Legislative Finance Committee
Thursday, August 17, 2017

Pension Solvency and Investment Report

Jan Goodwin, Executive Director

Bob Jacksha, Chief Investment Officer

Mary Lou Cameron, Board Chair

H. Russell Goff, Board Vice Chair

Jan Goodwin, Executive Director

NEW MEXICO EDUCATIONAL RETIREMENT BOARD

Actuarial Experience Study for the Six-Year Period Ending June 30, 2016

Presented to Board of Trustees on April 21, 2017

R. Ryan Falls, Senior Consultant

GRS
Gabriel Roeder Smith & Company
Consultants & Actuaries
www.gabrielroeder.com
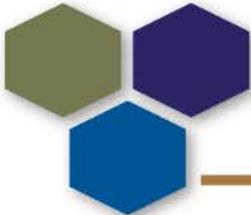
Assumption Setting Process

- General process for setting assumptions
  - ▶ Actuary recommends assumptions
  - ▶ Board considers actuary's recommendation and makes the final decision for the system
- Experience Study is a periodic review of the assumptions and methods used by the actuary
  - ▶ ERB has one prepared every two years
    - • Last one performed after June 30, 2014 actuarial valuation
  - ▶ Two-year interval is a best practice for ERB
   - • GFOA recommends at least once every five years

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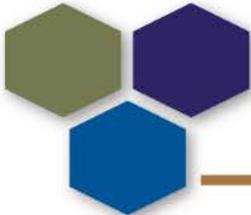
Assumption Setting Process

- Assumptions are not static and must stay current
  - ▶ Should be appropriate in each actuarial valuation
  - ▶ Can change even without a formal experience study
  - ▶ Actuarial Standards of Practice (ASOPs) now require the actuary attest to the reasonableness of the actuarial assumptions in every actuarial valuation report
- Incredibly low levels of current inflation and expectations of future inflation are prompting conversations about the inflation assumption across the country

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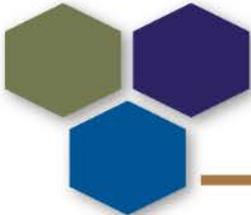
Procedure

- Compared economic assumptions to:
  - ► General US price inflation and wage inflation statistics
  - ► ERB specific salary increases
  - ► Expected return using seven investment consultants' 2016 capital market assumption sets, including NEPC's
  - ► Economic assumptions should be consistent
- Analyzed demographic assumptions
  - ► Retirement, mortality, disability, other terminations
  - ► Compared to ERB's actual experience
  - ► Used Actual-to-Expected (A/E) Ratio as analysis tool
  - ► Looked at patterns by age and service
- If A/E = 100% at all ages, assumption is "perfect"
  - ► Although we may want to build in some margin

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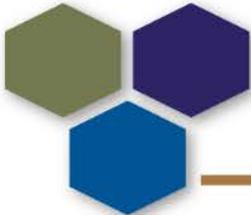
June 30, 2014 Experience Study Mortality Improvement Assumption

- Current Assumption based on a "static" mortality projection
  - ▶ Assume mortality improvement for a fixed number of years at the valuation date
  - ▶ Resulting mortality rates is used for every future year in the valuation
  - ▶ This is one common approach

- Emerging best practice approach is "generational" mortality projection
  - ▶ Mortality is assumed to improve every future year in the valuation
  - ▶ Eliminates the need to periodically reestablish margin for future mortality improvements

- Ongoing SOA Pension Mortality Study
  - ▶ Recently published a study based on private plan data
  - ▶ Developed a new procedure for incorporating generational mortality into actuarial valuations (uses birth year in addition to age)
  - ▶ SOA is working on another mortality study using public sector data

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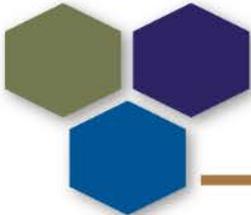
June 30, 2014 Experience Study Post-Retirement Mortality

- Experience during study period
  - ► Slight improvement in longevity (as expected)
  - ► Male A/E = 106%
  - ► Female A/E = 104%

- Recommendation
  - ► Current tables are static with a fixed level of mortality improvement built in; continually needs to be updated
  - ► Change to tables with generational improvements (automatically updates each year for improvements)
  - ► Male A/E = 96%
  - ► Female A/E = 99%

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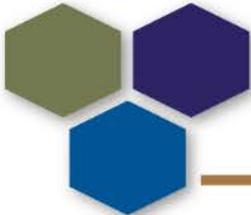
June 30, 2014 Experience Study Actuarial Impact of Proposed Changes

