrator.

[a] For the Boston Retirement System, funded ratios are reported the fiscal year are actually for January 1 of the following year. For example, the funded ratio reported for fiscal year 2015 is the funded ratio as of January 1, 2016. If you include the Massachusetts Commonwealth's share of the Boston Retirement System's actuarial liability, the plan was 59.5% funded in fiscal year 2013 (without the Commonwealth's share the plan was 70.2% funded).

[b] Through 2008, the Illinois TRS funded ratio was based on the market value of assets. Beginning in 2009, the funded ratio was calculated using five-year smoothed actuarial assets.

[c] The reported funded ratios of the Indiana TRF are made up of two separately funded accounts, the pre-1996 account and the 1996 account. The pre-1996 account is for employees hired prior to 1996 and is funded under a pay-go schedule. The 1996 account is for employees hired afterwards and is pre-funded. The funded ratio for the pre-funded account is currently 92.5 percent. As expected, the pay-go account has a much lower funded ratio of 30.4 percent.

[d] Prior to 2007 the New Hampshire Retirement System used the Open Group Aggregate to calculate its funded ratio. Beginning in 2007 the entry age normal (EAN) was used.

[e] For North Carolina Local Government, data are as of December 31 acturial valuation of the previous year. For example, the funded ratio reported for 2015 is the funded ratio as of December 31, 2014.

[f] For North Carolina Teachers and State Employees, data are as of December 31 acturial valuation of the previous year. For example, the funded ratio reported for 2015 is the funded ratio as of December 31, 2014.

[g] The City of Portland funds the retirement costs of police and firefighters hired before 2007 on a pay-as-you-go basis, meaning the city relies on property taxes each year to pay benefits.

[h] The 2011 funded ratios for South Carolina RS and Police are calculated based on the plan design features and actuarial methods in place prior to passage of Act 278.

[i] For St. Louis School Employees, data are as of January 1 actuarial valuation of the following calendar year. For example the funded ratio reported for 2015 is the funded ratio as of January 1, 2016.

[j] The funded ratios presented represent the "VRS" plan only for the state employees, teachers and political subdivisions. They do not reflect the information in the other plans – SPORS, JRS and VaLORS.

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Retirement Security

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Preserving Retirement Income Security for Public Sector Employees

By Diane Oakley, M.B.A. & Jennifer Erin Brown, M.S., J.D., LL.M.

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EXECUTIVE SUMMARY

When it comes to their retirement finances, Americans are concerned with two things: a steady and adequate retirement income that will not run out, and the ability to move their retirement plans from job to job.[1] These two characteristics can sometimes be seen as conflicting with one another. For example, if a plan is portable, that may limit the ability to accrue enough income to sustain a full retirement. Traditional defined benefit (DB) pension plans are typically seen as able to meet the goal of income security in retirement, while defined contribution (DC) plans are seen as more easily portable. However, it is not necessarily the case that DB plans cannot provide portability, nor that DC plans are unable to provide for secure retirement income. This report analyzes 89 public pension systems throughout the country to assess the portability features of public pension systems and the ability for their members to build retirement income.

Over the past several decades, an increasing number of private sector employers have moved away from DB pensions towards DC plans for various business reasons. State and local government retirement systems, by contrast, have maintained DB pensions as the primary retirement plan design, largely due to the demographic characteristics of the public sector workforce and an understanding of the cost efficiencies DB pensions offer by pooling risks and investments.[2]

The private sector switch from DB to DC plans has resulted in a "great risk shift" where the risk and most of the funding burden falls on individual employees, rather than experienced professionals and employers.[3] The results of this shift are startling—currently, the median retirement balance for all working-age households is only $2,500; for households near retirement, the balance only marginally improves to $14,500.[4] While employees do value the ability to move their DC account balances from one plan to another when they change jobs, far too many employees do not roll their balances into a new plan, but rather cash out their account balances, which helps to contribute to the dismally low account balances Americans experience as they get close to retirement.[5]

To assure that employees reach retirement with adequate sources of income, financial experts recommend that individuals start saving early in their careers, save consistently during the course of their careers, and preserve retirement benefits during job transitions. Public DB pension plans stack up well on these points. Almost all public retirement systems consistently require employees to contribute toward the cost of their retirement benefits as soon as they start working, and to continue with every paycheck.

Various public pension plans around the country provide a varied array of benefit designs and provisions. NIRS surveyed 89 public pension plans in order to analyze the similarities and differences between the plans on features such as plan design; employee contribution rates; vesting rates; interest rates paid on employee contributions; refundability of contributions; and ability to purchase service credits.

The key findings of this report are as follows:

1. **Almost all of the public retirement systems surveyed offer a DB pension plan.** In fact, most public retirement systems provide new members with a DB pension benefit or a DB benefit in combination with a DC account. Only a very small number of systems provide only a DC benefit.

2. **Many public pension plans have adopted features that allow individuals who change jobs to retain and even increase their benefits.** In fact, 71 percent of the plans surveyed credit their members with interest on their contributions if they leave and request a refund. Most plans allow their members to later rejoin a system and repay their refund with interest, and most plans allow separated members the option of leaving their account balances with the plan so that it may continue to earn interest.

3. **Nearly all public retirement systems allow members to purchase additional service credits to increase their pension benefits.** Specifically, all public DB plans allow for the purchase of service credits for prior military service, and more than half of the plans surveyed allow for the purchase of credits for prior out-of-state government service. Some plans allow for the purchase of credits for other specified types of service and leave.

4. **A number of plans have features that increase benefits for short or moderate term employees.** Modifications include increasing the value of the deferred annuity benefits paid to former employees, rewarding employees who choose to keep their member accounts in the plan with interest, and providing even higher matching amounts. These features can encourage workers who leave before retirement to preserve the lifetime retirement income benefits they have earned, rather than spend their refund.

INTRODUCTION

For the past 15 years, not having enough money for retirement has topped Americans' list of financial worries, as measured by the Gallup financial worry metric. In 2015, six out of 10 Americans were very or moderately worried about retirement.[6] Research on Americans' retirement readiness validates these concerns.[7] In fact, the Voya Financial Retirement Research Institute recommends that "individuals must understand the importance of retirement saving as soon as they enter the workforce and they should treat it as a financial priority throughout their working lives so they have enough at retirement."[8] Yet far too many Americans fall short of achieving this.

Consistent participation in an employer-sponsored retirement plan over a career can deliver a retirement income stream that can ease Americans' worries about their financial future.[9] Thus, Americans correctly maintain a dual focus when it comes to retirement security—wanting both a steady income that will not run out during retirement, and the ability to move their retirement benefits with them from job to job. In fact, among Americans surveyed by the National Institute on Retirement Security, 76 percent found portability very appealing, while 75 percent found receiving benefit in a monthly check very appealing.[10] The two basic types of retirement plans each address one of these major concerns: traditional defined benefit (DB) pension plans provide employees with a guaranteed monthly income at retirement, typically based on service and final earnings, while defined contribution (DC) retirement plans—most often 401(k) plans—help employees accumulate retirement wealth that can easily move to a new employer's plan after a job change.

Over recent decades, an increasing number of private sector employers have moved away from DB pensions towards DC retirement plans, for a variety of business reasons.[11] This switch from DB to DC plans has resulted in a "great risk shift" in which most of the decisions and responsibilities for enrollment, funding, investment, and retirement income adequacy fall on individual employees, rather than on employers and investment professionals.[12]

The results of this shift are startling. Rhee and Boivie calculated that only 55 percent of private sector wage and salary workers between 25 and 64 had access to a retirement plan at work in 2013.[13] Because 40 million working age American households have no retirement account assets, the median retirement balance for all working-age households is only $2,500. Households near retirement fare only marginally better, with a median balance of just $14,500.[14] Among households that own retirement accounts, the median balance is not nearly enough to support a 20 or 30 year retirement; overall, the typical household holds just $50,000, and the typical near-retirement household holds just $104,000 in their retirement account.[15] Today, income from DB pensions generally provides about one-fifth of aggregate household income to older Americans (age 65 and over) across gender, age and marital status.[16] Given that more than six out of ten near retirees have less than one times their salary saved in individual retirement accounts, the ability of DC plans to deliver similar lifetime income replacement for future retirees is a concern.

Even though DC retirement plans offer "portability" by allowing employees to move their account balances from one plan to another, many employees fail to redeposit their retirement money in their new retirement plans or in Individual Retirement Accounts (IRAs). Instead, many workers "cash-out" their 401(k) accounts and use the money for other purposes.[17] These cash-outs resulted in $81 billion in lost retirement savings in 2014 alone.[18] By another estimate, cash-outs account for nearly 50 cents of each dollar in annual contributions to DC retirement plans.[19] When employees cash out their retirement plans, it becomes much more difficult to accumulate enough savings to adequately fund a full retirement.

Despite this very real leakage issue, some tout DC plans as superior to DB plans in terms of portability of benefits. It is true that vested employees who leave DB plans after several years, especially at the start of their careers, receive lower retirement income benefits than those who stay for a full career. However, in considering public DB pensions, it is important to note the difference in job tenure between public and private sector workforces. Public sector employees consistently remain with employers for significantly longer periods, with their median tenure nearly double the rate of private sector workers.[20] In addition, public sector workers are nearly twice as likely to stay with their employer for a full career—25 or more years—than private sector workers.[21]

Thus, the public sector's continued use of DB pension plans aligns with the demographics of the public workforce. Because public employees are older and have more stable job tenure than workers in the private sector, DB pensions serve them well. An overwhelming percentage (88 percent) of public sector employees indicate that retirement plans are an extremely or very important factor they would consider when changing jobs, compared to the 65 percent of private sector employees.[22] Public employees also appreciate the greater retirement income security that DB pension plans offer over DC plans.[23] Thus, DB pensions help to ensure that public employers can count on and effectively manage an educated, trained, and skilled workforce to serve our communities.

Recent studies of public DB pensions in Colorado and California indicate that moving to DC retirement plans either would reduce the retirement income for a large majority of employees covered by these public pension plans, or require greater contributions to maintain current benefit levels.[24] High turnover rates among short-term workers pose concerns for employers, due to cost of recruiting and training replacements.

Unlike private sector single-employer DB pension plans, nearly all statewide public pensions require employees to contribute toward the cost of their retirement benefits. As a result of this cost-sharing feature, short-service teachers and other public employees can request a refund of their contributions from their member accounts and move those assets to a new retirement plan if they leave public service.

Almost all state retirement systems have additional features that allow for preservation of retirement income benefits when changing jobs, such as purchase of service credits, interest credits on withdrawn contributions, and the re-depositing of employee contributions.[25] Employees may transfer funds from a prior pension plan or a DC plan account to buy public pension service credits without incurring a current tax liability.[26] Generally, states allow the purchase of up to five additional years of service, and these credits generate larger lifetime incomes from public DB pensions. A number of states offer new employees options to elect to participate in a DC plan, in the case they are uncertain about long-term employment and may be less concerned about eventually having a guaranteed retirement income when they retire.[27] Some states offer combined DB-DC plans to provide a balance between retirement income protection and flexibility. Also, several public DB plans have unique features that encourage terminating employees to maintain their accounts in the system even after termination, by offering additional retirement income benefits at retirement age.

Because there is a lack of understanding of the variety of benefit provisions that public pension plans offer to employees to facilitate consistent savings over employees' careers and provide a steady income in retirement, NIRS surveyed 89 public pension plans in order to analyze:

- plan types;
- employee contribution rates;
- vesting requirements;
- interest rates paid on withdrawn employee contributions;
- refunds of member accounts;

It is important to note that while this study refers to public pension plans or public retirement systems at times as a single entity, these plans cover very different groups of employees, including, but not limited to, general government employees, teachers, and public safety employees—all of whom have individual career paths and may have different needs in terms of retirement planning and coverage. For example, police and firefighters have physically demanding jobs that require retirement at an earlier age, whereas teachers and general government workers are expected to have longer careers.

- re-deposits of employee contributions;
- the ability to purchase service credits for various types of service; and
- other features that enhance the retirement benefits earned to encourage preservation.

This report is organized as follows:

- **Section I** summarizes the different retirement plan offerings among 89 public pension plans, including the vesting period required by each plan and the treatment of employee contributions.
- **Section II** discusses how public pension plans provide portability while also encouraging consistent retirement savings throughout an employee's career. This includes the ability for members to request refunds of member accounts, the amount of interest credited to the accounts, as well as certain unique features that can encourage employees to obtain additional lifetime income even after they leave public employment.

SECTION I: PUBLIC RETIREMENT SYSTEMS PROVIDE MEMBERS WITH CONSISTENT PARTICIPATION AND ADEQUATE RETIREMENT INCOME

What Types of Plans Are Offered by Public Pension Systems?

Public retirement systems offer three kinds of retirement benefits to their members: traditional defined benefit (DB) plans, defined contribution (DC) plans, or combination (DB-DC) plans. **Table 1** summarizes differences between DB and DC plans with respect to portability and providing lifetime income. We find that public retirement systems—by an overwhelming majority—provide their new members with a DB pension, alone or in combination with a DC account, rather than only a DC plan.

Defined Benefit (DB) Plans

A traditional pension plan, also called a DB pension, is a pooled retirement plan that provides a predictable monthly benefit in retirement. This provides retired workers with a steady income stream that is guaranteed to last for the retiree's lifetime. The amount of the monthly pension is based on a formula which multiplies the years of service with an employer, the worker's annual pay at the end of his or her career (typically averaged over three to five years), and a stated multiplier that is unique to each plan.

For example, if a plan provides a benefit of 1.5 percent of final average pay for each year worked, a worker whose final average salary was $60,000 and who had been employed for 25 years would earn an annual benefit of $22,500, or $1,875 per month—an income that would replace 37.5 percent of his or her final average salary based on the plan's normal retirement age.[28]

Defined Contribution (DC) Plans

DC plans—such as 401(k), 403(b), and 457(b) plans—are different from DB pensions, as they consist of separate, individual accounts for each participant. In most public sector DC plans, employees and employers contribute a specified amount—usually expressed as a percent of salary earned each year—into the plan over the course of an employee's career. Typically, the contributions are "participant directed," meaning that each individual employee can decide where to invest the funds, and how to withdraw the funds.

For example, if a public employee participated in a DC plan that had a six percent employee contribution and a three percent employer contribution, and the employee had a salary of $50,000, the employee would contribute $3,000 and the employer would contribute an additional $1,500, for a total contribution of $4,500 into the employee's DC account in that year. Even for employees who contribute the same amount of money for the same number of years, the amount of income in retirement they receive will vary, depending on each individual's investment decisions, the age when benefits start, and the method selected for withdrawing income from the account.

