



Callan Associates Inc.  
1900 16<sup>th</sup> Street  
Suite 1175  
Denver, CO 80202



Main 303.861.1900  
Fax 303.832.8230

[www.callan.com](http://www.callan.com)

September 14, 2016

Alaska Retirement Management Board  
State of Alaska, Department of Revenue  
Treasury Division  
333 Willoughby Avenue, 11th Floor  
Juneau, Alaska 99801

Dear Board Members:

This letter reviews the investment performance of the Alaska Retirement Management Board (ARMB) for the fiscal year ended June 30, 2016.

Callan Associates Inc. (Callan) independently calculates time-weighted performance statistics based on underlying custodial data provided by the Board's custodian, State Street Bank and Trust Company. The performance calculations were made using a time-weighted return methodology based upon current market values. ARMB's real estate consultant, the Townsend Group, calculates returns for the real estate segment of the portfolio. Callan incorporates that data into the total plan returns.

Callan serves as ARMB's independent general investment consultant and evaluates ARMB's performance in relation to market benchmarks, appropriate manager peer groups and other public pension systems. The performance calculations were made using methodology similar to Global Investment Performance Standards.

ARMB's primary investment objective is to prudently and expertly invest assets, in accordance with governing law and industry practices, in a manner that will help ensure assets under supervision are sufficient to pay promised benefits to its members and their beneficiaries. In pursuit of this objective, ARMB periodically evaluates liabilities, expected contributions and potential earnings. This analysis is used to consider a wide range of potentially viable investment strategies. The Board selects a strategic investment policy that balances long-term growth potential and acceptable risk. A policy benchmark is constructed that mirrors the Board's strategic asset allocation policy. This policy benchmark is a custom index comprised of equity, fixed income, real estate and other market indices weighted in the same proportions as ARMB's investment policy.

Equity markets in the U.S. recovered slowly but surely after a rough start to fiscal year 2016. The Russell 3000 Index, a measure of broad U.S. equity, clawed its way back from a 7.25% deficit at the end of September and finished June up 2.14% for the trailing 12 months. Returns for equities outside of the U.S. did not fare as well. International stocks, as measured by the MSCI ACWI ex-U.S. Index, lost 10.24% for the fiscal year. A broad measure of the total global equity market (MSCI All Country World Index) fell 3.73%.

# Investment Section

---

A flattening yield curve during the period boosted fixed income performance. The Barclays Capital Aggregate Bond Index, a widely used gauge of the investment grade domestic bond market, gained 6.00%. Some absolute return strategies, such as hedge fund-of-funds, posted losses for much of the fiscal year. The Callan Absolute Return Hedge Fund-of-Funds Style median return was -3.24% (net-of-fee). Private real estate investments (NCREIF Property Index) turned in another solid year, returning 10.64%. Publicly traded real estate, as measured by the NAREIT Equity Index, performed over twice as well and increased 23.62%.

ARMB's various asset groups performed as follows:

Domestic stocks	1.01%
Int'l Stocks	-9.63%
Alternative Equity	3.54%
Fixed Income	5.14%
Real Assets	4.81%
Private Equity	4.71%
Absolute Return	-3.09%

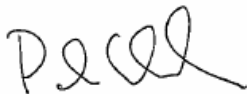
For the fiscal year, the Public Employees Retirement System (PERS) had a time-weighted total return of -0.36% and the Teachers Retirement System (TRS) also had a time-weighted total return of -0.36%. Both systems underperformed their strategic policy benchmark target return of 0.05% and the median return for Callan's Public Fund database of 0.54%.

Over longer-term periods, PERS and TRS have closely tracked their target index returns. For example, PERS' 7-year annualized return was 9.28% while TRS's return was slightly higher at 9.35%. These returns were in line, but slightly above, their target return of 9.14%. Over the longest period for which Callan has detailed data (24.75 years), PERS and TRS have achieved annualized total returns of 7.50% and 7.55%, respectively, while the policy benchmark return was 7.47%.

Both systems are well diversified and currently have asset allocation policies that, in our opinion, are consistent with achievement of a long-term "real" return of 4.5% or better.

In summary, fiscal 2016 was a year in which asset class returns were varied. The well-diversified portfolio produced a 70th percentile ranking within the Public Fund peer group, but is on track over the long-term to produce the desired results.

Sincerely,



Paul Erlendson  
Senior Vice President

## Department of Revenue Treasury Division Staff As of June 30, 2016

<b>Commissioner</b> Randall Hoffbeck	<b>Chief Investment Officer</b> Gary Bader	<b>Investment Officers</b> Bob G. Mitchell Stephen R. Sikes Zachary Hanna Steve Verschoor Shane Carson Sean Howard	Casey Colton Nicholas Orr Victor Djajalie Michael Barnhill Kevin Lui Emily Peyton Ross Alexander
<b>Deputy Commissioner</b> Jerry Burnett	<b>Comptroller</b> Scott Jones, CPA		
<b>Director</b> Pamela Leary, CPA	<b>Cash Management</b> Michelle M. Prebula, MBA, CPA, CCM	<b>ARMB Liaison Officer</b> Judy Hall	

## External Money Managers and Consultants

### Domestic Equity Large Capitalization

Allianz Global Investors  
*San Francisco, CA*  
Analytic Investors LLC  
*Los Angeles, CA*  
Barrow, Hanley, Mewhinney & Strauss  
*Dallas, TX*  
McKinley Capital Management, Inc.  
*Anchorage, AK*  
Relational Investors LLC  
*San Diego, CA*  
Quantitative Management Associates  
*Newark, NJ*  
State Street Global Advisors  
*San Francisco, CA*

### Domestic Equity Small Capitalization

Barrow, Hanley, Mewhinney & Strauss  
*Dallas, TX*  
Frontier Capital Management  
*Boston, MA*  
Jennison Associates LLC  
*New York, NY*  
Lord Abbett & Co.  
*Jersey City, NJ*  
Luther King Capital Management  
*Fort Worth, TX*  
State Street Global Advisors  
*San Francisco, CA*  
Sycamore Capital Management  
*St. Louis, MO*

### Domestic Equity MicroCap

DePrince, Race & Zollo, Inc.  
*Winter Park, FL*  
Lord Abbett & Co.  
*Jersey City, NJ*  
Zebra Capital Management  
*Mitford, CT*

### Domestic Equity Index Fund

State Street Global Advisors  
*San Francisco, CA*

### International Small Cap

Mondrian Investment Partners  
*London, England*  
Schroders Investment Management NA  
*New York, NY*

### International Equity – EAFE, Emerging Markets Non U.S. , and Global Equity

Allianz Global Investors  
*San Francisco, CA*  
Arrowstreet Capital, LP  
*Boston, MA*  
BlackRock  
*San Francisco, CA*  
Baillie Gifford Overseas Ltd.  
*Edinburgh, Scotland*  
Brandes Investment Partners, L.P.  
*San Diego, CA*  
Capital Guardian Trust Co.  
*Los Angeles, CA*  
Lazard Asset Management  
*New York, NY*  
McKinley Capital Management, Inc.  
*Anchorage, AK*  
Parametric Clifton  
*Seattle, WA*  
State Street Global Advisors  
*San Francisco, CA*

### Emerging Market Income

Lazard Asset Management  
*New York, NY*  
NEJ Investment Group  
*Dallas, TX*

### International Fixed Income

Mondrian Investment Partners  
*London, England*  
Schroders Investment Management NA  
*New York, NY*

