



# TRS Board of Trustees Meeting

September 24 - 25, 2015

**TEACHER RETIREMENT SYSTEM OF TEXAS MEETING  
BOARD OF TRUSTEES**

**AGENDA**

**September 24, 2015 – 8:00 a.m.**

**September 25, 2015 – 10:00 a.m.**

**TRS East Building, 5<sup>th</sup> Floor, Boardroom**

*NOTE: The Board may take up any item posted on the agenda during its meeting on Thursday, September 24, 2015 or during the meeting on the following day beginning at the time and place specified on this agenda.*

*The open portions of the September 24-25, 2015 Board meeting are being broadcast over the Internet. Access to the Internet broadcast of the Board meeting is provided on TRS' website at [www.trs.state.tx.us](http://www.trs.state.tx.us).*

1. Call roll of Board members and recognize any newly appointed or reappointed member.
2. Consider the following administrative matters – David Kelly:
  - A. Approval of the proposed July 24, 2015 Board meeting minutes.
  - B. Consider excusing Board member absences from the July 24, 2015 Board meeting.
  - C. Consider the election of the Board Vice-Chair.
  - D. Consider consenting to the Board Chair's appointment of committee members, and receive the Board Chair's public announcement of committee chairs.
  - E. Consider Board and committee meeting dates for calendar year 2016.
3. Provide opportunity for public comments – David Kelly.
4. Discuss and consider investment matters, including Second Quarter 2015 Performance Review – Steve Voss and Mike Comstock, Aon Hewitt.

*NOTE: The Board meeting likely will recess after the last item above to conduct committee meetings and resume upon adjournment of the committee meetings to take up the items listed below.*

5. Receive a presentation on the 2015 Pension Trust Fund Experience Study and consider a adopting a resolution amending actuarial assumptions for the TRS Pension Trust Fund – Joe Newton, Gabriel, Roeder Smith and Co.
6. Review the report of the Risk Management Committee on its September 24, 2015 meeting – Committee Chair.

7. Review the report of the Policy Committee on its September 24, 2015 meeting – Committee Chair.
8. Review the report of the Compensation Committee on its September 24, 2015 meeting, and consider related matters, including the development of a compensation plan, general compensation matters, and confirming continuation and adoption of the Performance Incentive Pay Plan for the Performance Period beginning October 1, 2015 – Committee Chair.

***NOTE:** The Board meeting likely will recess after the last item above and resume Friday morning to take up items listed below.*

9. Provide opportunity for public comments – David Kelly.
10. Review and discuss the Executive Director's report on the following matters – Brian Guthrie:
  - A. Administrative operational matters, including goals for Fiscal Year 2015 and updates on financial, audit, legal, staff services, board administration activities, special projects, long-term space planning, and strategic planning.
  - B. Board operational matters, including a review of draft agendas for upcoming meetings.
  - C. Event notices or reminders; holiday and other schedules of interest; board member, employee or other individual recognitions; and expressions of thanks, congratulations, or condolences.
11. Receive an update on the TEAM Program – David Cook and Adam Fambrough; Jay Masci, Provaliant.
12. Receive a presentation from the TEAM Program Independent Program Assessment (IPA) Vendor – Michael Johnson, Bridgepoint Consulting.
13. Review the report of the Investment Management Committee on its September 24, 2015 meeting, and consider related matters – Committee Chair.
14. Review the report of the Audit Committee on its September 25, 2015 meeting, and discuss and consider adoption of the proposed Audit Plan for Fiscal Year 2016 – Committee Chair.
15. Review the reports of the Chief Financial Officer regarding expenditures, current financial review, and other financial matters involving TRS programs – Don Green.
16. Review the report of the Chief Benefit Officer, and consider the following related matters – Barbie Pearson:

- A. Approve the number of members qualified for retirement.
  - B. Approve the minutes of the May 2015 Medical Board meetings.
  - C. Consider an appointment to the Medical Board and a resolution authorizing staff to negotiate and execute a contract with the appointed member.
17. Consider concurring in the Medical Board's certification regarding multiple disability retirees under Section 824.307 of the Government Code, discontinuing annuity payments for certain retirees, and restoring the retirees to membership – Barbie Pearson.
  18. Review and discuss the Deputy Director's report, including matters related to administrative, financial, and staff services operations – Ken Welch
  19. Review the report of the General Counsel on pending and contemplated litigation, including updates on litigation involving benefit-program contributions, retirement benefits, health-benefit programs, and open records – Carolina de Onís.
  20. Consider personnel matters, including the appointment, employment, evaluation, compensation, performance, duties, discipline, or dismissal of the Executive Director, Chief Investment Officer, or Chief Audit Executive – David Kelly.
  21. Consult with the Board's attorney(s) in Executive Session on any item listed above on this meeting agenda as authorized by Section 551.071 of the Texas Open Meetings Act (Chapter 551 of the Texas Government Code) – David Kelly.

Tab 2 A

## Minutes of the Board of Trustees

July 24, 2015

The Board of Trustees of the Teacher Retirement System of Texas met on July 24, 2015 in the boardroom located on the fifth floor of the TRS East Building offices at 1000 Red River Street, Austin, Texas. The following board members were present:

David Kelly, Chair  
Nanette Sissney, Vice-Chair  
Todd Barth  
Karen Charleston  
Joe Colonna  
Christopher Moss  
Anita Palmer

### Others present:

Brian Guthrie, TRS	Hugh Ohn, TRS
Ken Welch, TRS	Jamie Pierce, TRS
Jerry Albright, TRS	Heather Traeger, TRS
Amy Barrett, TRS	Kristi Vorce, TRS
Chris Cutler, TRS	Dale West, TRS
Katrina Daniel, TRS	Steve Huff, Reinhart Boerner Van Deuren
Carolina de Onís, TRS	Steve Voss, Aon Hewitt
Howard Goldman, TRS	Mike Comstock, Aon Hewitt
Don Green, TRS	Mike McCormick, Aon Hewitt
T. Britton Harris IV, TRS	Joe Newton, Gabriel Roeder Smith and Company
Barbie Pearson, TRS	Pattie Featherston, Legislative Budget Board
Jase Auby, TRS	Ann Fickel, Texas Classroom Teachers Association
Mohan Balachandran, TRS	Philip Mullins, Texas Retired Teachers Association
Ronnie Bounds, TRS	Ted Melina Raab, Texas American Federation of Teachers
Dan Junell, TRS	Joni Lozano, CVS Caremark
Eric Lang, TRS	Pat Del Rio, Aetna
Lynn Lau, TRS	Josh Sanderson, Association of Texas Professional Educator
T. A. Miller, TRS	Drew Graham, House Committee on Pensions

Mr. Kelly called the meeting to order at 8:13 a.m.

### **1. Call roll of Board members.**

Ms. Lau called the roll. A quorum was present. Mr. Corpus and Ms. Ramirez were absent.

### **2. Consider the following Board administrative matters – David Kelly:**

#### **A. Approval of the June 11-12, 2015 Board meeting minutes.**

On a motion by Ms. Palmer, seconded by Ms. Sissney, the board unanimously approved the proposed minutes of the June 11-12, 2015 board meeting, as presented.

**B. Consider excusing Board member absences from the June 11-12, 2015 Board meeting.**

On a motion by Ms. Sissney, seconded by Mr. Moss, the board unanimously voted to excuse Mr. Colonna's absence from the June 11-12, 2015 meeting.

**C. Honor the service of outgoing Trustee Todd Barth.**

Mr. Guthrie read the following resolution honoring Mr. Barth for his service:

Whereas, Todd Barth has served as a member of the board of trustees of the Teacher Retirement System of Texas (TRS) from October 2009 through August 2015, mindful of his duty as caretaker of a trust to those **who teach or otherwise serve our state's children** and thereby shape its future; and

Whereas, He has provided leadership to the system during a time when the retirement system grew to more than 1.4 million members and annuitants; management controls were strengthened; new investment allocations and procedures were adopted and **implemented; the State Auditor's Office reports provided unqualified opinions with no material findings; and TRS annually received the "Certificate of Achievement for Excellence in Financial Reporting" from the Government Finance Officers Association; and**

Whereas, He served TRS in numerous ways, including as chair of the Investment Management and Policy Committees as well as a member of the Audit, Benefits, Budget, and Risk Committees; and

Whereas, He served on the board at a time when TRS conducted an important legislative study on pension fund sustainability, which enabled the legislature to make modifications that made the pension fund actuarially sound, allowing for the first permanent cost-of-living increase for a majority of retirees in more than a decade; and

Whereas, He played an active role in selecting a new executive director for TRS in February 2011; and

**Whereas, He served on the board during the time of TRS' 75th Anniversary and joined other trustees in commemorating that special event; and**

Whereas, He helped guide the agency through prudent oversight of trust assets during a challenging period of extreme capital market volatility, including one of the **nation's most** serious recessions, when the TRS Pension Fund rebounded from approximately \$90 billion in October 2009 to more than \$132 billion as of July 2015; now, therefore, be it

*Resolved*, That the board of trustees and staff of the Teacher Retirement System of Texas recognize the accomplishments and contributions of Todd Barth and express appreciation on behalf of TRS members both present and future, and be it further

*Resolved*, That a copy of this resolution be presented to Todd Barth and entered into the record of the board for July 24, 2015.

Mr. Harris, Mr. Auby, Mr. West, and Mr. Balachandran expressed their appreciation to Mr. Barth for his service. Mr. Barth expressed his appreciation to the board and staff.

**D. Setting, rescheduling, or canceling future Board meetings.**

Mr. Guthrie suggested that the October 23, 2015 board meeting be rescheduled to Thursday, October 22, 2015 because of the impact on travel and lodging caused by the Formula 1 auto race and related events being held in Austin October 23-25, 2015.

On a motion by Mr. Moss, seconded by Ms. Palmer, the board unanimously voted to change the October meeting date from October 23, 2015 to October 22, 2015.

**3. Provide opportunity for public comments – David Kelly.**

Mr. Kelly called for public comment. No comment was received.

**4. Discuss and consider selecting Board fiduciary counsel, including considering a finding that deliberating or conferring on the selection of fiduciary counsel in an open meeting would have a detrimental effect on the position of the retirement system in negotiations with a third person – David Kelly.**

Ms. de Onís presented staff's recommendation that TRS' contract with Reinhart Boerner Van Deuren s.c. for fiduciary-counsel services be extended for two years. Mr. Kelly and Mr. Colonna expressed their agreement with staff's recommendation. On a motion by Mr. Barth, seconded by Ms. Sissney, the board unanimously adopted the following resolution to extend the contract with Reinhart Boerner Van Deuren s.c. for two years:

**Resolved,** That the Board of Trustees (board) of the Teacher Retirement System of Texas (TRS) hereby selects the law firm of Reinhart Boerner Van Deuren s.c. to serve as fiduciary counsel;

**Resolved,** That the board authorizes the Executive Director to negotiate an outside counsel contract with fiduciary counsel for a two-year term beginning on September 1, 2015 and terminating on August 31, 2017 and to obtain approval from the Office of the Attorney General for the engagement of such outside counsel; and

**Resolved,** That, if negotiations are deemed by the Executive Director in his discretion to be successful, then the Executive Director is hereby authorized to execute such contract, including future amendments, with fiduciary counsel on such terms and conditions as the Executive Director may deem in his discretion to be in the best interest of TRS, and further to execute and deliver all such other documents that the Executive Director may deem necessary or appropriate to effect this resolution and to incur, approve, and pay any budgeted expenses or costs associated with such contract and deemed in the discretion of the Executive Director, or his designee, to be reasonably necessary or advisable with respect to such contract.

**5. Receive an update on the 2015 Pension Trust Fund Experience Study – Joe Newton and Lewis Ward, Gabriel, Roeder, Smith and Co.**

Mr. Newton summarized the findings of the actuarial experience study conducted pursuant to section 825.206 of the Government Code. He said that GRS would present a final report on the study and any recommendations for modifying actuarial assumptions at the board's September

2015 meeting. He explained the process and importance of reviewing and setting actuarial assumptions in connection with the experience study. He described and explained the preliminary recommendations, including the following:

- Maintaining investment return assumptions at 8 percent;
- Changing the investment return assumption from net of all expenses to net of only investment and administrative expenses;
- Increasing life expectancy;
- Decreasing the inflation assumption from 3 percent to 2.5 percent;
- Decreasing the real wage growth assumption by an additional 0.25 percent; and
- Decreasing the overall payroll growth assumption by 1 percent.

Mr. Newton also explained the recommendation to redefine an active member as one who made contributions in the most recent fiscal year and had not retired. Mr. Guthrie confirmed for Ms. Sissney that the redefinition would not affect those members who would be redefined as inactive members. Mr. Welch clarified that the existing processes for non-vested members would continue and not be affected by the redefinition. Mr. Newton explained other minor recommendations, including adding a direct rehire assumption into termination patterns, using individual data instead of celled data for valuation purposes, and removing the market value corridor for the smoothing of assets.

Mr. Newton described the actuarial impact of the new assumptions on the normal cost, unfunded actuarial accrued liability (UAAL), funded ratio, employer contribution, and funding period. He concluded by stating that a full report would be provided for the board's review and the new assumptions would be presented for the board's consideration at the September board meeting.

**6. Review and discuss the Executive Director's report on the following matters – Brian Guthrie:**

- A. Administrative operational matters, including updates on financial, audit, legal, staff services, board administration activities, special projects, long-term space planning, and strategic planning matters.**
- B. Board operational matters, including a review of draft agendas for upcoming meetings.**
- C. Event notices or reminders; holiday and other schedules of interest; board member, employee or other individual recognitions; and expressions of thanks, congratulations, or condolences.**

Mr. Guthrie shared with the board recent and upcoming events, including the Texas Retired Teachers Association (TRTA) fall conventions, National Council on Teacher Retirement (NCTR) trustee workshop, joint public/private Strategic Partnership Network (SPN) summit, National Association of State Retirement Administrators (NASRA) conference, and NCTR Conference. Mr. Harris also provided a brief overview of the upcoming SPN summit.

Mr. Guthrie highlighted major agenda items planned for the September and October meetings.

Mr. Kelly announced that the board would take up agenda items 10, 11, and 12.

**10. Consider a resolution certifying to the State Comptroller of Public Accounts the estimated amount of state contributions to be received by the retired school employees group health benefit fund for the fiscal year ending August 31, 2016 – Don Green.**

On a motion by Mr. Barth, seconded by Ms. Sissney, the board unanimously adopted the following certification to the State Comptroller of Public Accounts:

At its meeting on July 24, 2015, the Board of Trustees of the Teacher Retirement System, on a motion by Mr. Todd Barth, seconded by Ms. Nanette Sissney, voted to certify \$311,908,213 as the estimated amount of state contributions to be received by the retired school employees group insurance fund (TRS Care) for the 2016 fiscal year under the appropriations authorized by Chapter 1575 of the Insurance Code, the Texas Public School Retired Employees Group Benefits Program. This amount includes \$278,304,826 authorized in the General Appropriations Act (House Bill 1, 84th Legislature, Regular Session), plus an estimated amount of \$33,603,387 due to fiscal year 2015 payroll costs being more than previously estimated. These contributions are based on 1.0 percent of the salary of each active public school employee.

This estimate of state contributions is required by Section 1575.209 of the Insurance Code.

**11. Consider authorizing the Executive Director to purchase directors' and officers' liability insurance, fiduciary liability insurance, and employment practices liability insurance for fiscal year 2016 through the State Office of Risk Management – Don Green.**

Mr. Green stated that the board annually authorized the Executive Director to purchase fiduciary liability, directors' and officers' liability, and employment practices liability insurance for the board and TRS employees. He referred to the proposed resolution that would grant the Executive Director or his designee authority to purchase the insurance.

On a motion by Mr. Moss, seconded by Ms. Palmer, the board unanimously adopted the following resolution to authorize the executive director to purchase directors and officers insurance coverage for FY 2016:

**Resolved,** That, pursuant to Texas Government Code Section 825.112, the Executive Director or his designee is authorized to purchase directors and officers insurance coverage, including fiduciary liability and employment practices liability insurance with coverage limits of up to \$25 million under each policy for fiscal year 2015, at a cost to be determined by the Executive Director, and to negotiate and agree to such terms and conditions of coverage as the Executive Director or his designee may deem in his or her discretion to be in the best interest of TRS, and to execute and deliver any authorizations to bind coverage and such other documents, applications, contracts, amendments, extensions, agreements, certificates, or affidavits, or modifications as may be necessary or desirable in connection with acquiring and maintaining such insurance.

**12. Review the reports of the Chief Financial Officer regarding expenditures, mid-year financial review, and other financial matters involving TRS programs – Don Green.**

Mr. Green presented a report of expenditures paid for May and June of 2015.

At 9:45 a.m., Mr. Kelly announced that the board would recess to conduct committee meetings.

After a recess, the board meeting reconvened at 1:15 p.m. Mr. Kelly announced that the board would take up agenda item 9.

**9. Review the report of the Budget Committee on its July 24, 2015 meeting and consider adoption of the following related matters – Nanette Sissney:**

- A. The proposed fiscal year 2016 pension trust fund administrative operations budget, general provisions, and resolution authorizing transfer of pension trust funds to the TRS expense account to cover the expenses approved under the fiscal year 2016 budget.**
- B. The proposed fiscal year 2016 administrative operations budgets and general provisions for the two TRS health benefits programs (TRS-Care and TRS-ActiveCare) and optional long-term care insurance program.**
- C. The proposed fiscal year 2016 administrative operations budget and general provisions for the 403(b) company certification and investment product registration program.**

Ms. Sissney, Committee Chair, provided the Budget Committee report, as follows:

The Budget Committee met today, Friday, July 24, at 10:08 a.m. The first item of business was the approval of minutes of the June 11, 2015 Budget Committee meeting.

Mr. Don Green was joined by the Managing Director of IMD operations, Sylvia Bell, to discuss a change in the source of funding for research expenses related to investment deals. They spoke of the current issue relating to the shortfall in CSA commissions targets and the impact to the quality and availability of research. Several options were discussed with the preferred option being option number 3, which is to pay the research expenditures from the investment trust account.

Mr. Green presented a high level overview of the proposed administrative operating budget and general provisions for FY 2016. The FY 2016 requested budget is within existing legislative authority. The total FY 2016 operating budget for all funds is \$172.9 million, which includes \$103.6 million for administrative operations, \$24.6 million for TEAM, \$35.9 million for soft dollars and \$5.3 million for the operation of TRS-Care, \$3.4 million for the operation of TRS-ActiveCare and approximately \$85,000 for the 403(b) certification program.

Based on the previous agenda item, Mr. Green introduced an amendment to the general provisions to include a section on investment costs. The Budget Committee also discussed the TEAM program. The total operating and capital expense budget is \$24.6 million and includes 11 new FTEs.

A resolution was discussed in the Budget Committee to bring to the Board authorizing expenditures and the transfer of trust fund for pension trust fund administrative operations in the amount of \$117,033,476 to pay the actual amount of performance incentive compensation, to pay expenses incurred for the TEAM program and for the operational recovery due to a catastrophic occurrence.

On a motion by Ms. Sissney as the committee chair, the board unanimously adopted the fiscal year 2016 administrative operations budgets and general provisions for the pension trust fund, the TRS health benefits fund (including both TRS health benefits programs and the long-term care insurance program), and the 403(b) company certification and investment product registration program, as presented by staff and recommended by the committee.