Table 1. **Selected Comparison of Defined Benefit and Defined Contribution Plans**

Plan	Defined Benefit (DB) Plans (Traditional Pensions)	Defined Contribution (DC) Plans (such as 401(k), 403(b), and 457 plans)
Contributions	In public and private sectors, contributions to DB pension plans are made on behalf of each employee by the employer. The amount the employer must contribute to the DB plan for the benefits employees earn in each year is called the normal cost. In nearly all state retirement systems, employees are required by law to contribute an established percentage of each paycheck toward the funding cost of their benefits. Private sector workers covered by DB pensions do not contribute to the cost of the plan. If additional contributions are needed to fund plan benefits, employers periodically adjust contributions, and in public DB pensions employees may also be required to contribute money.	Employees make their own contributions to their retirement accounts at the rate that they choose. A growing number of private sector DC plans automatically default employees in the DC plan with a contribution rate of at least 3% of salary. Public retirement systems that offer DC retirement accounts set rates of pay employees must contribute as well as a rate for employer contributions. Private sector employers typically match the DC contributions made by the employee. Most often the employer matches 50% of the employee contributions, up to 6% of salary.
Lifetime Income at Retirement	The DB plan benefit is a monthly income payment determined by a set calculation that links service and salary. The longer employees remain covered by a DB pension; the greater the value of the monthly income payments they will receive each month for as long as they live in retirement. Public pension systems pay benefits as guaranteed lifetime income streams rather than as lump sums. While DB pensions offered by private sector employers provide lifetime income, employees often choose to withdraw their benefits in one lump sum payment.	The amount of money accumulated in DC retirement accounts at the time the employee decides to retire depends on contributions, investment earnings, and age. DC plans are not required to offer lifetime income options. Typically, DC plans pay out retirement assets as a one-time lump sum or as a series of payments, such as minimum required distributions. Few DC plans offer in-plan lifetime options and even fewer participants choose a guaranteed lifetime income for their benefit. Employees underestimate expected lifetime benefits. To help DC plan participants deal with longevity risk, the Treasury recently developed guidance on in-plan annuity options and purchasing longevity insurance.
Portability	While long-service employees obtain greater benefits in DB plans, vested employees who leave after only several years of DB plan coverage may find their benefits too small to meet their needs in retirement. Since employee contributions are fully vested when they are made, employees who terminate public sector employment at early ages choose to withdraw their own contributions. Public pension systems refund employee contributions with some earnings. Typically, an employee moving from one public sector job to another within a state continues in the same pension system. And for out of state jobs, pension systems allow employees to purchase service credit with refunds from other pension systems and money from 401(k), 403(b) and 457 accounts. Private sector DB pensions offer vested employees lump sum distribution options that can be rolled over to a DC account.	Most DC retirement accounts can be easily rolled over to another DC retirement account—either in a 401(k) plan, 403(b), 457 plan or into an Individual Retirement Account (IRA). Federal tax law regarding taxable distributions from retirement plans encourages direct rollovers to a new employers plan or an IRA by imposing a 20% withholding tax on distributions made directly to individuals and a 10% tax penalty on early distributions (generally before the age of 59 ½) from DC retirement accounts. Avoiding leakage from a DC retirement account when an employee terminates is a key concern to assure account balances at retirement will be adequate to enable retirees to maintain their standard of living in retirement.
Supplemental Benefits	Spousal protections, disability benefits, and cost of living adjustments are common features in public sector DB pension systems. Public DB pensions do not provide loans or hardship withdrawals of employee contributions.	Supplemental benefits are not applicable in DC retirement accounts. If employers provide these, they require extra contributions or reduced payments during retirement. Employees can get access to retirement assets through loan and hardship withdrawals which add to leakage.

Nearly all public employees have the opportunity to make voluntary additional retirement savings in DC accounts by using 457 or 403(b) plans, subject to overall Federal tax code limits.

Combination Plans

Combination plans offer participation in both traditional DB pensions and DC retirement plans. They can take any number of different forms, but there are few main types of combination plans: a "side-by-side" plan, a "stacked" plan, and a cash balance plan. Side-by-side and stacked plans offer retirement benefits that combine a DB pension with a DC retirement account. The DB portion of the plan is generally less generous than a stand-alone DB plan would be.

In a side-by-side plan, the modified DB pension benefit and contributions to individual DC retirement accounts are based on total salary. For example, the Washington State Teachers Retirement System Plan 3 (TRS3) provides pension income based on a one percent of salary multiplier, solely at the employer's cost, while employees pay at least 5 percent of their salary into a DC account. Other side-by-side plans in Oregon and Indiana are similar to Washington's TRS3 in that they split the funding—with the employer responsible for the modest DB benefit and the employee contributions credited to the DC account. In the Georgia (Employees), Michigan (Public School), Rhode Island (Employees), Tennessee (Consolidated), Virginia, and Utah retirement systems, the employers and employees contribute to both plans. **Table 2** provides a summary of cost breakdowns for states with combination plans.

Table 2. **Distribution of Plan Cost Sharing by Employees and Employers in Combination Plans**

System		Contribution Percentage by Employees	Contribution Percentage by Employers
Georgia Employees' Retirement System	DB	1.25%	Balance of cost
	DC	5%	For each additional 1% contributed, ERS will match 50% of salary
Indiana Public Retirement System	DB	0%	Full cost
	DC	3%	None
Michigan Public School Employees Retirement System	DB	3%-6.4%	Balance of cost
	DC	2%	None
Oregon Public Service Retirement Plan	DB	0%	Full cost varies
	DC	6%	None
Employees' Retirement System of Rhode Island	DB	3.75%	Balance of cost
	DC	5%	1-3.5% of salary
Tennessee Consolidated Retirement System	DB	5%	4% of salary
	DC	2%	5% of salary
Virginia Retirement System	DB	4%	Balance of cost
	DC	1%-5%	Match 1% to 3.5% of salary
Washington State Public Employees Retirement System	DB	0%	Full cost
	DC	5%-15%	None
Washington Teachers' Retirement System	DB	0%	Full cost
	DC	5%-15%	None
Utah Retirement System*	DB	0%, unless cost exceeds 10%	Cost up to 10%
	DC	None	10%

Source: Authors' Calculations.

*See NIRS Report "Decisions, Decisions: Retirement Plan Choices of Public Employees and Employers." for more information on Utah's contribution rates.

In a stacked plan, the DB plan provides retirement benefits up to a specified salary level, and then contributions based on income over that salary cap go into the employee's DC account. For example, if the DB pension had a salary cap of $75,000 and a contribution percentage of 10 percent, then an employee earning $100,000 would receive DB pension income based on only $75,000 as their final average salary, and $2,500 (10% of the $25,000 excess salary over the $75,000 cap) would be placed in the DC account.

In a cash balance (CB) plan, an employee builds up retirement benefits based on pay credits expressed as a percent of compensation earned each year. The CB account also receives credits each year with a specified interest rate. For example, for an employee at a $100,000 salary with a $50,000 account balance, a CB plan with a five percent pay credit and three percent interest credit would contribute a $5,000 pay credit ($100,000 x 5%) plus an additional $1,500 interest credit ($50,000 x 3%), for a total contribution of $6,500 that year. At retirement, the cash balance plan would translate the amount in the employee's notional account into a monthly income, but the reality is that employees hardly ever take the benefit as lifetime income instead they withdraw the account balance as a lump sum. CB plan investments are pooled and the annual changes in account values are bookkeeping entries.

As shown in **Figure 1**, of the 89 public systems surveyed:

- 71 (80%) plans provided new members with a DB benefit, including 8 plans that offered an option for a DC account;

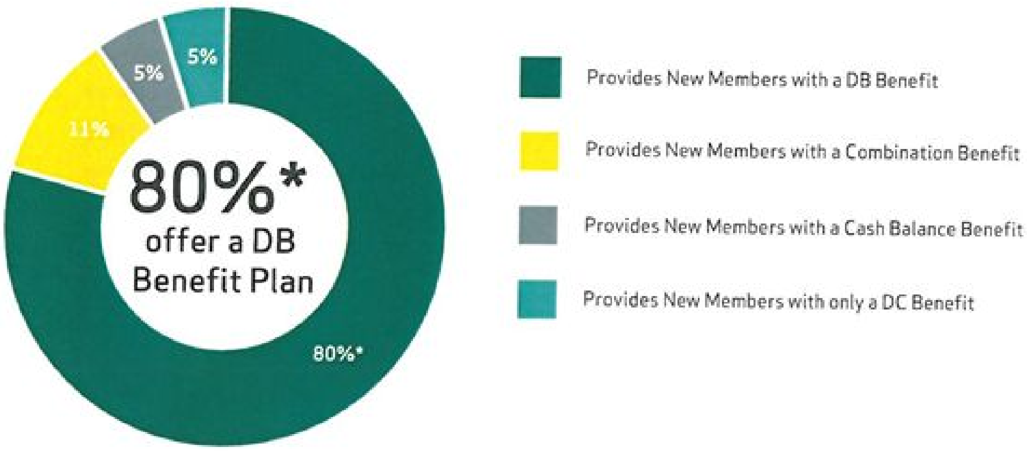
NEW COMBINED BENEFITS CREATED FOR SOUTH DAKOTA PUBLIC EMPLOYEES

The South Dakota Retirement System (SDRS), one of the most well-funded public DB pensions in the country, recently revised its benefit structure for new employees in order to enhance long-term sustainability and meet income replacement goals. Another important goal was to better align the benefits with the state's workforce needs to retain experienced employees, while maintaining the same fixed contribution rates. The new provisions become effective on July 1, 2017.

The new generational benefit design increases the benefit multiplier for most members, eliminates subsidies within the plan, and adds new Variable Retirement Accounts, which are funded from current employer contributions and earn the actual investment return of the plan. The variable retirement accounts are payable as a lump sum, a rollover, or a supplemental pension benefit at retirement.

To encourage employees to preserve their full retirement benefits, the value of pension income for vested terminated members increases with the SDRS cost of living adjustment (COLA) through members' retirement date. New members variable retirement accounts will continue to grow based on investment returns, but members who terminate and take a refund of their accumulated contributions will not receive the variable retirement account. With these changes, the SDRS benefits structure meets the plan's dual goals to provide adequate lifetime income replacement by increasing the amount of retirement income at retirement age for employees who defer rather than withdraw from the SDRS, at the same time the change also increases personal retirement savings.

Figure 1: **Most Public Pension Systems Offer New Members a Traditional Pension**



Source: Authors' Calculations.
*Totals may not add up exactly due to rounding.

- ten (11%) plans provide new members with a combination benefit, including two with a DC account option,
- four (5%) plans provide new members with a cash balance benefit, and
- four (5%) plans provide new members with only a DC benefit.

Some States Allow New Members the Choice Between a DB and a DC Plan

As detailed in **Table 3**, nine states give new hires the flexibility to choose which type of retirement plan will best fit their retirement needs. These systems offer new hires the choice of retirement plan, such as a DB pension, a DC plan, or a combined DB-DC plan. NIRS' report "Decisions, Decisions: Retirement Plan Choices for Public Employees and Employers" found that in these states that offer a plan choice, public employees overwhelmingly elect to participate in the DB pension which is shown in **Table 4**.[29] While the range of actual employee selections varied by state, the DB pension plan consistently displayed strong popularity over the decade-long observation period. **Table 4** summarizes the new employees plan choices among DB, DC, and combination plans.

Table 3. **Contributions to DC Plans in States that Offer a DC Plan Option**

Systems	Contribution Percentage by Employees	Contribution Percentage by Employers
Colorado	8%	10.15%
Florida	3%	3.55%
Indiana	3%	4.6%
Montana	7.9%	4.19%
North Dakota Employees	6%	4.12%
Ohio Public Employees	10%	8.73%
Ohio Teachers	13%	9.5%
South Carolina	6.5%	9.24%
Utah	0%	10%

Source: NIRS Report "Decisions, Decisions: Retirement Plan Choices of Public Employees and Employers."

Table 4. **New Member Elections in States that Offer Employees Choice***

System	DB Plan Enrollments	DC Plan Enrollments	Combined Plan Enrollments
Colorado Public Employees' Retirement Association	88%	12%	Not offered
Florida Retirement System	75%	25%	Not offered
Montana Public Employee Retirement Administration	97%	3%	Not offered
North Dakota Public Employees Retirement System**	98%	2%	Not offered
Ohio Public Employees Retirement System	95%	4%	1%
State Teachers Retirement System of Ohio	89%	9%	2%
South Carolina Retirement Systems	82%	18%	Not offered

"Not offered" means enrollment in a combined DB/DC plan is not offered.

**Data for Colorado, North Dakota, and Ohio PERS are for January 2010 through December 2010. Data for Florida, Montana, STRS Ohio, and South Carolina are for July 2010 through June 2011.*

Source: NIRS Report "Decisions, Decisions: Retirement Plan Choices of Public Employees and Employers."

Furthermore, in Washington State, where employees can choose to be covered by a defined benefit plan (PERS2) or a side-by-side combined DB-DC plan (PERS3), more than two-thirds of PERS employees actively elected to participate in the DB pension plan.[30]

Vesting

Vesting occurs when a plan participant is legally entitled to his or her accrued benefit. Once benefits have vested, the participant can receive the vested portion of his or her retirement benefits even if he or she leaves their job before retirement. The shorter the vesting period, the more short-term employees are able to obtain a benefit from the DB plan. New, short-term employees who leave an employer before vesting in a DB pension may find the loss of employer-provided retirement benefits to be unfair, and they should consider that trade-off when comparing other career opportunities.[31] From the employer's vantage point of managing their workforce and staffing, defined benefit plans encourage greater workforce stability and reduce turnover costs.

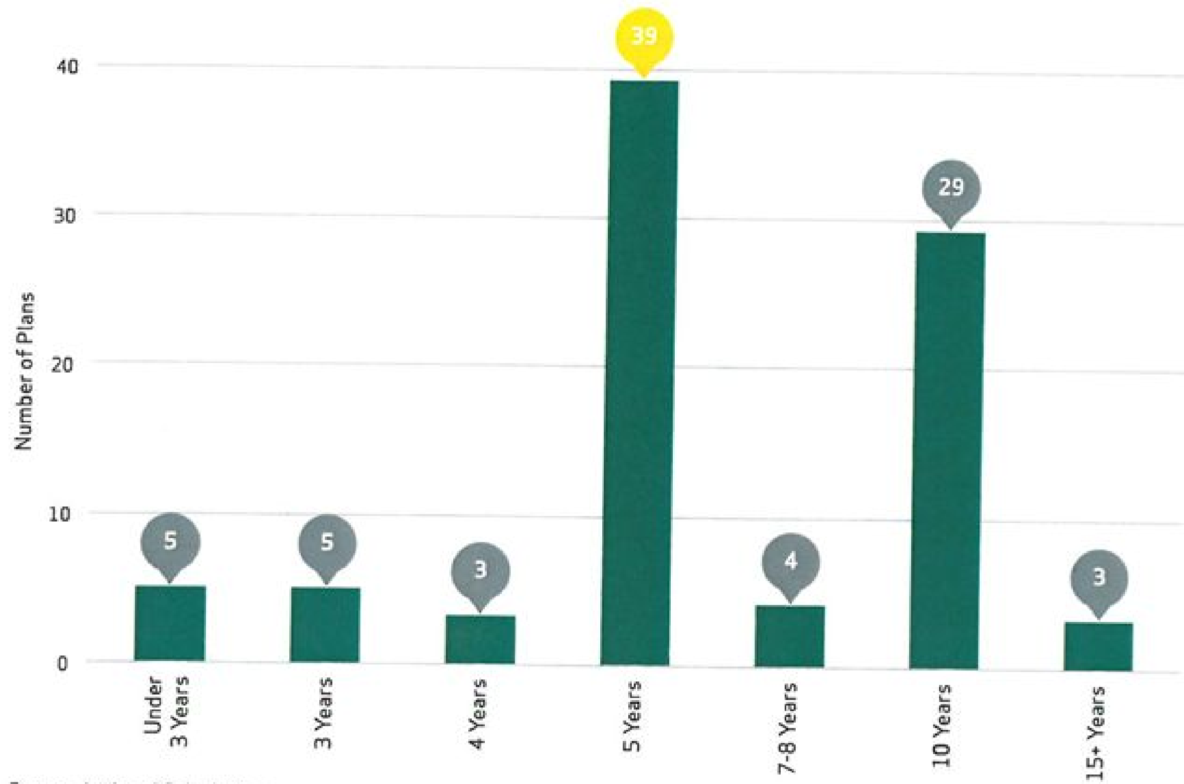
For all retirement plans, members' contributions to a plan vest immediately, and members can withdraw the funds in a lump sum after they terminate employment. In many DB and CB plans, members vest in the employer-provided benefit after they have worked a specified number of years, which is referred to as cliff vesting. Some plans provide employees a legal right to a specified percentage of their benefits each year until fully vested (referred to as graded vesting). In light of the financial commitment employers make in DB plan, vesting enables employers to direct more of the pension's value to employees who display a higher attachment to the employer's mission.[32] While employee contributions to DC plans are always 100% vested, DC plans in both the public and private sectors also commonly have either cliff or graded vesting of employer contributions. The majority of public pension plans include vesting periods of five years or less.