- Limited impact on funded ratio
  - ▶ Change 2014 funded ratio from 63.1% to 62.0%
  - ▶ Change projected period to 100% funded ratio from 26 years to 32 years
    - Based on open group projection
- The 2014 Funding Policy Contribution increases from 16.32% of payroll to 16.94% of payroll
  - ▶ 80 basis points decrease due to lower wage inflation
  - ▶ 169 basis points increase due to updated mortality assumption
  - ▶ The other demographic assumption changes have smaller impacts (small gain from retirement, very small loss from disability)

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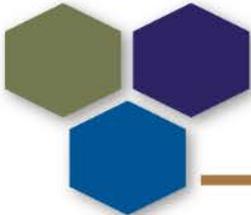
Economic Assumptions

- **Investment Return**
  - Current Assumption: 7.75%
  - Description: Long-term expected return on plan assets based on asset allocation
  - Purpose: (1) Anticipate the level of investment earnings that will be available to help pay plan benefits in the future, and (2) discount future benefit payments to the valuation date
  - Impact: Lower assumption will increase plan liabilities
  - *Dependent on each system's investment policy*

- **Core Inflation**
  - Current Assumption: 3.00%
  - Description: Long-term assumption for price inflation (CPI-U)
  - Purpose: Base "building block" of every economic assumption
  - Impact: Lower assumption would trigger a similar shift in most other economic assumptions

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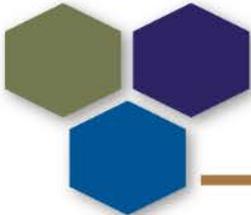
Inflation

- The assumed inflation rate is not used directly in the actuarial valuation, but it impacts the development of:
  - ► Future COLA assumption
  - ► Investment return assumption
  - ► Wage inflation assumption
  - ► Payroll growth rate
- The current inflation assumption is 3.00% per year
- Actual inflation (measured by the CPI-U) during
  - ► Last 5 years: 1.32%
  - ► Last 20 years: 2.18%
  - ► Last 30 years: 2.66%
  - ► Since 1913:   3.16%

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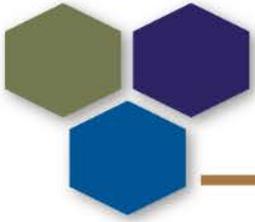
Inflation

Average Annual Inflation
CPI-U, Five Fiscal Year Averages

Period	5-yr Avg. Increase
1967-1971	4.62%
1972-1976	6.95%
1977-1981	9.79%
1982-1986	3.86%
1987-1991	4.43%
1992-1996	2.87%
1997-2001	2.58%
2002-2006	2.65%
2007-2011	2.15%
2012-2016	1.32%