### High Yield/Convertible Bond/Tactical Bond

Advent Capital Management  
*New York, NY*  
Columbia Threadneedle Investment Management  
*Boston, MA*  
Eaton Vance Trust Company  
*Boston, MA*  
Fidelity Investment Asset Management  
*Smithfield, RI*  
MacKay Shields LLC  
*New York, NY*

# Investment Section

## External Money Managers and Consultants (cont.)

### Taxable Municipal Bonds

Guggenheim Partners LLC  
*Santa Monica, CA*  
Western Asset Management Company  
*Pasadena, CA*

### Master Limited Partnerships

Advisory Research  
*St. Louis, MO*  
Tortoise Capital Advisors LLC  
*Leawood, KS*

### Absolute Return

Allianz Global Investors  
*New York, NY*  
Crestline Investors, Inc.  
*Fort Worth, TX*  
Global Assets Management Inc.  
*Los Angeles, CA*  
KKR  
*New York, NY*

### Private Equity

Abbott Capital Management, L.P.  
*New York, NY*  
Pathway Capital Management, LLC  
*Irvine, CA*

### Real Assets – Real Estate Core Separate Accounts

LaSalle Investment Management  
*Chicago, IL*  
Sentinel Real Estate Corporation  
*New York, NY*  
UBS Realty Investors, LLC  
*San Francisco, CA*

### Real Assets – Commingled Real Estate Funds

Almanac Realty Investors  
*Alpharetta, GA*  
BlackRock Realty  
*San Francisco, CA*  
Colony Capital  
*Los Angeles, CA*  
Coventry Real Estate Fund II, LLC  
*New York, NY*  
Clarion Partners  
*New York, NY*  
J.P. Morgan Investment Management Inc.  
*New York, NY*  
Silverpeake Real Estate Partners  
*New York, NY*  
Lowe Hospitality Investment Partners, LLC  
*Los Angeles, CA*  
Sentinel Real Estate Corporation  
*New York, NY*  
Tishman Speyer Properties  
*New York, NY*  
UBS Realty Investors, LLC  
*Hartford, CT*

### Real Assets – Energy

EIG Global Energy Partners  
*Washington, DC*

### Real Assets – Infrastructure

Brookfield Investment Management  
*Encinitas, CA*  
Industry Funds Management  
*New York, NY*  
JP Morgan Asset Management  
*San Francisco, CA*  
Lazard Asset Management  
*New York, NY*

### Real Assets – Farmland and Timber

Hancock Agricultural Investment Group  
*Boston, MA*  
UBS AgriVest, LLC  
*Hartford, CT*  
Hancock Timber Resource Group  
*Charlotte, NC*  
Timberland Investment Resources LLC  
*Brookline, MA*

### Supplemental Benefits System, Deferred Compensation Plan and Defined Contribution Plan

BlackRock  
*San Francisco, CA*  
Allianz Global Investors  
*San Francisco, CA*  
State Street Global Advisors  
*Boston, MA*  
T. Rowe Price Investment Services  
*Baltimore, MD*  
Brandes Investment Partners  
*San Diego, CA*

### Global Master Custodian

State Street Bank & Trust Co.  
*Boston, MA*

### Investment Consultants

Callan Associates, Inc.  
*Denver, CO*  
The Townsend Group  
*San Francisco, CA*

### Investment Advisory Council

William Jennings  
*Colorado Springs, CO*  
Jerrold Mitchell  
*Wayland, MA*  
Robert Shaw  
*San Francisco, CA*

### Independent Auditors

KPMG, LLP  
*Anchorage, AK*

### Actuaries

Buck Consultants  
*Denver, CO*  
Gabriel Roeder Smith  
*Denver, CO*

## Teachers' Retirement System Investment Report

### INVESTMENTS

The investment goals of the State of Alaska Teachers' Retirement System (TRS) are the long term return and sustainability of the pension funds under management. Annually, the Alaska Retirement Management Board (ARMB) sets its asset allocation strategy in order to reflect changes in the marketplace while still retaining an expected optimal risk/return level within the set constraints and objectives of the ARMB.

The ARMB categorizes its investments into eight asset classes: domestic equities, global equities ex-U.S., alternative equity strategies, private equity, real assets, fixed income, absolute return, and cash equivalents. The performance of each asset class is compared with a benchmark comprised of one or more market indices. The performance for the total portfolio is compared with its policy portfolio, determined by calculating the weighted performance of the underlying asset class benchmarks at the portfolio's target asset allocation. The asset class benchmarks are illustrated below:

Asset Class	Benchmark
Domestic Equity	Russell 3000 Index
Global Equities Ex-U.S.	MSCI All Country World Ex-U.S. Index
Alternative Equities Strategies	50% S&P 500 Index 30% CBOE Buy Write Index 20% Bank of America Yield Alternative Index
Private Equity	1/3 S&P 500 Index 1/3 Russell 2000 Index 1/3 MSCI EAFE Index
Real Assets	50% NCREIF Property Index 15% Barclays TIPS Index 10% NCREIF Farmland Index 10% NCREIF Timberland Index 5% FTSE NAREIT All Equity REIT Index 10% S&P Global Infrastructure
Fixed Income	80% Barclays Intermediate Treasury Index 10% Bank of America Merrill Lynch US High Yield Master II Constrained Index 7% Citigroup World Gov. Bond Ex-U.S. Index 3% JP Morgan Global Bond Index - Emerging Markets Global Diversified Index
Absolute Return	91 Day Treasury Bill + 5%
Cash Equivalents	91 Day Treasury Bill

The target asset allocation is determined by the ARMB, utilizing capital market assumptions provided by its independent general investment consultant, Callan Associates. During the 2016 fiscal year, ARMB's target asset allocation was 26% domestic equities, 25% global equities ex-U.S., 3% alternative equity strategies, 9% private equity, 17% real assets, 12% fixed income, 5% absolute return, and 3% cash equivalents. The target asset allocation is expected to generate a return of 7.2% with a standard deviation of 15.3%.

# Investment Section

## Teachers' Retirement System Schedule of Investment Results Fiscal Years Ended June 30

	2012	2013	2014	2015	2016	Annualized	
						3 Year	5 Year
<b>Total Fund</b>							
TRS	0.51%	12.59%	18.46%	3.30%	(0.36%)	6.86%	6.67%
<i>Actuarial Earnings Rate</i>	8.00	8.00	8.00	8.00	8.00	8.00	8.00
<b>U.S. Common Stock Returns</b>							
TRS Domestic Equities	1.83	21.24	25.45	7.85	0.58	10.92	10.99
<i>Custom Composite Index</i>	3.84	21.46	25.22	7.29	2.14	11.13	11.60
<b>Fixed Income</b>							
TRS	4.82	0.57	5.14	(0.73)	5.15	3.15	2.96
<i>Custom Composite Index</i>	5.08	(0.04)	3.31	0.41	4.79	2.82	2.69
<b>Real Assets</b>							
TRS	10.45	10.65	12.71	3.69	4.76	7.16	8.50
<i>Custom Composite Index</i>	11.41	8.35	10.98	7.99	8.87	9.27	9.51
<b>International Stock Returns</b>							
TRS International Equities	(13.66)	15.03	23.41	(3.28)	(9.15)	2.74	1.49
<i>MSCI ACWI ex-US</i>	(14.15)	14.14	22.27	(4.85)	(9.80)	1.62	0.56
<b>Private Equity</b>							
TRS	9.44	11.68	24.19	13.77	4.71	13.95	12.58
<i>Custom Composite Index</i>	(3.61)	21.24	24.01	3.33	(4.41)	7.00	7.44
<b>Absolute Return</b>							
TRS	(2.05)	8.41	6.51	9.24	(3.09)	4.08	3.67
<i>3-month Treasury Bill +5%</i>	5.06	5.11	5.05	5.02	5.19	5.09	5.09
<b>Alternative Equity</b>							
TRS	—	—	24.55	(0.88)	3.41	7.86	—
<i>Custom Composite Index</i>	—	—	18.70	4.26	2.09	8.11	—
<b>Cash Equivalents</b>							
TRS	0.42	0.25	0.26	0.27	0.55	0.36	0.35
<i>3-month Treasury Bill</i>	0.06	0.11	0.05	0.02	0.19	0.09	0.09