Looking specifically at teacher turnover, the U.S. Department of Education reported that five years after 2007-2008, when a national study group of teachers started teaching in public schools, 70 percent of the teachers still taught at the same school (stayers); 13 percent moved to another school (movers); and 17 percent left teaching all together.[33] K-12 teachers join statewide public retirement systems on their first day in the classroom. Consistent participation in statewide DB pensions benefited not only the stayers and the portion of movers staying in the same school district, but also any teacher who moved to another district within the state. For example, the aggregate turnover rate for teachers in the statewide California State Teachers' Retirement System (CalSTRS) is six percent, and half of California's teachers today will retire with 30 or more years of service.[34] These experienced teachers are valuable, as education policy literature finds that higher retention among mid-career teachers leads to increases in average teacher productivity within a school.[35]

NORTH DAKOTA PUBLIC EMPLOYEES RETIREMENT SYSTEM (PERS) - PORTABILITY ENHANCEMENT PROGRAM (PEP)

North Dakota PERS offers employees an optional retirement feature to provide greater portability. Under the PEP, an employee can vest in the employer portion of the DB plan by participating in a supplemental DC plan. Specifically, for every dollar that the employee invests in the DC plan (up to four percent of salary per year), PERS reallocates one dollar from the employer contribution to the DB plan into the member's account, which accelerates the vesting for that amount sooner. This feature enables employees DC accounts to accrue value faster than they would otherwise. Should the employee leave North Dakota state employment, he or she can withdraw the larger member account and transfer the value to another retirement plan.

Figure 2. **Most Public Pension Systems Surveyed Require Five Years or Less to Vest**



Source: Authors' Calculations.

As shown in **Figure 2**, the majority of public plans require five years of service or less for full vesting. Specifically:

- 13 plans required four or fewer years of service to vest;
- 39 plans required five years of service to vest;
- four plans required seven or eight years of service to vest
- 29 plans required ten years of service to vest; and
- three public safety plans had vesting years at 15 years or more of service.

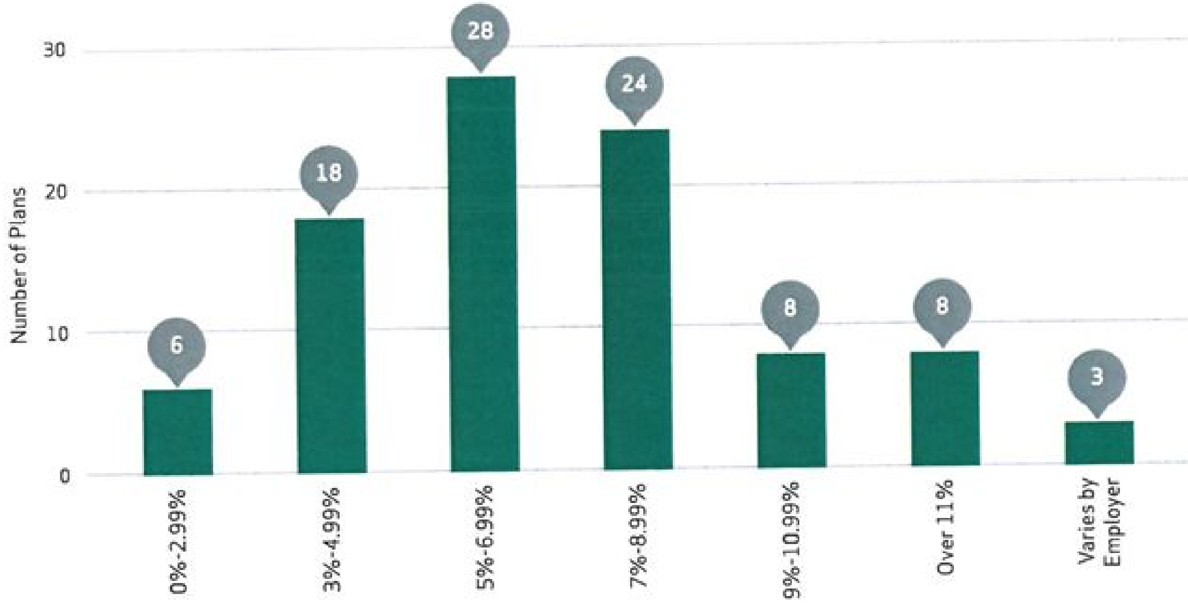
Six plans that offered employees the option of choosing a DC account plan provided earlier vesting for the DC plan option.

Employee Contributions and Employer Pension Costs

Nearly all state and local pension plans require employees to contribute a percentage of their salary each pay period to help fund their retirement benefits. This forced savings component starts public employees saving for retirement from their first day at work and continues for their entire tenure. Even short-service public employees have member accounts that can follow them should they leave their current employer for other job opportunities. In contrast, such immediate and mandatory participation does not occur in the private sector.

As shown in **Figure 3**, the employee contributions to public sector retirement systems, which are typically set in legislation, range from 0% of salary (referred to as non-contributory) to 14.5% of pay, with an average contribution rate of 6.68% and a median contribution of 6.2%. Public employees who are not covered by Social Security typically pay a higher contribution rate, as their DB benefits tend to be more generous in order to compensate for the lack of Social Security benefits. The employer costs to fund the DB pension plan are calculated by the plan actuary, although this rate may not be the same as what is actually contributed. The employer pension costs can vary in amount from year to year and include the normal cost for the benefits that employees earn for the current year, payments toward the amortization of actuarial gains and losses, and a portion of the plan's unfunded liability. According to a study by the National Education Association (NEA), the breakdown of the employers' cost to fund their share of pension funding expressed as a percent of covered payroll ranges from three to 37.3 percent of salary as of 2015. The median employer contribution is about 13 percent, while the average is 14.2 percent.[36]

Figure 3. **The Average Employee Contribution is 6.68% of Pay for New Members***



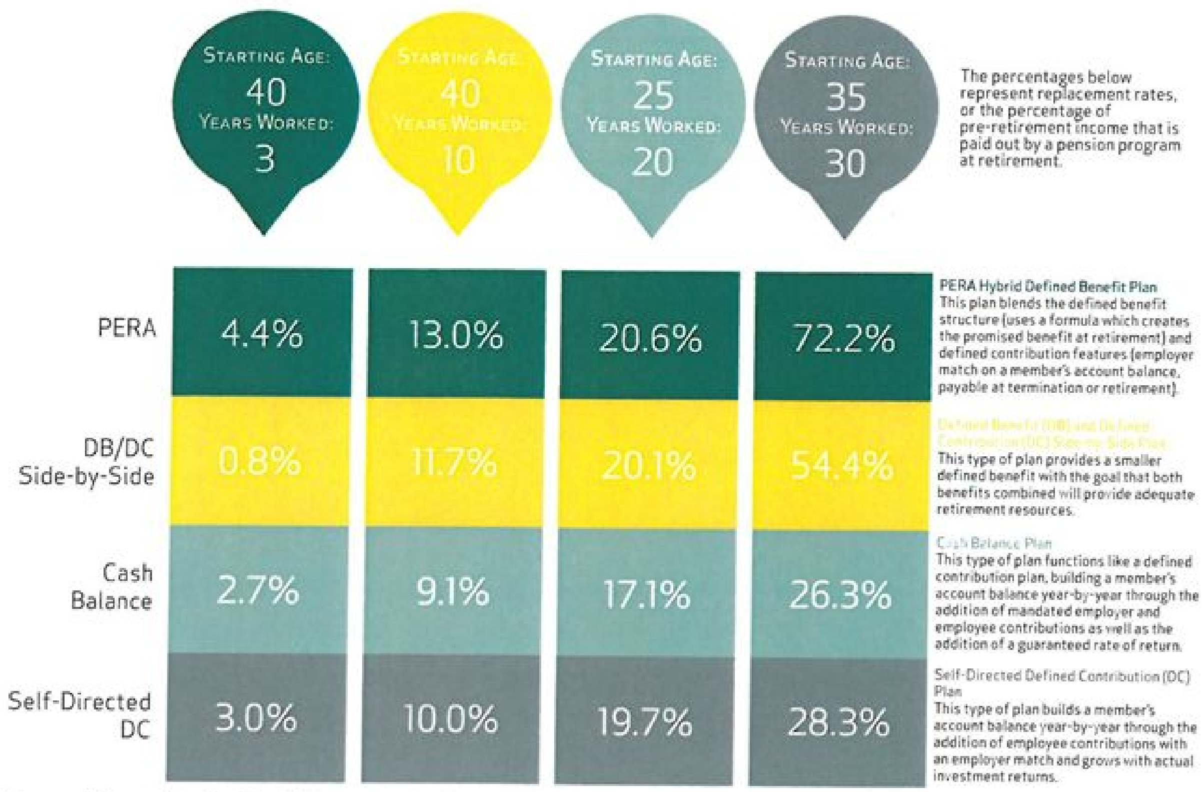
*See Appendix 1 for breakouts by each individual system.

DB Pensions Provide a Higher Retirement Income than Alternatives

As retirement systems and policymakers evaluate the cost effectiveness and appropriateness of different retirement plan design structures for public employees, considering the level of retirement income that different plan designs can reasonably be expected to provide is an important factor. The State Auditor in Colorado recently analyzed the benefits provided by the Colorado Public Employees' Retirement Association (PERA) in a detailed report that looked at anticipated benefits and estimated cost of different plan designs. **Figure 4** summarizes the income replacement that an individual would receive at retirement age under each plan design, and compares that amount to the current Colorado PERA benefit and cost structures. The Colorado Auditor's study found that the current DB plan, with its feature that increases the match for members' accounts to 100 percent when members retain their Colorado PERA accounts until retirement age, uses the employer dollars contributed more efficiently than other plan designs. In other words, Colorado PERA provides a higher retirement benefit at a lower cost than any of the alternative plans.[37]

To illustrate how the range of employees would fare in the various design alternatives, the study modeled four different public service career paths. The study found that for all sample employees—regardless of starting age and number of years worked—the DB pension provided a higher level of benefit in retirement than all alternative designs. In light of the clear cost-efficiency of the DB plan design in providing an adequate lifetime income, it is perhaps not surprising that some 92 percent of public systems continue to offer a DB benefit.

Figure 4: **Colorado Finds that DB Plan Provides the Most Income in Retirement, Regardless of Starting Age and Years of Service**



Source: *A Comprehensive Study Comparing the Cost and Effectiveness to Alternative Plan Designs Authorized by Senate Bill 14-214.*

COLORADO PUBLIC EMPLOYEES' RETIREMENT ASSOCIATION

The Colorado Public Employees' Retirement Association (PERA) provides its members with a special benefit incentive to keep their contributions in the pension plan after they terminate employment. After termination, if the PERA member leaves his or her account with PERA until age 65, the individual can receive a higher benefit than just the amount of the refunded contributions.

All terminated, vested members receive a 50% match of the refund of the employee's contributions compounded with credited interest. Should the employee keeps his or her money in PERA until retirement age, however, the match provided by PERA increases to a 100% match. Interestingly, even non-vested employees can take advantage of this feature. In fact, while they also receive the 100% match on the value accumulated in the employee member account at retirement, they would otherwise receive no match at all, were they to request a refund instead.

Under PERA, these amounts may be converted into an annuity at the PERA assumed rate of return, which is less costly than purchasing an annuity from an insurance company.

Figure 5 illustrates the additional lump sum value that employees would receive by preserving their member account until retirement. Under all scenarios, employees are better off keeping their money in PERA.

Figure 5. **Colorado PERA Special Benefit for Ten, Seven, and Three Years of Service**

10 YEARS OF SERVICE								
Hire Age	Salary at Date of Hire	Age at Termination	Lump Sum Payable at Termination, including the employer match on the employee contributions			Lump Sum Payable at Age 65 (option to convert to montly annuity)		
			Employee Contributions with Interest	50% Employer Match	Total	Employee Contributions with Interest	100% Employer Match	Total
25	$25,000	35	$31,400	$15,700	$47,100	$76,200	$76,200	$152,400
40	$45,000	50	$51,400	$25,700	$77,100	$80,100	$80,100	$160,200

Source: Gabriel, Roeder, Smith & Company.

7 YEARS OF SERVICE								
Hire Age	Salary at Date of Hire	Age at Termination	Lump Sum Payable at Termination, including the employer match on the employee contributions			Lump Sum Payable at Age 65 (option to convert to montly annuity)		
			Employee Contributions with Interest	50% Employer Match	Total	Employee Contributions with Interest	100% Employer Match	Total
25	$25,000	32	$19,000	$9,500	$28,500	$50,400	$50,400	$100,800
40	$45,000	47	$32,000	$16,000	$48,000	$54,600	$54,600	$109,200
55	$55,000	62	$37,900	$37,900[1]	$75,800	$41,400	$41,400	$82,800

Source: Gabriel, Roeder, Smith & Company.
[1] Employer match is 100% since the member is eligible for early retirement.

3 YEARS OF SERVICE								
Hire Age	Salary at Date of Hire	Age at Termination	Lump Sum Payable at Termination, including the employer match on the employee contributions			Lump Sum Payable at Age 65 (option to convert to montly annuity)		
			Employee Contributions with Interest	No Employer Match	Total	Employee Contributions with Interest	100% Employer Match	Total
25	$25,000	28	$6,700	$0	$6,700	$19,900	$19,900	$39,800
40	$45,000	43	$11,700	$0	$11,700	$22,500	$22,500	$45,000
55	$55,000	58	$14,200	$0	$14,200	$17,400	$17,400	$34,800

Source: Gabriel, Roeder, Smith & Company.

SECTION II: PUBLIC RETIREMENT SYSTEMS PROVIDE PORTABILITY IN ORDER TO PRESERVE INCOME FOR RETIREMENT

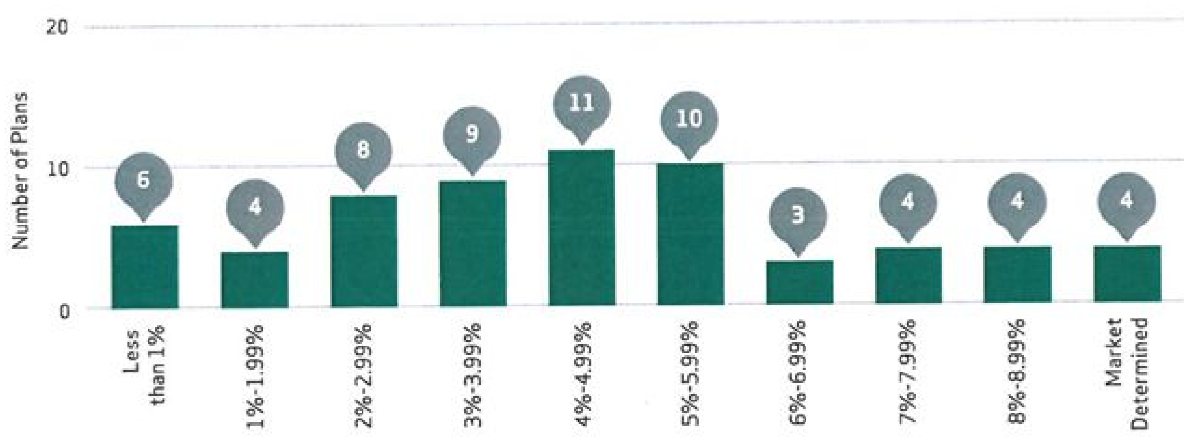
Public pension plans tend to offer features that provide for portability, while maintaining their primary focus of consistently accumulating retirement income benefits. Portability features include refunds of contributions, interest credits on employee contributions, and the option to restore refunds should former employees return to public service. Furthermore, nearly all state retirement systems provide the ability to purchase service credits to add more income to their DB benefit, based on other employment. Some public plans also include additional features that encourage employees to maintain their benefits within the system and thereby prevent loss of retirement savings through cash-outs, should they leave before the normal retirement age.