■ 5-yr Avg. Increase

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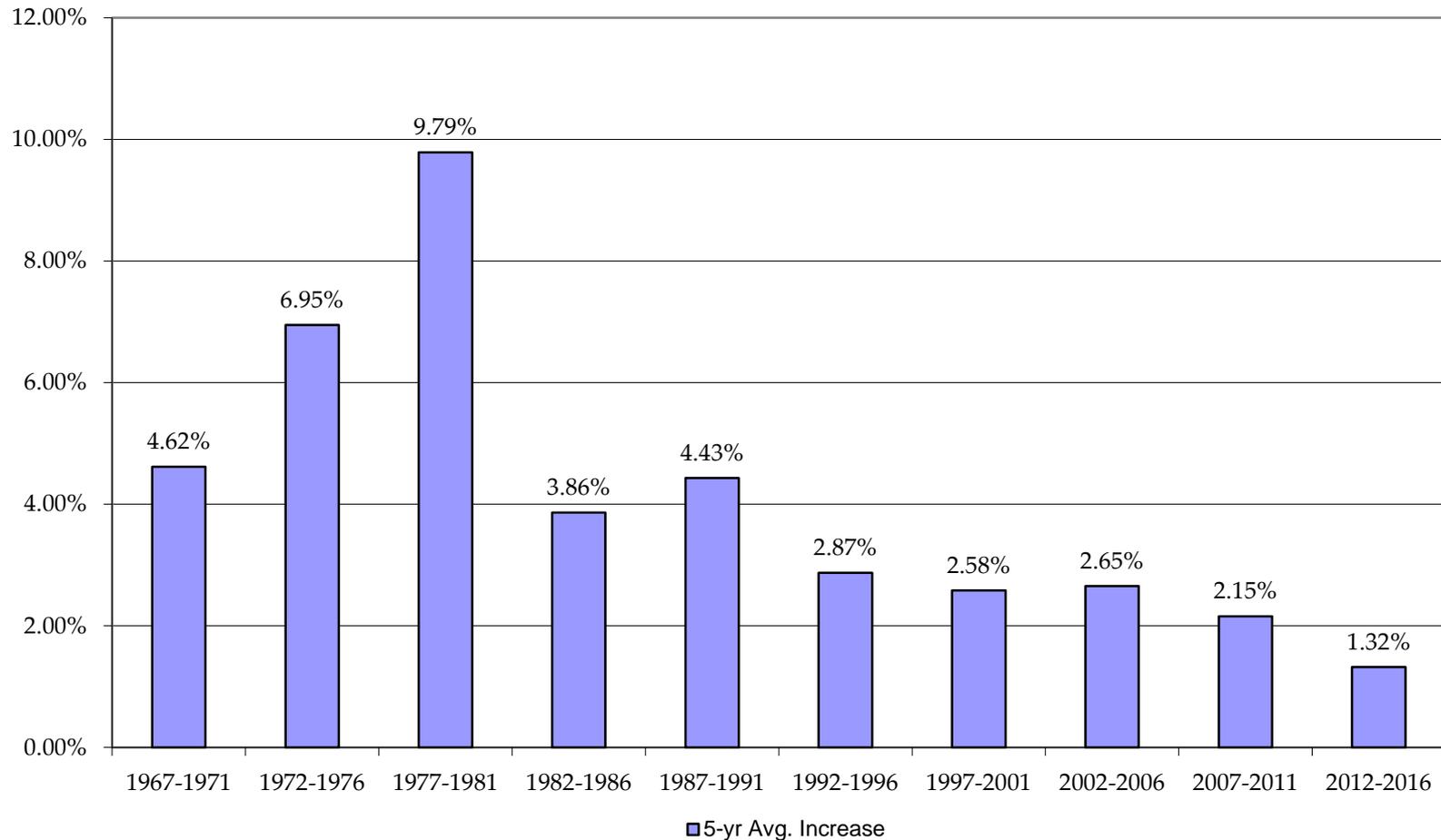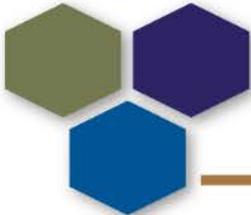
Inflation

- **2016 Capital Market Assumption Sets for Investment Consultants**
  - ► Surveyed seven investment consulting firms and long-term inflation expectations ranged from 1.56% to 2.50%
  - ► All consultants have approximately 10-year outlooks
- **Social Security Administration's 2016 Trustees Report**
  - ► Office of the Chief Actuary projecting a long-term average annual inflation rate of 2.6% under the intermediate cost assumption
  - ► Low cost assumption was 2.0% and high cost was 3.2%
- **Recommend lowering assumption to 2.50%**
  - ► Key change because inflation is key "building block" for all remaining economic assumptions

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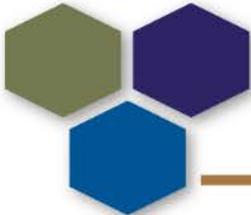
Annual COLA

- Unreduced COLA is a function of CPI increases
  - ► If change in CPI is greater than 2%, COLA=50% of change in CPI, maximum COLA=4%, minimum COLA=2%
  - ► If change in CPI is 2% or less, then COLA=100% of change in CPI
- The current COLA assumption is 2.00% per year
  - ► Based on current price inflation assumption of 3.00%
  - ► Prior to reductions of COLA when funded ratio less than 100%
- Stochastically modeled future inflation scenarios based on recommended inflation assumption of 2.50%
- Recommend COLA assumption of 1.90%
  - ► Average COLA paid based on stochastic modeling

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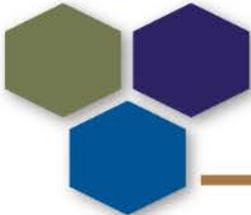
Investment Return

- The investment return rate is used to:
  - ► Anticipate the level of investment earnings that will be available to help pay plan benefits in the future
    - 60-70% of the benefit payments for many systems are paid with accumulated investment returns
  - ► Discount future expected cash flows (benefits and refunds) in order to determine the actuarial present values (liabilities)
    - Time value of money
- The current assumption is 7.75%
  - ► This is intended to be the return, net of all administrative and investment expenses
  - ► Critical assumption since even small changes in the assumption could have a big impact on the funded status of the plan
  - ► Building Blocks: 3.00% inflation + 4.75% real return