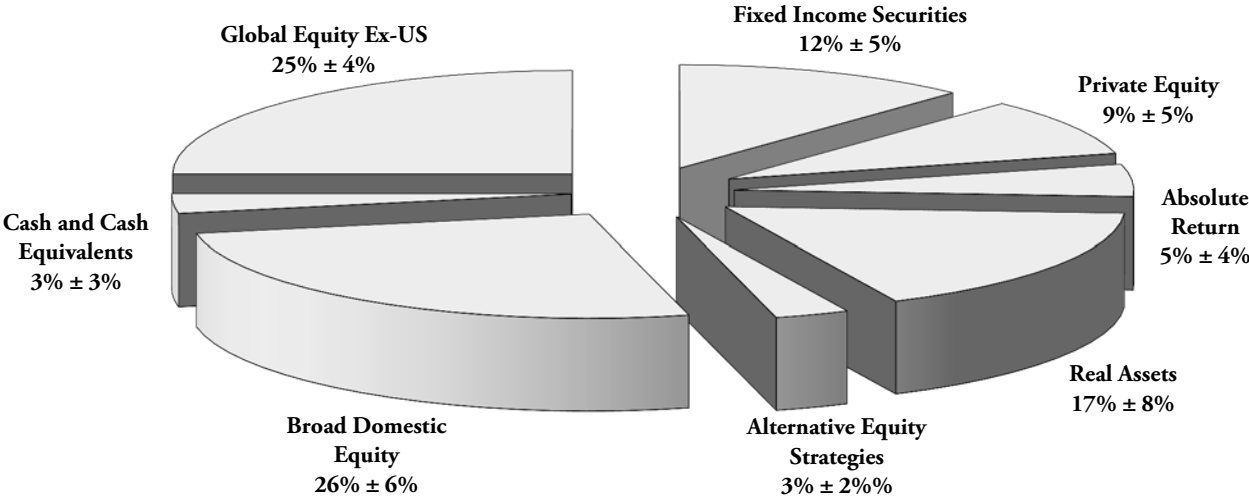
MSCI ACWI =Morgan Stanley Capital International All Country World Index

Returns for periods longer than one year are reported on an annualized basis.

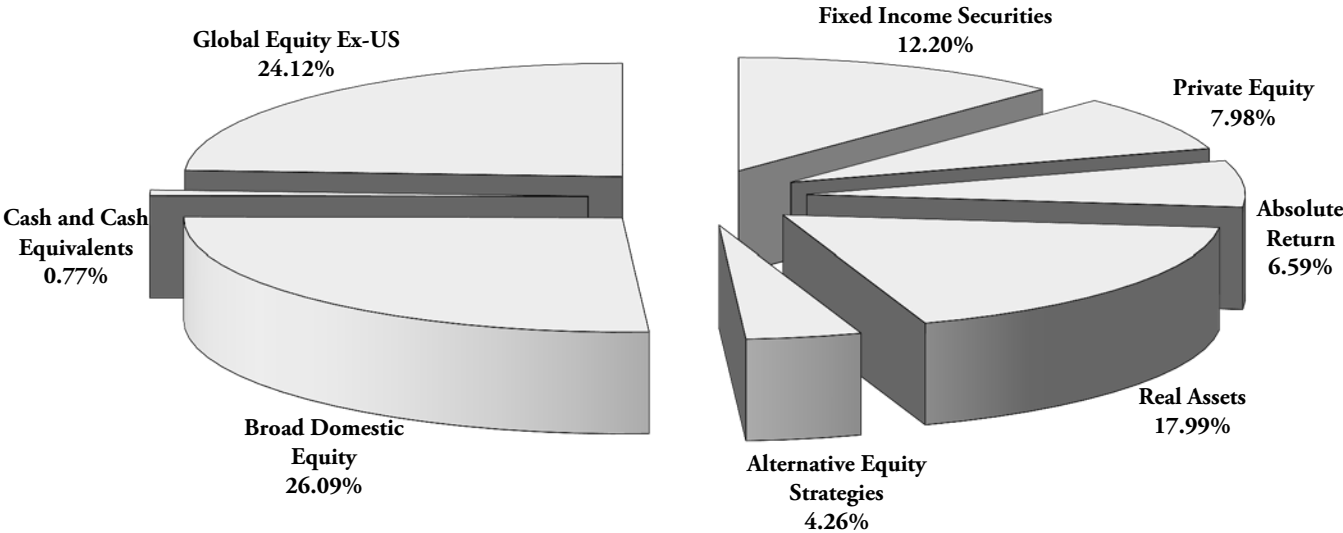
Basis of calculation: Time-Weighed rate of return based on the market rate of return.