Member Refunds

In all public pension plans, terminated members may request a refund of their contributions from the plan at any time prior to retirement. In 63 of the plans surveyed, members also receive a credited rate of interest on these refunds. **Figure 6** indicates the rate of interest earned in those plans. Interest rates range greatly, from very modest rates similar to bank or money market returns; to rates as high as 8.7%, with an average rate of 3.86% and a median of 4%. In fact, depending on the interest rate credited to the member account, keeping the employee's contributions in the public pension plan would be a good option, in light of their attractive retirement income options. For other public sector employees who terminate service early in their careers, refunds can be more valuable than the deferred annuity under the plan, provided that the refund is rolled over to another retirement plan.

While employees are always entitled to refunds on their own contributions, some plans also offer refunds on the employer-funded portion of the pension benefit.

Figure 6. **71% of the Public Pension Systems Surveyed Provide their Employees with Interest on their Contributions, at an Average Rate of 3.86%***



*See Appendix for breakouts by each individual system.

Several public plans surveyed, such as the Iowa Public Employees Retirement Plan (IPERS), Colorado Public Employees' Retirement Association (PERA) and the South Dakota Retirement System (SDRS), provide the entirety of the employee contribution and a portion of the employer contribution in the refund for vested members. SDRS also refunds a smaller portion of the employer contribution to non-vested employees. Similarly, members of the Ohio Public Employees Retirement System (OPERS) can receive a refund on a portion of employer contributions, based on a vesting schedule. In the Montana State Employees DC Plan and the Nebraska Public Employees Retirement System, vested members may receive all their employee and employer contributions in a refund. The Oklahoma Teachers Retirement System provides refunds on employee and employer contributions to both vested and non-vested members.

Unique Plan Features that Encourage Preservation of DB Income

State retirement systems understand the value that they deliver to employees by providing lifetime income. In fact, financial experts have recommended that individuals seeking additional retirement lifetime income should buy it from a DB plan, if such an option exists.[38] To increase retirement benefits for shorter-service employees, some state retirement systems allow employees who leave before reaching retirement age to obtain more income from the plan.

As illustrated earlier, Colorado PERA increases the match in a member's account to 100 percent of the value based on employee contributions. The Wisconsin Retirement System also uses the member's account in a similar way. Both Washington TRS and PERS systems and the Minnesota Teachers Retirement Association take a different approach to encourage a worker who leaves before retirement age to remain in the plan by adjusting the employee's final average salary.

WISCONSIN RETIREMENT SYSTEM (WRS)'S MONEY PURCHASE FEATURE

The Wisconsin Retirement System's DB benefit is calculated by multiplying years of service by a 1.6% factor and the average of the employee's highest three years' earnings, with other adjustments. The Wisconsin plan also has a "money purchase" feature that computes an employee's retirement annuity benefit that can be purchased with money in the employee's retirement account. Over the years in WRS, both the employee and employer contributions receive compound interest based on the actual performance of the fund. At retirement, the amount in the money purchase account is annuitized at an assumed five percent interest rate. Active employees participate in essentially a DB pension and DC account simultaneously, and the employee receives the higher of either the defined benefit or the money purchase annuity. WRS guarantees a minimum level of benefit.

LEAVING EMPLOYMENT BEFORE RETIREMENT AGE AND DELAYING RETIREMENT

A DB pension income benefit is most typically based on the highest average salary over some period of years and benefits can start once an employee is eligible for a regular or an early retirement benefit. If a vested employee leaves employment before the retirement age when benefits commence, the benefit calculated is based on the employees salary at termination. Most retirement systems will allow employees to start benefits at an earlier age, but the benefit may be reduced to be equivalent to the value of the benefit at the normal retirement age.

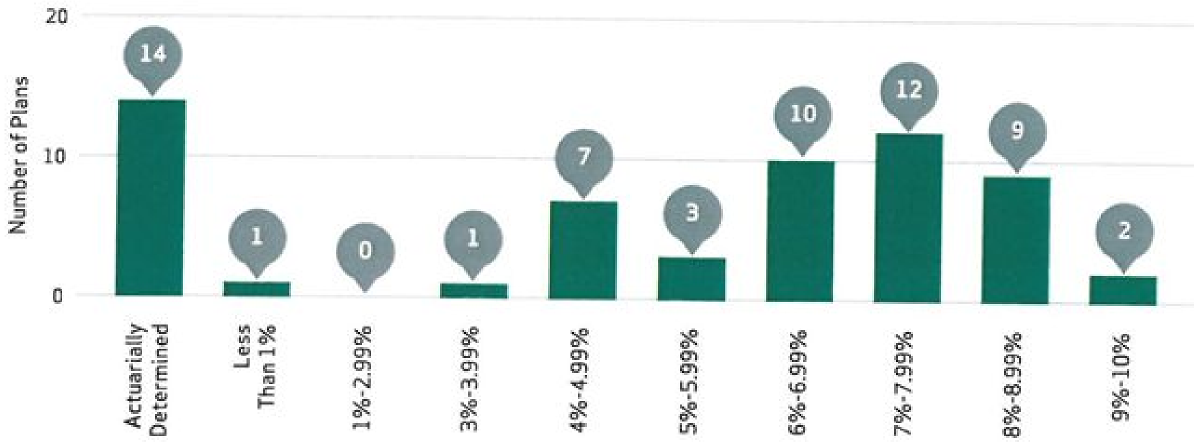
Several state retirement systems have provisions that adjust the final salary level for employees that leave employment early. One example is the deferred retirement annuity from Teachers Retirement Association of Minnesota. For members who leave before age 55 and are vested, the amount of deferred annuity income would increase by two percent each year from the year of termination until age 55. This annuity should be considered before choosing to withdraw the member account.

A similar option is available in Washington State's combined DB-DC plans (ERS3, TRS3 and SERS3). Employees who choose to withdraw their DC account values face no loss of income from the DB component. In fact, if a former employee, who worked for the state of Washington for at least 20 years, leaves his or her job before age 65, the employee can increase his or her defined benefit income by approximately three percent for each year the retiree delays receiving it, up to age 65. Employees can start DB income as early as age 55 (with ten years of service) but the amount of monthly income will be reduced to reflect that more payment will be made over a lifetime.

Ability to Repay a Refund

Some members who terminate public sector employment and request a contribution refund end up returning to public service later in their careers. Most plans allow the employee to rejoin by repaying their refund. As described in **Figure 7**, of the 59 systems that require interest to be paid on these repayments, the repayment interest rate ranges from 0.1% to 10%, with an average rate of 6.46% and a median rate of 6.7%.

Figure 7. **Most Public Pension Plans Allow for their Members to Later Rejoin a System and Repay their Refunds with Interest at an Average Rate of 6.46%***



*See Appendix for breakouts by each individual system.

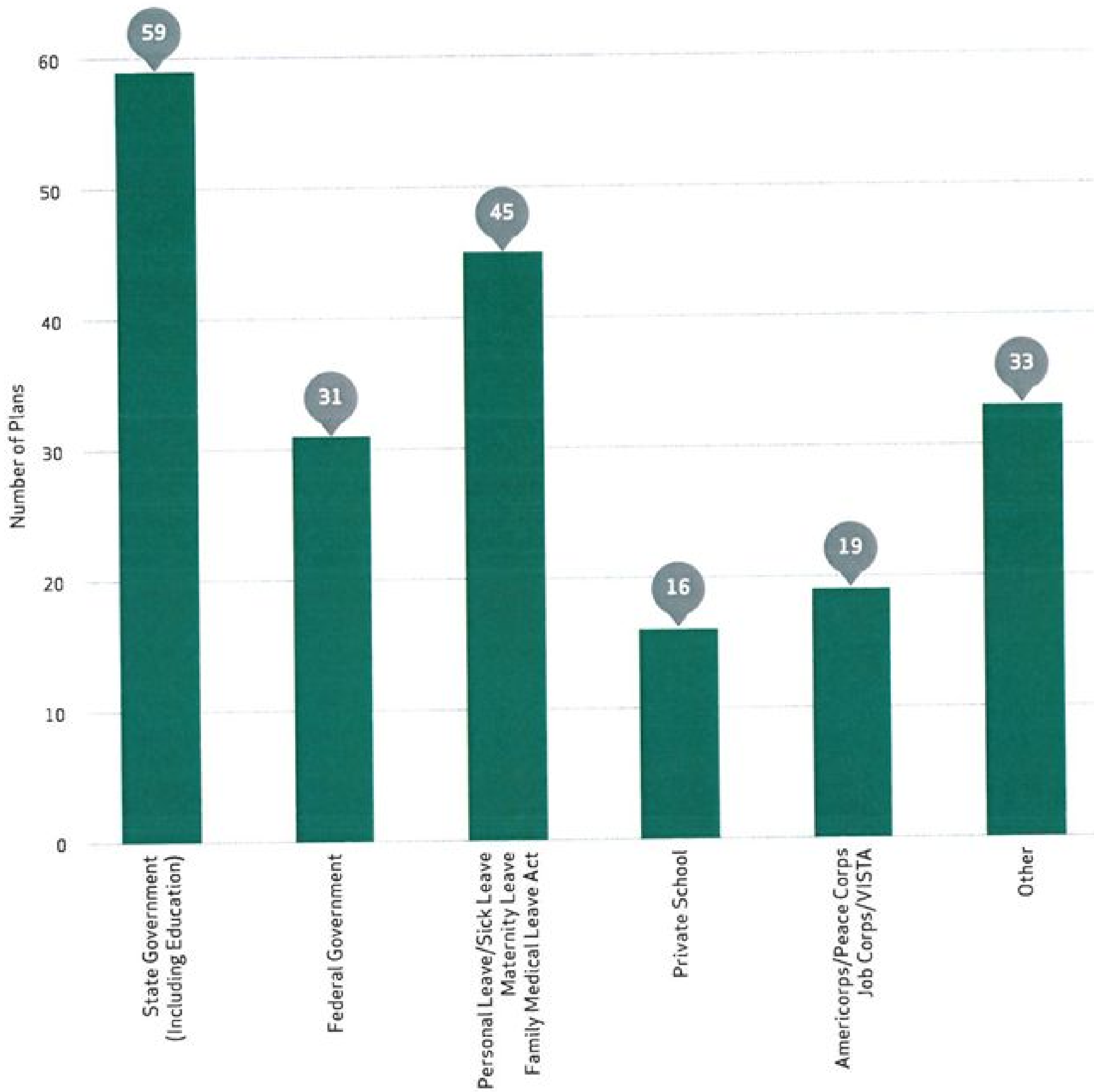
Ability to Purchase Service Credits

DB plans provide a retirement benefit based on years of service, age at retirement, and final compensation. Members of most public pension systems are able to purchase additional years of service based on specific types of prior service (or absence from service), including:

- Adoption leave credit
- Federal government employment
- Family and Medical Leave Act (FMLA)
- Fulbright scholarship
- Homebound teaching
- Involuntary leave
- Job corps
- Leave of absence
- Legislative staff internship
- Maternity leave
- Non-worked service
- Prior military service
- Peace Corps
- Private employment
- Private school service
- State government
- Teacher corps
- Unreported service
- USERRA
- VISTA service
- Workman's compensation

As specified in **Figure 8**, nearly all plans allow some ability to purchase service credits to enhance members' pension benefits. Some 59 pension plans allow their members to purchase additional service credits for state government service; 31 plans allow their members to purchase service credits for federal government service; 45 plans allow for the purchase of service credits for FMLA and other types of personal leave; 16 plans allow for the purchase of service credits for private school service; 19 plans allow for the purchase of AmeriCorps, Peace Corps, Job Corps, or VISTA service; and 33 plans allow for the purchase of service credits for other types of service.

Figure 8. **Nearly All Public Pension Systems Allow for their Members to Purchase Additional Service Credits to Enhance their Pension Benefits**



WHAT IS USERRA? HOW DO PUBLIC PENSIONS TREAT MILITARY SERVICE?

The Uniformed Services Employment and Reemployment Rights Act of 1994 (USERRA) is a federal law providing certain pension rights to employees returning from uniformed service. The law is intended to ensure that persons who serve or have served in the Armed Forces, Reserves, National Guard, or other uniformed services are not disadvantaged in their civilian careers because of their military service; are promptly reemployed in their civilian jobs upon their return from duty; and are not discriminated against in employment based on past, present, or future military service.

USERRA applies to uniformed service in the Army; Navy; Marine Corps; Air Force; Coast Guard; Army Reserve; Naval Reserve; Marine Corps Reserve; Air Force Reserve; Coast Guard Reserve; Army National Guard; Air National Guard; and Commissioned Corps of the Public Health Service. USERRA applies to active duty service; active duty training; inactive duty training; full-time National Guard duty; absence from work for an examination to determine a person's fitness for duty; funeral duty performed by National Guard or Reserve members; and duty performed by intermittent employees of the National Disaster Medical System for public health emergencies.

Public defined benefit pensions across the country honor the military service of a wider group of employees than as required under USERRA, which not only includes those who interrupted their career but also includes those who served in the military before they become public employees. Military Service credits for prior service enables veterans to receive added retirement income benefits from public plans when they do not get pension benefits from the military, especially during times of armed conflict and national crisis.

Each state sets its own policy for prior Military Service credits. Employees can purchase service credits based on this military service with a majority of states having veterans pay the employee's share of cost for these service credits, but a number of states, such as Maryland, pay the cost of Military Service Credits. Five or more years of Military Service credits can be added to the service credits employees earn each year that they are employed, in 60 percent of states, while the other states set limits at fewer years.

CONCLUSION

Most Americans aspire to reaching retirement with an income that allows them to maintain their pre-retirement lifestyle for as long as they and their spouses live; but they also worry about achieving this goal. Economic studies show that the best way to retire securely is to consistently participate in a retirement plan from the start of one's working career, and if one's career path changes, to preserve the retirement benefits accumulated (by either staying in the former employer's plan or moving the balance to another retirement plan). The two types of workplace retirement benefits—DB and DC plans—have different strengths and shortcomings.

DC plans provide easy portability because the account value can move from one DC plan to another or an IRA. However, many workers do not see the long-term value of preserving small sums—especially younger employees and those with small account balances. As a result, these workers often spend a considerable amount of their retirement savings on non-retirement expenses. In addition, at retirement, most DC plans do not provide lifetime income options. While policymakers and plan providers continue to seek ways to incorporate lifetime income payments into DC plans, in practice, lifetime payments are only chosen by a very small number of DC account holders,[39] so the risk of running out of income remains a concern.

Public DB plans provide benefits as monthly retirement income that last for the lifetime of retired workers and (often) their spouses. This makes it easier for workers to plan toward a retirement target date.

Public sector employers use DB plans as a cost-effective workforce management tool to retain their most effective employees in order to provide quality public services for citizens and taxpayers. A comparison of the job tenure rates for private and public employees indicates that public workers remain with their employer for a significantly longer time, especially after they vest in their pension benefits. State retirement systems predominantly offer DB pension benefits that public sector workers find attractive and valuable, which aligns with public employees' high appreciation of the need to adequately fund their retirement.

Public DB plans offer a variety of features to provide a steady income in retirement, while also facilitating consistent saving and preservation of benefits. The analysis in this report finds that:

1. **Almost all of the public retirement systems surveyed offer a DB pension plan.** In fact, most public retirement systems provide new members with a DB pension benefit or a DB benefit in combination with a DC account, while a very small number of systems provide only a DC benefit.