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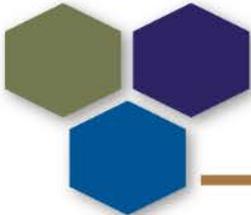
Investment Return

- Based analysis on ERB's current target asset allocation
- Modeled target allocation against capital market assumptions for seven investment consulting firms
  - ► Arithmetic average expected <u>nominal return</u> of seven investment firms is 7.73% based on 2016 capital market assumption sets
    - Expected geometric average 7.01%
  - ► We generally consider anything between the expected arithmetic and geometric returns (7.01% to 7.73%) to be reasonable
  - ► Measured net of administrative and investment expenses
- We recommend a nominal return assumption of 7.25%
  - ► Maintains current real return of 4.75%
  - ► Building Blocks: 2.50% inflation + 4.75% real return

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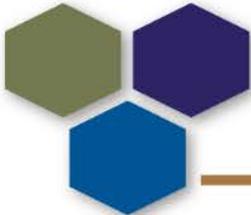
Actuarial Impact

● Results to changes in the assumed rate of inflation:

Item	Current Assumptions and Methods	Impact of Recommended Assumptions
Normal Cost % (member and employer)	13.00%	13.62%
Unfunded actuarial accrued liability (UAAL)	$ 6,630 million	$ 7,438 million
Funded Ratio	64.2%	61.5%
Funding Policy Contribution (employer only)	17.30%	19.85%
Funding Period – Actuarial Valuation	44.9 years	139.4 years
Funding Period – Open Group Projection	46 years	84 years

Comparison of results based on the valuation as of
June 30, 2016.

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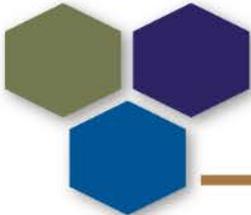
Conclusion

- Recommend following assumption changes:
  - ▶ Decrease inflation assumption from 3.00% to 2.50%
  - ▶ Decrease nominal investment return assumption from 7.75% to 7.25%
    - • Maintain real rate of return assumption of 4.75%
  - ▶ Decrease wage inflation from 3.75% to 3.25%
  - ▶ Decrease payroll growth assumption from 3.50% to 3.00%
  - ▶ Decrease the annual assumed COLA from 2.00% to 1.90%
- Recommend the Board adopt proposed assumptions for valuations as of June 30, 2017 and thereafter, until next experience study

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ERB Actuarials at a Glance

Fiscal Year	6/30/14 Valuation	6/30/14 Experience Study	6/30/15 Valuation	6/30/16 Valuation	6/30/16 Experience Study
UAAL	$6.3B	$6.6B	$6.5B	$6.6B	$7.4B
Funded Ratio	63.1%	62.0%	63.7%	64.2%	61.5%
Funding Period	26 years	32 years	37 years	46 years	84 years

- Contribution rates
- Retirement eligibility
- Vesting period
- Retirement benefit:
 - Final average salary
  - Multiplier
- Cost of living adjustment