On a motion by Ms. Sissney as the committee chair, the board unanimously adopted the following resolution authorizing staff to transfer pension trust funds to the TRS expense account for pension administrative operation expenses under the approved fiscal year 2016 budget:

**Whereas**, Section 825.312 of the Government Code provides that the retirement system shall pay from the expense account of the retirement system account for the pension trust fund all administrative expenses of the retirement system that are required to perform the fiduciary duties of the board;

**Whereas**, Section 825.313(d) of the Government Code provides that the TRS Board of Trustees (board) may authorize transferring from the interest account to the expense account of the retirement system an amount necessary to cover TRS' operating expenses for the fiscal year that are required to perform the fiduciary duties of the board;

**Whereas**, Rider 18, "Contingent Appropriation of Pension Trust Funds for GASB Statement Implementation," of the TRS bill pattern in the State General Appropriations Act, 84<sup>th</sup> Legislature provides that upon a finding of fact by the TRS board that additional resources are necessary to implement accounting guidelines related to Governmental Accounting Standards Board statements and pronouncements, the TRS is appropriated additional funds from the Pension Trust Fund (960) for fiscal year 2016; now, therefore be it;

**Resolved**, That the board finds the expenditure of pension trust funds for operating expenses in Fiscal Year 2016 is required to perform the fiduciary duties of the board in administering the retirement system in the amount of \$117,033,476, as approved today in the Fiscal Year 2016 Budget and General Provisions for the Pension Trust Fund Administrative Operations, plus such additional amounts as may be necessary for the following expenditures:

- To pay the actual amount of performance incentive compensation payable in Fiscal Year 2016, if any; and
- To achieve recovery of operational capabilities in the event of a catastrophic occurrence as contemplated by such General Provisions adopted by the board; and to implement GASB statements; and

**Resolved**, That the staff is authorized to transfer from the interest account to the expense account an amount necessary to cover the expenses of the retirement system under the approved budget for Fiscal Year 2016, but not to exceed the amount of \$117,033,476 plus, any additional amounts necessary to pay performance incentive compensation payable in Fiscal Year 2016 and, as applicable, to achieve recovery of operational capabilities in the

event of a catastrophic occurrence as contemplated by the General Provisions adopted by the board.

**7. Discuss and consider the following personnel matters:**

- A. Review the report of the Audit Committee on its July 24, 2015 meeting and discuss and consider the evaluation and compensation of the Chief Audit Executive – Christopher Moss.**

Mr. Moss, Committee Chair, provided the Audit Committee report, as follows:

The Audit Committee met on Friday, July 24 in the 5th Floor boardroom. The Audit Committee received a report on matters related to governance, risk management, and internal controls related to the TEAM program. The Audit Committee received a presentation from Focus Consulting on the executive evaluation process. The Audit Committee discussed and approved the recommendation to the Board of Trustees regarding the annual performance appraisal for the Chief Audit Executive. The Audit Committee deferred consideration of any salary increase to the Board of Trustees.

On a motion by Mr. Moss as the committee chair, the board unanimously approved the annual performance appraisal of the Chief Audit Executive for fiscal year 2015.

- B. Discuss and consider the evaluation, compensation, and duties of the Chief Investment Officer and provide input to the Executive Director – David Kelly.**
- C. Discuss and consider the evaluation, compensation, and duties of the Executive Director – David Kelly.**

Whereupon, Mr. Kelly announced that the board would go into executive session on agenda items 7B and 7C under sections 551.074 and 551.071 of the Government Code to deliberate personnel matters and, as needed, to seek the advice of legal counsel. He asked all members of the public and staff not needed for executive session to leave the meeting room and take their belongings with them.

Whereupon, the open session recessed at 1:27 p.m.

After completing the executive session, Mr. Kelly announced that the open session reconvened at 3:57 p.m.

On a motion by Mr. Kelly, seconded by Mr. Moss, the board unanimously voted to increase the Executive Director's base annual salary by 5 percent to \$327,443.

On a motion by Mr. Kelly, seconded by Ms. Sissney, the board unanimously voted to reclassify the Chief Audit Officer (CAO) position as Director Level 6 and increase the CAO's base annual salary by 5 percent to \$189,249.

On a motion by Mr. Kelly, seconded by Mr. Colonna, the board unanimously voted to increase the Chief Investment Officer's base annual salary by 4.2 percent to \$525,000.

- 8. Review the report of the Compensation Committee on its July 24, 2015 meeting – Nanette Sissney.**

Mr. Kelly announced that the Compensation Committee meeting would be deferred to a future date.

- 13. Consult with the Board's attorney(s) in Executive Session on any item listed above on this meeting agenda as authorized by Section 551.071 of the Texas Open Meetings Act (Chapter 551 of the Texas Government Code) – David Kelly.**

The board took up no further business under agenda item 13.

The meeting was adjourned at 4:04 p.m.

APPROVED BY THE BOARD OF TRUSTEES OF THE TEACHER RETIREMENT SYSTEM OF TEXAS ON THE 24TH DAY OF SEPTEMBER, 2015.

ATTESTED BY:

\_\_\_\_\_  
Dan Junell  
Secretary to the TRS Board of Trustees

\_\_\_\_\_  
Date

Tab 2 E



## **Board of Trustees**

### **RESOLUTION SETTING MEETING DATES**

**September 24 - 25, 2015**

**RESOLVED**, That the Board of Trustees of the Teacher Retirement System of Texas adopts the following meeting schedule for calendar year 2016, with each approved meeting to be held in Austin unless another location is selected:

February 24 – 26, 2016 (already set for Region 10 ESC in Richardson)

April 7 – 8, 2016 (quarterly meeting)

May 13, 2016 (one-day)

June 16 – 17, 2016 (quarterly meeting)

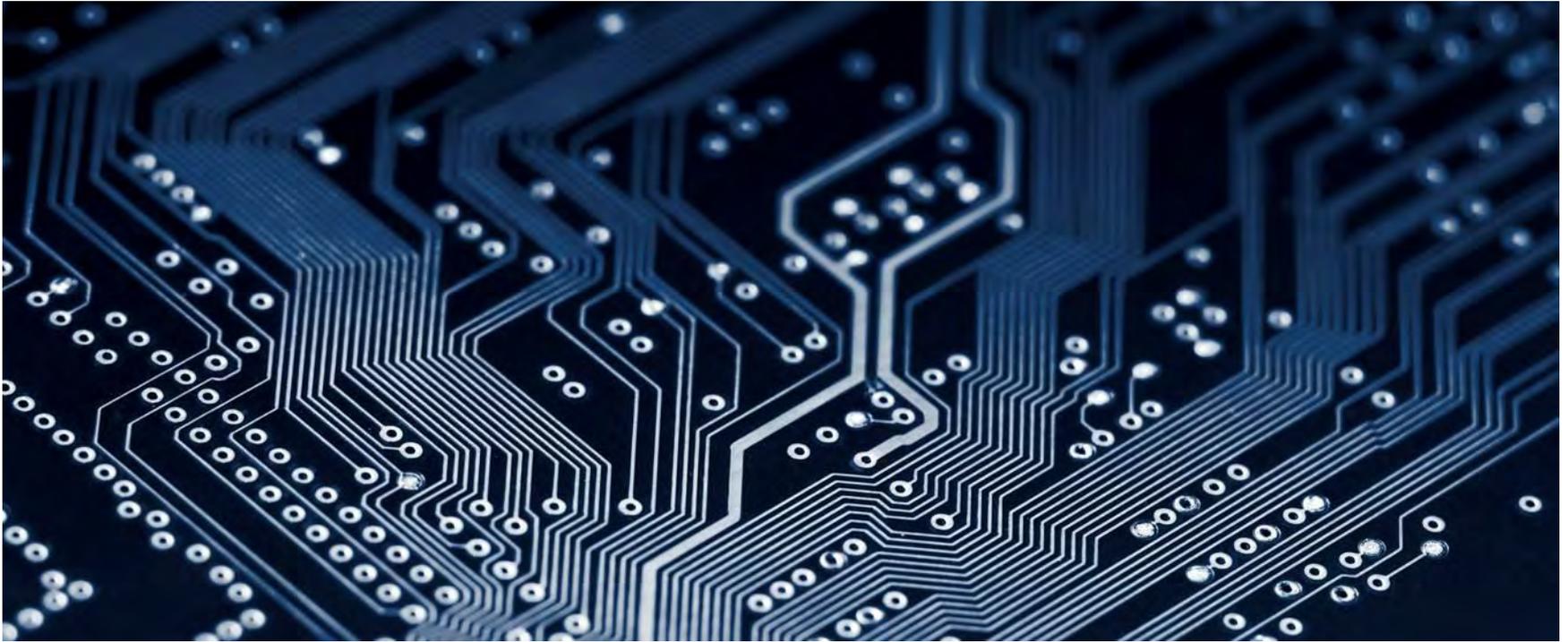
July 29, 2016 (one-day)

September 22 – 23, 2016 (quarterly meeting)

October 28, 2016 (one-day)

December 1 – 2, 2106 (quarterly meeting)

Tab 4



# Teacher Retirement System of Texas

Performance Review: Second Quarter 2015  
September 2015

**Aon Hewitt**  
Retirement and Investment

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.



# Summary

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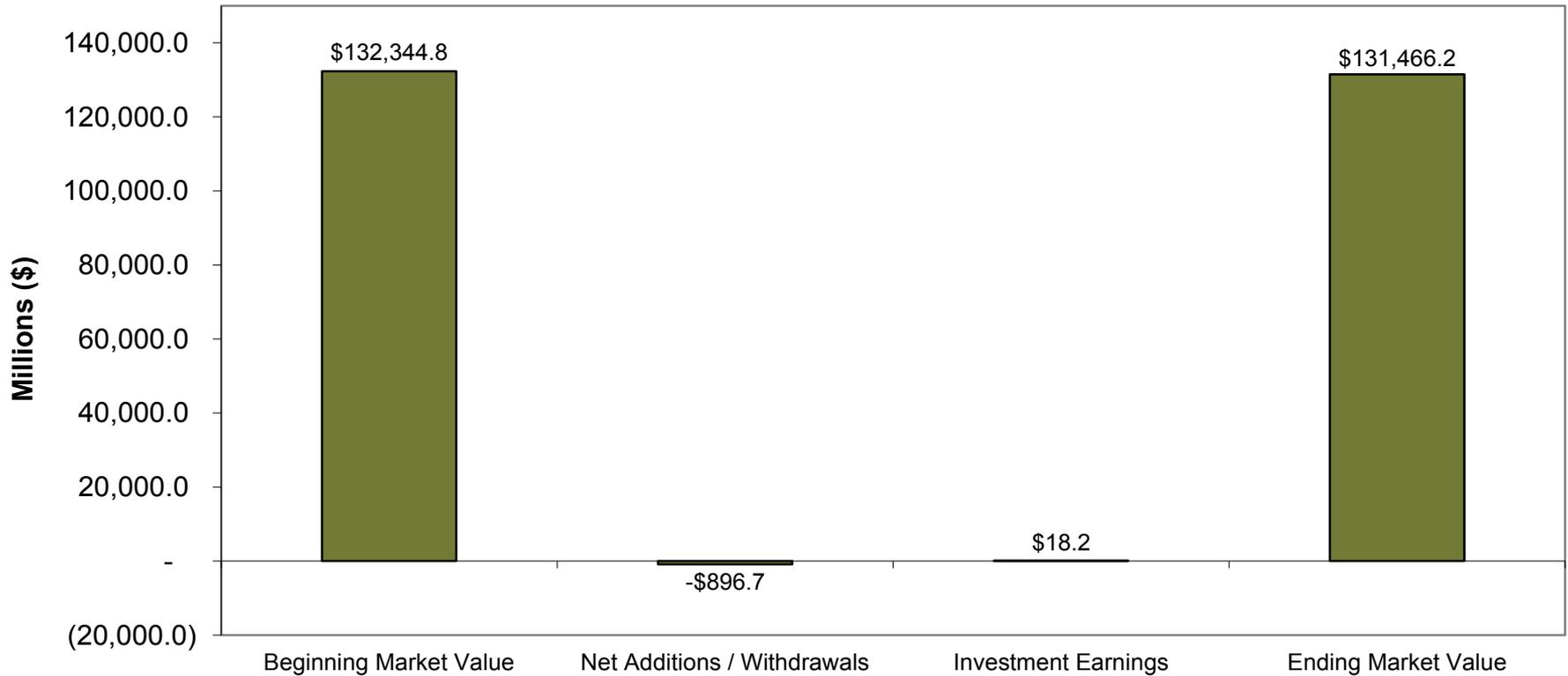
- Global asset markets produced mixed returns for the second quarter. Equity markets, represented by the MSCI ACWI (*with U.S.A. gross*), were up 0.4%, with U.S. equities slightly underperforming international equities. The Barclays Long Term Treasury Index declined by 8.3% during the period.
  - The long-end of the yield curve steepened over the quarter, causing longer duration fixed income returns to fall sharply.
  - Broad commodity returns were positive for the quarter, primarily driven by a rebound in oil prices.
  - The U.S. dollar generally declined versus other currencies bolstering the returns of foreign currency investments relative to those denominated in U.S. dollars.
- The TRS investment portfolio returned 0.0% for the quarter and outperformed its performance benchmark by 11 basis points.
  - For the trailing twelve months, TRS returned 4.2%, outperforming its performance benchmark by 34 basis points.
  - TRS performance remains strong on an absolute and relative basis over the trailing 3, 5, and 10 year periods.
- Contributors to relative performance for the quarter included:
  - Outperformance within Non-U.S. Developed Equity, Private Equity, Directional Hedge Funds, and the Energy and Natural Resources component.
  - Below-target allocation to Long Treasuries.
- Detractors from relative results during the quarter included:
  - Underperformance in Long Treasuries, Real Assets, and Stable Value Hedge Funds.
  - Below-target allocation to Emerging Market Equities.

# 1. Market Summary – Second Quarter 2015

	Second Quarter	Year to Date	One Year	Three Years	Five Years	Ten Years
<b>Global Equity:</b>						
MSCI U.S.A. IMI Index	0.2%	2.1%	7.4%	17.7%	17.6%	8.4%
MSCI EAFE + Canada Index	0.5	4.3	-5.3	11.1	9.0	5.2
MSCI Emerging Markets Index	0.7	2.9	-5.1	3.7	3.7	8.1
HFRI Fund of Funds Composite Index	0.1	2.6	3.8	6.2	4.1	3.2
State Street Private Equity Index (qtr lagged)	2.0	3.2	7.6	11.6	12.7	11.3
Global Equity Policy Benchmark	1.2	3.4	2.3	11.8	11.6	--
<b>Stable Value:</b>						
Barclays Long Treasury Index	-8.3%	-4.7%	6.3%	1.2%	6.2%	6.2%
HFRI Fund of Funds Conservative Index	0.2	2.1	2.6	5.5	3.6	2.6
3 Month LIBOR + 2%	0.6	1.1	2.3	2.3	2.3	3.8
90 Day U.S. Treasury Bill	0.0	0.0	0.0	0.1	0.1	1.4
Stable Value Policy Benchmark	-6.0	-2.8	5.3	2.2	5.7	--
<b>Real Return:</b>						
Barclays U.S. TIPS Index	-1.1%	0.3%	-1.7%	-0.8%	3.3%	4.1%
NCREIF ODCE (qtr lagged)	3.2	6.3	12.4	11.6	13.4	--
Cambridge Nat. Resources (75) / CPI (qtr lagged) (25)	-4.0	-13.6	-9.0	--	--	--
Goldman Sachs Commodities Index	8.7	-0.2	-36.8	-10.7	-4.3	-6.2
Real Return Policy Benchmark	1.4	2.6	6.7	7.5	10.1	--
<b>Risk Parity:</b>						
Risk Parity Benchmark	-2.9%	1.1%	0.4%	5.1%	--	--
TRS Policy Benchmark	-0.1%	2.2%	3.8%	9.2%	10.5%	6.5%

## 2. Market Value Change

Change in Market Value ( \$Millions )  
From April 1, 2015 To June 30, 2015



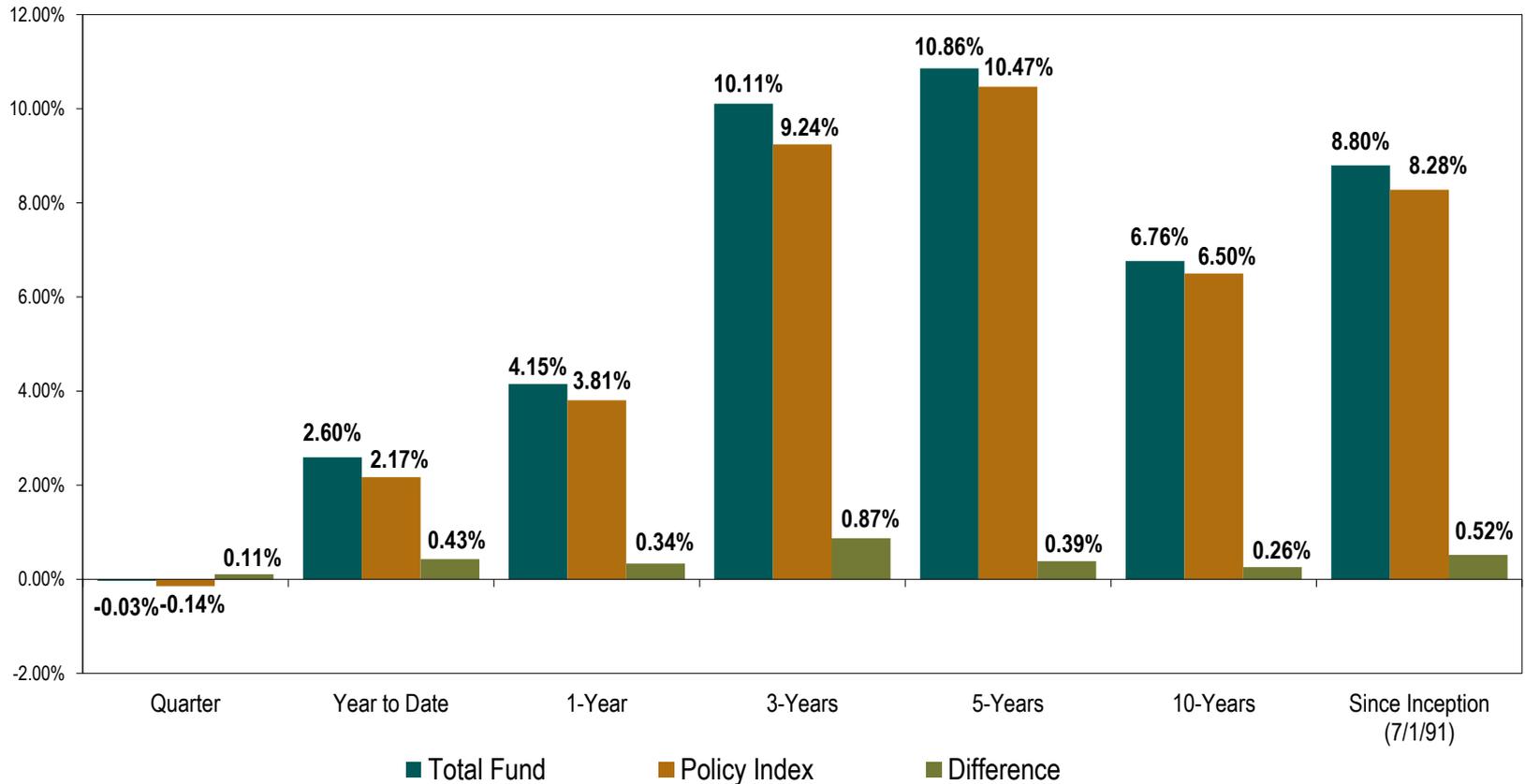
### 3. Asset Allocation Detail

	Market Value (\$ in millions) as of 6/30/2015		Interim Policy Target	Relative Allocation to Interim Policy Target	Long Term Policy Target	Long Term Policy Ranges
	(\$)	(%)				
<b>Total Fund</b>	<b>\$131,466</b>	<b>100%</b>		---	100%	--
Total U.S.A.	\$28,126	21.4%	20.0%	+1.4%	18%	13-23%
Non-U.S. Developed	\$19,692	15.0%	15.0%	+0.0%	13%	8-13%
Emerging Markets	\$12,814	9.7%	10.3%	-0.6%	9%	4-14%
Directional Hedge Funds	\$6,404	4.9%	4.7%	+0.2%	4%	0-10%
Private Equity	\$15,604	11.9%	11.4%	+0.4%	13%	8-18%
<b>Global Equity</b>	<b>\$82,641</b>	<b>62.9%</b>	<b>61.3%</b>	<b>+1.5%</b>	<b>57%</b>	<b>50-64%</b>
Long Treasuries	\$14,241	10.8%	13.0%	-2.1%	11%	0-20%
Stable Value Hedge Funds	\$5,374	4.1%	4.0%	+0.1%	4%	0-10%
Absolute Return (including OAR)	\$1,070	0.8%	0.0%	+0.8%	0%	0-20%
Cash	\$707	0.5%	1.0%	-0.5%	1%	0-5%
<b>Stable Value</b>	<b>\$21,391</b>	<b>16.3%</b>	<b>18.0%</b>	<b>-1.7%</b>	<b>16%</b>	<b>11-21%</b>
TIPS	\$5,856	4.5%	5.0%	-0.5%	3%	0-10%
Real Assets	\$16,111	12.3%	12.2%	+0.1%	16%	7-17%
Energy and Natural Resources	\$2,350	1.8%	1.9%	-0.1%	3%	0-7%
Commodities	\$241	0.2%	0.0%	+0.2%	0%	0-5%
<b>Real Return</b>	<b>\$24,557</b>	<b>18.7%</b>	<b>19.0%</b>	<b>-0.3%</b>	<b>22%</b>	<b>17-27%</b>
Risk Parity	\$2,877	2.2%	1.7%	+0.5%	5%	0-10%
<b>Risk Parity</b>	<b>\$2,877</b>	<b>2.2%</b>	<b>1.7%</b>	<b>+0.5%</b>	<b>5%</b>	<b>0-5%</b>