**Teachers' Retirement System  
Asset Allocation  
June 30, 2016**

**Policy**



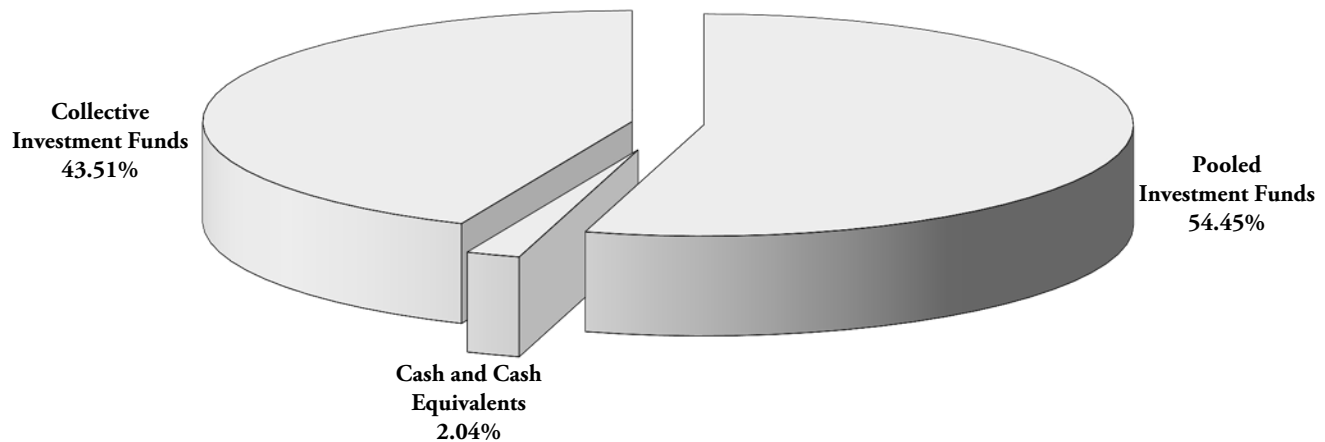
**Actual — Defined Benefit Pension**



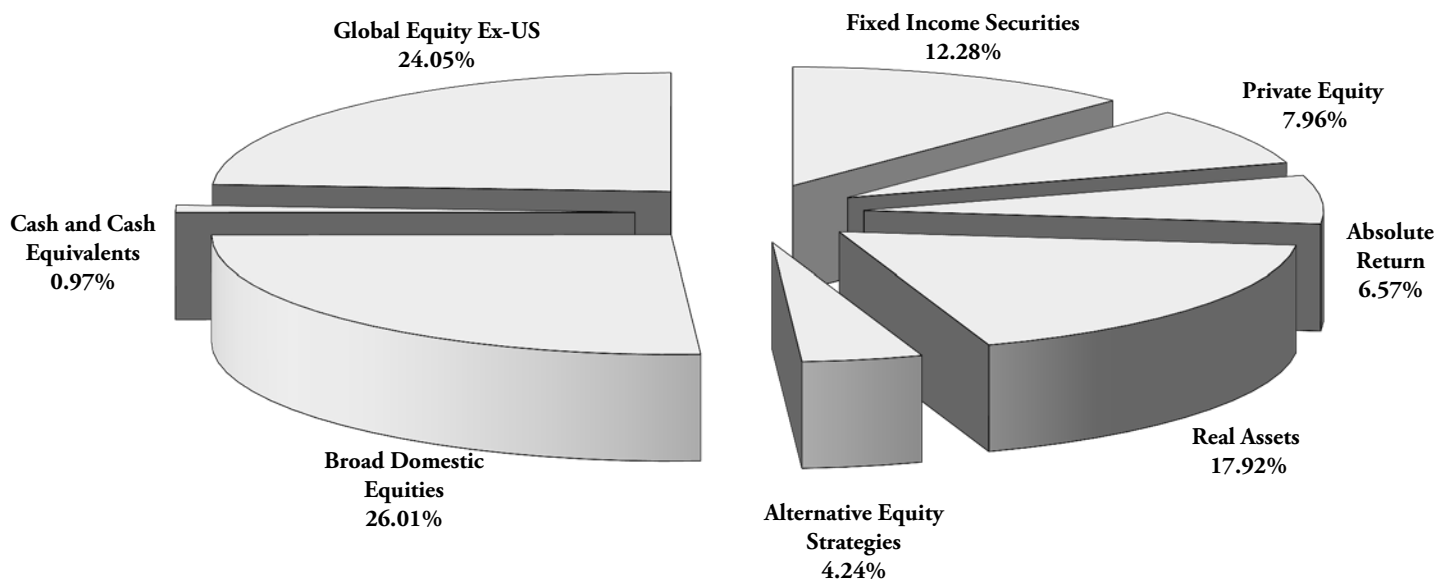
# Investment Section

## Teachers' Retirement System Asset Allocation June 30, 2016

### Actual — Defined Contribution Participant Directed



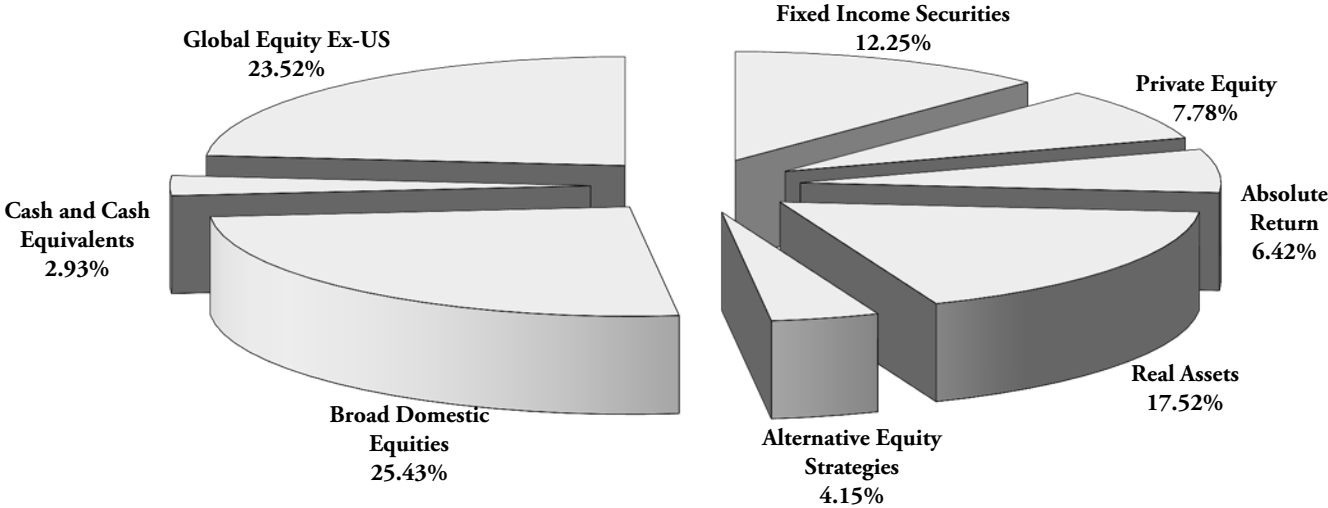
### Actual — Defined Benefit Alaska Retiree Healthcare Trust