2. **Public pension plans have features that allow individuals who change jobs to retain or even increase their benefits.** Employee contributions can follow employees to new employers, often at market or better interest rates. Most plans allow members to later rejoin a system and repay any refunds with interest.

3. **Nearly all public pension plans allow members to purchase additional service credits to enhance their pension benefits.** Specifically, all DB plans allow for the purchase of service credits for prior military service, and many public plans provide this without cost. More than half of the plans surveyed allow for the purchase of credits for prior out-of-state government service, and some plans allow for the purchase of credits for prior federal government service, personal leave, maternity leave, out-of-state or in-state private school service, AmeriCorps, Peace Corps, or VISTA public service.

4. **A number of plans have features that increase benefits for short or moderate term employees.** These features include increasing the value the deferred annuity benefits paid to former employees, rewarding employees who choose to keep their member accounts in the plan with interest, and providing even higher matching amounts. These

features can encourage workers who leave before retirement age to preserve the lifetime retirement income benefits they have earned.

While DB pensions are seen as less portable than DC plans, portability is only one dimension of retirement security. Perhaps, the more important concern to assure employees can obtain adequate income from retirement plans is the preservation of the retirement benefits earned while working so benefits can replace paychecks when employees retire. This study demonstrates that DB pension plans can address some of the issues that short-term employees may have when they decide to seek other career options outside of the public sector. Public retirement systems are able to provide such flexibility without harming the benefits of more productive and dedicated career educators and public employees.

Appendix 1. **New Employee Contribution Rates for Public Retirement Plans**

State	Plan Name	Tier	Join Date	Plan Type		Social Security?	Employee Contribution
AL	Employees	II	1/1/13	DB		Yes	6%
	Teachers	II	1/1/13	DB		Yes	6%
AK	Public Employees*	IV	7/1/06	DC		No	8%
	Teachers*	III	7/1/06	DC		No	8%
AZ	State Retirement System		7/1/12	DB		Yes	11.35%
	Public Safety*		1/1/12	DB		Yes	11.65%
AR	Public Employees		7/1/05	DB		Yes	5%
	Teachers*			DB		Yes	6%
CA	Public Employees		1/1/13	DB		Yes	Varies by Employer
	Teachers		1/1/13	DB		No	8%
CO	Public Employees		1/1/11	DB		No	8%
				DC Option		No	8%
	Fire & Police			DB		No	8.5%
CT	State Members		1/11/11	DB		Yes	2%
	Teachers		7/1/12	DB		No	Varies by Employer
DE	Public Members		1/1/12	DB		Yes	5% over $6,000
DC	Employees	3	11/10/96	DB		No	8%
	Teachers	II	11/1/96	DB		Yes	8%
FL	Retirement System			DB		Yes	3%
				DC Option		Yes	3%
GA	Employees		1/1/09	Combination	DB	Yes	1.25%
					DC	Yes	5%
	Teachers			DB		Yes	6%
HI	Members		6/1/12	DB		Yes	8%
ID	Public Employees			DB		Yes	6.79%
IL	State Members	II	1/1/11	DB		Yes	4% or 8%
	Teachers	II		DB		No	9.4%
	Municipal	2		DB		Yes	4.5%
IN	Public Members		7/1/15	Combination	DB	Yes	0%
					DC	Yes	3%
				DC Option		Yes	3%
	Teachers*			DB		Yes	3%
	Police & Fire*			DB		Yes	6%
IA	Public Members			DB		Yes	5.95%
KS	Public Members		1/1/15	Cash Balance		Yes	6%

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 1. **New Employee Contribution Rates for Public Retirement Plans (cont.)**

State	Plan Name	Tier	Join Date	Plan Type		Social Security?	Employee Contribution
KY	Members*	III	1/1/14	Cash Balance		Yes	5% or 8%
	Teachers*			DB		No	12.855%
LA	Members		7/1/15	DB		No	8%
	Teachers*		7/1/15	DB		No	8%
ME	Public Members			DB		No	7.65%
MD	State Retirement Plan			DB		Yes	5% or 7%
MA	Members*		4/1/12	DB		No	5%-12%
	Teachers*		4/1/06	DB		No	5%-11%
MI	Public School Members*		7/1/10	Combination	DB	Yes	3%-6.4%
					DC	Yes	2%
	State Members*		4/1/97	DC		Yes	6%
MN	State Retirement System			DB		Yes	5.5%
	Teachers			DB		Yes	7.5%
MS	Public Members		7/1/11	DB		Yes	9%
MO	State Members		1/1/11	DB		Yes	4%
	Patrol Members			DB		Yes	4%
	Local Government Members			DB		Yes	4%
	Public School			DB		No	14.5%
MT	State Employees*			DB		Yes	7.9%
				DC Option		Yes	7.9%
	Teachers*			DB		Yes	8.15%
NE	School Members*			DB		Yes	9.78%
	State Members*			Cash Balance		Yes	4.8%
NV	Public Members			DB		No	14%
NH	Retirement System	I		DB		Yes	7%
NJ	Teachers		6/28/15	DB		Yes	6.78%
	Public Members*		6/28/15	DB		Yes	6.70%
NM	Public Members*	II		DB		Yes	7.42%-8.92%
	Education			DB		Yes	7.9%-10.7% Depending on Salary
NY	Teachers	6	4/1/12	DB		Yes	3%-6%
	State & Local*	6	4/1/12	DB		Yes	3%-6% Depending on Salary
NC	Teachers and State Members			DB		Yes	6%
ND	Public Members			DB		Yes	7%
				DC Option		Yes	7%
	Teachers*			DB		Yes	11.75%

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 1. **New Employee Contribution Rates for Public Retirement Plans (cont.)**

State	Plan Name	Tier	Join Date	Plan Type		Social Security?	Employee Contribution
OH	Public Members			DB		No	10%
				DC Option		No	10%
	Police & Fire			DB		No	12.25%
	School Employees			DB		No	10%
	Teachers			DB		No	14%
				DC Option		No	13%
OK	Public Members*			DC		Yes	4.5%
				DC Option		Yes	2.5%
	Teachers*			DB		Yes	7%
OR	Public Members*		8/29/03	Combination	DB	Yes	0%
					DC	Yes	6%
PA	Public School Members			DB		Yes	7.5% to 9.5%
	State Members*			DB		Yes	9.3%
RI	Members			Combination	DB	Yes	3.75%
					DC	Yes	5%
SC	Retirement System*			DB		Yes	8.16%
				DC Option		Yes	6.5%
SD	Retirement System			DB		Yes	6%
TN	Consolidated Board			Combination	DB	Yes	5%
					DC	Yes	2%
TX	Teacher	5		DB		No	7.2%
	County & District			DB		Yes	Varies by Employer
	Employees*			DB		Yes	9.5%
	Municipal			Cash Balance		Yes	5-7%
UT	Retirement System	2	7/1/11	Combination	DB	Yes	0%
					DC	Yes	0%
				DC Option		Yes	0%
VT	State Members*	F		DB		Yes	6.4%
	Teachers*			DB		Yes	5%
VA	Retirement System		1/1/14	Combination	DB	Yes	4%
					DC	Yes	1%-5%

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 1. **New Employee Contribution Rates for Public Retirement Plans (cont.)**

State	Plan Name	Tier	Join Date	Plan Type		Social Security?	Employee Contribution
WA	State Employees	3		Combination	DB	Yes	3%
					DC	Yes	2%
		2		DB Option		Yes	5.63%
	Teachers	3		Combination	DB	Yes	3%
					DC	Yes	2%
		2		DB Option		Yes	5.63%
WV	Consolidated Board*			DB		Yes	4.5%
	Teachers*			DB		Yes	6%
WI	Retirement System*			DB		Yes	6.6%
WY	Public Employees	2	9/1/12	DB		Yes	8.25%

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 2. **Public Plan Refunds for New Members**

State	Plan Name	Tier	Plan Type		Vesting (in years) on Employer Contributions	Interest Rate on Employee Contributions	Repayment Interest Rate	Ability to Repay Refund?
AL	Employees	II	DB		10	4%	8%	Yes
	Teachers	II	DB		10	4%	8%	Yes
AK	Public Employees*	IV	DC		0-5	Market Determined	N/A	N/A
	Teachers*	III	DC		0-5	Market Determined	N/A	N/A
AZ	State Retirement System		DB		0	8%	8%	Yes
	Public Safety*		DB		15	3%	9%	Yes
AR	Public Employees		DB		5	4%	8%	Yes
	Teachers*		DB		5	N/S	Actuarially Determined	Yes
CA	Public Employees		DB		5	6%	6%	Yes
	Teachers		DB		5	0.49%	Actuarially Determined	Yes
CO	Public Employees		DB		5	3%	7.5-8%	Yes
			DC Option		0-5	N/A	N/A	N/A
	Fire & Police		DB		5	5%	6%	Yes
CT	State Members		DB		10	5%	5%	Yes
	Teachers		DB		10	7%	7%	Yes
DE	Public Members		DB		10	5%	6%	Yes
DC	Employees	3	DB		5	0%	N/S	Yes
	Teachers	II	DB		5	0%	N/S	Yes
FL	Retirement System		DB		8	0%	6.5%	Yes
			DC Option		1	N/A	N/A	N/A
GA	Employees		Combination	DB	10	N/S	4.25%	Yes
				DC	0-5	N/A	N/A	N/A
	Teachers		DB		10	4.5%	7.5%	Yes
HI	Members		DB		10	2%	N/A	No
ID	Public Employees		DB		5	2.39%	4.25%	Yes
IL	State Members	II	DB		10	0%	6.5%	Yes
	Teachers	II	DB		10	0%	6%	Yes
	Municipal	2	DB		10	7.5%	N/S	Yes
IN	Public Members		Combination	DB	10	0%	N/A	No
				DC	1-5	0%	N/A	No
			DC Option		1-5	0%	N/A	No
	Teachers*		DB		10	0%	N/A	No
	Police & Fire*		DB		20	1.87%	N/S	Yes

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 2. **Public Plan Refunds for New Members (cont.)**

State	Plan Name	Tier	Plan Type	Vesting (in years) on Employer Contributions	Interest Rate on Employee Contributions	Repayment Interest Rate	Ability to Repay Refund?
IA	Public Members		DB	7	1.99%	Actuarially Determined	Yes
KS	Public Members		Cash Balance	5	4%	6%	Yes
KY	Members*	III	Cash Balance	5	4%	0%	Yes
	Teachers*		DB	5	8%	8%	Yes
LA	Members		DB	5	0%	7.75%	Yes
	Teachers*		DB	5	0%	7.75%	Yes
ME	Public Members		DB	5	5%	7.125%	Yes
MD	State Retirement Plan		DB	10	5%	0%	Yes
MA	Members*		DB	10	3%	N/S	Yes
	Teachers*		DB	10	3%	N/S	Yes
MI	Public School Members*		Combination – DB	4	N/A	Actuarially Determined	Yes
			Combination – DC	4	N/A	Actuarially Determined	Yes
	State Members*		DC	4	N/A	N/A	N/A
MN	State Retirement System		DB	5	4%-6%	8%	Yes
	Teachers		DB	3	4%	4%	Yes
MS	Public Members		DB	8	3.5%	3.5%	Yes
MO	State Members		DB	10	0.112%	0.11%	Yes
	Patrol Members		DB	10	0.112%	7.75%	Yes
	Local Government Members		DB	5	0.5%	7.25%	Yes
	Public School		DB	5	1%	8%	Yes
MT	State Employees*		DB	5	N/S	N/S	Yes
			DC Option	5	N/A	N/A	N/A
	Teachers*		DB	5	0.2%	N/S	Yes
NE	School Members*		DB	5	N/S	Actuarially Determined	Yes
	State Members*		Cash Balance	3	5%	N/A	N/A
NV	Public Members		DB	5	N/S	Actuarially Determined	Yes
NH	Retirement System	I	DB	10	2%	5.75%	Yes
NJ	Teachers		DB	10	N/S	N/S	N/S
	Public Members*		DB	10	N/S	N/S	N/S
NM	Public Members*	II	DB	5	N/S	N/S	Yes
	Education		DB	5	0.20%	Actuarially Determined	Yes

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 2. **Public Plan Refunds for New Members (cont.)**

State	Plan Name	Tier	Plan Type		Vesting (in years) on Employer Contributions	Interest Rate on Employee Contributions	Repayment Interest Rate	Ability to Repay Refund?
NY	Teachers	6	DB		10	5%	Actuarially Determined	Yes
	State & Local*	6	DB		10	5%	N/S	Yes
NC	Teachers and State Members		DB		5	3%	6.5%	Yes
ND	Public Members		DB		3	7.5%	Actuarially Determined	Yes
			DC Option		2-4	N/A	N/A	N/A
	Teachers*		DB		3	6%	6%	Yes
OH	Public Members		DB		5	1%	8%	Yes
			DC Option		1-5	N/A	N/A	N/A
	Police & Fire		DB		15	0%	8.25%	Yes
	School Employees		DB		10	0%	7.5%	Yes
	Teachers		DB		5	2%-3%	8%	Yes
			DC Option		1	N/A	N/A	N/A
OK	Public Members*		DC		1-5	N/A	N/A	N/A
			DC Option		1-5	N/A	N/A	N/A
	Teachers*		DB		5	Market Determined	Actuarially Determined	Yes
OR	Public Members*		Combination	DB	5	8%	7.5%	Yes
				DC	0	0%	N/A	N/A
PA	Public School Members		DB		10	4%	4%	Yes
	State Members*		DB		10	Market Determined	Actuarially Determined	Yes
RI	Members		Combination	DB	5	0%	N/S	Yes
				DC	3	0%	N/S	No
SC	Retirement System*		DB		5	4%	4%	Yes
			DC Option		0	N/A	N/A	N/A
SD	Retirement System		DB		3	N/S	N/S	Yes
TN	Consolidated Board		Combination	DB	5	N/A	7.5%	Yes
				DC	5	N/A	N/A	No
TX	Teacher	5	DB		5	2%	6%	Yes
	County & District		DB		5-10	7%	N/S	N/S
	Employees*		DB		10	2%	10%	Yes
	Municipal		Cash Balance		Varies by Employer	5%	5%	Yes
UT	Retirement System	2	Combination	DB	4	7.5%	N/A	Yes
				DC	4	7.5%	N/A	Yes
			DC Option		4	7.5%	N/A	Yes

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 2. **Public Plan Refunds for New Members (cont.)**

State	Plan Name	Tier	Plan Type		Vesting (in years) on Employer Contributions	Interest Rate on Employee Contributions	Repayment Interest Rate	Ability to Repay Refund?
VT	State Members*	F	DB		5	N/S	Actuarially Determined	Yes
	Teachers*		DB		5	N/S	Actuarially Determined	Yes
VA	Retirement System		Combination	DB	5	4%	4%	Yes
				DC	4	4%	4%	Yes
WA	State Employees	3	Combination	DB	10	3%	N/A	N/A
				DC	0	2%	N/S	N/S
		2	DB Option		5	5.5%	0%	N/S
	Teachers	3	Combination	DB	10	3%	N/A	N/A
				DC	0	2%	N/S	N/S
		2	DB Option		5	5.5%	0%	N/S
WV	Consolidated Board*		DB		5	4%	4%	Yes
	Teachers*		DB		5	N/S	N/S	N/S
WI	Retirement System*		DB		5	8.7%	Actuarially Determined	Yes
WY	Public Employees	2	DB		2	3%	7.75%	Yes

*Information obtained from public sources.

N/A - not applicable. N/S - not specified.