Note: Actual allocations above are based upon Account Level information

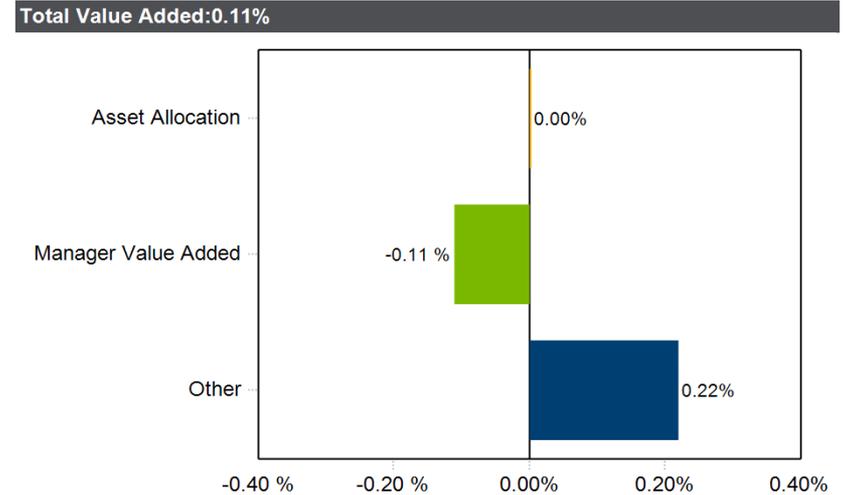
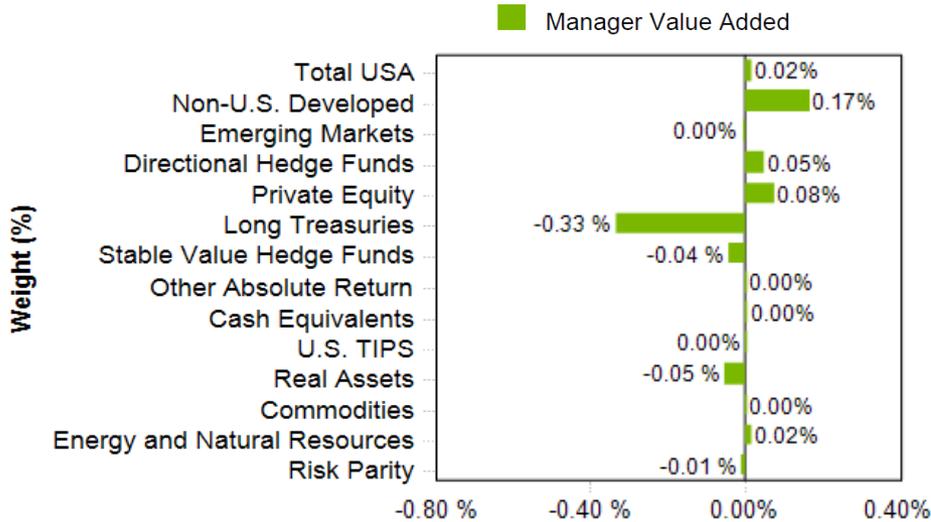
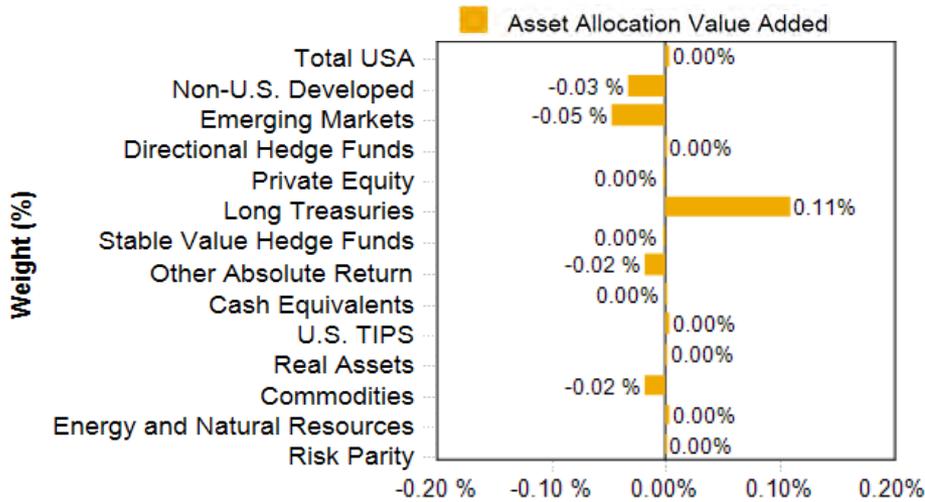
## 4. Total TRS Performance Ending 6/30/2015

### Investment Results As of 6/30/2015

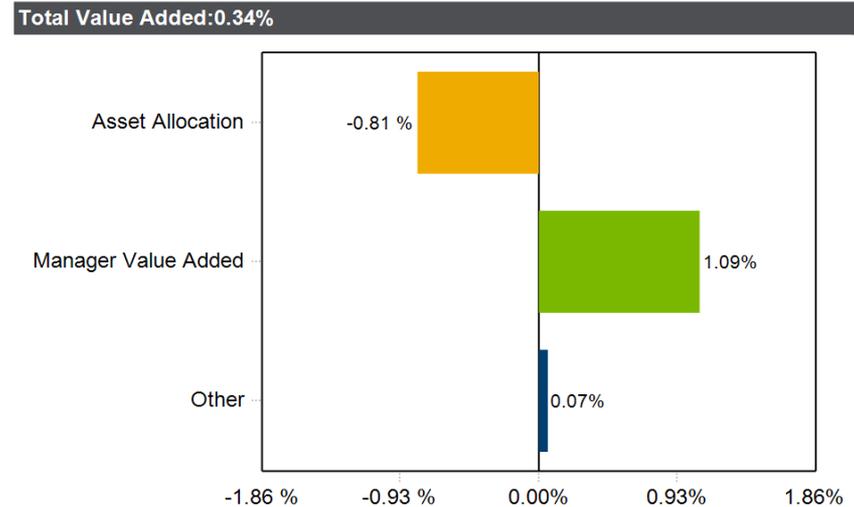
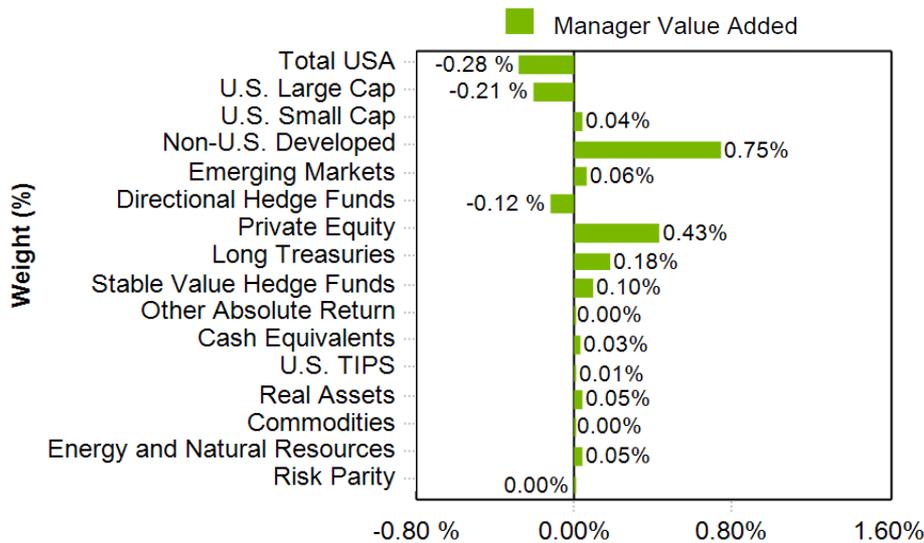
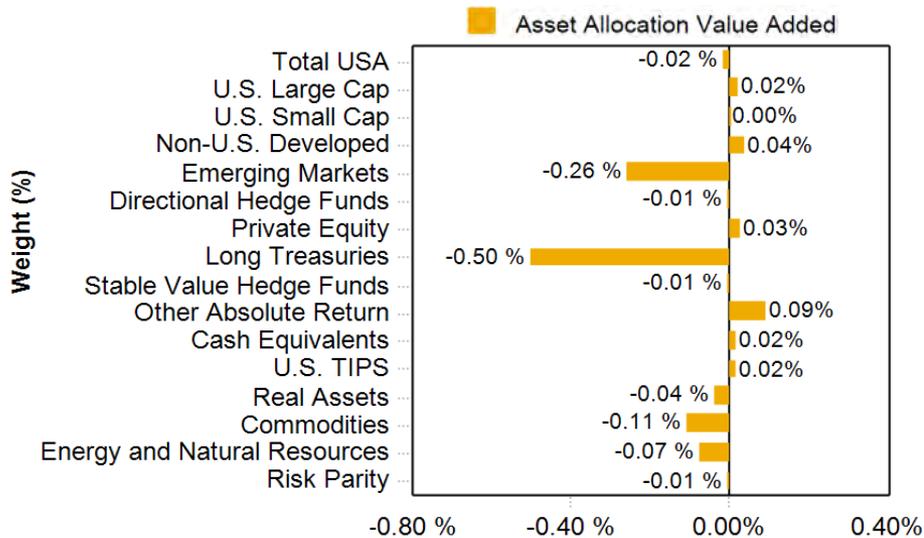


Note: The excess returns shown above may not be a perfect difference between the actual and benchmark returns due entirely to rounding.

# 5. Total Fund Attribution - Quarter Ending 6/30/2015



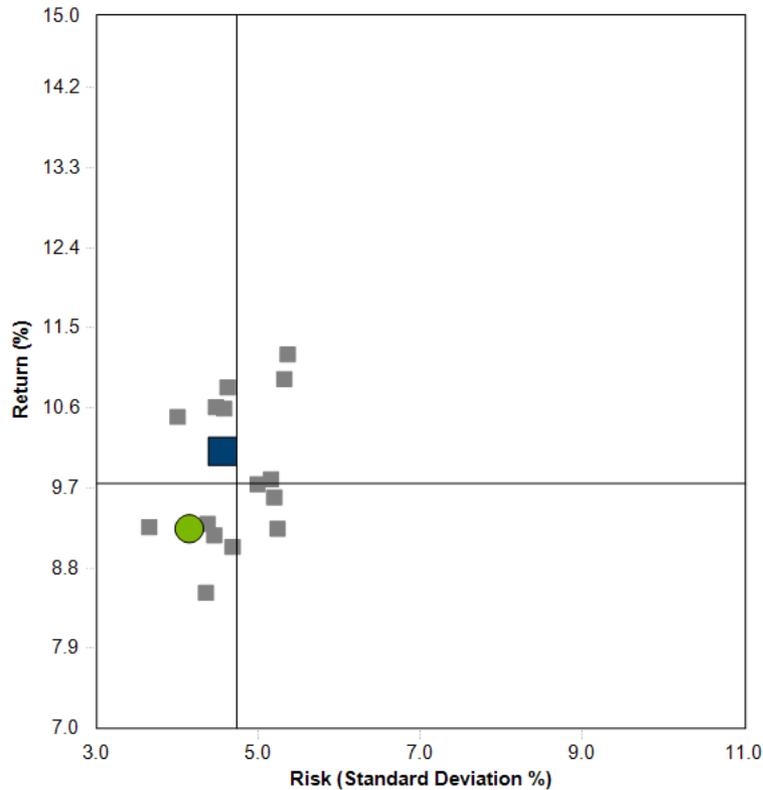
# 5. Total Fund Attribution – Trailing One Year Ending 6/30/2015



# 6. Risk Profile: Total Fund Risk-Return vs. Peers

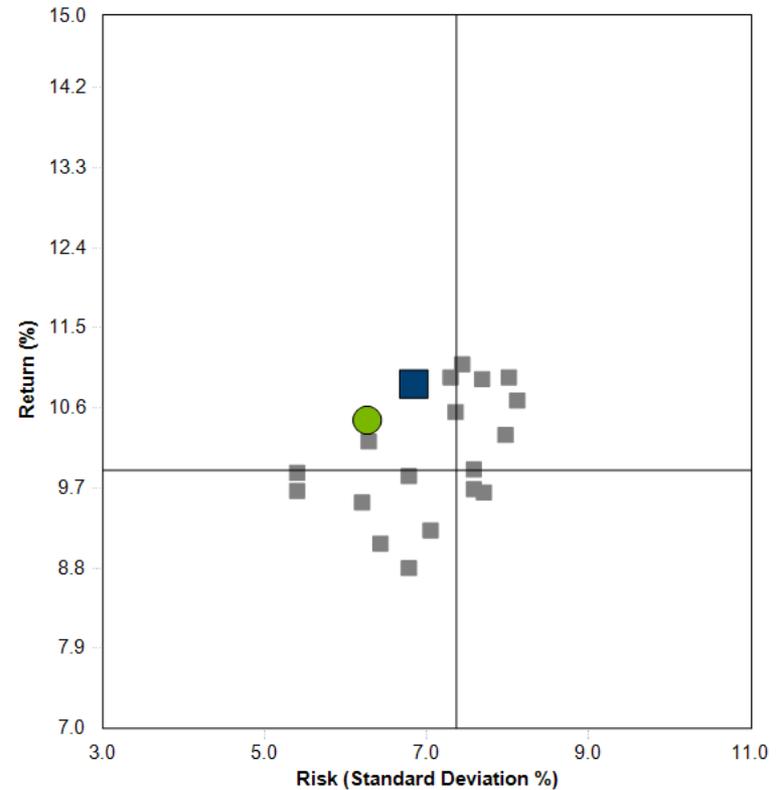
All Public Plans > \$10B-Total Fund

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending June 30, 2015



	Return	Standard Deviation
Total Fund	10.11	4.57
Total Fund Benchmark	9.23	4.14
Median	9.75	4.73

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending June 30, 2015

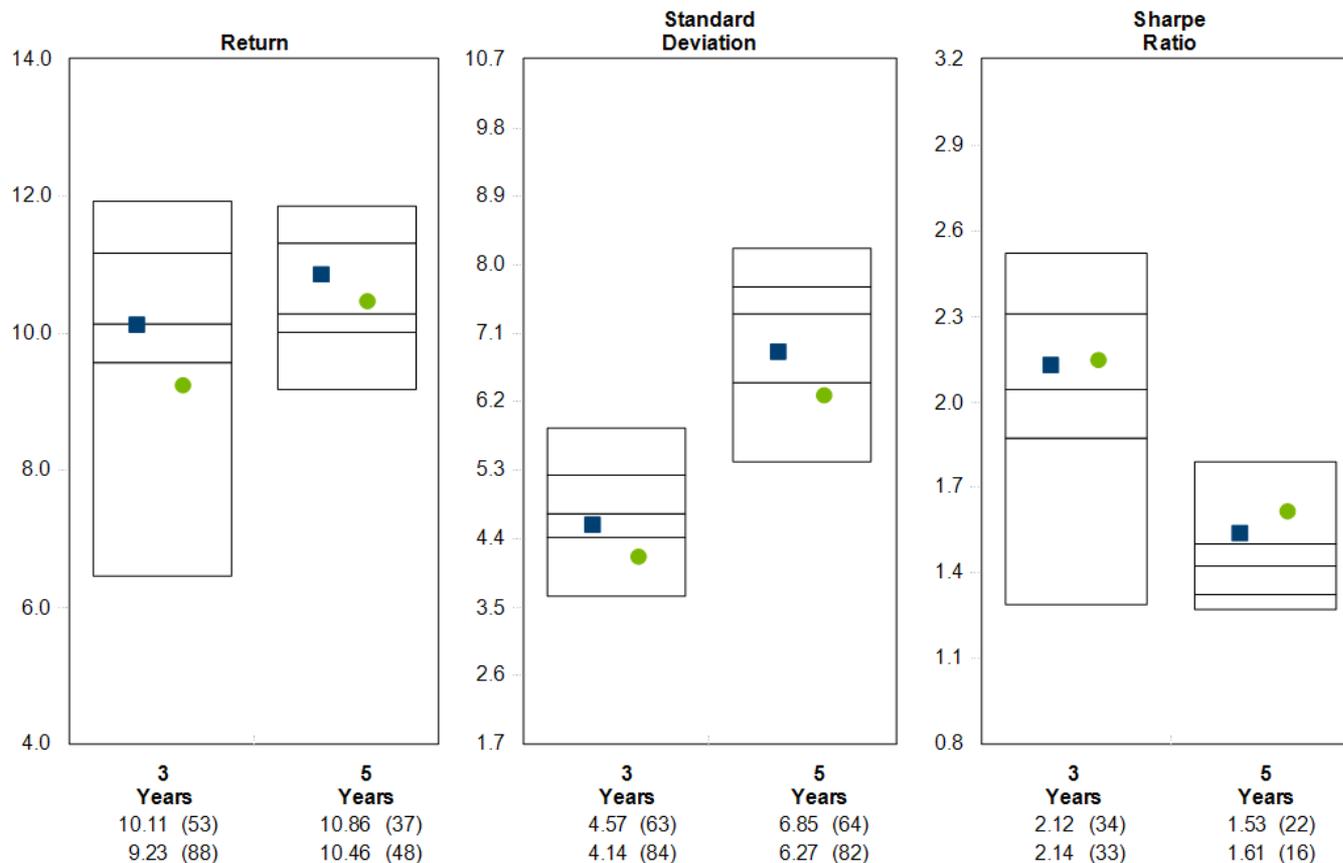


	Return	Standard Deviation
Total Fund	10.86	6.85
Total Fund Benchmark	10.46	6.27
Median	9.90	7.37

Plan Sponsor Peer Group composed of 23 public funds with total assets in excess of \$10B as of 6/30/2015.

## 6. Risk Profile: Trailing 3-Year and 5-Year Risk Metrics Peer Comparison

All Public Plans > \$10B – Total Fund



5th Percentile	11.93	11.87	5.85	8.23	2.52	1.79
1st Quartile	11.16	11.32	5.24	7.72	2.31	1.50
Median	10.15	10.30	4.73	7.37	2.05	1.43
3rd Quartile	9.57	10.03	4.41	6.45	1.87	1.32
95th Percentile	6.47	9.19	3.66	5.41	1.29	1.27

Plan Sponsor Peer Group composed of 23 public funds with total assets in excess of \$10B as of 6/30/2015.