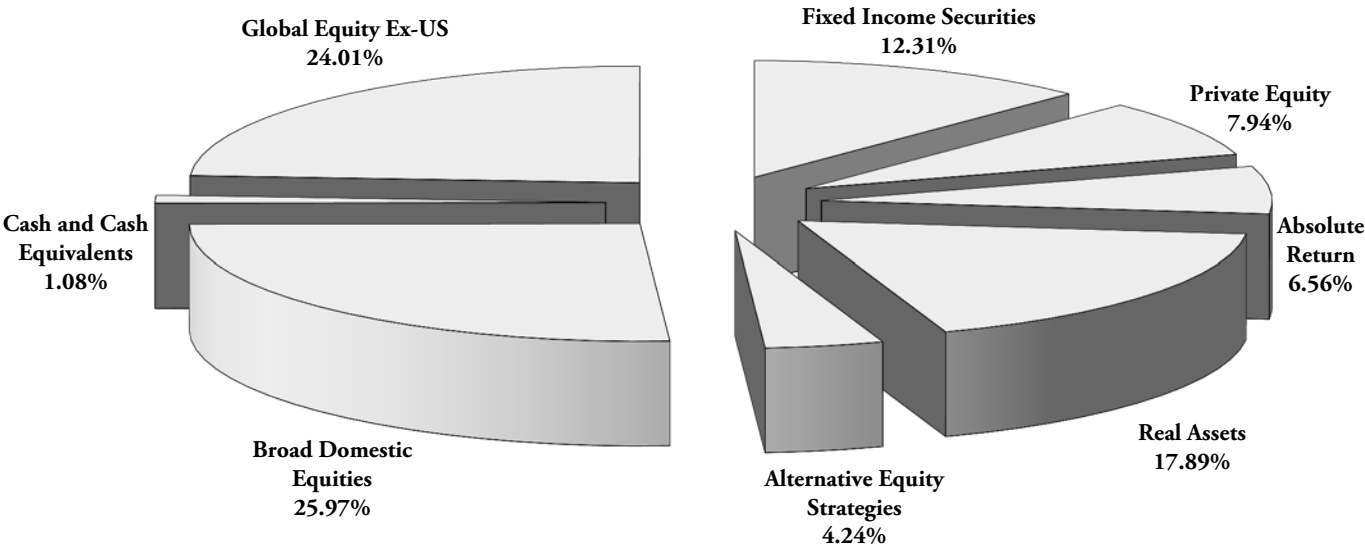


**Teachers' Retirement System  
Asset Allocation  
June 30, 2016**

**Actual — Health Reimbursement Arrangement**



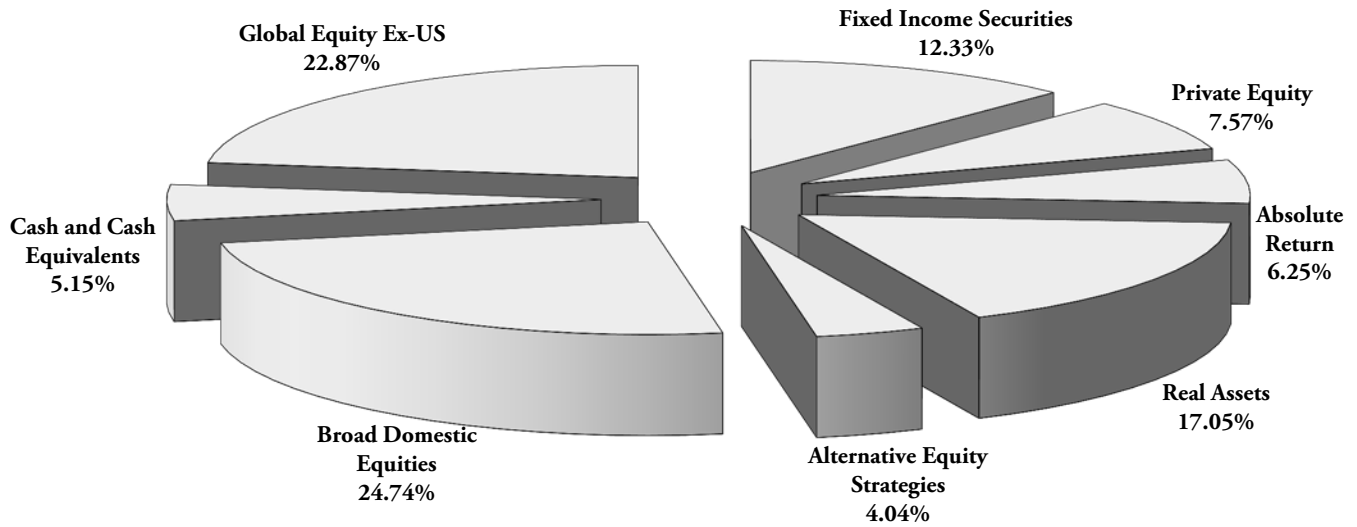
**Actual — Occupational Death & Disability**



# Investment Section

**Teachers' Retirement System  
Asset Allocation  
June 30, 2016**

**Actual — Retiree Medical Plan**



## Alaska Retirement Management Board

### Top Ten Holdings by Asset Type

June 30, 2016

Invested assets under the fiduciary responsibility of the Alaska Retirement Management Board (ARMB) have been commingled in various investment pools to minimize costs and maximize returns. Treasury Division has created twenty-six different mutual fund-like pools to accomplish the investment asset allocation policies of the ARMB. Using investment pools increases investment efficiency in three ways. First, combining individual funds' cash inflows and outflows to offset each other reduces the amount of cash on hand needed to support daily operations. Second, pooling investments significantly reduces accounting, budgeting, and administrative costs. Finally, the ARMB can achieve economies of scale by making available investment options that could not otherwise be practically provided for smaller retirement funds. Below are the ten largest fixed income and equity holdings.

#### Fixed Income

Rank	Largest Fixed Income Holdings	Fair Value	Par Value
1	US Treasury 1.25% 2/29/2020	\$51,208,390	\$50,455,493
2	US Treasury 2.125% 5/15/2025	30,690,989	29,055,485
3	US Treasury 2.625% 11/15/2020	26,998,073	25,198,733
4	US Treasury 1.75% 9/30/2019	18,504,787	17,943,357
5	US Treasury 1.5% 5/31/2020	17,915,593	17,507,990
6	US Treasury 0.0% 8/15/2019	15,831,874	16,230,295
7	US Treasury 1.625% 7/31/2020	15,224,666	14,805,378
8	US Treasury 1.375% 8/31/2020	14,109,288	13,855,456
9	US Treasury 1.25% 1/31/2020	14,084,543	13,881,745
10	US Treasury 0.875% 12/31/2016	11,600,175	11,573,464

#### Equities

Rank	Largest Equity Holdings	Fair Value
1	Apple Inc.	\$45,534,649
2	Microsoft Corp.	37,472,601
3	Johnson & Johnson	32,687,322
4	Exxon Mobil Corp.	31,824,889
5	Verizon Communications Inc.	25,950,242
6	Pfizer Inc.	25,720,057
7	Amazon.com Inc.	22,636,900
8	Procter & Gamble Co./The	22,369,286
9	AT&T Inc.	22,225,032
10	Facebook Inc.	21,917,715

Additional investment information may be obtained from the Department of Revenue, Treasury Division, P.O. Box 110405, Juneau, Alaska 99811-0405.