Appendix 3. **New Members' Ability to Purchase Service Credits in Public Plans**

State	Plan Name	Tier	Plan Type	Purchase Service Credit?	Eligible Service for Purchase	Maximum Amount of Purchasable Service Credit?	Able to Purchase Credit for Military Service?	Maximum Amount of Purchasable Military Credit?
AL	Employees	II	DB	Yes	Job Corps State Government Teacher Corps	10	Yes	4
	Teachers	II	DB	Yes	Job Corps State Government Teacher Corps	10	Yes	4
AK	Public Employees*	IV	DC	N/A	N/A	N/A	No	N/A
	Teachers*	III	DC	N/A	N/A	N/A	No	N/A
AZ	State Retirement System		DB	Yes	Federal Government Leave of Absence State Government	5	Yes	No maximum
	Public Safety*		DB	Yes	Federal Government State Government	5	Yes	3
AR	Public Employees		DB	Yes	Federal Government Private Education Leave of Absence Worker's Compensation	5	Yes	5
	Teachers*		DB	Yes	Federal Government Private Education Sabbatical Leave State Government	5 - 15	Yes	5
CA	Public Employees		DB	Yes	Leave of Absence Temporary Service	1 - no maximum	Yes	4
	Teachers		DB	Yes	FMLA Leave Fulbright Scholarship Job Corps Maternity Leave Peace Corps Leave of Absence	2 - no maximum	Yes	No maximum
CO	Public Employees		DB	Yes	Federal Government State Government	10	Yes	5
			DC Option	N/A	N/A	N/A	No	N/A
	Fire & Police		DB	Yes	Private Employment	5	Yes	5
CT	State Members		DB	Yes	FMLA Leave State Government	10	Yes	10
	Teachers		DB	Yes	Peace Corps State Government VISTA	2 - 10	Yes	3 -10
DE	Public Members		DB	Yes	Federal Employment FMLA Leave Private Education State Government Worker's Compensation	5	Yes	5
DC	Employees	3	DB	Yes	Federal Government State Government	N/S	Yes	N/S
	Teachers	II	DB	Yes	Federal Government State Government	10	Yes	N/S

*Information obtained from public sources.

N/A - not applicable. N/S - not specified.

Appendix 3. **New Members' Ability to Purchase Service Credits in Public Plans (cont.)**

State	Plan Name	Tier	Plan Type		Purchase Service Credit?	Eligible Service for Purchase	Maximum Amount of Purchasable Service Credit?	Able to Purchase Credit for Military Service?	Maximum Amount of Purchasable Military Credit?
FL	Retirement System		DB		Yes	Federal Government State Government	5	Yes	5
			DC Option		N/A	N/A	N/A	No	N/A
GA	Employees		Combination	DB	Yes	Additional Service	3	Yes	5
				DC	N/A				
	Teachers		DB		Yes	Private Education	10	Yes	5
HI	Members		DB		Yes	N/A	N/A	Yes	10
ID	Public Employees		DB		Yes	N/A	N/A	Yes	5
IL	State Members	II	DB		Yes	Leave of Absence Legislative Staff Internship Temporary Service	1 - 8	Yes	2
	Teachers	II	DB		Yes	Adoption Leave Credit Homebound Teaching Involuntary Layoff Part-Time Employment Maternity Leave State Government Substitute Employment	10	Yes	5
	Municipal	2	DB		Yes	Leave of Absence State Government	1 - no maximum	Yes	No maximum
IN	Public Members		Combination	DB	Yes	State Government	1 - no maximum	Yes	2
				DC					
			DC Option		N/A	N/A	N/A	No	N/A
	Teachers*		DB		Yes	Uncredited Service Leave of Absence Substitute Employment	1 - no maximum	Yes	2
	Police & Fire*		DB		Yes	State Government	2	Yes	2
IA	Public Members		DB		Yes	State Government	5	Yes	5
KS	Public Members		Cash Balance		Yes	Peace Corps State Government VISTA	No maximum	Yes	6
KY	Members*	III	Cash Balance		No	N/A	N/A	No	N/A
	Teachers*		DB		Yes	Federal Head Start Peace Corps Leave of Absence State Government	2 - 10	Yes	6
LA	Members		DB		Yes	Administrative Error Additional Service Uncredited Service	5	Yes	4
	Teachers*		DB		Yes	Private Education Maternity Leave Leave Without Pay Leave of Absence State Government U.S. Military Base Education	No maximum	Yes	4

*Information obtained from public sources.

N/A - not applicable. N/S - not specified.

Appendix 3. **New Members' Ability to Purchase Service Credits in Public Plans (cont.)**

State	Plan Name	Tier	Plan Type		Purchase Service Credit?	Eligible Service for Purchase	Maximum Amount of Purchasable Service Credit?	Able to Purchase Credit for Military Service?	Maximum Amount of Purchasable Military Credit?
ME	Public Members		DB		Yes	State Government	No maximum	Yes	4
MD	State Retirement Plan		DB		Yes	Federal Government State Government	10	Yes	5
MA	Members*		DB		Yes	Federal Government State Government	4	Yes	4
MA	Teachers*		DB		Yes	Peace Corps Private Education Substitute Employment State Government Part-Time Employment Vocational Teaching	2 - 10	Yes	4
MI	Public School Members*		Combination	DB DC	Yes	FMLA Leave Private Education State Government	5	Yes	5
MI	State Members*		DC		N/A	N/A	N/A	Yes	N/S
MN	State Retirement System		DB		Yes	Leave of Absence	1	Yes	4
MN	Teachers		DB		Yes	FMLA Leave Leave of Absence Medical Leave	1 - 5	Yes	5
MS	Public Members		DB		Yes	Leave Without Pay State Government	2 - 5	Yes	4
MO	State Members		DB		Yes	FMLA Leave Sick Leave State Government	No maximum	Yes	4
MO	Patrol Members		DB		Yes	State Government	No maximum	Yes	4
MO	Local Government Members		DB		Yes	State Government	No maximum	Yes	4
MO	Public School		DB		Yes	Leave Without Pay Maternity Leave Not-for-Profit Education State Government Vocational Teaching	1 - no maximum	Yes	No maximum
MT	State Employees*		DB		Yes	Federal Government	No maximum	Yes	5
MT	State Employees*		DC Option		N/A	N/A	N/A	No	N/A
MT	Teachers*		DB		Yes	Private Education State Government Worker's Compensation	5	Yes	4
NE	School Members*		DB		Yes	Leave of Absence State Government	4 - 10	Yes	4
NE	State Members*		Cash Balance		N/A	N/A	N/A	No	N/A
NV	Public Members		DB		Yes	N/S	5	Yes	5

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 3. **New Members' Ability to Purchase Service Credits in Public Plans (cont.)**

State	Plan Name	Tier	Plan Type	Purchase Service Credit?	Eligible Service for Purchase	Maximum Amount of Purchasable Service Credit?	Able to Purchase Credit for Military Service?	Maximum Amount of Purchasable Military Credit?
NH	Retirement System	I	DB	Yes	AmeriCorps Peace Corps Temporary Service Workman's Compensation	1 - 5	Yes	3
NJ	Teachers		DB	Yes	Federal Government Maternity Leave Leave of Absence State Government	3 months - 2 years	Yes	10
	Public Members*		DB	Yes	Federal Government Maternity Leave Leave of Absence State Government	3 months - 2 years	Yes	10
NM	Public Members*	II	DB	Yes	Co-operative Work Study Private Education	1 - no maximum	Yes	3
	Education		DB	Yes	Federal Government Private Education State Government	N/S	Yes	5
NY	Teachers	6	DB	Yes	State Government	10	Yes	5
	State & Local*	6	DB	Yes	Leave of Absence Sick Leave	N/S	Yes	N/S
NC	Teachers and State Members		DB	Yes	Charter School Service Federal Service Part-Time Employment State Government Temporary Service Workman's Compensation	N/S	Yes	10
ND	Public Members		DB	Yes	Federal Employment Leave of Absence Sick Leave State Employment	3	Yes	2
			DC Option	N/A	N/A	N/A	No	N/A
	Teachers*		DB	Yes	Additional Service Education Organization Leave of Absence Private Education	N/S	Yes	4
OH	Public Members		DB	Yes	Federal Government Leave of Absence State Government	5 - no maximum	Yes	5
			DC Option	N/A	N/A	N/A	No	N/S
	Police & Fire		DB	Yes	State Government	1 - no maximum	Yes	5
	School Employees		DB	Yes	Federal Government State Government	5	Yes	10
	Teachers		DB	Yes	Federal Government State Government	2 - no maximum	Yes	5
			DC Option	N/A	N/A	N/A	No	N/A

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 3. **New Members' Ability to Purchase Service Credits in Public Plans (cont.)**

State	Plan Name	Tier	Plan Type		Purchase Service Credit?	Eligible Service for Purchase	Maximum Amount of Purchasable Service Credit?	Able to Purchase Credit for Military Service?	Maximum Amount of Purchasable Military Credit?
OK	Public Members*		DC		No	N/A	N/A	No	N/A
	Teachers*		DB		Yes	State Government	5	Yes	No maximum
OR	Public Members*		Combination	DB	Yes	State Government	10	Yes	4
				DC	N/A	N/A	N/A		
PA	Public School Members		DB		Yes	Federal Government Leave of Absence Maternity Leave Part-Time Employment	12	Yes	5
	State Members*		DB		Yes	State Government	N/S	Yes	5
RI	Members		Combination	DB DC	Yes	Firefighter Nurse Peace Corps Substitute Employment Teacher Corps VISTA	5	Yes	N/S
SC	Retirement System*		DB		Yes	FMLA Leave Federal Government Maternity Leave Sick Leave State Government	5	Yes	6
			DC Option		N/A	N/A	N/A	No	N/A
SD	Retirement System		DB		Yes	Federal Government State Government	5	Yes	No maximum
TN	Consolidated Board		Combination	DB DC	N/A	N/A	N/A	Yes	5
TX	Teacher	5	DB		Yes	Leave of Absence Sick Leave Substitute Employment Uncredited Service	1 - no maximum	Yes	5
	County & District		DB		Yes	State Government		Yes	5
	Employees*		DB		Yes	Air Time State Government	3	Yes	3
	Municipal		Cash Balance		No	N/A	N/A	Yes	5
UT	Retirement System	2	Combination	DB DC	Yes	Federal Government Private Education State Government Worker's Compensation	5	Yes	5
			DC Option		N/A		N/A	No	N/A

*Information obtained from public sources.
N/A - not applicable. N/S - not specified.

Appendix 3. **New Members' Ability to Purchase Service Credits in Public Plans (cont.)**

State	Plan Name	Tier	Plan Type		Purchase Service Credit?	Eligible Service for Purchase	Maximum Amount of Purchasable Service Credit?	Able to Purchase Credit for Military Service?	Maximum Amount of Purchasable Military Credit?
VT	State Members*	F	DB		Yes	Additional Service Peace Corps State Government VISTA	5 - no maximum	Yes	5
VT	Teachers*		DB		Yes	Additional Service Peace Corps Private Education State Government	5 - no maximum	Yes	5
VA	Retirement System		Combination	DB DC	Yes	Federal Government State Government	4	Yes	4
WA	State Employees	3	Combination	DB	N/A	Federal Government State Government	5	Yes	5
				DC	Yes				
		2	DB Option		Yes	Federal Government State Government	5	Yes	5
	Teachers	3	Combination	DB	N/A	Federal Government State Government	5	Yes	5
				DC	Yes				
		2	DB Option		Yes	Federal Government State Government	5	Yes	5
WV	Consolidated Board*		DB		Yes	State Government	5	Yes	5
	Teachers*		DB		Yes	Federal Government State Government Sick Leave	10	Yes	10
WI	Retirement System*		DB		Yes	Federal Government State Government	Cannot exceed YOS	Yes	4
WY	Public Employees	2	DB		Yes	N/S	5	Yes	8

*Information obtained from public sources.

N/A - not applicable. N/S - not specified.

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CalPERS Announces Preliminary Returns of 0.6% When Target is 7.5%

nakedcapitalism.com/2016/07/calpers-announces-preliminary-returns-of-0-6-when-target-is-7-5.html

We posted last week on an OC Register story that anticipated, using CalPERS' daily transaction reports, that the giant pension fund would show a loss for its fiscal year ended June 30.

Although we noted that the OC Register is a long-standing critic of CalPERS (and often on thin grounds), we were remiss in not recognizing that the daily transaction report included inflows and outflows from sources and uses other than investment activity, as in pay-ins from various participants and payouts to beneficiaries.

So even though the preliminary report for the fiscal year just ended is still bad, it's not as horrific as the OC Register expected. From CalPERS' press release:

> *The California Public Employees' Retirement System (CalPERS) today reported a preliminary 0.61 percent net return on investments for the 12-month period that ended June 30, 2016. CalPERS assets at the end of the fiscal year stood at more than $295 billion and today stands at $302 billion.*

Mind you, this is relative to a return target of 7.5% and is footdragging about lowering it despite investment returns falling all over the world as a result of central bank polcies. As we noted earlier:

> *CalPERS, like virtually all of its peers, is in deep denial about its fix. It still maintains a return target of 7.5% even though Governor Jerry Brown pressed for the pension system to lower it to a less unrealistic 6.5%. CalPERS' response was to invent a Rube Goldberg process by which it would lower its targets in those years it beats its 7.5% return target over the next 20 years till it gets to 6.5%. That is an oversimplification but directionally correct.*

And how did private equity do? Well, it returned 1.70%…which was better than public equities at a 3.38% loss. But the private equity and real estate values aren't comparable to the public market values. CalPERS is using data from March 31. However, US stock market indices were generally higher as of June 30 than as of March 31, so there might be some improvement. Offsetting that is the ongoing issue that private equity valuations are not verified by independent parties and are acknowledged to be generous in down or weak markets.

Ironically, we did CalPERS a favor short term by helping thwart its plan to go to a bogus "absolute return" framework rather than sticking with a risk-adjusted approach. Private equity returns fell short of those for fixed income (9.29%) and real assets (5.99%). But it did beat its benchmark…presumably for the nine months….by 253 basis points.

And even though CalPERS may contend that it did pretty well, its public equity returns of -3.38% were lousy because CalPERS continues to have a very high allocation to foreign stocks when the dollar is strong and most other economies are in or near deflation. As we pointed out in our earlier post, a typical 60/40 domestic stock/bond mix would have produced returns of 5%. While some foreign currency exposure is considered desirable (as representing diversification by asset class, even though CalPERS does not represent it that way in its press releases or other periodic presentations), a 50% foreign market allocation is high. CalPERS beneficiaries and California taxpayers are paying for a bet that is not well reported.

Reader Jim Haygood, who has taken an interest in CalPERS, is appalled by the caliber of disclosure, since it falls well short of what retail investors receive. From a comment on last week's post:

> *After further research, it appears likely that what Calpers calls "Barclays Long Liabilities Index" — a term that doesn't appear on Barclays' site — probably is the "Barclays-Russell LDI [Liability Driven Investment] Index," which is geared to use by pension funds:*
>
> *http://www.ftse.com/products/downloads/Barclays-Russell_LDI_Index_Series_Methodology_Overview_FINAL.PDF?32*
>
> *Barclays-Russell LDI Index comes in six durations, the longest being 16 years. If this is in fact Calpers' benchmark, it's incredibly sloppy for Calpers to misstate the index name and fail to stipulate its duration, which is quite material.*
>
> *The 16-year Barclays-Russell LDI index was up nearly 22% in the year to June 30th. If that's the one Calpers uses, my estimate of their total benchmark (post above) changes to 3.5%…*
>
> *As another example of Calpers' casual sloppiness, their asset allocation page contains links in the right hand column to the 2013-14 annual investment report and 2013-14 CAFR — even though these documents were superseded six months ago with updates for 2014-15.*
>
> *https://www.calpers.ca.gov/page/investments/asset-classes/asset-allocation-performance*
>
> *Never do I see such negligence on mutual fund and ETF sites. They are rigorous about maintaining up-to-date documents and identifying benchmarks correctly, because they can be sanctioned if they don't.*
>
> *Calpers seems to have a problem. If I were a FOIA warrior, I would be all over their careless ass.*

And from a comment in Links yesterday:

> *This announcement is bizarre in a couple of respects. First, stale results for real estate, private equity and some inflation assets likely will have a material impact on performance. Markets moved a lot from March 31st to June 30th this year.*
>
> *Why not wait for 2nd quarter reports — probably available not long after July 31st — instead of going off half-cocked with lagged results that will change?*
>
> *A second bizarrity is that each asset class is compared to its benchmark in a table. But the final step of calculating the overall benchmark, using the weights of each asset class, is missing.*
>
> *Did the "preliminary" 0.61 percent return beat the overall benchmark? I estimated CalPERS' overall benchmark return at 3.6 percent, so it might be about a 3 percent shortfall. But it's useless to speculate with stale figures.*
>
> *If I had retirement assets at CalPERS, I would be frothing at the mouth over their slapdash lack of professionalism. As we can all see, they are not SEC regulated.*

CalPERS' defenders contend that the press would be all over the state agency if it "delayed" reporting results, since it has conditioned the public to expect them in mid-July. And it would have to wait longer than sometime in August, since CalPERS generally publishes its PE results 3-6 months in arrears. So now they are arguably hostage of this bad practice.