## 7. Global Equity: Performance Summary Ending 6/30/2015

	Second Quarter	Year to Date	One Year	Three Years	Five Years
<b>Total Global Equity</b>	<b>1.6%</b>	<b>4.2%</b>	<b>3.2%</b>	<b>13.1%</b>	<b>12.1%</b>
Global Equity Benchmark	1.2	3.4	2.3	11.8	11.6
<i>Difference</i>	<i>+0.4</i>	<i>+0.8</i>	<i>+0.9</i>	<i>+1.3</i>	<i>+0.5</i>
<b>Total U.S. Equity</b>	<b>0.4</b>	<b>2.3</b>	<b>5.8</b>	<b>16.8</b>	<b>16.5</b>
Total U.S. Equity Benchmark	0.2	2.1	7.7	17.8	17.5
<i>Difference</i>	<i>+0.2</i>	<i>+0.2</i>	<i>-1.9</i>	<i>-1.0</i>	<i>-1.0</i>
<b>Non-U.S. Equity</b>	<b>1.2</b>	<b>4.8</b>	<b>-2.6</b>	<b>9.4</b>	<b>7.6</b>
Non-U.S. Benchmark	0.6	3.8	-5.1	8.2	6.9
<i>Difference</i>	<i>+0.6</i>	<i>+1.0</i>	<i>+2.5</i>	<i>+1.2</i>	<i>+0.7</i>
<b>Non-U.S. Developed</b>	<b>1.4</b>	<b>6.7</b>	<b>-0.6</b>	<b>13.1</b>	<b>10.4</b>
MSCI EAFE + Canada	0.5	4.3	-5.3	11.1	9.0
<i>Difference</i>	<i>+0.9</i>	<i>+2.4</i>	<i>+4.7</i>	<i>+2.0</i>	<i>+1.4</i>
<b>Emerging Markets</b>	<b>0.6</b>	<b>1.9</b>	<b>-4.6</b>	<b>4.9</b>	<b>4.3</b>
MSCI Emerging Markets	0.7	2.9	-5.1	3.7	3.7
<i>Difference</i>	<i>-0.1</i>	<i>-1.0</i>	<i>+0.5</i>	<i>+1.2</i>	<i>+0.6</i>

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

## 7. Global Equity: Performance Summary Ending 6/30/2015 (cont'd)

	Second Quarter	Year to Date	One Year	Three Years	Five Years
<b>Directional Hedge Funds</b>	<b>1.2%</b>	<b>3.0%</b>	<b>1.4%</b>	<b>7.9%</b>	--
HFRI Fund of Funds Composite Index	0.1	2.6	3.8	6.2	--
<i>Difference</i>	+1.1	+0.4	-2.4	+1.7	--
<b>Total Public Equity</b>	<b>0.8</b>	<b>3.6</b>	<b>1.3</b>	<b>12.3</b>	<b>11.2</b>
Public Equity Benchmark	0.5	3.1	0.8	11.8	11.1
<i>Difference</i>	+0.3	+0.5	+0.5	+0.5	+0.1
<b>Total Private Equity</b>	<b>5.2</b>	<b>7.2</b>	<b>12.6</b>	<b>16.9</b>	<b>16.4</b>
Private Equity Benchmark	4.3	4.5	8.4	11.5	12.7
<i>Difference</i>	+0.9	+2.7	+4.2	+5.4	+3.7

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 8. Stable Value: Performance Summary Ending 6/30/2015

	Second Quarter	Year to Date	One Year	Three Years	Five Years
<b>Total Stable Value</b>	<b>-7.4%</b>	<b>-3.4%</b>	<b>7.6%</b>	<b>3.6%</b>	<b>6.8%</b>
Total Stable Value Benchmark	-6.0	-2.8	5.3	2.2	5.7
<i>Difference</i>	<i>-1.4</i>	<i>-0.6</i>	<i>+2.3</i>	<i>+1.4</i>	<i>+1.1</i>
<b>Long Treasuries</b>	<b>-11.1</b>	<b>-5.8</b>	<b>8.2</b>	<b>2.0</b>	<b>7.1</b>
Treasury Benchmark	-8.3	-4.7	6.3	1.2	6.2
<i>Difference</i>	<i>-2.8</i>	<i>-1.1</i>	<i>+1.9</i>	<i>+0.8</i>	<i>+0.9</i>
<b>Stable Value Hedge Funds</b>	<b>-0.8</b>	<b>1.7</b>	<b>5.2</b>	<b>5.2</b>	<b>3.8</b>
Hedge Funds Benchmark	0.2	2.1	2.6	5.5	4.0
<i>Difference</i>	<i>-1.0</i>	<i>-0.4</i>	<i>+2.6</i>	<i>-0.3</i>	<i>-0.2</i>
<b>Other Absolute Return</b>	<b>-2.3</b>	<b>-0.5</b>	<b>13.6</b>	<b>18.0</b>	<b>13.9</b>
Other Absolute Return Benchmark	0.6	1.1	2.3	2.3	2.3
<i>Difference</i>	<i>-2.9</i>	<i>-1.6</i>	<i>+11.3</i>	<i>+15.7</i>	<i>+11.6</i>
<b>Cash Equivalents</b>	<b>0.6</b>	<b>1.6</b>	<b>4.1</b>	<b>2.9</b>	<b>1.5</b>
Cash Benchmark	0.0	0.0	0.0	0.1	0.1
<i>Difference</i>	<i>+0.6</i>	<i>+1.6</i>	<i>+4.1</i>	<i>+2.8</i>	<i>+1.4</i>

*Note: Performance of Cash Equivalents is shown net of fees paid to TRS Strategic Partners*

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 9. Real Return: Performance Summary Ending 6/30/2015

	Second Quarter	Year to Date	One Year	Three Years	Five Years
<b>Total Real Return</b>	<b>1.2%</b>	<b>3.1%</b>	<b>6.4%</b>	<b>7.2%</b>	<b>9.8%</b>
Real Return Benchmark	1.4	2.6	6.7	7.5	10.1
<i>Difference</i>	-0.2	+0.5	-0.3	-0.3	-0.3
<b>TIPS</b>	<b>-1.1</b>	<b>0.4</b>	<b>-1.6</b>	<b>-0.6</b>	<b>3.5</b>
U.S. TIPS Benchmark	-1.1	0.3	-1.7	-0.8	3.3
<i>Difference</i>	+0.0	+0.1	+0.1	+0.2	+0.2
<b>Real Assets</b>	<b>2.8</b>	<b>7.2</b>	<b>13.2</b>	<b>12.3</b>	<b>14.4</b>
Real Asset Benchmark	3.2	6.3	12.4	11.6	13.4
<i>Difference</i>	-0.4	+0.9	+0.8	+0.7	+1.0
<b>Energy and Natural Resources</b>	<b>-2.9</b>	<b>-12.5</b>	<b>-6.3</b>	<b>--</b>	<b>--</b>
Energy and Natural Resources Benchmark	-4.0	-13.6	-9.0	--	--
<i>Difference</i>	+1.1	+1.1	+2.7	--	--
<b>Commodities</b>	<b>-8.8</b>	<b>-19.3</b>	<b>-57.0</b>	<b>-26.4</b>	<b>-16.0</b>
Commodities Benchmark	8.7	-0.2	-36.8	-10.7	-4.3
<i>Difference</i>	-17.5	-19.1	-20.2	-15.7	-11.7

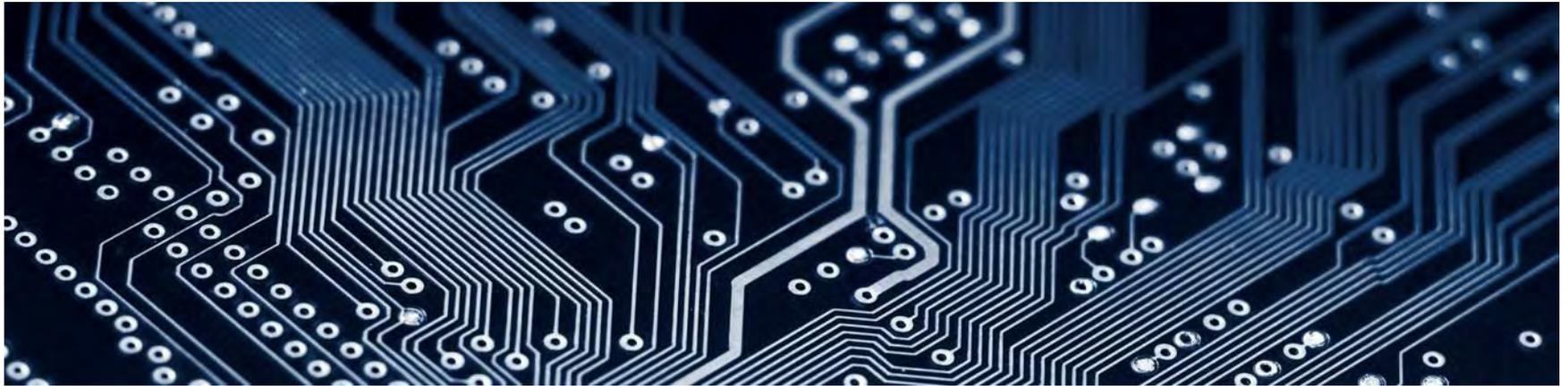
*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 10. Risk Parity: Performance Summary Ending 6/30/2015

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	Second Quarter	Year to Date	One Year	Three Years	Five Years
<b><u>Total Risk Parity</u></b>	<b>-3.4%</b>	<b>1.2%</b>	<b>-2.0%</b>	<b>5.1%</b>	<b>--</b>
Risk Parity Benchmark	<b>-2.9</b>	<b>1.1%</b>	<b>0.4</b>	<b>5.1</b>	<b>--</b>
<i>Difference</i>	<i>-0.5</i>	<i>+1.2</i>	<i>-2.4</i>	<i>+0.0</i>	<i>--</i>

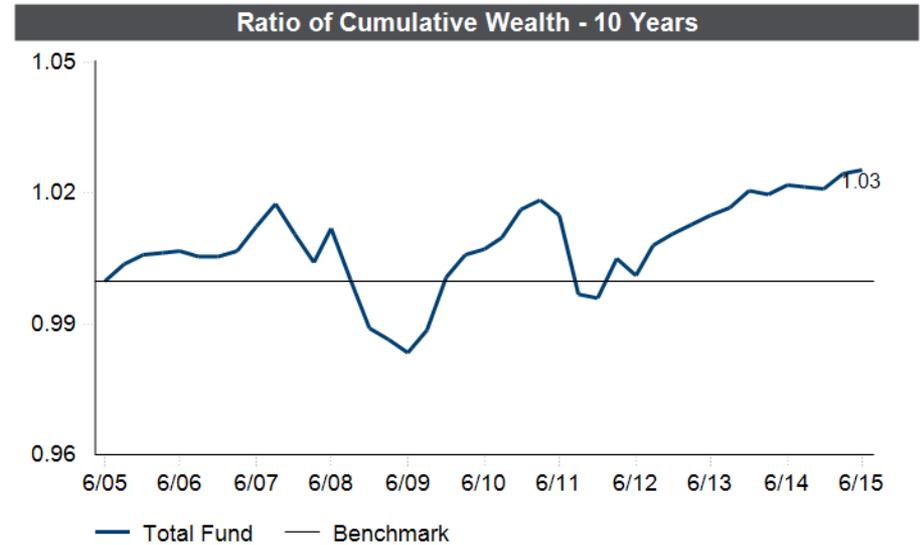
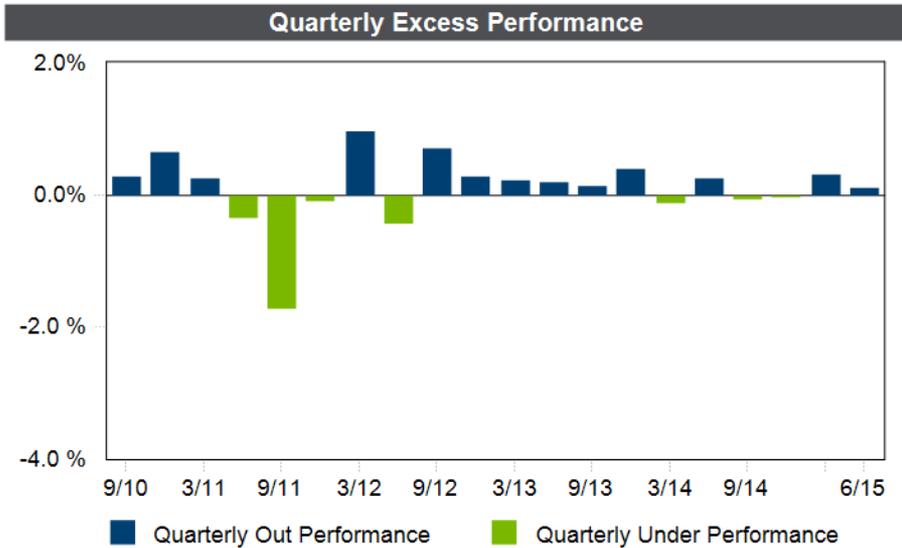
*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*



## Appendix – Supplemental Reporting

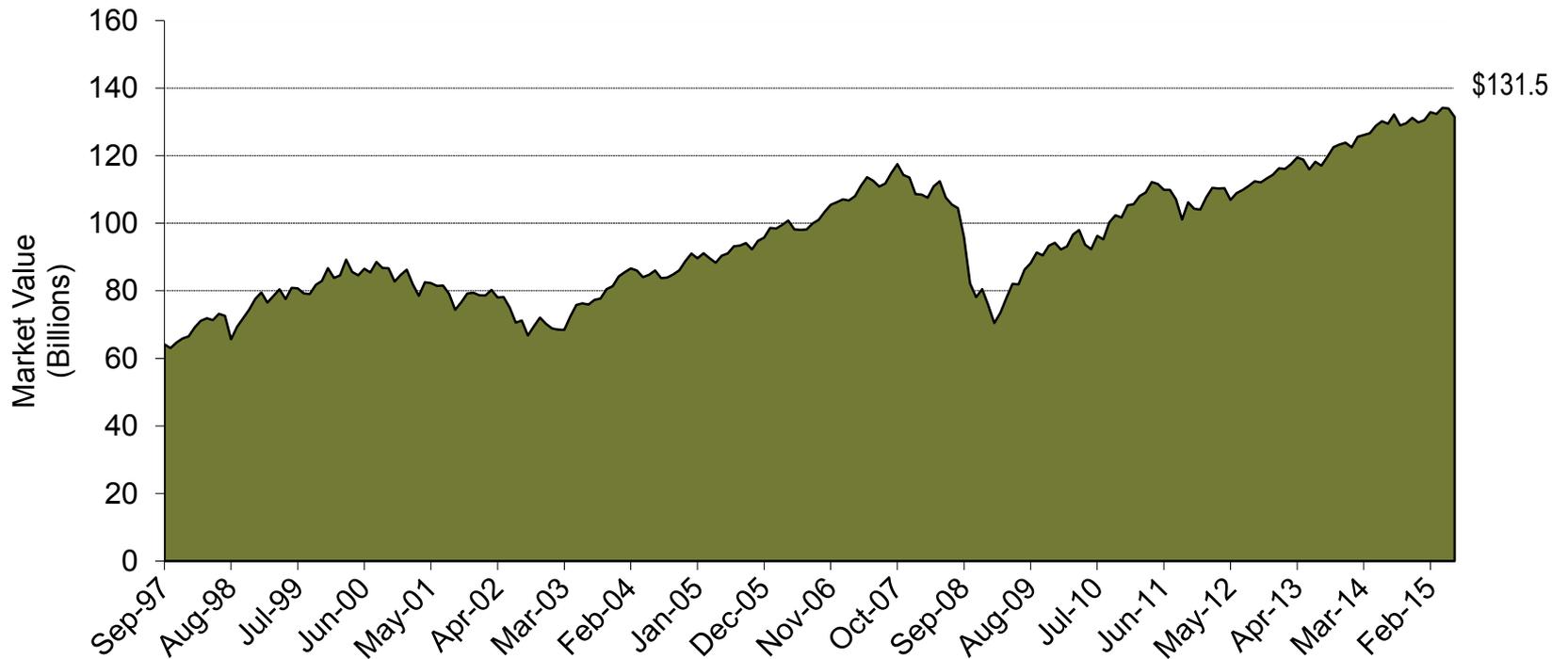
# Historical Excess Performance Ending 6/30/2015

## Quarterly and Cumulative Excess Performance Total Fund vs. Total Fund Benchmark



# TRS Asset Growth

Total Fund Historical Growth (September 1997 - June 2015)



# External Manager Program: Public Equity Performance as of 6/30/2015

	Allocation (\$ in billions)	Second Quarter	Year to Date	One Year	Three Years
<b>EP Total Global Equity</b>	<b>\$34.1</b>	<b>1.3%</b>	<b>3.6%</b>	<b>-0.2%</b>	<b>11.8%</b>
EP Global Equity Benchmark	--	0.4	2.9	0.7	11.1
<i>Difference</i>	--	+0.9	+0.7	-0.9	+0.7
<b>EP U.S.A.</b>	<b>\$8.4</b>	<b>0.0</b>	<b>2.0</b>	<b>4.4</b>	<b>16.5</b>
EP U.S.A. Benchmark	--	+0.2	2.1	7.3	17.8
<i>Difference</i>	--	-0.2	-0.1	-2.9	-1.3
<b>EP Non-U.S. Developed</b>	<b>\$5.4</b>	<b>3.7</b>	<b>8.5</b>	<b>-1.1</b>	<b>13.3</b>
MSCI EAFE + Canada Index	--	0.5	4.3	-5.3	11.1
<i>Difference</i>	--	+3.2	+4.2	+4.2	+2.2
<b>EP Emerging Markets</b>	<b>\$7.7</b>	<b>1.1</b>	<b>1.8</b>	<b>-6.3</b>	<b>4.2</b>
MSCI Emerging Markets Index	--	0.7	2.9	-5.1	3.7
<i>Difference</i>	--	+0.4	-1.1	-1.2	+0.5
<b>EP World Equity</b>	<b>\$6.1</b>	<b>1.1</b>	<b>4.5</b>	<b>-0.1</b>	<b>14.4</b>
EP World Equity Benchmark	--	0.4	2.8	0.9	13.1
<i>Difference</i>	--	+0.7	+1.7	-1.0	+1.3
<b>EP Directional Hedge Funds</b>	<b>\$6.4</b>	<b>1.2</b>	<b>3.0</b>	<b>1.4</b>	<b>8.8</b>
HFRI Fund of Funds Composite Index	--	0.1	2.6	3.8	6.2
<i>Difference</i>	--	+1.1	+0.4	-2.4	+2.6

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

## External Manager Program: Stable Value/Total Program Performance as of 6/30/2015

	Allocation (\$ in billions)	Second Quarter	Year to Date	One Year	Three Years
<b>EP Total Stable Value</b>	<b>\$5.5</b>	<b>-0.8%</b>	<b>1.8%</b>	<b>6.1%</b>	<b>7.6%</b>
EP Stable Value Benchmark	--	0.2	2.1	2.6	5.3
<i>Difference</i>	--	-1.0	-0.3	+3.5	+2.3
<b>EP Stable Value Hedge Funds</b>	<b>\$5.4</b>	<b>-0.8</b>	<b>1.7</b>	<b>5.2</b>	<b>5.2</b>
EP Stable Value Hedge Funds Benchmark	--	0.2	2.1	2.6	5.5
<i>Difference</i>	--	-1.0	-0.4	+2.6	-0.3
<b>EP Absolute Return</b>	<b>\$0.2</b>	<b>-1.4</b>	<b>4.7</b>	<b>23.1</b>	<b>44.3</b>
EP Absolute Return Benchmark	--	0.6	1.1	2.3	2.3
<i>Difference</i>	--	-2.0	+3.6	+20.8	+42.0
<b>Total External Public Program</b>	<b>\$39.6</b>	<b>1.0</b>	<b>3.3</b>	<b>0.6</b>	<b>11.2</b>
EP External Public Benchmark	--	0.4	2.7	0.9	10.3
<i>Difference</i>	--	+0.6	+0.6	-0.3	+0.9

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

## Public Strategic Partnership Program (SPN): Performance Summary as of 6/30/2015

	Allocation (\$ in billions)	Second Quarter	Year to Date	One Year	Three Years
<b>Public Strategic Partnership</b>	<b>\$6.6</b>	<b>-2.1%</b>	<b>0.7%</b>	<b>1.6%</b>	<b>10.2%</b>
Public SPN Benchmark	--	-1.5	1.1	0.8	8.8
<i>Difference</i>	--	-0.6	-0.4	+0.8	+1.4
<b>Blackrock</b>	<b>\$1.6</b>	<b>-1.8%</b>	<b>1.9%</b>	<b>3.6%</b>	<b>10.3%</b>
<b>J.P. Morgan</b>	<b>\$1.7</b>	<b>-2.2%</b>	<b>0.4%</b>	<b>2.4%</b>	<b>11.1%</b>
<b>Neuberger Berman</b>	<b>\$1.6</b>	<b>-1.8%</b>	<b>1.3%</b>	<b>0.0%</b>	<b>9.1%</b>
<b>Morgan Stanley</b>	<b>\$1.6</b>	<b>-2.5%</b>	<b>-0.8%</b>	<b>0.4%</b>	<b>10.3%</b>