# Investment Section

## Teachers' Retirement System Schedule of Investment Management Fees Year Ended June 30, 2016

	Total Fair Value	Fees
<b>Fixed Income</b>		
<b>Municipal Bond Pool</b>		
* Guggenheim Partners	\$ 43,724,297	\$ 85,521
* Western Asset Management	41,921,239	91,318
Total Municipal Bond Pool	<u>85,645,536</u>	<u>176,839</u>
<b>High Yield Pool</b>		
* Mackay Shields, LLC	72,936,942	515,821
* Eaton Vance High Yield	69,706,238	148,245
* Columbia Threadneedle	70,296,388	105,788
Total High Yield	<u>212,939,568</u>	<u>769,854</u>
<b>Emerging Debt Pool</b>		
** Lazard Emerging Income	51,593,486	515,821
<b>Alternative Fixed Income</b>		
* Pyramis Global Advisors	41,078,759	141,119
<b>International Fixed Income</b>		
* Mondrian Investment Partners	120,413,364	479,394
<b>Broad Domestic Equity Pools</b>		
* Allianz Global Investors	114,216,567	346,932
* Barrow, Hanley, Mewhinney & Strauss, INC (LC)	109,110,206	400,082
* Barrow, Hanley, Mewhinney & Strauss, INC (SC)	27,895,848	157,354
* DePrince, Race & Zollo Inc.-Micro Cap	25,342,197	243,903
* Fidelity (FIAM) Small Company	65,566,612	96,511
* Frontier Capital Management	59,574,529	250,859
* Jennison Associates LLC	27,489,819	229,941
* Lazard Asset Management	115,964,759	306,756
* Lord Abbett & Co. (Micro)	24,964,294	259,718
* Lord Abbett & Co. (SC)	23,559,160	190,343
* Luther King Cap. Management	26,061,515	145,520
* McKinley Capital	111,787,430	388,827
* Quantitative Management Associates	107,078,335	299,781
* SSgA Future Small Cap	3,766,146	3,685
* SSgA Futures Large Cap	4,925,101	4,731
* SSgA Russell 1000 Growth	342,864,314	40,473
* SSgA Russell 1000 Value	314,650,281	42,943
* SSgA Russell 200	267,631,718	28,456
* SSgA Russell 2000 Growth	5,834,916	2,950
* SSgA Russell 2000 Value	10,249,243	5,399
* SSgA Volatility - Russell 1000	28,813,997	26,434
* SSgA Volatility - Russell 2000	19,254,112	20,027
* Sycamore Capital Management	32,522,849	255,864
* Zebra Capital Management	23,952,456	135,159
Total Domestic Equities	<u>1,893,076,404</u>	<u>3,882,648</u>
<b>Global Equity Ex-U.S.</b>		
* Allianz Global Investors	80,505,000	401,185
* Arrow Street Capital	95,843,869	402,473
* Baillie Gifford Overseas Limited	119,738,208	463,676
* Blackrock ACWI Ex-US IMI	250,166,716	114,083
* Brandes Investment Partners	216,825,675	1,069,982
* Capital Guardian Trust Co.	220,482,771	864,908
* Lazard Freres	111,635,996	214,484
* McKinley Capital Mgmt.	159,169,023	779,982
* Mondrian Investment Partners	50,344,892	366,255
* Schroder Investment Management	51,909,956	423,761
* State Street Global Advisors	251,276,420	153,109
Total International Equities	<u>1,607,898,526</u>	<u>5,253,898</u>
<b>Alternative Equity Strategies</b>		
<b>Alternative Equity Pool</b>		
* Analytic SSgA Account	99,553,696	130,728
* Quantitative Management Associates MPS	65,750,251	162,860
** Relational Investors, LLC	355,164	-
Total Alternative Equity	<u>165,659,111</u>	<u>293,588</u>
<b>Convertible Bond Pool</b>		
* Advent Capital	64,687,200	386,174
<b>Private Equity Pool</b>		
* Abbott Capital Management	252,929,256	658,886
** Angelo Gordon & Co.	1,157,442	27,684
** BlumCapital Partners-Strategic	-	4,640
** Glendon Opportunities	7,530,389	143,453
** Lexington Partners	16,233,423	471,777
** Merit Capital Partners	6,046,069	50,795
** Neuberger Berman Secondary Opportunities	7,113,330	205,382
** New Mountain Partners	4,136,672	111,515
** NGP XI	3,192,294	200,638
** Onex Partners	6,860,346	33,415
* Pathway Capital Management	269,215,213	850,952
** Resolute	2,486,012	850,952
** Warburg Pincus	15,785,514	230,064
Total Private Equities	<u>592,685,960</u>	<u>3,840,153</u>

**Teachers' Retirement System**  
**Schedule of Investment Management Fees (cont.)**  
**Year Ended June 30, 2016**

	Total Fair Value	Fees
<b>Absolute Return Pool</b>		
** Allianz Global Investors	\$ 75,838,271	\$ 4,656,477
** Crestline Investors Inc.	116,366,309	721,642
** Global Asset Management	99,514,093	820,248
** Prisma Capital Partners	135,002,981	997,901
** Crestline Specialty	6,315,319	172,521
** KKR Apex Equity	32,104,043	358,562
** Zebra Global Equity	23,020,359	10,512
** Zebra Global Equity Advantage	9,853,959	3,630
Total Absolute Return	498,015,334	7,741,493
<b>Real Assets</b>		
<b>Real Estate Pool</b>		
** Almanac Realty Securities IV	17,904	24
** Almanac Realty Securities V	2,866,780	56,499
** Almanac Realty Securities VII	3,994,709	171,193
** BlackRock Diamond	1,029,102	48,536
** Colony Investors VIII, L.P.	4,345,983	128,321
** Cornerstone Apartment Venture III	15,446	-
** Coventry	658,201	88,427
** Clarion Development Venture III	2,944,669	11,530
** Clarion Development Venture 4	13,834,307	35,885
** JPM Strategic	88,722,452	748,464
** KKR	14,523,133	185,534
** LaSalle Separate	69,647,370	327,352
** LaSalle Medical Office Fund II	65,857	6,234
** Lowe Hospitality	312,762	2,825
** Sentinel Separate	70,796,594	369,305
** Silverpeak Real Estate Partners II	5,005,705	236,118
** Silverpeak Real Estate Partners III	2,323,052	26,659
** Tishman Speyer Fund VI	11,987,474	66,385
** Tishman Speyer Fund VII	2,488,488	36,230
** UBS Consolidated	31,041,647	323,004
** UBS Separate	154,079,971	707,291
Total Real Estate	480,701,606	3,575,816
<b>Infrastructure Public Pool</b>		
* Brookfield Investment Management	31,952,656	238,892
* Lazard Asset Management	36,042,779	258,099
Total Infrastructure Public Pool	67,995,435	496,991
<b>Infrastructure Private Pool</b>		
* IFM Global Infrastructure Fund	-	-
<b>Master Limited Partnerships Pool</b>		
* Advisory Research Inc	74,731,055	323,133
* Tortoise MLP	85,219,807	466,298
Total Master Limited Partnerships Pool	159,950,862	789,431
<b>Energy Pool</b>		
** EIG Energy Fund XV	10,582,242	129,687
** EIG Energy Fund XD	1,264,644	23,108
** EIG Energy Fund XIV-A	3,479,725	206,628
** EIG Energy Fund XVI	8,181,069	198,204
Total Energy Pool	23,507,680	557,627
<b>Farmland Pool</b>		
** Hancock Agriculture Investment Group	177,625,774	671,642
** UBS Agrinvest	87,686,907	1,434,829
Total Farmland	265,312,681	2,106,471
<b>Timber Pool</b>		
** Hancock Natural Resource Group	32,169,160	221,399
** Timberland Investment Resources	91,571,049	758,810
Total Timber Pool	123,740,209	980,209
<b>Custodian</b>		
* State Street Bank		373,484
<b>Investment Advisory</b>		
* Callan Associates		74,329
* Investment Advisory Council		27,627
* Townsend Group		33,200
Total Investment Advisory		135,156
<b>Investment Performance</b>		
* Callan Associates		89,733
<b>Total External Management Fees</b>		<b>\$ 32,585,899</b>

\*These fees are paid through the Integrated Resource Information System (IRIS)

\*\*These fees are deducted from earnings by the fund manager and are not directly recorded in IRIS

# Investment Section

## Teachers' Retirement System Investment Summary Schedule June 30, 2016

Investments (at Fair Value)	Asset Allocation		Fair Value	% of Total Assets
	Policy	Range		
<b>Defined Benefit - Pension</b>				
<b>Cash and Cash Equivalents</b>				
Short-term Fixed Income Pool	3.00%	± 3%	\$ 37,839,246	
Total Cash and Cash Equivalents			37,839,246	0.77%
<b>Fixed Income Securities</b>				
U.S. Treasury Fixed Income Pool			227,540,898	
Taxable Municipal Bond Pool			55,950,538	
Tactical Fixed Income			33,087,645	
High Yield Pool			173,938,860	
International Fixed Income Pool			78,663,673	
Emerging Debt Pool			33,705,006	
Total Fixed Income Securities	12.00%	± 5%	602,886,620	12.20%
<b>Broad Domestic Equity</b>				
Large Cap Pool			1,062,684,060	
Small Cap Pool			226,056,987	
Total Broad Domestic Equity	26.00%	± 6%	1,288,741,047	26.09%
<b>Global Equity Ex-U.S.</b>				
International Equity Pool			983,607,295	
International Equity Small Cap Pool			66,801,072	
Emerging Markets Equity Pool			141,354,601	
Total Global Equity Ex-U.S.	25.00%	± 4%	1,191,762,968	24.12%
<b>Alternative Equity Strategies</b>				
Alternative Equity Strategies			168,090,880	
Convertible Bond Pool			42,258,871	
Total Alternative Equities	3.00%	± 2%	210,349,751	4.26%
<b>Private Equity</b>				
Private Equity Pool			394,247,440	
Total Private Equity	9.00%	± 5%	394,247,440	7.98%
<b>Absolute Return</b>				
Absolute Return Pool			325,343,583	
Total Absolute Return	5.00%	± 4%	325,343,583	6.59%
<b>Real Assets</b>				
Real Estate Pool			314,199,619	
Real Estate Investment Trust Pool			75,450,436	
Infrastructure Private Pool			68,611,138	
Infrastructure Public Pool			44,420,077	
Master Limited Partnership Pool			104,492,743	
Energy Pool			15,357,104	
Farmland Pool			173,323,541	
Timber Pool			80,837,036	
Treasury Inflation Protected Securities Pool			11,922,622	
Total Real Assets	17.00%	± 8%	888,614,316	17.99%
<b>Total Invested Assets</b>	<b>100.00%</b>		<b>\$ 4,939,784,971</b>	<b>100.00%</b>