I've pointed out sloppiness and even errors in private equity records I have gotten from CalPERS via Public Records Act requests. It took literally months to get a sort-of complete list of private equity investments, and that was after we identified over 70 investments that appeared to be (and in most cases were) missing. And the worst was that given how many go-rounds it took to get a better list, both I and the Wall Street compliance veteran who was working with me were convinced the problemm was their records, as opposed to trying to stonewall me.

So there's a lot for the new CEO to do. Let's hope she is up for the task.

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TO: BOARD OF TRUSTEES

FROM: EDWARD SMITH, CHAIRMAN

DATE: JULY 20, 2016

SUBJECT: BENEFITS COMMITTEE REPORT

The Benefits Committee met Wednesday, July 20, 2016. The following report reflects Benefits Department activities and projects that occurred since the last report.

The Benefits Department has the following projects underway.

Retirement Modernization Project - Electronic Transmission of HR Data to STAR

Progress continues on the STAR change request that will improve retirement processing efficiencies and pave the way for the faster issuance of an annuitant's first pension check.

Over a three-week period, Benefits conducted User Acceptance Testing and DCRB's IT staff electronically submitted the resulting test files to STAR. Although the Informatica Data Director and MDM solution proved that a file could be sent to STAR, we found that the process also required unexpected manual interventions, an indication that all requirements had not been defined. As a result, the previously identified August implementation date needed to be moved back to November

Over the next few months, the project team members will concentrate on finalizing all requirements, developing the necessary crosswalks, assessing the accuracy and completeness of the data captured from OCTO and the Data Reclamation Project, and conducting end-to-end tests.

Implementation of this STAR change request will:
1. Reduce the amount of manual data entry required to create a new retiree record in STAR,
2. Reduce data entry errors that impact benefits computations, and
3. Expedite the retirement record creation process.

In addition, integrating the MDM solution with PeopleSoft and STAR will position DCRB for the anticipated implementation of the Pension Information Management System.

Purchase of Service Project (POS)

DCRB Benefits staff is working with Cavanaugh Macdonald Consulting, LLC to consolidate all of the various purchases of service spreadsheets used by our Benefits Quality Unit to calculate the amount of money required by members to have certain purchased service credited in their final benefit calculation. This project combines approximately six (6) different purchase of service spreadsheets currently being used into one Excel Workbook. The final product will cover purchases of service for military credit, outside service credit, interest on redeposit of contributions, and Tier changes.

Here are a few benefits to this master Purchase of Service Program:

(1) **Easy updating of the most current actuarial assumptions.** This new program provides the Quality Unit with the ability to update the POS spreadsheet with the same assumptions used each year in our actuarial valuation, as well as the most current mortality tables and interest rates.
(2) **Consistency in all POS calculations and communication to members.** With one program, we can assure that the proper assumptions, data, and methodology are used by each analyst, allowing for more consistent and accurate results. This also ensures that we have a consistent form of communication going out to each member.
(3) **Elimination of the cost to members requesting Tier Changes.** Currently, all requests for Tier change estimates are calculated by Cavanaugh Macdonald at a cost to members of $300. This program will allow Tier change estimates to be calculated in house without any costs to the member.

.

The first draft of the POS Program is currently under review and is being tested by the Quality Unit

Retirement Benefits Statement Project

The Benefits Department continues to work with Cavanaugh Macdonald (Cavanaugh) to develop benefit statements for active members. The statements will provide Member Information, an Accrued Benefit, and a Projected Benefit. The Project Plan identified Fire and Emergency Medical Services (FEMS) as the pilot group. Prior to disbursement to the entire FEMS group, a test group of 170 FEMS members will be issued a benefit statement on or about September 2016, along with an introductory letter and a link to an online survey. This pilot group's responses will provide DCRB with information related to the following:

- Accuracy of the Statement
- Usefulness of the information in the Statement
- Clarity of the Statement
- Other suggestions from a Plan member's perspective

The results of the online survey will be assessed during October 2016 and any needed changes to the benefit statements will be made. The projected timeline for providing statements to the entire membership is as follows:

December 2016	-	Active Firefighters
June 2017	-	Active Police Officers
December 2017	-	Active Teachers

Term Vested Project

An effort has begun to identify terminated Plan members who:

- Did not complete 5 years of eligible service (were not vested), and did not receive a refund of their contributions
- Completed 5 years of eligible service, were vested, and are eligible to receive either a deferred annuity or a refund of contributions.

An initial pool of 38,000 names was identified containing potential term vested candidates. That number was reduced to approximately 9,500 members (both federal and District) that need further research. Since many of those members terminated many years ago, contact information is not reliable and some outside resources may be needed to locate these members.

To minimize the loss of future term vested members, the Benefits Department has developed an exit package for current terminating employees. The package will include a letter for vested and non-vested members and will provide information on how to request a refund or elect a deferred retirement.

Benefits Department Monthly Statistics

Processing volume by month:

Retirement Claims Received	213	179	264
Processed Retirements	159	131	153
Average Processing Days	54	42	49
Telephone Calls	2431	2460	2220
Walk-in Customers	132	151	144
Scanned Documents	14,820	14,554	8768
QDROs Approved	3 final	5 final 1 rejected	3 final 1 drafts pending
Purchase of Service	1 ($3,500)	14 ($43,557)	8 ($14,381.90)

You will find more details of the Benefits Department statistics in the attached reports.

MEMBER SERVICES CUSTOMER SATISFACTION SURVEY
June 2016

Background

The reported survey outcomes are the results of the June 2016 Member Services Customer Satisfaction Survey. The data collected are from active and retired members of the District of Columbia Police Officers and Firefighters' and Teachers' Retirement Plans, their survivors and beneficiaries. The purpose of the survey is to gather and measure the customer experience, gaging their satisfaction in an effort to improve our service to them, as necessary.

Survey Objective

The resulting feedback will be used to:

- Increase member satisfaction and confidence
- Deliver actionable data to decision-makers
- Reduce caller and in-person wait times for service
- Set reasonable service expectations

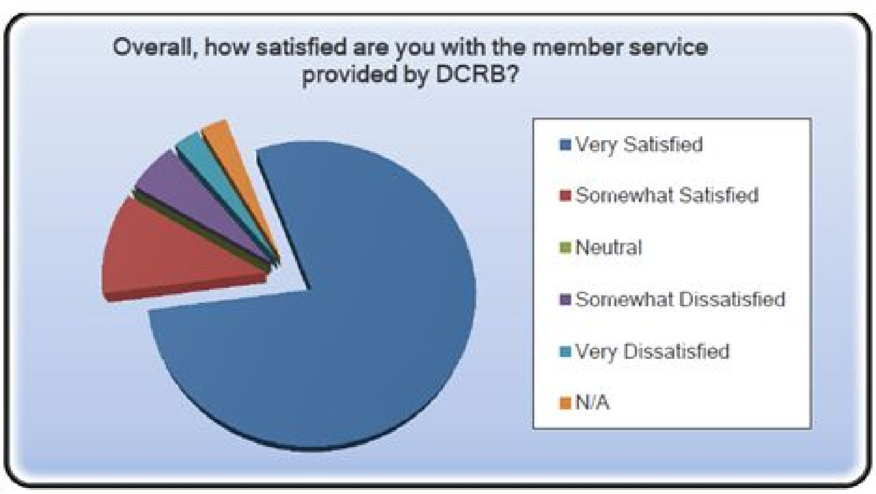
Methodology

- This month, survey participants were Plan members who made onsite visits to the DCRB member Service Center. Some members arrived after having scheduled an appointment; others came in for assistance with updating their member information. The survey participants were randomly chosen...

Participants

- 375 surveys were sent.
- 38 responses were received from members.

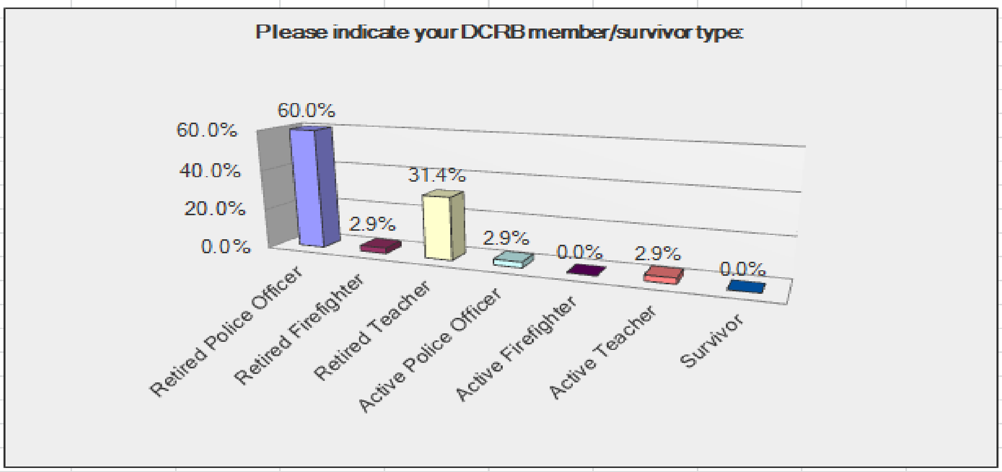
Overall DCRB Member Satisfaction



MEMBER SERVICES CUSTOMER SATISFACTION SURVEY
June 2016

Overall, how satisfied are you with the member service provided by DCRB?		
Answer Options	**Response Percent**	**Response Count**
Very Satisfied	78.4%	29
Somewhat Satisfied	10.8%	4
Neutral	0.0%	0
Somewhat Dissatisfied	5.4%	2
Very Dissatisfied	2.7%	1
N/A	2.7%	1
	answered question	37
	skipped question	1

Membership Type



Knowledge and Skills

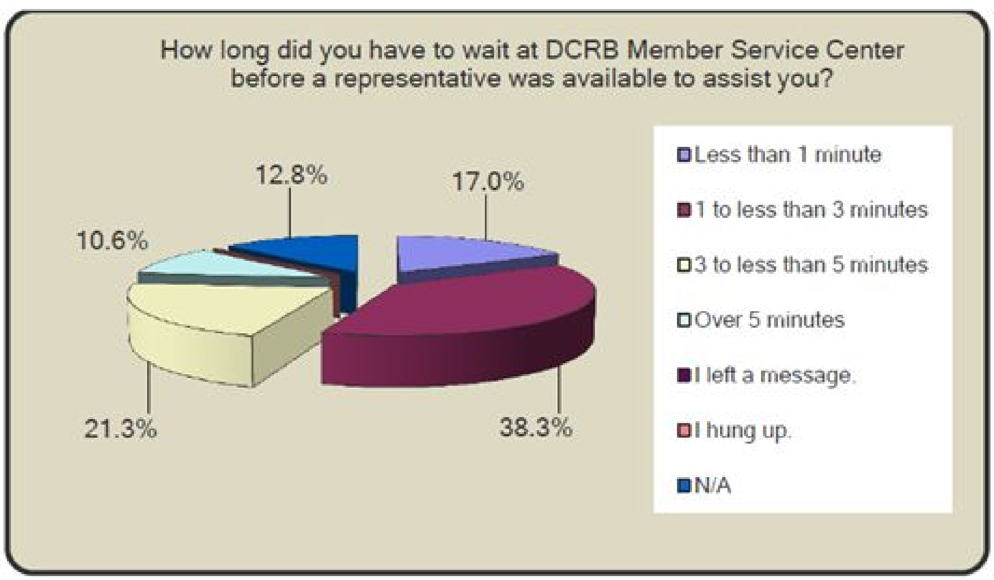
How satisfied were you with how the representative addressed your problem/inquiry?						
Answer Options	**Strongly Agree**	**Agree**	**Neither Agree/Disagree**	**Disagree**	**Strongly Disagree**	**Response Count**
Had the right information.	31	6	0	0	1	38
Understood your questions.	32	5	0	0	1	38
Provided clear answers.	32	4	0	0	1	37
Answered your questions.	32	4	0	0	1	37
Appeared well organized.	32	4	0	0	1	37
					answered question	38
					skipped question	0

MEMBER SERVICES CUSTOMER SATISFACTION SURVEY
June 2016

Reason for Contact

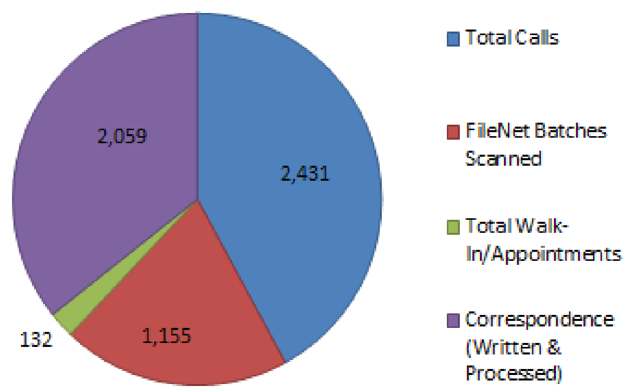
What was the main reason you contacted the DCRB Benefits Department?		
Answer Options	**Response Percent**	**Response Count**
Name/Address Change	10.0%	3
Direct Deposit	6.7%	2
Health/Life Insurance	26.7%	8
Redeposit/Purchase of Service	3.3%	1
Student Certification	0.0%	0
Beneficiary Change	6.7%	2
Retirement	43.3%	13
Tax Withholding Election	3.3%	1
Refund	0.0%	0
Death of Annuitant	3.3%	1
Disability	6.7%	2
I did not contact DCRB.	0.0%	0
Other (please specify)		7
	answered question	**30**
	skipped question	**8**

Contact Wait Time



DCRB Member Services Center Statistics for June 2016

Call Center Statistics	
Total Calls	**2,431**
Inbound Calls	1,439
Outbound Calls (Voicemails & Follow-up calls)	992
Average Talk Time	*4:36 minutes*
Average Caller Wait Time	*2:04 minutes*
Total Walk-In/Appointments	**132**
FileNet Batches Scanned	**1,155**
Documents Pages Scanned	14,820
Correspondence *(Written & Processed)*	**2,059**
Email & Fax	542
Processed Documents (EFTs, address & name changes, tax forms, 1099s, & 2809s , etc.)	1,517
Total	**5,777**



Top 3 Contact Trends	
Death Benefits/Notification	1. Notification to DCRB of a death 2. Request for death benefit packets and assistance with completing forms 3. Status of benefit payments
Annuity/Payroll	1. General questions regarding deductions *(Taxes, Garnishments, and Health/Life Insurance premiums)* 2. Questions from new retirees on interpreting information on the Earnings Statements
Health Insurance	1. Medicare Parts A&B questions *(Who pays first)* 2. Reduction in coverage *(Self + One or Self Only)* 3. Dependents who have aged off of plan *(dependents over 26)* 4. Survivor Benefits

Member Services May Statistical Comparison by Year

	2015	2016	Comments
Walk-Ins/Appointments	115	132	
Total Calls *(includes voice mails)*	1,218	2,431	
Emails	230	374	
Total	**1,563**	**2,937**	

Member Services Center 6.2016

RETIREMENT CASE PROCESSING - MONTHLY REPORT

JULY 1, 2016

CASES AVAILABLE FOR PROCESSING	CASES RECEIVED (but may not have been ready for payment)	CASES PROCESSED	CASE TYPE	PLAN		
				Fire	Police	Teacher
68	12	56	Beneficiary (One-Time Payments)	4	25	27
4	1	3	Beneficiary of Survivor	3	0	0
8	4	4	Deferred Annuity	0	3	1
3	2	1	Disability	0	1	0
7	0	7	Garnishment/Levy	2	5	0
16	1	15	Health Benefit Adjustments	0	7	8
53	25	28	Optional/Voluntary & Involuntary Annuity	3	23	2
3	2	1	QDRO/QMSCO	0	1	0
15	7	8	Survivor Annuity	2	3	3
0	0	0	Student Certifications	0	0	0
11	0	11	Annuity Adjustments	3	3	5
0	0	0	ODCP AUDIT ADJUSTMENTS	0	0	0
23	0	23	POST-56 Adjustments	4	19	0
1	0	1	CAPS Adjustments*	0	1	0
1	0	1	Auto Debt Collection	0	0	1
213	54	159		21	91	47

*ODCP's Corrective Action Project

RETIREMENT CASE PROCESSING REPORT – Prepared by S. Treadwell, Retirement Services Manager

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TO: BOARD OF TRUSTEES

FROM: LYLE BLANCHARD, CHAIRMAN

DATE: JULY 21, 2016

SUBJECT: LEGISLATIVE COMMITTEE REPORT

The following report reflects activities of interest since the May Board Meeting.