- The Public SPNs in aggregate underperformed the benchmark during the second quarter while outperforming during the trailing one-year and three-year periods
  - All managers have 3-year returns above that of the benchmark

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

# Benchmarks

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- Total Fund Performance Benchmark – 20.0% MSCI U.S.A. IMI, 10.3% MSCI Emerging Markets, 15.0% MSCI EAFE plus Canada, 4.7% HFRI FoF Composite Index, 11.4% State Street Private Equity (1 qtr lagged), 13.0% BC Long Term Treasury, 4.0% HFRI FoF Conservative Index, 1.0% Citigroup 3 Mo T-Bill, 5.0% BC U.S. TIPS, 12.2% NCREIF ODCE (1 qtr lagged), 1.9% Energy and Natural Resources Benchmark, and 1.7% Risk Parity Benchmark.
- Global Equity Benchmark– 24.3% MSCI EAFE plus Canada, 32.4% MSCI U.S.A. IMI, 16.6% MSCI Emerging markets index, 7.7% HFRI FoF Composite Index, and 19.0% State Street Private Equity (1 qtr lagged)
  - U.S. Equity Benchmark - MSCI U.S.A. IMI Index
  - Emerging Markets Equity Benchmark – MSCI Emerging Markets
  - Non-US Developed Equity Benchmark– MSCI EAFE plus Canada
  - Directional Hedge Funds – HFRI Fund of Funds (FoF) Composite Index
  - Private Equity Benchmark - State Street Private Equity (1 qtr lagged)

*Note: Returns and market values (based on account level) reported are provided by State Street. Net additions/withdrawals are reported on a gross (adjusted for expenses) total fund level as provided by State Street. All rates of return for time periods greater than one year are annualized. The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## Benchmarks (cont'd)

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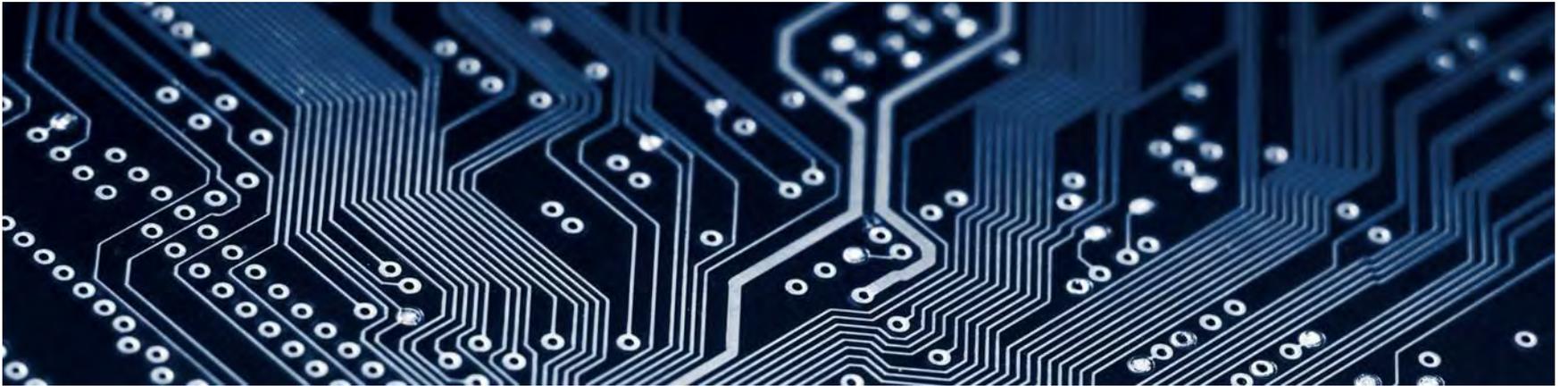
- Stable Value Benchmark – 22.1% HFRI FoF Conservative Index, 72.4% Barclays Long Term Treasury, and 5.5% Citigroup 3 mo T-Bill.
  - US Treasuries Benchmark – Barclays Long Term Treasury
  - Stable Value Hedge Funds – HFRI Fund of Funds (FoF) Conservative Index
  - Other Absolute Return Benchmark - 3 Mo LIBOR + 2%
  - Cash Benchmark - Citigroup 3 Mo T-Bill
- Real Return Benchmark – 27.1% Barclays U.S. TIPS, 62.5% NCREIF ODCE, and 10.5% Energy & Natural Resources Benchmark
  - US TIPS Benchmark – Barclays U.S. TIPS Index
  - Real Assets Benchmark – NCREIF ODCE (1qtr lagged)
  - Energy and Natural Resources – 75% Cambridge Associates Natural Resources (reweighted) / 25% quarterly Seasonally-Adjusted Consumer Price Index (1qtr lagged)
  - Commodities Benchmark – Goldman Sachs Commodity Index

*Note: Returns and market values (based on account level) reported are provided by State Street. Net additions/withdrawals are reported on a gross (adjusted for expenses) total fund level as provided by State Street. All rates of return for time periods greater than one year are annualized. The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## Description of Performance Attribution

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- A measure of the source of the deviation of a fund's performance from that of its policy benchmark. Each bar on the attribution graph represents the contribution made by the asset class to the total difference in performance. A positive value for a component indicates a positive contribution to the aggregate relative performance. A negative value indicates a detrimental impact. The magnitude of each component's contribution is a function of (1) the performance of the component relative to its benchmark, and (2) the weight (beginning of period) of the component in the aggregate.
- The individual Asset Class effect, also called Selection Effect, is calculated as  
$$\text{Actual Weight of Asset Class} \times (\text{Actual Asset Class Return} - \text{Asset Class Benchmark Return})$$
- The bar labeled Allocation Effect illustrates the effect that a Total Fund's asset allocation has on its relative performance. Allocation Effect calculation =  $(\text{Asset Class Benchmark Return} - \text{Total Benchmark Return}) \times (\text{Actual Weight of Asset Class} - \text{Target Policy Weight of Asset Class})$ .
- The bar labeled Other is a combination of Cash Flow Effect and Benchmark Effect:
  - Cash Flow Effect describes the impact of asset movements on the Total Fund results. Cash Flow Effect calculation =  $(\text{Total Fund Actual Return} - \text{Total Fund Policy Return}) - \text{Current Selection Effect} - \text{Current Allocation Effect}$
  - Benchmark Effect results from the weighted average return of the asset classes' benchmarks being different from the Total Funds' policy benchmark return. Benchmark Effect calculation =  $\text{Total Fund Policy Return} - (\text{Asset Class Benchmark Return} \times \text{Target Policy Weight of Asset Class})$
- Cumulative Effect  
Cumulative Effect calculation =  $\text{Current Effect } t \times (1 + \text{Cumulative Total Fund Actual Return } t-1) + \text{Cumulative Effect } t-1 \times (1 + \text{Total Fund Benchmark Return } t)$



## Disclaimers and Notes

# Disclaimers and Notes

As of June 30, 2015

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## Disclaimers:

The client portfolio data presented in this report have been obtained from the custodian. Aon Hewitt Investment Consulting ( AHIC ) has compared this information to the investment managers' reported returns and believes the information to be accurate. AHIC has not conducted additional audits and cannot warrant its accuracy or completeness.

- The mutual fund information found in this report is provided by Lipper Inc. and AHIC cannot warrant its accuracy or timeliness.
- Russell Investment Group is the source and owner of the trademarks, service marks and copyrights related to the Russell Indexes. Russell® is a trademark of Russell Investment Group.

## Notes:

- The rates of return contained in this report are shown on an after-fees (*or before-fees*) basis unless otherwise noted. They are geometric and time weighted. Returns for periods longer than one year are annualized.
- Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.
- Due to rounding throughout the report, percentage totals displayed may not sum up to 100.0%. Additionally, individual fund totals in dollar terms may not sum up to the plan totals.

Tab 5



# TRS of Texas Experience Study Summary

September 24, 2015

Joseph Newton, FSA, FCA, MAAA, EA



**Gabriel Roeder Smith & Company**  
Consultants & Actuaries  
[www.gabrielroeder.com](http://www.gabrielroeder.com)



# Purpose of 2015 Experience Study

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- ◆ Assumptions are not static; they should occasionally change to reflect
  - ▶ New information and changing knowledge
  - ▶ Mortality improvement
  - ▶ Changing patterns of retirements, terminations, etc.
  - ▶ Implementation of improved technology and processes
- ◆ The analysis will address these questions for each assumption
  - ▶ What was the plan's actual experience?
  - ▶ How does that compare with current assumptions?
  - ▶ Is a change warranted?



## Per ASOP 27:

# Reasonable Assumptions

---

- ◆ An assumption is reasonable if
  - ▶ It is appropriate for the purpose of the measurement
  - ▶ It reflects the actuary's professional judgement
  - ▶ It takes into account historical and current economic data that is relevant as of the measurement date
  - ▶ It reflects the actuary's estimate of future experience
  - ▶ It has no significant bias (i.e., it is not significantly optimistic or pessimistic)
    - Although some allowance for adverse experience may be appropriate



# TRS specific attributes that would impact what methods to use

---

- ◆ Fixed employer and member contributions received as a percentage of payroll received monthly throughout each year
- ◆ Funding goals mostly centered around calculated funding period
- ◆ Very tight turnaround time during legislative session
- ◆ Events mostly occurring one time each year
  - ▶ Hiring, pay increases occur in August, Terminations and Retirements in Summer
  - ▶ Service earned in one year increments (per 1,000 hours)
- ◆ Different tiers of benefits based on hire/vesting dates



# Summary of Recommendations

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## ◆ Material Recommendations

- ▶ Hold nominal investment return assumption at 8.00%
- ▶ Change the investment return assumption from net of all expenses to net of only investment expenses, add explicit charge for administrative expenses
- ▶ Increase life expectancy, adding an explicit assumption for continued future mortality improvement (generational approach)
- ▶ Decrease inflation assumption from 3.00% to 2.50%
- ▶ Decrease real wage growth assumption by additional 0.25% (4.25% to 3.50% nominal)
- ▶ Decrease overall payroll growth assumption by 1.00% (3.50% to 2.50%)



# Summary of Recommendations

---

## ◆ Minor Recommendations

- ▶ Assume 20% of future disabled members will choose 100% J&S option
- ▶ Simplifications:
  - Change the definition of an active member to only include members who contributed in the most recent fiscal year (and have not retired)
    - All other members assumed to be inactive
  - Add a direct rehire assumption into termination patterns
    - (11% of females and 8% of males who terminate assumed to rehire at some point in the future)
  - Value individual census records, each member will be classified into one status and reconciled accordingly
    - (continue to use celled data for legislative analysis)
  - Removal of market value corridor for determining smoothed value of assets



# Actuarial Impact

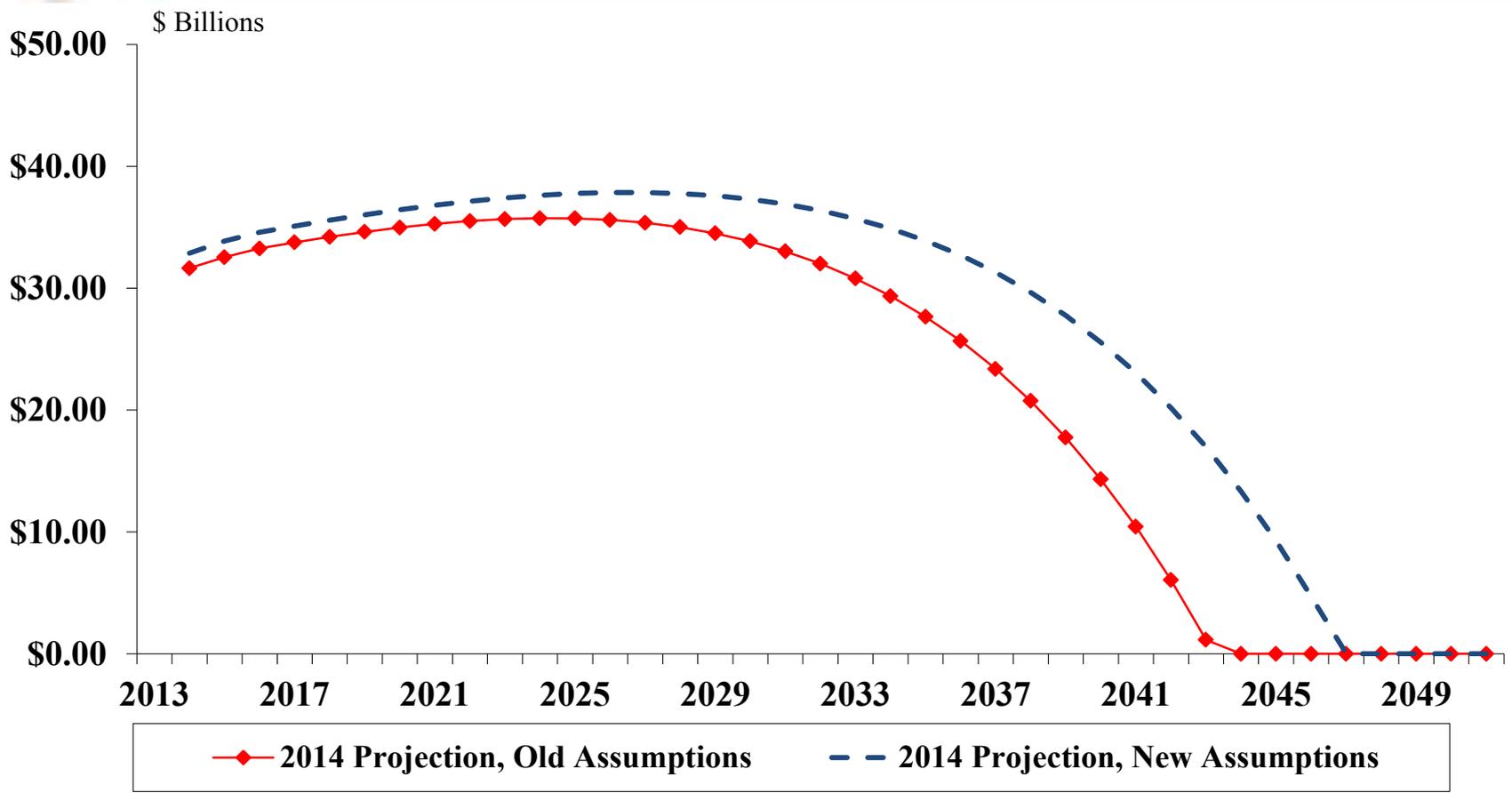
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Illustrative Valuation Results as of August 31, 2014		
Scenario	Current	Proposed
Normal cost	10.43%	9.74%
Unfunded actuarial accrued liability (UAAL)	\$31.6	\$32.8
Funded ratio	80.2%	79.7%
Total employer 30 Year contribution requirement	8.66%	8.91%
Funding Period	29.8 years	33.4 years

\$ in billions



# Projection of UAAL (Updated with New Assumptions)



The above assumes all assumptions exactly met, including 8% annual investment returns  
Assumes no changes to benefit policy  
Assumes current statutory contribution policy remains throughout period



# Actuary's Qualifications

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- ◆ We believe the recommended set of actuarial assumptions should present a more accurate portrayal of TRS' financial condition and should reduce the magnitude of future experience gains and losses.
- ◆ The study was conducted in accordance with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board
- ◆ Both signing actuaries meet the Qualification Standards of the American Academy of Actuaries



# Questions?

---

**2015 Pension Trust Fund Experience Study  
Material Assumptions**

	Current	Recommended
<b>Investment Return</b>	8%	8%
<b>Administrative Expense</b>	Not explicit. Netted against investment returns	Explicitly add 0.12% to the normal cost
<b>Mortality</b>	Static. Assume same improvement in life expectancy across the population, reassess amount of margin periodically.	Fully generational (Build continuous increases in life expectancy into the model). Should decrease, if not eliminate, pattern of increasing life expectancy with each experience study.
<b>Inflation Assumption</b>	3.0%	2.5%
<b>Real Wage Growth (nominal)</b>	4.25%	3.50%
<b>Payroll Growth</b>	3.50%	2.50%

**TEACHER RETIREMENT SYSTEM OF TEXAS  
BOARD RESOLUTION**

**September 24, 2015**

**RESOLUTION REGARDING ACTUARIAL ASSUMPTIONS FOR THE TRS  
PENSION TRUST FUND**

**Whereas**, Gabriel Roeder Smith & Company ("GRS"), the consulting actuary for the Teacher Retirement of Texas ("TRS"), performed an actuarial experience study for TRS as authorized under TEX. GOV'T CODE §§825.105 and 825.206 and reported the results of the study to the TRS Board of Trustees (the "Board") at its meeting on September 24, 2015;

**Whereas**, as part of the Actuarial Experience Study as of August 31, 2014 (the "Study"), GRS reviewed the current actuarial assumptions and methods used to determine the actuarial valuation of the retirement plan and made recommendations to the Board;

**Whereas**, after considering the results of the actuary's investigation of the mortality, service, and compensation experience of the system's members and beneficiaries, the Board desires to continue to use the assumptions and methods currently in use to evaluate the assets and liabilities of the system, but with some modification; now, therefore, be it

**Resolved**, That the Board will continue to use the assumptions and methods currently in place to determine the valuation of the retirement plan's assets and liabilities, including

- Continuing an 8.00% investment return assumption;
- Utilizing the current process of estimating valuation payroll for the current year;
- Maintaining the current asset smoothing method and smoothing period;
- Continuing to use the Entry Age Normal cost method and the Ultimate Normal Cost variant of Entry Age Normal for the funding method;

but with the following modifications:

- No longer netting administrative expenses against the investment return and instead adding an explicit administrative expense of 0.12% to the normal cost.
- Decreasing the inflation assumption from 3.00% to 2.50%;
- Decreasing the ultimate merit assumption for long-service employees from 1.25% to 1.00%;
- Lowering the payroll growth assumption from 3.50% to 2.50%;

- Updating the service-based promotional/longevity component of the salary scale as described in the Study;
- Updating post-retirement mortality tables for both disability and service retirees to reflect recent TRS member experience as described in the Study;
- Updating the pre-retirement mortality for active employees as described in the Study;
- Moving to full generational mortality as described in the Study;
- Updating the calculation of active member status and the rates of termination, disability retirement, and service retirement as described in the Study;
- Removing the corridor around the market value of assets as described in the Study;
- **Determining the system's normal cost based on the current active group rather than using a new entrant profile;** and
- Moving to individual data records rather than celled data as part of the valuation process except when analyses must be conducted under tight time constraints.

**Resolved,** That the adopted assumptions and methods are effective for actuarial valuations prepared after the date of adoption of this resolution.

Tab 10

# Teacher Retirement System of Texas



## *Executive Director's Report*

Brian Guthrie  
September 25, 2015





- Development of Annual Performance Goals for FY 2016.
- Satellite Investment Office.
- General Updates.
- Upcoming agendas.



# Development of Annual Performance Goals



## Development of Annual Performance Goals

- Working with Focus Consulting to develop ED annual performance goals.
- The goals will fit within the current Strategic Plan goals and are achievable within one year.
- Asking the question, “What does success look like one year from now?”
- Draft goals and key performance indicators have been developed and will be finalized in October.



# Development of Annual Performance Goals

Performance Category	Goal	Key Performance Indicator
<b>Operational Excellence</b>	Advance TEAM Program	TEAM program moves forward on schedule or with minimal delays
	Maintain and enhance stakeholder communication	Increase instances using diverse means of communication with stakeholders
	Implement records management improvement	Progress through the identified steps of the records management improvement program for FY 16
<b>TRS Leadership</b>	Attract, retain and develop a highly competent staff	Increase instances of in-house learning opportunities
		Consolidate business unit training functions
		Continue to be an employer of choice
	Provide a physical work environment that enhances productivity	Enhance use of currently available office space
	Maintain and increase TRS national profile	Increase participation in remote work
	Successfully participate in national pension and investment organizations and identify additional TRS leadership opportunities	



# Development of Annual Performance Goals

Performance Category	Goal	Key Performance Indicator
Investment Management	Sustain a financially sound pension trust fund	Successful London office opening that results in additional investment opportunities
		Continue development of investment knowledge
		Address IMD succession
Benefit Services	Build and maintain strong, customer-focused relationships	Increase learning opportunities related to customer-focused communication
	Continue to improve quality of work and customer service levels for our members	Working with Benefits on how to measure
Health Care	Facilitate access to competitive, reliable health care benefits for our members. Focus on both health care programs	Complete healthcare studies
		Solicit input from member and constituent organizations on healthcare



## Development of Annual Performance Goals

- Charged the Executive Council to also develop their own departmental visions of success one year from now.
- EC members are submitting “success goals” in October.
- Those goals will be incorporated as part of the strategic planning EC retreat in November.