# Investment Section

## Teachers' Retirement System Investment Summary Schedule June 30, 2016

Investments (at Fair Value)	Asset Allocation		Fair Value	% of Total Assets
	Policy	e		
<b>Defined Contribution - Participant Directed</b>				
<b>Cash and Cash Equivalents</b>				
Short-term Fixed Income Pool	100.00%	0%	\$ 5,947,279	
Total Cash and Cash Equivalents			5,947,279	2.04%
<b>Pooled Investment Funds (1)</b>				
T. Rowe Price				
Target 2010 Trust			475,112	
Target 2015 Trust			2,582,717	
Target 2020 Trust			6,440,663	
Target 2025 Trust			10,143,152	
Target 2030 Trust			11,073,963	
Target 2035 Trust			16,745,608	
Target 2040 Trust			17,786,397	
Target 2045 Trust			28,505,483	
Target 2050 Trust			39,777,702	
Target 2055 Trust			12,906,253	
Target 2060 Trust			8,591	
Alaska Balanced Fund			7,265,547	
Long-Term Balanced Fund			5,333,740	
Total Pooled Investment Funds			159,044,928	54.45%
<b>Collective Investment Funds (1)</b>				
State Street Global Advisors				
Money Market Fund			229,809	
Alaska Money Market			2,908,505	
S&P Stock Index Fund			19,171,966	
Russell 3000 Index			17,299,299	
Real Estate Investment Trust Index			6,342,384	
World Equity Ex-U.S. Index			15,813,052	
Long U.S. Treasury Bond Index			295,971	
Treasury Inflation Protected Securities			3,735,484	
World Government Bond Ex-U.S. Index			2,338,771	
Global Balanced Fund			3,553,582	
Barclays				
Daily Government/Corporate Bond			14,318,207	
Intermediate Bond Fund			4,244,260	
Brandes Institutional				
Alaska International Equity Fund			10,542,386	
RCM				
Socially Responsible Fund			1,237,948	
T. Rowe Price				
Small-Cap Fund			25,035,751	
Total Collective Investment Funds			127,067,375	43.51%
<b>Total Invested Assets</b>			<b>\$ 292,059,582</b>	<b>100.00%</b>

(1) Pooled Investment Funds and Collective Investment Funds are participant directed and therefore are not subject to an asset allocation.

# Investment Section

## Teachers' Retirement System Investment Summary Schedule June 30, 2016

Defined Benefit - Alaska Retiree Health Care Trust				
Investments (at Fair Value)	Asset Allocation		Fair Value	% of Total Assets
	Policy	Range		
<b>Cash and Cash Equivalents</b>				
Short-term Fixed Income Pool	3.00%	± 3%	\$ 24,702,583	
Total Cash and Cash Equivalents			<u>24,702,583</u>	0.97%
<b>Fixed Income Securities</b>				
U.S. Treasury Fixed Income Pool			116,519,370	
Taxable Municipal Bond Pool			28,651,207	
Tactical Fixed Income			19,815,879	
High Yield Pool			89,070,783	
International Fixed Income Pool			40,282,171	
Emerging Debt Pool			17,259,692	
Total Fixed Income Securities	12.00%	± 5%	<u>311,599,102</u>	12.28%
<b>Broad Domestic Equity</b>				
Large Cap Pool			544,180,304	
Small Cap Pool			115,759,485	
Total Broad Domestic Equity	26.00%	± 6%	<u>659,939,789</u>	26.01%
<b>Global Equity Ex-U.S.</b>				
International Equity Pool			503,686,594	
International Equity Small Cap Pool			34,207,560	
Emerging Markets Equity Pool			72,385,004	
Total Global Equity Ex-U.S.	25.00%	± 4%	<u>610,279,158</u>	24.05%
<b>Alternative Equity Strategies</b>				
Alternative Equity Strategies			86,076,144	
Convertible Bond Pool			21,639,964	
Total Alternative Equities	3.00%	± 2%	<u>107,716,108</u>	4.24%
<b>Private Equity</b>				
Private Equity Pool			201,886,619	
Total Private Equity	9.00%	± 5%	<u>201,886,619</u>	7.96%
<b>Absolute Return</b>				
Absolute Return Pool			166,602,264	
Total Absolute Return	5.00%	± 4%	<u>166,602,264</u>	6.57%
<b>Real Assets</b>				
Real Estate Pool			160,649,375	
Real Estate Investment Trust Pool			38,636,732	
Infrastructure Private Pool			35,134,459	
Infrastructure Public Pool			22,746,675	
Master Limited Partnership Pool			53,508,746	
Energy Pool			7,864,081	
Farmland Pool			88,755,690	
Timber Pool			41,395,108	
Treasury Inflation Protected Securities Pool			6,105,348	
Total Real Assets	17.00%	± 8%	<u>454,796,214</u>	17.92%
<b>Total Invested Assets</b>	<b>100.00%</b>		<b>\$ <u>2,537,521,837</u></b>	<b>100.00%</b>



# Investment Section

## Teachers' Retirement System Investment Summary Schedule June 30, 2016

<b>Investments (at Fair Value)</b>	<b>Health Reimbursement Arrangement</b>		<b>Fair Value</b>	<b>% of Total Assets</b>
	<b>Policy</b>	<b>Range</b>		
<b>Cash and Cash Equivalents</b>				
Short-term Fixed Income Pool	3.00%	± 3%	\$ 2,003,508	
Total Cash and Cash Equivalents			<u>2,003,508</u>	2.93%
<b>Fixed Income Securities</b>				
U.S. Treasury Fixed Income Pool			3,069,316	
Taxable Municipal Bond Pool			754,721	
Tactical Fixed Income			687,381	
High Yield Pool			2,346,274	
International Fixed Income Pool			1,061,100	
Emerging Debt Pool			454,650	
Total Fixed Income Securities	12.00%	± 5%	<u>8,373,442</u>	12.25%
<b>Broad Domestic Equity</b>				
Large Cap Pool			14,334,623	
Small Cap Pool			3,049,300	
Total Broad Domestic Equity	26.00%	± 6%	<u>17,383,923</u>	25.43%
<b>Global Equity Ex-U.S.</b>				
International Equity Pool			13,267,951	
International Equity Small Cap Pool			901,084	
Emerging Markets Equity Pool			1,906,742	
Total Global Equity Ex-U.S.	25.00%	± 4%	<u>16,075,777</u>	23.52%
<b>Alternative Equity Strategies</b>				
Alternative Equity Strategies			2,267,390	
Convertible Bond Pool			570,033	
Total Alternative Equities	3.00%	± 2%	<u>2,837,423</u>	4.15%
<b>Private Equity</b>				
Private Equity Pool			5,318,033	
Total Private Equity	9.00%	± 5%	<u>5,318,033</u>	7.78%
<b>Absolute Return</b>				
Absolute Return Pool			4,388,583	
Total Absolute Return	5.00%	± 4%	<u>4,388,583</u>	6.42%
<b>Real Assets</b>				
Real Estate Pool			4,231,775	
Real Estate Investment Trust Pool			1,017,756	
Infrastructure Private Pool			925,500	
Infrastructure Public Pool			599,185	
Master Limited Partnership Pool			1,409,510	
Energy Pool			207,153	
Farmland Pool			2,337,974	
Timber Pool			1,090,417	
Treasury Inflation Protected Securities Pool			160,825	
Total Real Assets	17.00%	± 8%	<u>11,980,095</u>	17.52%
<b>Total Invested Assets</b>	<b>100.00%</b>		<b>\$ <u>68,360,784</u></b>	<b>100.00%</b>