COUNCIL OF THE DISTRICT OF COLUMBIA

B21-0668, "Fiscal Year 2017 Local Budget Act of 2016"

This proposed bill would appropriate $146,456,000 from local funds for the Police Officers and Firefighters' Retirement System; $56,781,000 from local funds for the Teachers' Retirement System; and $39,095,618 from the Teachers' and Police Officers and Firefighters' Retirement Funds for the District of Columbia Retirement Board.

Status: On June 15, 2016, the proposed bill was enacted with Act number A21-0414 and transmitted to Congress on June 16, 2016. The Act has a projected law date of September 20, 2016.

Resolution 21-538, "Fiscal Year 2017 Budget Support Emergency Declaration Resolution of 2016"
B21-0812, "Fiscal Year 2017 Budget Support Emergency Act of 2016"
B21-0669, "Fiscal Year 2017 Budget Support Act of 2016"

Title I, Subtitle L - Equity in Survivor Benefits Clarification Amendment Act of 2016

This provision of the proposed bill would amend the "District of Columbia Spouse Equity Act of 1988" (DC Code §1-529.03) to add a new section clarifying that the Mayor is not required to comply with a qualified domestic relations order issued after an employee's or retiree's death.

Title III, Subtitle E - Fire and Emergency Medical Services Department Chief Officers Service Longevity Amendment Act of 2016

This provision would amend DC Code §5-544.01(a)(3) to provide longevity pay calculated based on annual rate of pay and total active service for non-union, active Assistant Fire Chiefs, Deputy Fire Chiefs and Battalion Fire Chiefs.

Title III, Subtitle F - Fire and Emergency Medical Services Presumptive Disability Implementation Amendment Act of 2016

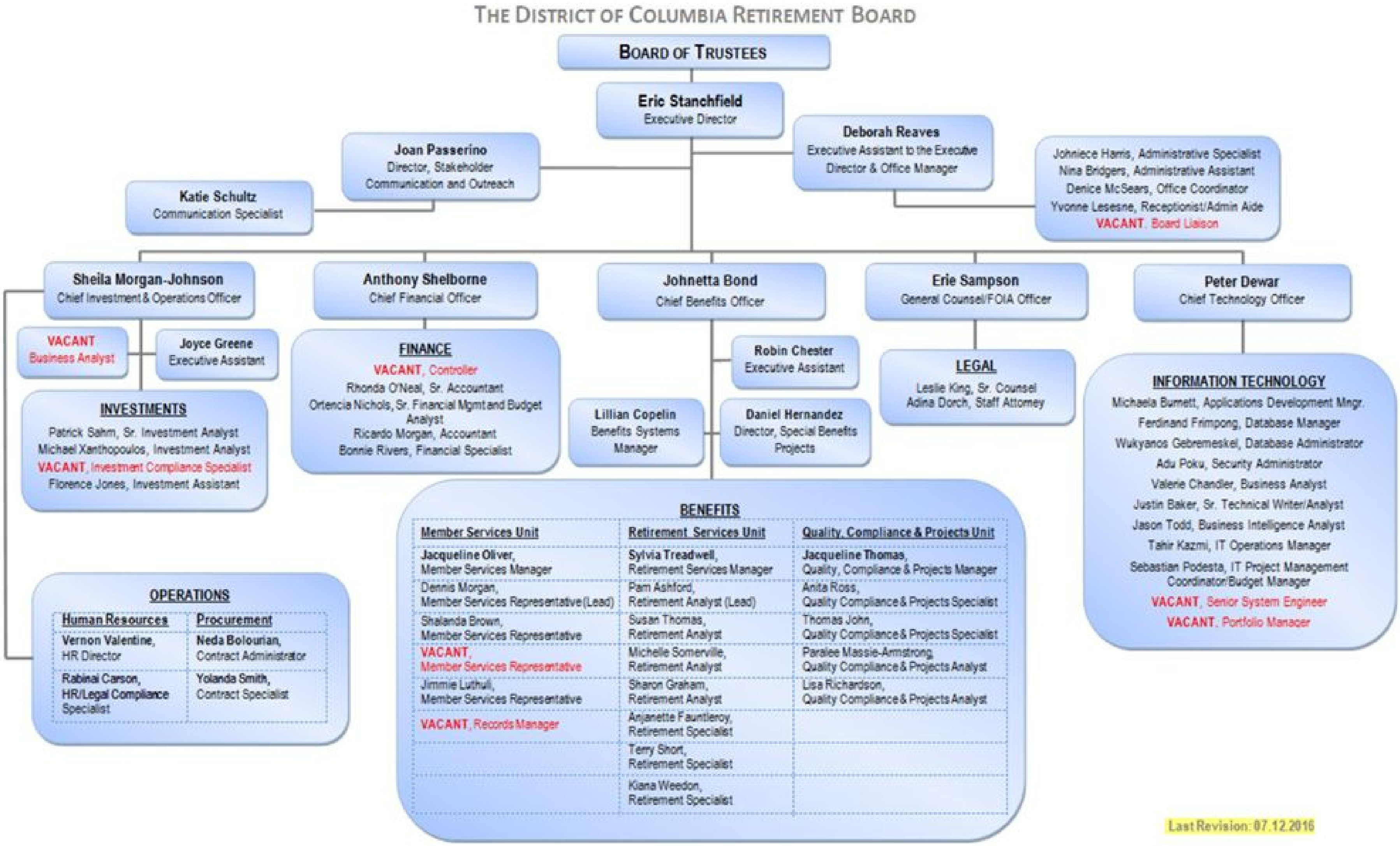
This provision would amend the "Fire and Emergency Medical Services Employee Presumptive Disability Amendment Act of 2012" (DC Law 19-311; DC Code §§5-651 - 5-656) to require additional eligibility requirements to be met by EMS employees and reporting requirements by FEMS. **Note:** The 2012 Act is subject to appropriations and has yet to be funded.

Status: Pending enactment of the proposed legislation, the D.C. Council adopted emergency legislation on June 28, 2016 in a resolution.

B21-0827, "Senior Law Enforcement Officer Amendment Act of 2016"

The proposed bill would allow, with the exception of disability annuitants, certain retired police officers to be rehired by the Metropolitan Police Department as fully sworn temporary full-time or part-time police officers without being subject to the District's salary offset law.

Status: On July 11, 2016, the bill was introduced by Chairman Mendelson at the request of the Mayor and referred to the Committee on the Judiciary.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Sheila Morgan-Johnson
Chief Investment & Operations Officer
VACANT
Business Analyst
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Florence Jones, Investment Assistant
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Yolanda Smith, Contract Specialist
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VACANT, Controller
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Ortencia Nichols, Sr. Financial Mgmt and Budget Analyst
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Chief Benefits Officer
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Lillian Copelin
Benefits Systems Manager
Daniel Hernandez
Director, Special Benefits Projects
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Jacqueline Oliver, Member Services Manager
Dennis Morgan, Member Services Representative (Lead)
Shalanda Brown, Member Services Representative
VACANT, Member Services Representative
Jimmie Luthul, Member Services Representative
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Michelle Somerville, Retirement Analyst
Sharon Graham, Retirement Analyst
Anjanette Fauntleroy, Retirement Specialist
Terry Short, Retirement Specialist
Kiana Weedon, Retirement Specialist
Quality, Compliance & Projects Unit
Jacqueline Thomas, Quality, Compliance & Projects Manager
Anita Ross, Quality Compliance & Projects Specialist
Thomas John, Quality Compliance & Projects Specialist
Paralee Massie-Armstrong, Quality Compliance & Projects Analyst
Lisa Richardson, Quality Compliance & Projects Analyst
Erie Sampson
General Counsel/FOIA Officer
LEGAL
Leslie King, Sr. Counsel
Adina Dorch, Staff Attorney
Peter Dewar
Chief Technology Officer
INFORMATION TECHNOLOGY
Michaela Burnett, Applications Development Mgr.
Ferdinand Frimpong, Database Manager
Wukyanos Gebremeskel, Database Administrator
Adu Poku, Security Administrator
Valerie Chandler, Business Analyst
Justin Baker, Sr. Technical Writer/Analyst
Jason Todd, Business Intelligence Analyst
Tahir Kazmi, IT Operations Manager
Sebastian Podesta, IT Project Management Coordinator/Budget Manager
VACANT, Senior System Engineer
VACANT, Portfolio Manager
Last Revision: 07.12.2016

DC Retirement Board Conference Listing as of July 20, 2016					
Sponsor	**Name of Conference**	**Date**	**Location**	**Cost**	**Description**
IFEBP	International Foundation of Employee Benefits Plans International and Emerging Market Investing	July 25-27	San Francisco, CA	Thru 06/13/2016 Member: $3,750 After 06/13/2016 Member: $4,000	This course is designed for individuals who have a solid base in investment management principles and seek to explore the opportunities available through international investing. Fiduciaries from both defined benefit and defined contribution plans represent various industries, sizes and geographic areas (United States and Canada).
NCPERS	National Conference on Public Employee Retirement Systems Public Pension Funding Forum	August 21-23	New Haven, CT	Thru 07/22/2016 Member: $600 After 07/22/2016 Member: $700	The Public Pension Funding Forum will examine the obstacles that stand in the way of closing public pension funding gap and explore new solutions to overcome such obstacles, including better risk management in economic cycles, use of new and improved debt instruments, and closing tax loopholes.
CII	Pension Fund Trustee Training	28-Sep	Chicago, IL	Members: $395	The program covers critical issues and trends in trustee service and reviews recent ethical dilemmas in the pension fund industry and challenges trustees face with ethical decision-making. The course will evaluate several fact patterns to sharpen their knowledge and understanding of fiduciary responsibilities, conflicts of interest, duties of care and loyalty regarding plan participants and the consideration of plan sponsor circumstances.The course examines common liability structures for a variety of funds (pension, endowment) ways to set strategic investment objectives. Risk budgeting for funds will be explored and applied in a brief case study that enhances participants' understanding of the tactical and strategic choices that fund stewards must make.
NCTR	National Council on Teacher Retirement 94th Annual Conference	October 8-12	Providence, RI	Thru 09/10/2016 Member: $1,080 After 09/10/2016 Member: $1,230	NCTR provides vital support for the retirement security for America's teachers. There are thousands of dedicated individuals involved in our mission, but with more pressure on retirement systems, the need is greater than ever for the leadership, support, and connections that NCTR provides for its members
NCPERS	National Conference on Public Employee Retirement Public Safety Employees Pension & Benefits Conference	October 23-26	Las Vegas, NV	Thru 09/23/2016 Member: $650 After 09/23/2016 Member: $800	The Public Safety Employees Pension & Benefits Conference is dedicated to providing quality education that is specifically tailored for the unique needs and demands of public safety pensions. Since 1985, the Conference has educated hundreds of public safety pension trustees, administrators and staff; union officials; and local elected officials by featuring presentations from recognized leaders in both the worlds of finance and politics, providing news on the latest developments, and offering attendees the opportunity to network with fellow trustees.

DISTRICT OF COLUMBIA RETIREMENT BOARD
Training & Travel Report
As of
July 20, 2016

Name	Description	Sponsor/Vendor	Location	Dates From	Dates To
Trustees					
Mary Collins	Conference	27th Annual Pension and Financial Services Conference	Atlanta, GA	06/13/16	06/15/16
Staff					
Rabinai Carson	Conference	SHRM Annual Conference	Washington, DC	06/19/16	06/22/16
Adina Dorch	Education	2016 Legal Education Conference	New Orleans, LA	06/21/16	06/24/16
Peter Dewar	Education	Harvard University's John F. Kennedy School of Government Senior Executives State and Local Government	Boston, MA	06/06/16	06/24/16
Ferdinand Frimpong	Conference	Gartner Security & Risk Management Summit 2016	National Harbor, MD	06/13/16	06/16/16
Wukyanos Gebremeskel	Conference	Gartner Security & Risk Management Summit 2016	National Harbor, MD	06/13/16	06/16/16
Tahir Kazmi	Conference	Gartner Security & Risk Management Summit 2016	National Harbor, MD	06/13/16	06/16/16
Sheila Morgan-Johnson	Conference	International Limited Partners Association Members Only Conference	Chicago, IL	06/02/16	06/03/16
	Annual Meeting	Patheon Secondary Fund Limited Partners Advisory Committee Meeting	New York, NY	06/15/16	06/16/16
	Due Diligence	Blackstone Real Estate, CVC, Orion Capital Managers LLP, Inflexion Private Equity Partners LLP, Chequers Partenaires, PW Real Estate, H.I.G. Capital, Mondrian Investment Partners, Ltd, AnaCap Financial Partners LLP and Kildare Partners	London, United Kingdom	06/26/16	06/30/16
Adu Poku	Conference	Gartner Security & Risk Management Summit 2016	National Harbor, MD	06/13/16	06/16/16
Deborah Reaves	Education	Strayer University Public Policy Analysis & Planning	Prince Georges Campus	07/05/16	09/19/16
Patrick Sahm	Conference	Quantum Energy Partners 2016 Annual Meeting	Houston, TX	05/23/16	05/24/16
	Due Diligence	Blackstone Real Estate, CVC, Orion Capital Managers LLP, Inflexion Private Equity Partners LLP, Chequers Partenaires, PW Real Estate, H.I.G. Capital, Mondrian Investment Partners, Ltd, AnaCap Financial Partners LLP and Kildare Partners	London, United Kingdom	06/26/16	06/30/16
Vernon Valentine	Conference	SHRM Annual Conference	Washington, DC	06/19/16	06/22/16

Name	Description	Sponsor/Vendor	Location	Dates	
				From	To
Michael Xanthopoulos	Conference	US Social Investment Forum 6th Annual Conference	Washington, DC	05/23/16	05/25/16
	Conference	SMU School of Business	Dallas, TX	06/21/16	06/22/16