# Satellite Investment Office



# General Updates



## General Updates

- 2015 NASRA Annual Meeting – Elected Region IV Regional Vice President.
- Don Green named TSABBA Administrator of the Year.
- Beneplace Contract not renewed.
- TRTA Regional Meeting attendance.
- TRTA 2015 NCTR Annual Meeting - set for October 11-15.
- 2016 Pension Bridge Annual - leading a new panel for Pension CEOs – April 5-6, 2016 in San Francisco.



# Upcoming Agendas



# October 22 (Thursday) Board Agenda

## **October 22, 2015 Major items include** (1 Day Meeting on a **Thursday**):

- Health care town hall.
- Held in cafeteria at TRS Headquarters.
- Cover national health care trends and issues.
- Discuss the status of the TRS health benefits plans.
- Hear from stakeholders.
- Take questions via the TRS web site, Twitter, and written questions submitted in person.



# November 19-20, 2015 Board Agenda

## **November 19-20, 2015 Major items include** (2 Day Quarterly Meeting):

- Michael Feroli, JP Morgan Economist to discuss Fed actions.
- Report on Q3 Earnings.
- Comprehensive Annual Financial Report (CAFR).
- Pension Fund Valuation.
- TRS-Care Valuation (Other Post Employment Benefits – OPEB) Valuation.
- TRS-ActiveCare Benefits Briefing.

## Committees

- **Investment Management Committee Meeting**
  - Asset Allocation Group Presentation.
  - Risk Group Presentation.
- **Risk Management Committee Meeting**
  - Enterprise Risk Management.
- **Policy Committee Meeting**
  - Designation of Key Employees regular review.
- **Audit Committee Meeting**
  - Report on the CAFR Audit (if ready).

Tab 11

# Teacher Retirement System of Texas



## TEAM Program Management Update

David Cook, Adam Fambrough, Jay Masci (Provaliant)

September 25, 2015

## Update Items

- TEAM Program Progress
- TEAM Program Budget Summary
- TEAM Project Milestones
- Line of Business (LOB) Project Update
- Reporting Entity Outreach (REO) Project Update

A row of yellow stars on a fence, likely a memorial or a decorative element in a park or school setting.

# TEAM Program

## TEAM Program Update

### Jay Masci (Provaliant)



# TEAM Program

## TEAM Progress as of May 29, 2015



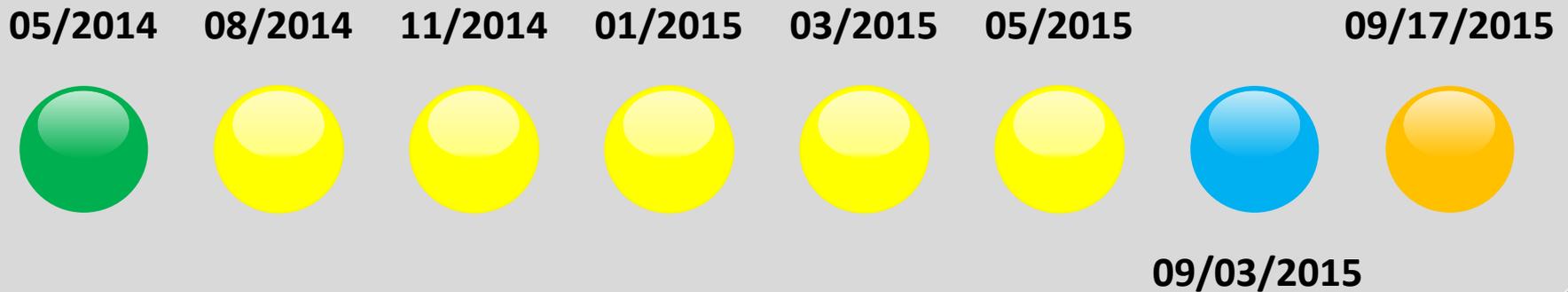


# TEAM Program

## TEAM Progress as of September 17, 2015



## Pension Line of Business (LOB) Status Changes



- The status reflects the risks and issues at a point in time
- It can be very fluid and change on a weekly basis



# TEAM Program

## **TEAM Program Budget Update**

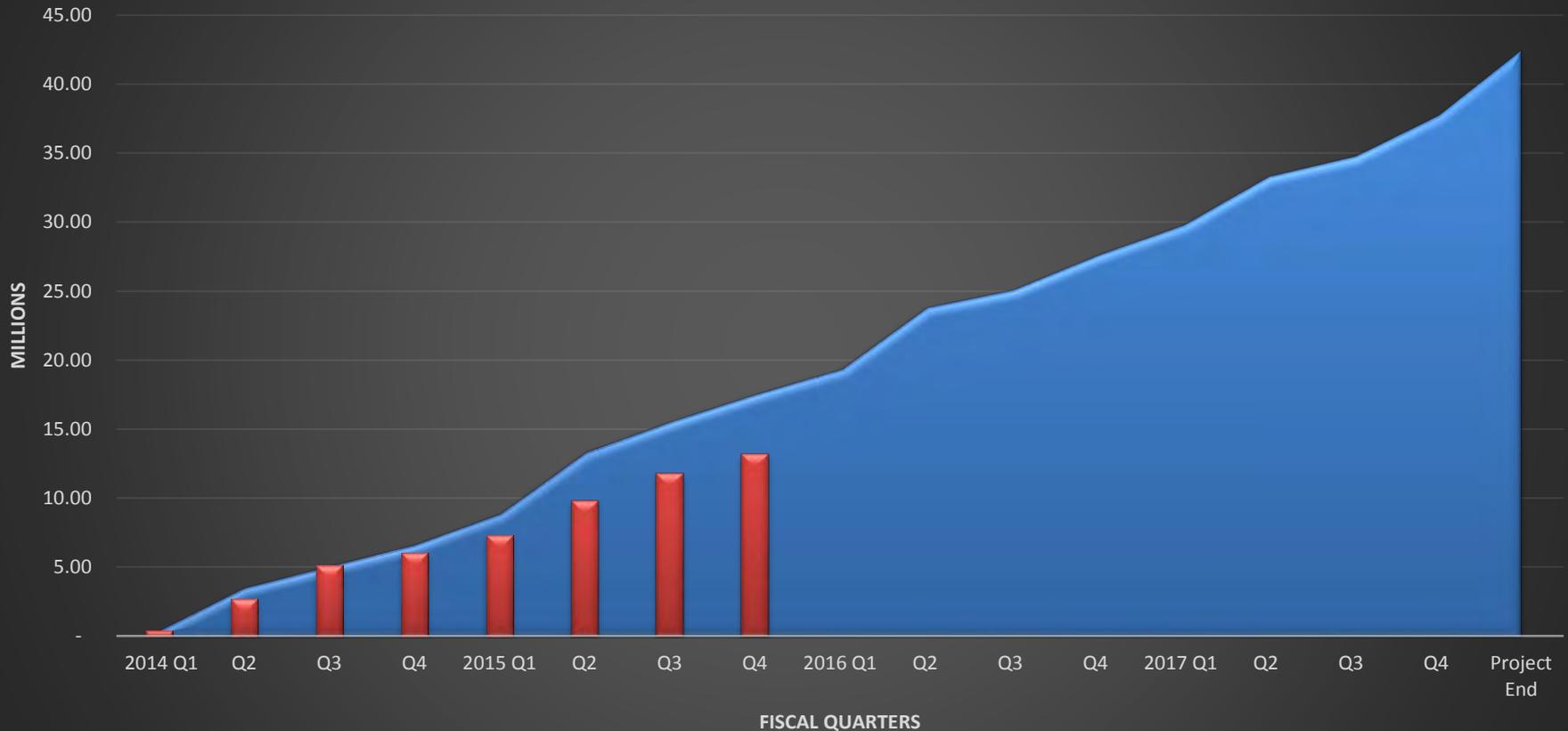
## **TEAM Resources**

### **David Cook**



# TEAM Program

## LOB Project Actual vs Projected Cumulative Expenditures\*



\* Includes \$7.2 million contingency

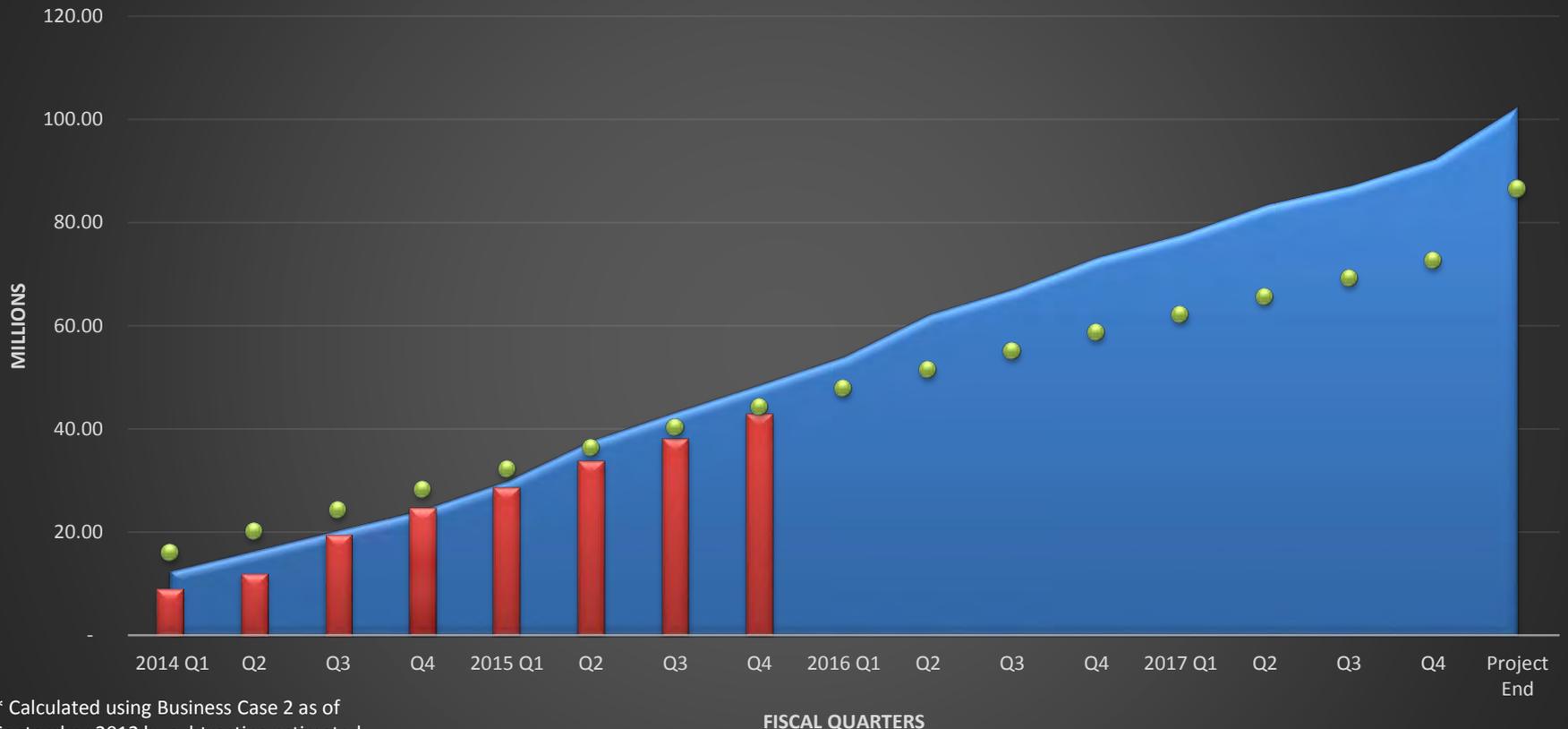
■ LOB Projected Cumulative Expenditures

■ LOB Actual Cumulative Expenditures



# TEAM Program

**TEAM Program Total Cumulative Expenditures  
Current Expected vs. Actual. vs Original Forecast\***

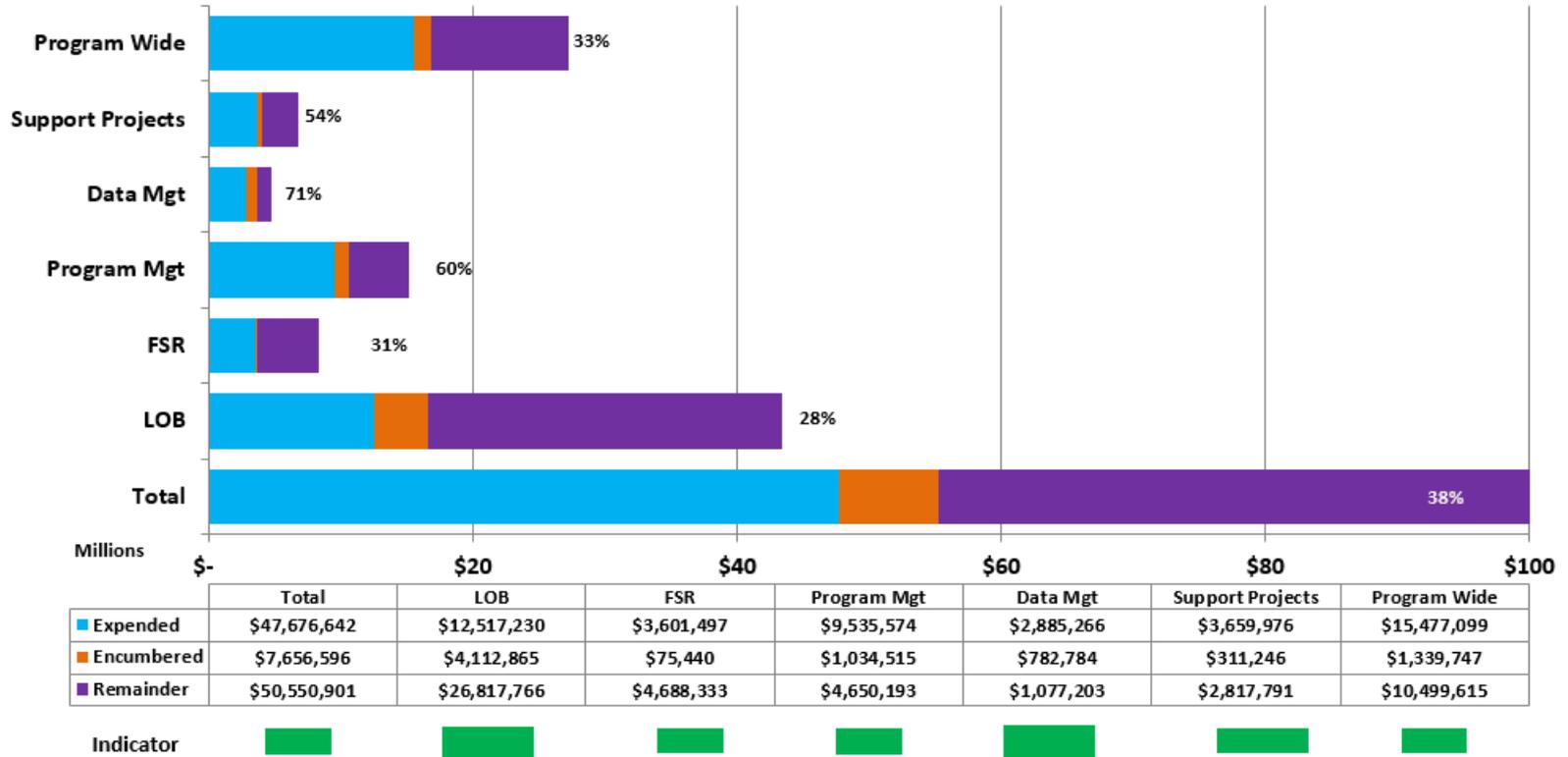


\* Calculated using Business Case 2 as of September 2012 by subtracting estimated agency personnel costs from estimated total project costs including contingency

■ Current Expected Expenditures    
 ■ Actual Expenditures    
 ● Original Forecasted Expenditures

# TEAM Program

## Program Budget by Project (% spent indicated)

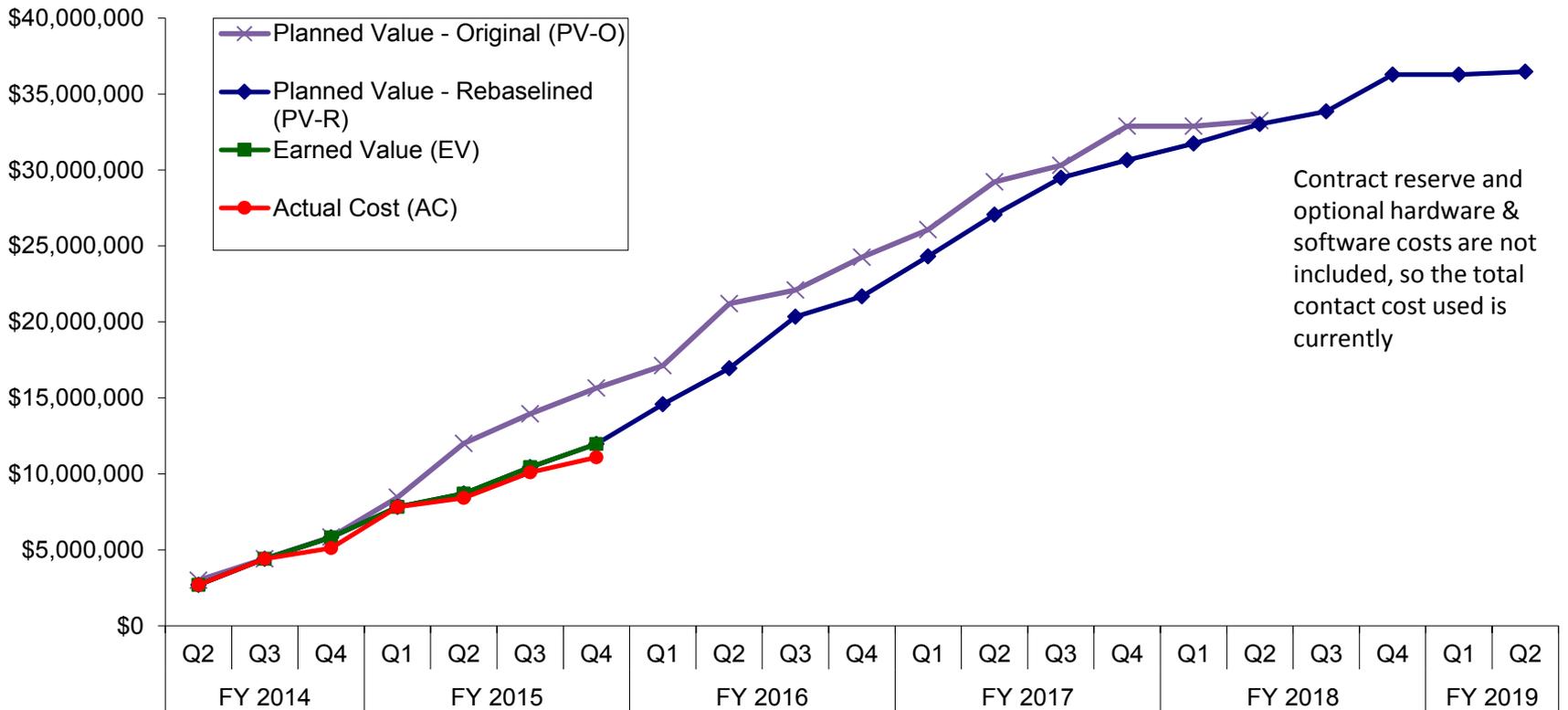


Notes: Total Project cost is \$106.5million. Does not include services or maintenance beyond 2017. FSR figure is estimate only.