# Investment Section

## Teachers' Retirement System Investment Summary Schedule June 30, 2016

Investments (at Fair Value)	Occupational Death and Disability			% of Total Assets
	Asset Allocation Policy	Range	Fair Value	
<b>Cash and Cash Equivalents</b>				
Short-term Fixed Income Pool	3.00%	± 3%	\$ 33,903	
Total Cash and Cash Equivalents			<u>33,903</u>	1.08%
<b>Fixed Income Securities</b>				
U.S. Treasury Fixed Income Pool			143,849	
Taxable Municipal Bond Pool			35,371	
Tactical Fixed Income			25,998	
High Yield Pool			109,963	
International Fixed Income Pool			49,730	
Emerging Debt Pool			21,308	
Total Fixed Income Securities	12.00%	± 5%	<u>386,219</u>	12.31%
<b>Broad Domestic Equity</b>				
Large Cap Pool			671,817	
Small Cap Pool			142,910	
Total Broad Domestic Equity	26.00%	± 6%	<u>814,727</u>	25.97%
<b>Global Equity Ex-U.S.</b>				
International Equity Pool			621,826	
International Equity Small Cap Pool			42,230	
Emerging Markets Equity Pool			89,363	
Total Global Equity Ex-U.S.	25.00%	± 4%	<u>753,419</u>	24.01%
<b>Alternative Equity Strategies</b>				
Alternative Equity Strategies			106,265	
Convertible Bond Pool			26,716	
Total Alternative Equities	3.00%	± 2%	<u>132,981</u>	4.24%
<b>Private Equity</b>				
Private Equity Pool			249,239	
Total Private Equity	9.00%	± 5%	<u>249,239</u>	7.94%
<b>Absolute Return</b>				
Absolute Return Pool			205,679	
Total Absolute Return	5.00%	± 4%	<u>205,679</u>	6.56%
<b>Real Assets</b>				
Real Estate Pool			198,329	
Real Estate Investment Trust Pool			47,699	
Infrastructure Private Pool			43,375	
Infrastructure Public Pool			28,081	
Master Limited Partnership Pool			66,059	
Energy Pool			9,708	
Farmland Pool			109,573	
Timber Pool			51,104	
Treasury Inflation Protected Securities Pool			7,538	
Total Real Assets	17.00%	± 8%	<u>561,466</u>	17.89%
<b>Total Invested Assets</b>	<b>100.00%</b>		<b>\$ 3,137,633</b>	<b>100.00%</b>

# Investment Section

## Teachers' Retirement System Investment Summary Schedule June 30, 2016

Investments (at Fair Value)	Retiree Medical Plan		Fair Value	% of Total Assets
	Asset Allocation Policy	Range		
<b>Cash and Cash Equivalents</b>				
Short-term Fixed Income Pool	3.00%	± 3%	\$ 1,216,756	
Total Cash and Cash Equivalents			1,216,756	5.15%
<b>Fixed Income Securities</b>				
U.S. Treasury Fixed Income Pool			1,031,748	
Taxable Municipal Bond Pool			253,699	
Tactical Fixed Income			329,823	
High Yield Pool			788,698	
International Fixed Income Pool			356,688	
Emerging Debt Pool			152,830	
Total Fixed Income Securities	12.00%	± 5%	2,913,486	12.33%
<b>Broad Domestic Equity</b>				
Large Cap Pool			4,818,570	
Small Cap Pool			1,025,019	
Total Broad Domestic Equity	26.00%	± 6%	5,843,589	24.74%
<b>Global Equity Ex-U.S.</b>				
International Equity Pool			4,460,010	
International Equity Small Cap Pool			302,899	
Emerging Markets Equity Pool			640,949	
Total Global Equity Ex-U.S.	25.00%	± 4%	5,403,858	22.87%
<b>Alternative Equity Strategies</b>				
Alternative Equity Strategies			762,181	
Convertible Bond Pool			191,616	
Total Alternative Equities	3.00%	± 2%	953,797	4.04%
<b>Private Equity</b>				
Private Equity Pool			1,787,651	
Total Private Equity	9.00%	± 5%	1,787,651	7.57%
<b>Absolute Return</b>				
Absolute Return Pool			1,475,218	
Total Absolute Return	5.00%	± 4%	1,475,218	6.25%
<b>Real Assets</b>				
Real Estate Pool			1,422,507	
Real Estate Investment Trust Pool			342,118	
Infrastructure Private Pool			311,106	
Infrastructure Public Pool			201,416	
Master Limited Partnership Pool			473,805	
Energy Pool			69,634	
Farmland Pool			785,908	
Timber Pool			366,542	
Treasury Inflation Protected Securities Pool			54,061	
Total Real Assets	17.00%	± 8%	4,027,097	17.05%
<b>Total Invested Assets</b>	<b>100.00%</b>		<b>\$ 23,621,452</b>	<b>100.00%</b>

# Investment Section

## Teachers' Retirement System Recaptured Commission Fees Year Ended June 30, 2016

<u>Fund</u>	<u>Broad Domestic Equity Pool</u>	<u>Global Equity Ex-U.S.</u>	<u>Total</u>
Defined Benefit Plan - Pension	\$29,101	\$17,889	\$46,990
Postemployment Benefit - Alaska Retiree Healthcare Trust	14,575	8,936	23,511
Postemployment Benefit - Occupational Death & Disability	18	11	29
Postemployment Benefit - Retiree Medical Plan	106	63	169
Postemployment Benefit - Health Reimbursement Arrangement	345	209	554
<b>Total Recapture Commission Fees</b>	<b>\$44,145</b>	<b>\$27,108</b>	<b>\$71,253</b>

The ARMB's Commission Recapture program has been in place since 1995, first working with various brokers then switching to the State Street program in 2005. Under a commission recapture program a portion of the commissions and mark-ups on trades (placed through the State Street broker network) flow directly back to the fund.

The program allows managers to place trades for commission recapture purposes. The ARMB has established direction percentages for the managers to strive for, but is only requiring best efforts to meet them given their fiduciary obligation to achieve best execution of transactions.

The current rebate arrangement with State Street Global Markets (SSGM) is: 90% of the commissions received in excess of executing the brokers' execution-only rates; 100% of commissions in excess of its execution-only rates for all trading directed through SSGM.