# TEAM Program

## Line of Business Contract Earned Value Report





# TEAM Program

## **TEAM Milestones** **Jay Masci (Provaliant)**

# TEAM Program

## Previous Milestones

Upcoming Milestones (next fiscal quarter: June - August)	Previous Planned Date	Current Planned Date	Status
LOB - DLR Member Statements Package 1		07/13/15	Completed
LOB - DLR Sub-ledger Package 1		08/12/15	Completed
LOB – DLR Audit Package 1		09/14/15	Completed
LOB - DLR Statistical Reporting Package 1		08/05/15	Completed - Late
LOB – Workflow Refunds		07/21/15	Behind Schedule
LOB – Workflow Benefit Estimates		08/31/15	Behind Schedule
REO – Report Layout Completed/Sent		07/31/15	Completed - Late



# TEAM Program

## Upcoming Milestones

Upcoming Milestones (next fiscal quarter: Sept - November)	Previous Planned Date	Current Planned Date	Status
LOB Phase 1A – Design and Build		09/28/15	On Schedule
LOB Phase 1 - Detail Level Requirements		10/07/15	On Schedule

## **Line of Business (LOB) Project Update** **Adam Fambrough**

## Line of Business (LOB) Project Update

- Regularly scheduled requirement sessions for Phase 1 functionality are complete
- Wrapping up workflow requirements for Phase 1
- Finalized and Posted the Report Formatting Guide for Reporting Entities and Software Providers
- HP is wrapping up development work on Phase 1A functionality



# TEAM Program

## New Phase of the Project Lifecycle

Transitioning from requirements gathering to testing

Key risks that are currently being monitored include:

Key Risks	Mitigations
TRS lacks experience with large scale user acceptance testing	<ul style="list-style-type: none"><li>• Cognizant engaged to provide user acceptance testing management and support services</li><li>• Early involvement in testing</li><li>• TEAM Quality Assurance Project</li></ul>
Multiple new technologies within LOB impact implementation schedule	<ul style="list-style-type: none"><li>• Identify and develop specific proof of concept plans for each technology to demonstrate how they can work</li><li>• HP has modified their schedule to demonstrate newer technologies sooner</li></ul>



# TEAM Program

## Reporting Entity Outreach (REO) Project Update Adam Fambrough

# TEAM Program

Leaper traveled across Texas to talk about TEAM



# TEAM Program

Leaper traveled across Texas to talk about TEAM



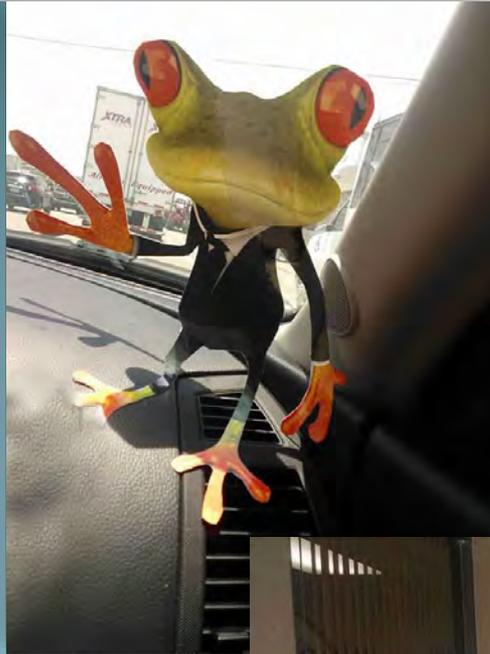
# TEAM Program

Leaper traveled across Texas to talk about TEAM



# TEAM Program

Leaper traveled across Texas to talk about TEAM





# TEAM Program

## Reporting Entity Outreach – Core Project Team

<b>Benefit Reporting</b> Melody Austin Jennifer Dujka Mark Chi	<b>Information Technology</b> James Tullos
<b>Internal Audit</b> Karen Morris Dorvin Handrick	<b>Project Management Office</b> Sunitha Downing Ryan Childs Michael Ressel
<b>Project Manager</b> Sue Richards - Provaliant	<b>Project Sponsor</b> Adam Fambrough



# TEAM Program

## Reporting Entity Outreach

### Major Objectives

Communication

Training

Certification

### Key Facts

- More than 1,250 Reporting Entities
- Variety of Reporting Entities
- Approximately 25 different software providers
- Approximately 60 Internal IT Departments

## Communication

### Communication Topics

- File Layout Changes
- Full Payroll
- Schedule
- Training

### Methods

- TRS Update
- TRS Website
- Face-to-face
- Phone Conferences
- Conferences
- Email



# TEAM Program

## Training

- Scheduled to begin in February 2016 and go through June 2016.
- Hands on training to be held at all Education Service Centers around the state.
- Additional sessions at TRS.
- Reporting Entities will be able to register for the sessions through the TRS website.

## Certification

- All Reporting Entities will be required to submit files to a certification environment so that TRS can validate the format of the files.
- Each Reporting Entity must get certified before login credentials will be provided for the production environment.



# TEAM Program

## Reporting Entity Outreach

### Key Risks and Mitigations

Key Risks	Mitigations
<b>Acceptable percentage of Reporting Entities do not get certified</b>	<ul style="list-style-type: none"><li>• Communication Plan</li><li>• Training Plan</li><li>• Testing / Certification Plan</li></ul>
<p><b>NOTE:</b> TRS will not accept or process files based on the current TRAQS format once the new Reporting Entity Portal is deployed into production. All Reporting Entities must begin using the new file formats once the new portal is in production.</p>	
<b>Availability of the certification environment</b>	<ul style="list-style-type: none"><li>• Collaboration between TRS and HP to make sure environment is available</li><li>• Minimize changes to validation requirements</li></ul>

# TEAM Program



Tab 12

# **Teacher Retirement System of Texas**

**TEAM Program:**

## **Independent Program Assessment Board Presentation**

**September 2015**



- Independent Program Assessment (IPA):
  - Provide independent reporting and oversight to the TRS Board and Executive Director or designee regarding critical risks related to the TRS Enterprise Application Modernization (TEAM) Program to enable informed decision-making.
  
  - Critical Risks Focus:
    - ❖ Failure to meet TEAM objectives
    - ❖ Lack of user acceptance
    - ❖ Program substantially delayed
    - ❖ Program substantially over budget

# IPA Overall Scorecard

<b>TEAM Program Governance</b>	<b>Prior Score</b>	<b>Current Score</b>	<b>Observations</b>
1. Program/Project Management	4	4	4,5, 16, 21, 24, 28
2. Risk Management	2	2	23
3. Issues Management and Tracking	2	2	19
4. Program Communication	1	1	
5. Change Management/ Quality Control	3	3	18 ,22
6. Staffing and Organization	3	3	4, 13 – 15, 20
7. Budget Tracking	2	2	Cost overrun
<b>TEAM Projects</b>			
1. LOB Implementation	4	4	13 18, 21-27, 29-30
2. FSR Implementation	On Hold	On Hold	9
3. Data Management	2	2	16
4. Reporting Entity Outreach	1	1	23,24
5. Organizational Change Management	1	1	24
6. Business Procedures and Training	2	2	20 , 23, 24
7. Decommissioning Legacy Systems	1	1	24
8. External Website Enhancement	1	1	

**Legend**

- 1= LOW
- 2= GUARDED
- 3= CAUTION
- 4= ELEVATED
- 5= SEVERE

N/A= Project not started, rating is not applicable at this time



# Area of focus – Execution Risks

1. Tracking to baseline project plan – verify that each project has a current published schedule with resource allocations and is executing work according to approved baseline schedule
2. Quality and acceptance of deliverables – verify quality of deliverables, acceptance documentation and confirm conformance to vendor contract
3. LOB phase1A (Certification related implementation) systems and functional testing including User Acceptance testing – verify that planning has been documented and related tasks are detailed in the MS project schedule
4. Application Security controls design, configuration, testing and implementation plan – verify that security controls related activities are documented and included in the MS project schedule. (new security roles, segregation of duties, business continuity plan, etc.)
5. LOB data conversion, user documentation, user training and cutover planning – verify that a detail resource loaded project schedule is in place to include all TRS responsibilities

# Observations – Strengths

1. Reporting Entity (RE) Outreach Project – communication with reporting entities and software providers:
  - Successful road show to selected key REs providing information about project schedule, full payroll, new data elements and Reporting Entity portal – TEAM received positive feedback.
  - Completed productive conference call meetings with software providers and discussed new Report Format, schedule and test report file instructions – software providers were encouraged to submit test files early.
  - Shared information about the new Reporting Entity Portal, project schedule, and full payroll at statewide Aetna training sessions. Those who attended are frequently involved in RE reporting as well as Healthcare.
  - New file format guide and latest key project dates are published on website.
  
2. New vendor hired to plan and manage user acceptance testing activities:
  - TRS engaged Cognizant to help develop a plan and manage the user acceptance testing.
  - A comprehensive strategy document was drafted and estimation methodology provided by Cognizant to TRS.

# Observations – Execution Risk

*TRS has made significant progress on developing a fully resource loaded schedule; they should now use this schedule to produce improved monitoring and tracking reports to ensure the projects and resources are closely managed.*

## **Observation #28** (repeat observation)

TEAM project schedules have not been consistently maintained with current projections, resource allocations and interdependencies.

### **Risk**

TRS may not have the resources necessary to deliver on their responsibilities, resulting in increased cost and further delays.

### **Recommendations**

Develop and baseline a resource loaded plan for the next 12 months and incorporate major interdependencies between the various projects within the program.

## **Observation #28 – Management Response**

- *TRS Management believes that at this time the master project schedule has sufficiently loaded the tasks and resources to enable us to manage the TRS efforts on the project. We will continue to update and adjust the schedule and resource allocations as the project progresses.*
- *Management agrees with the recommendation of using this schedule to produce improved actionable management reports to closely monitor and manage the hundreds of tasks and resources on the project.*
  - Owner: David Cook
  - Implementation Date: 9/30/2015

## **Observation #29**

Although the strategy for acceptance testing has been developed, the test plans for Phase 1 are not yet complete.

### **Risk**

TRS may not have the resources to complete the testing required within the current timeline.

### **Recommendations**

Complete the detailed plan and schedule for all Phase 1 testing.

## **Observation #29 – Management Response**

- *TRs agrees that not all test plans for Phase 1 are complete.*
- *However, the test plans which require the most resource management are either complete or near completion. The completion of the remaining test plans in most cases depends on information that is not yet available or has only recently become available. All Phase 1 Test Plans will be completed by the end of September.*

- Owner: Garry Sitz
- Implementation Date: 9/30/2015

## **Observation #30**

TRS developed a strategy for security, but security-related design, configuration, testing and implementation plans are not complete.

### **Risk**

TRS may not have the resources to design, implement and test the key security controls within the current timeline.

### **Recommendations**

Complete the comprehensive security controls plan including roles and responsibilities. Include all security-related deliverables in the project plan.

## **Observation #30 – Management Response**

- *TRS agrees with this observation. While significant progress has been made, an overall comprehensive security plan is still being developed and a complete list of required tasks are still being identified. To further strengthen our information security program we have hired a new Information Security Officer (ISO), created a new Information Security department dedicated to information security and created an Enterprise Security team made up of IT Security and business professionals across the agency focused on these key security deliverables.*
- *The new ISO, working with the Enterprise Security team, has made significant progress on updating and finalizing a comprehensive security controls plan which includes defined roles and responsibilities. The ISO working with the Project Management Office (PMO) is also reviewing and ensuring all critical security tasks are appropriately identified and included in the TEAM project plan.*
  - Owner: Frank Williams - Information Security
  - Implementation Date: November 20, 2015

# Activities Completed – Current Period

1. Attended TEAMCore Management Team weekly status meetings, Executive Briefing or ESC, Line of Business (LOB) project meetings and Data Management project meetings.
2. Reviewed and evaluated all current project schedules to verify that each project includes tracking to baseline, resource allocations, resource leveling, key interdependencies and critical path.
3. Observed and assessed the LOB Detail Level Requirements (DLR) sessions and project management meetings.
4. Reviewed samples of completed and approved LOB Detail Level Requirements, HP deliverables and TRS artifact acceptance documentation.
5. Reviewed the updated User Acceptance Test Strategy document prepared by Cognizant (UAT vendor) – not yet finalized and accepted by TRS/PMO.
6. Reviewed the preliminary Data Migration and Bridging Test Plan document prepared by HP and related preliminary project schedule.
7. Reviewed and analyzed current LOB Application Security Controls related planning documentation and project schedule. Prepared an outline of potential security controls related risks within SDLC, provided recommendations, follow up action items and reviewed report with Internal Audit.
8. Reviewed HP LOB IR1 and IR2 Business Function Testing and defect tracking documentation and discussed follow up questions with QA Manager.

# Activities for Next Period

1. Continue to attend and observe weekly Executive Steering Committee (ESC) and Core Management Team (CMT) meetings.
2. Continue to evaluate updated TEAM LOB Project schedule and all other dependent TEAM Project schedules to verify that all schedules have been baselined, resource loaded and updated to reflect current dates.
3. Review and evaluate updated LOB Phase 1A Cutover Plan and project schedule to determine that it includes the execution of activities required to successfully migrate from Legacy Systems to the new LOB solution.
4. Review the current LOB Business Functional Test (BFT) schedule, completed test results documentation and defect tracking.
5. Obtain and review LOB User Acceptance Testing (UAT) and System Test plan documentation and related detail level project schedule (when available) to verify timeline and resource allocations.
6. Review updated Data Migration and Data Validation, Application Security and End User Training and Documentation related plans and detail schedules (when available).
7. Continue to monitor TRS risk mitigation activities related to execution risks.

# IPA Budget Status

## IPA Financial summary status through August 31, 2015

➤ Total hours incurred	3,848
➤ Total calculated cost incurred	\$677,040
➤ Total billings for deliverables	\$625,000
➤ Variance	\$52,040

Tab 15

# Teacher Retirement System of Texas



## FY2015 Year End Analysis

**Don Green, Chief Financial Officer**

Board of Trustees Meeting  
September 25, 2015





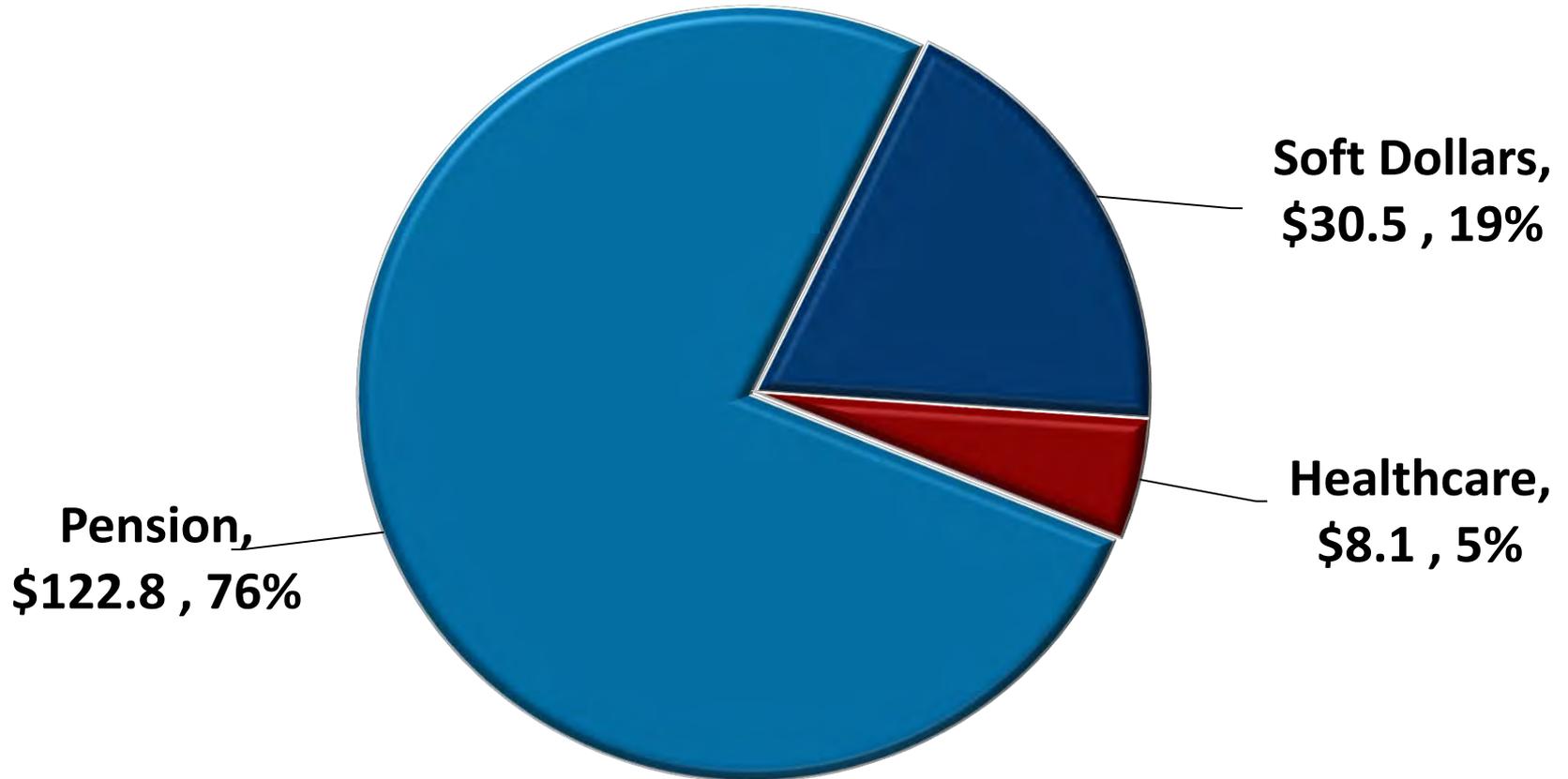
# Pension Trust Fund Cash Disbursements

	<b>FY 2014</b>	<b>FY 2015</b>	<b>Variance</b>
September	\$6,970,179	\$8,329,726	\$1,359,547
October	6,917,337	8,291,727	1,374,390
November	6,708,686	5,966,718	(\$741,968)
December	6,566,553	9,042,869	\$2,476,316
January	15,411,211	13,819,515	(\$1,591,696)
February	6,792,019	8,004,871	\$1,212,852
March	9,006,093	7,004,924	(\$2,001,169)
April	7,342,010	6,971,933	(\$370,077)
May	8,790,333	7,337,151	(\$1,453,182)
June	6,980,832	7,458,131	\$477,299
July	6,055,221	13,119,761	\$7,064,540
August	7,567,194	7,942,097	\$374,903
<b>Total</b>	<b>\$95,107,668</b>	<b>\$103,289,422</b>	<b>\$8,181,754</b>



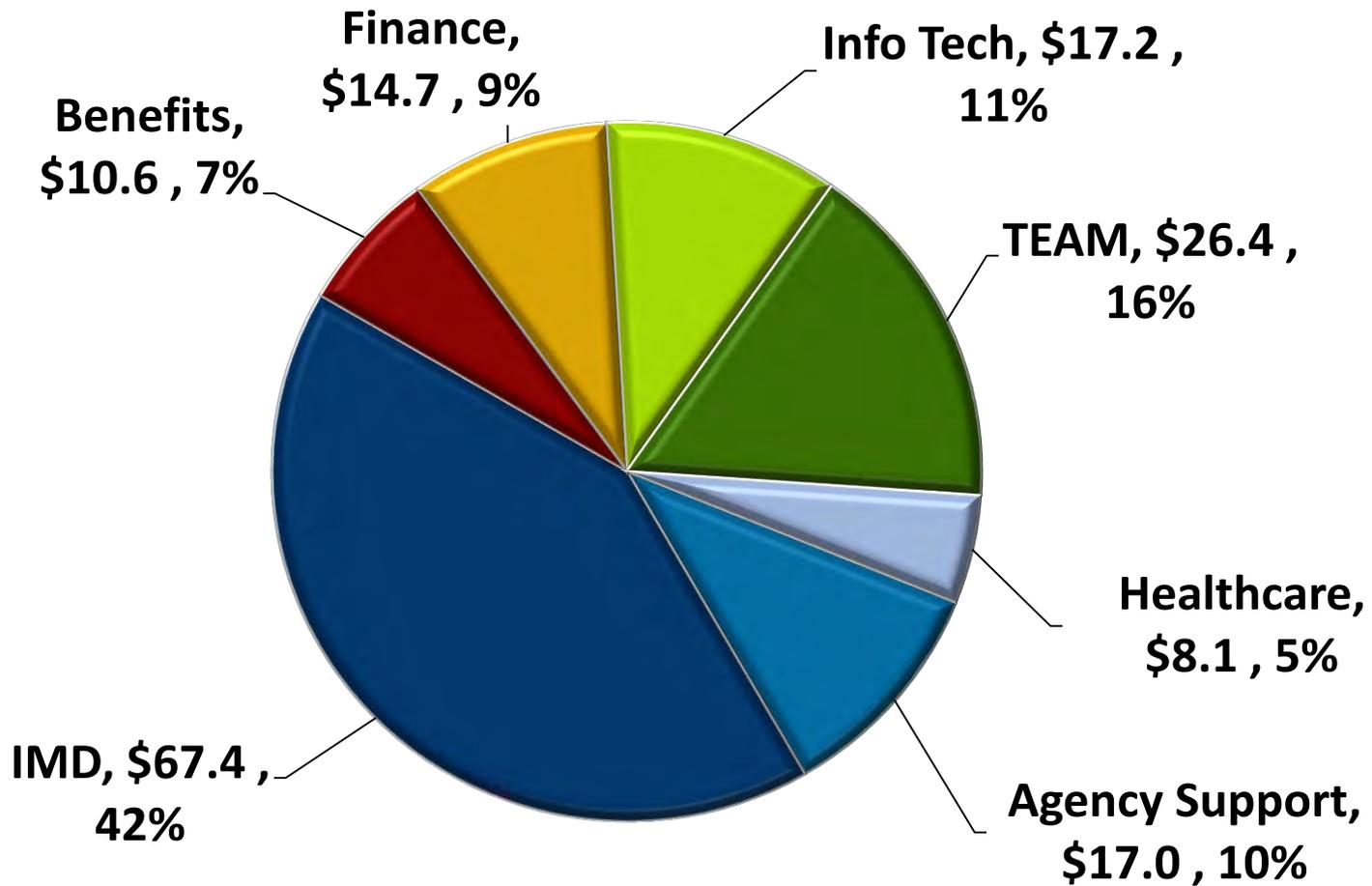
# Recap of FY2015 Budget by Fund

The total operating budget is \$161,466,112 across all funds. Label amounts in millions.





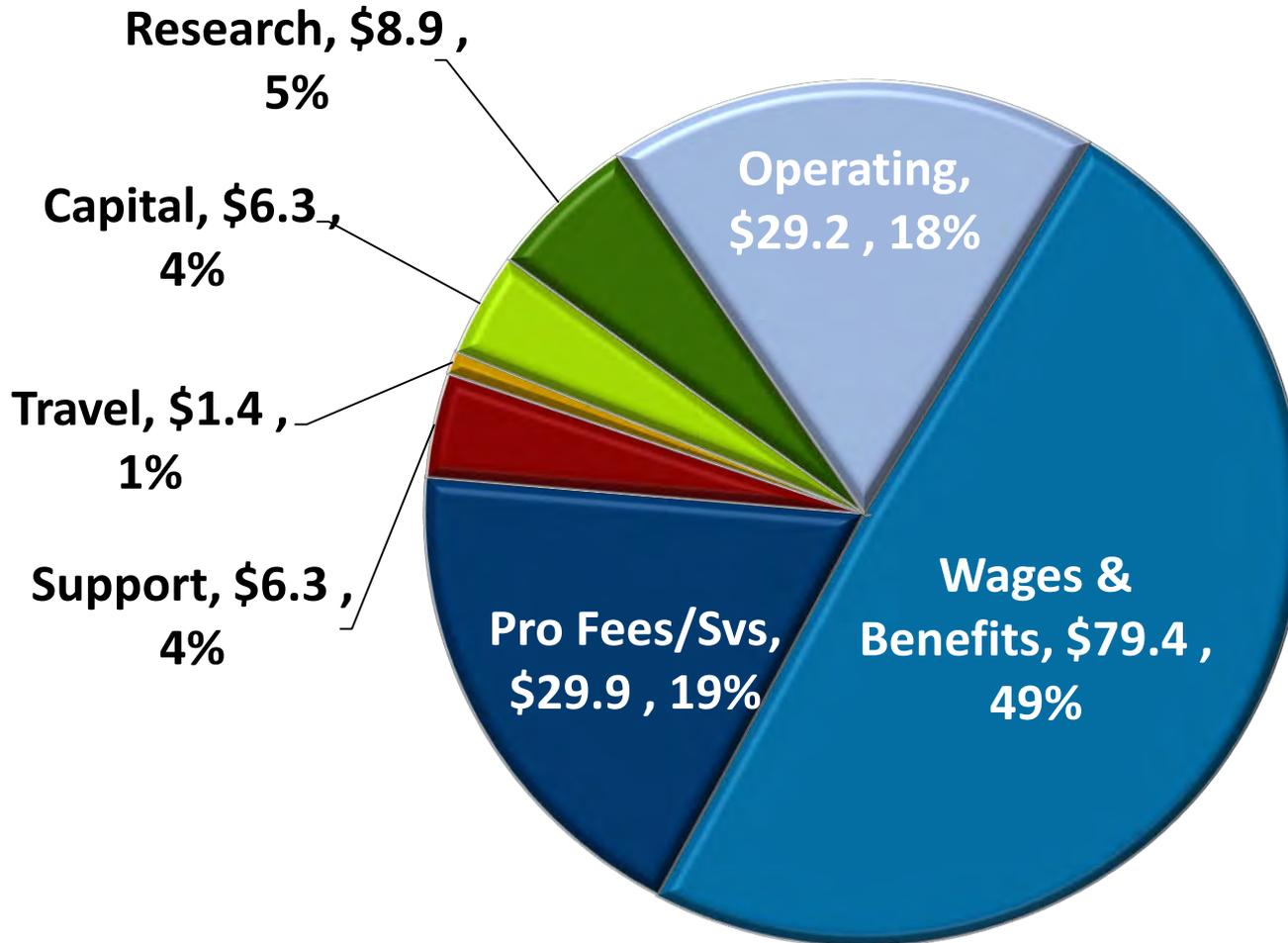
# Recap of FY2015 Budget by Division



The Agency Support Division includes executive, human resources, communications, internal audit, strategic initiatives, risk management and legal. Label amounts in millions.



# Recap of FY2015 Budget by Expense



Label amounts in millions.

### Operating costs:

- Software
- Hardware
- Postage
- Printing
- Equipment
- Reference materials

### Professional fees and services:

- Contractors
- Consultants
- Contractual services

### Support:

- Rent
- Bldg/equip maint
- Utilities
- Supplies



# Summary by Fund

Fund	Budget	Exp/Enc	% Spent	Balance
Pension	96,417,682	86,306,220	90%	10,111,462
TEAM	26,404,973	25,829,569	98%	575,404
Soft Dollars	30,510,324	26,510,400	87%	3,999,924
Health Care	8,133,133	6,736,828	83%	1,396,305
<b>Total</b>	<b>161,466,112</b>	<b>145,383,017</b>	<b>90%</b>	<b>16,083,095</b>



# Pension Fund

Explanation of Balance	\$10.1 Million	
Salaries/Benefits	\$7.2 M	\$4.9M for incentive compensation; \$1.4M in benefits; \$888K in salary
Professional Fees/Services	\$313 K	\$53K for outside legal counsel; \$260K in consulting services
Travel	\$298 K	23% of total travel budget
Operating Costs	\$412 K	\$170K in utilities; \$106K in supplies, \$85K in rent and \$50K in bldg. maint
Capital Budget	\$268 K	(breakout by project included)
Other Operating Expenses	\$1.6 M	1.0% of total budgeted amount compared to 1.1% last FY



# Capital Budget (non TEAM)

Project	Budget	Exp/Enc	% Spent	Balance
Investment Systems	178,494	154,021	86.3%	24,473
PC Upgrades	335,000	334,696	99.9%	304
Telecom Upgrades	410,000	387,669	94.6%	22,331
Mainframe Upgrades	83,807	13,035	15.6%	70,772
Bldg Renovations	247,762	247,762	100%	0
Pension Legislation	150,000	0	0%	150,000
Air Handlers	4,497,487	4,497,487	100%	0
Stairwells	450,000	450,000	100%	0
<b>Total</b>	<b>6,352,550</b>	<b>6,084,670</b>	<b>95.8%</b>	<b>267,880</b>



# TEAM

Explanation of Balance	\$575 Thousand	
Salaries/Benefits	\$313 K	\$275K in salary due to vacant positions that were approved but not filled \$38K in related benefits
Professional Fees/Services	\$89 K	Unallocated contingency for contracts
Operating Costs	\$173 K	\$110K in software contingency along with minor amounts for staff support funding

# Soft Dollar Funding



Explanation of Balance	\$4.0 Million	
SSB Partnership Agreement, Commission Sharing Arrangement (CSA), and Commission Recapture	\$4.0 M	<p>\$4.0 million difference between budget and actual spent is related to a reduction in investment research, contractor staffing and data &amp; systems expenses</p> <p>\$963K is related to SSB partnership agreement, \$2.73M is related to CSA and \$306K is related to Commission Recapture</p> <p>Any unspent revenue will carry forward to subsequent fiscal years</p>



# Healthcare Funds

Explanation of Balance	<b>\$1.40 million</b>	
TRS Care Administrative Operations	\$345 K	\$84K for salary and benefits  \$261K for consulting services and other support costs
ActiveCare Administrative Operations	\$935 K	\$156K for salary and benefits  \$779K for consulting services and other support costs
403(b) Certification Program Administrative Operations	\$116 K	\$116K for salary and benefits

Tab 16 A

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TEACHER RETIREMENT SYSTEM OF TEXAS  
BOARD REPORT  
SUMMARY OF DISBURSEMENTS

PAGE 1

	June 1, 2015 through August 31, 2015		
	NUMBER OF	GROSS	AVERAGE
	PAYMENTS	PAYMENT TOTAL	PAYMENT
Service Retirees	7,122	16,508,538.84	2,317.96
Disability Retirees	189	240,230.48	1,271.06
Survivor Benefits	308	77,600.00	251.94
Survivor Benefit Lump Sum Payment	2,829	16,876,908.14	5,965.67
Life Annuity as Death Settlement	50	76,581.45	1,531.62
60 Monthly Payments as Death Settlement	65	74,136.24	1,140.55
Refund of Deposit as Death Settlement	152	3,200,031.73	21,052.84
Twice Annual Salary as Death Settlement	294	10,224,867.55	34,778.46
Lump Sum DROP Member Payment	9	1,661,145.05	184,571.67
5 Annual DROP Member Payments	1	31,830.89	31,830.89
10 Annual DROP Member Payments			
60 Monthly DROP Member Payments			
120 Monthly DROP Member Payments	1	2,024.24	2,024.24
DROP Payments to Beneficiary of Active Member			
12 Month Partial Lump Sum Option Payment	589	17,985,310.92	30,535.33
24 Month Partial Lump Sum Option Payment	297	20,413,237.68	68,731.44
36 Month Partial Lump Sum Option Payment	788	78,906,753.30	100,135.47
Totals:	12,694	166,279,196.51	13,099.03

SUMMARY OF DISBURSEMENTS  
Glossary

The Summary of Disbursements on the preceding page provides data related to annuitants added to the payroll during the quarter. Specifically, for each category listed, the data includes: (1) the number of new payment inceptions, (2) the gross total of all new payments, and (3) the average of all payments. The categories are defined as follows:

**Service Retirees:** Members who have met the eligibility requirements and applied for a monthly service retirement annuity.

**Disability Retirees:** Members who have met the eligibility requirements, applied and been approved for a monthly disability retirement annuity.

**Survivor Benefits:** Monthly survivor benefits paid to eligible beneficiaries of deceased active members and retirees.

**Survivor Benefit Lump Sum Payment:** Single lump-sum survivor benefit, or reduced lump-sum in conjunction with monthly survivor benefit, paid to eligible beneficiaries of deceased active members and retirees.

**Life Annuity as Death Settlement:** Actuarially reduced monthly life annuity payment to eligible beneficiary of deceased active member. (One of several options which may be payable upon the death of an active member.)

**60 Monthly Payments as Death Settlement:** Monthly standard annuity payment, for a period of 60 months, to eligible beneficiary of deceased active member.

**Refund of Deposit as Death Settlement:** Payment of accumulated contributions and interest to beneficiary of deceased active member.

**Twice Annual Salary as Death Settlement:** Lump-sum payment equal to twice the member's annual salary rate, not to exceed \$80,000, paid to beneficiary of deceased active member.

**Lump Sum DROP Member Payment:** One-time, lump-sum distribution, at retirement, of member's DROP account balance. (One of several DROP distribution options that may be elected by a retiree.)

**5 Annual DROP Member Payments:** Initial or subsequent annual DROP payment under this DROP distribution election.

**10 Annual DROP Member Payments:** Initial or subsequent annual DROP payment under this DROP distribution election.

**60 Monthly DROP Member Payments:** Initial or subsequent monthly DROP payment under this DROP distribution election.

**120 Monthly DROP Member Payments:** Initial or subsequent monthly DROP payment under this DROP distribution election.

**DROP Payments to Beneficiary of Active Member:** Lump-sum distribution of DROP account balance to beneficiary of deceased active member who participated in DROP prior to death.

**12 Month Partial Lump Sum Option Payment:** Lump-sum payment to retiree who elected a partial lump-sum option (PLSO) distribution equal to 12 months of standard annuity.

**24 Month Partial Lump Sum Option Payment:** Lump-sum payment to retiree who elected a partial lump-sum option (PLSO) distribution equal to 24 months of standard annuity.

**36 Month Partial Lump Sum Option Payment:** Lump-sum payment to retiree who elected a partial lump-sum option (PLSO) distribution equal to 36 months of standard annuity.

**Tab 16 B**

**TEACHER RETIREMENT SYSTEM OF TEXAS  
MEDICAL BOARD MEETING  
OPEN SESSION AGENDA  
May 12, 2015**

The Medical Board of the Teacher Retirement System of Texas met at 12:00 p.m. Tuesday, May 12, 2015 in the TRS offices.

**The following members were present:**

Dr. Alice Cox, Fredericksburg  
Dr. James Allen Reinartz, Austin  
Dr. Larry Wilson, Austin

**Others present:**

Ms. Barbie Pearson, Chief Benefit Officer, TRS  
Ms. Frances Torres, Assistant Director of Benefit Services  
Ms. Kirsten Morgan, Legal Services, TRS  
Mr. Mike Rehling, Manager, Benefit Processing, TRS  
Mr. Russell Firestone, Assistant Manager, Benefit Processing, TRS  
Mr. Steven Preuss, Benefit Consultant, Benefit Processing, TRS  
Ms. Denise Hope, Benefit Consultant, Benefit Processing, TRS

**Dr. Wilson called the meeting to order at 12:19 p.m.**

**1. REVIEW OF MINUTES FROM THE MARCH 10, 2015 MEETING.**

The minutes of the March 10, 2015 meeting were reviewed and approved.

**2. CONSIDERATION OF FILES OF TRS MEMBERS WHO ARE CURRENTLY APPLYING FOR DISABILITY RETIREMENT AND THE FILES OF DISABILITY RETIREES WHO ARE DUE A RE-EXAMINATION REPORT.**

Dr. Wilson announced that the Medical Board would enter into Executive Session, as provided by section 551.078 of the Texas Government Code, to deliberate medical information of individual members and retirees.

The Board entered into closed session at 12:30 p.m.  
The meeting was re-opened at 12:45 p.m.

**3. REVIEW OF DISABILITY STATISTICS.**

**PG. 2 TRS Medical Board Minutes  
May 12, 2015**

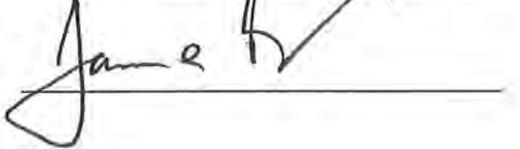
- 4. PRESENTATION BY DR. LARRY WILSON-"VITAMIN D AND TESTOSTERONE:  
A GENERAL DISCUSSION FROM AN OCCUPATIONAL PERSPECTIVE".**
- 5. DISCUSSION OF ITEMS TO BE PLACED ON FUTURE AGENDAS.**

No new items were placed on the agenda for July's meeting.

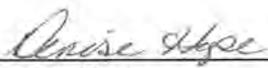
- 6. DISCUSSION OF THE DATE OF NEXT BOARD MEETING.**

The next Medical Board meeting was scheduled for July 14, 2015.  
The meeting was adjourned at 1:09 p.m.

**Dr. Larry Wilson, Chairman  
TRS Medical Board**

**Attest:**

  
**Denise Hope**

Tab 16 C

## MEMORANDUM

**DATE:** September 4, 2015

**TO:** TRS Board of Trustees  
Brian Guthrie  
Ken Welch

**FROM:** Barbie Pearson

**SUBJECT:** Consider Reappointment of James A. Reinarz, M.D. to the TRS Medical Board

Government Code Section 825.204 states that the Board of Trustees shall appoint a Medical Board composed of three physicians. The TRS Medical Board is comprised of three licensed physicians and is charged with determining whether TRS members who apply for disability retirement benefits meet the statutory requirements to receive such benefits. Specifically, members of the TRS Medical Board must determine whether a member is mentally or physically disabled from the further performance of duty and whether the disability is probably permanent. The term of one of the current three members of the Medical Board will expire December 31, 2015.

Medical Board members must be physicians licensed to practice medicine in the State of Texas and be of good standing in the medical profession. The position requires review of TRS member applications for disability retirement and supportive documentation provided by the member and the member's physician(s). The majority of TRS disability retirements are related to neurological, metabolic, neoplastic, psychological, cardiovascular, degenerative joint diseases, or related to back problems. Medical Board members must be experienced in these areas, and in rendering decisions concerning disability. Approximately one thousand disability applications are filed each year. The TRS Medical Board meets at noon once every other month to discuss matters related to disability retirement. Members are typically appointed to the three-member board for a six-year term and are currently paid \$36,630 per year for services performed under contract.

Due to the very specific TRS disability retirement statutory requirements and experience requirements, staff recommends that the Board of Trustees reappoint James A. Reinarz, M.D. to the TRS Medical Board effective January 1, 2016 for a five-year term as outlined in the TRS Board's Procurement Policy. Dr. Reinarz is retired and resides in Austin, Texas and has practiced medicine for more than fifty years. He has extensive experience in various fields of medicine, he is board certified in Infectious Diseases and Internal Medicine. In addition to having served on the TRS Medical Board since January 2004, he continues to provide consulting services to insurance companies related to medical claims. He has performed in an exemplary manner as a current member of the TRS Medical Board and has demonstrated that his schedule allows him to devote adequate time to the disability process and be readily available to TRS staff. He works very well with TRS staff and other members of the Medical Board.

If the Board concurs with this recommendation, the attached resolution is proposed for consideration.

**TRS BOARD OF TRUSTEES**  
**SEPTEMBER 24-25, 2015**

**RESOLUTION REGARDING APPOINTMENT TO THE TRS MEDICAL BOARD  
AND RELATED CONTRACT AUTHORITY**

**WHEREAS**, Section 825.204 of the Government Code and section 1.7(s) of the Bylaws of the Board of Trustees (board) of the Teacher Retirement System of Texas (TRS) require the board to appoint as members of the TRS Medical Board (medical board) three physicians licensed to practice medicine in Texas who are in good standing with the medical profession;

**WHEREAS**, Rule § 51.1(c) of the board's rules provides that members of the medical board shall be paid, as independent contractors, fees and expenses in accordance with contracts negotiated by the executive director or his designee subject to the applicable resolutions, policies, and annual budget adopted by the board;

**WHEREAS**, The appointed term of one member currently serving on the medical board expires on December 31, 2015; and

**WHEREAS**, The Board wishes to appoint to the medical board a member whose term would begin on January 1, 2016 for a five-year term and to confirm the executive director's authority to enter into a contract, including any amendment, with an appointed member of the medical board, in accordance with Rule § 51.1(c) and the period of the appointed term specified by the board; now, therefore be it

**RESOLVED**, That the board hereby appoints Dr. James Reinarz to the TRS Medical Board for a term of five years beginning January 1, 2016 and ending December 31, 2020; and

**RESOLVED**, That, in accordance with board Rule § 51.1(c) and the specified period of Dr. Reinarz' appointed term, the executive director or his designee is authorized to negotiate and to execute a contract, including any amendment, with Dr. Reinarz as the executive director or his designee may deem in his or her discretion to be in the best interest of TRS.