Environmental Factors- Actives and Payroll

Active Members and Total Payroll

25 & Out vs. Other Eligibilities

Normal Cost by Tier
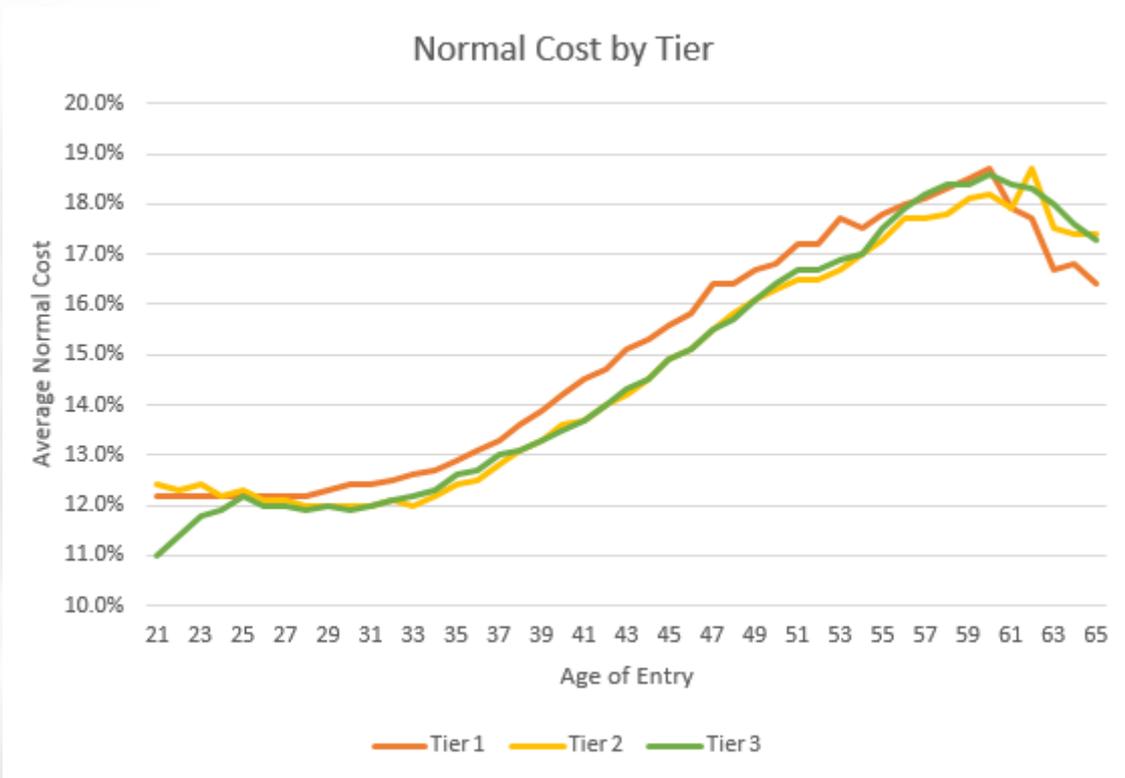
Return to Work by School Type as of 06/30/15		
	RTW	**RTW <$20K**
K-12	921	144
Higher Ed	199	30
Special Schools	8	0
State Agencies	12	0
Total	1,140	174

Return to Work by Job Category as of 06/30/15		
	RTW	**RTW <$20K**
Administrator	110	2
Teacher	556	42
Other Certified	110	14
Non-Certified	167	104
Blank	197	12
Total	1,140	174

Return to Work vs. Working Longer

- Retirees that return to work will accumulate more income in the short term; however, there will eventually be a "crossover date" where the retiree will accumulate more income by continuing to work than with participating in the RTW Program.

- The longer the retiree participates in the RTW Program, the longer it takes to attain the crossover date.

- The greater the number of years worked, the earlier the crossover.

- The higher the assumed earnings rate, the later the crossover.

Nonpayment of contributions by PERA retirees and RTW Exception Rule

Information for Fiscal Year 2015	Total Wages		Employee- $20K or less 7.90%; Over $20K 10.70%		Employer- $20K or less 13.90%; Over $20K 13.90%	
RTW Exception: <.25 FTE	$	8,169,238.49	$	874,108.52	$	1,135,524.15
RTW Exception: <$15K	$	6,257,358.20	$	494,331.30	$	869,772.79
	$	14,426,596.69	$	1,368,439.82	$	2,005,296.94
PERA RTW	$	15,914,313.47	$	1,702,831.54	$	2,212,089.57
PERA RTW < $20K	$	3,599,616.40	$	284,369.70	$	500,346.68
	$	19,513,929.87	$	1,987,201.24	$	2,712,436.25
	$	33,940,526.56	$	3,355,641.05	$	4,717,733.19

Substitute teachers

?

Perception of abuse:

   - Spiking

   - Work 20 years part-time then 5 years full-time

Contributions + Investment income = Benefits

We can make changes to:

Contributions-

Employer

Employee

Benefits-

Current members/retirees- can only change COLA

Future members- can change all aspects of plan design:

retirement eligibility, multiplier, COLA, minimum retirement age, FAS and vesting

- Investment gains totaled $1.36B.

- Assets increased by $967million during the fiscal year.

- The fund paid out more than $1 billion in benefits during the fiscal year.

- ERB reached a new high in assets on June 30, 2017 of $12.3 billion.

- Investments returned 12.0% net of fees for the fiscal year.

- Investment returns lagged the median return for U.S. pension funds > $1 billion for the fiscal year. This is as expected given the market conditions with ERB's relatively conservative asset allocation.

- For all periods longer than a year, ERB exceeded the median return.

- Portfolio results slightly lagged the ERB policy index for the fiscal year, but outperformed in all longer periods. The lag in the one year period is largely due to the portfolio holding a larger than target cash position in the fiscal year.
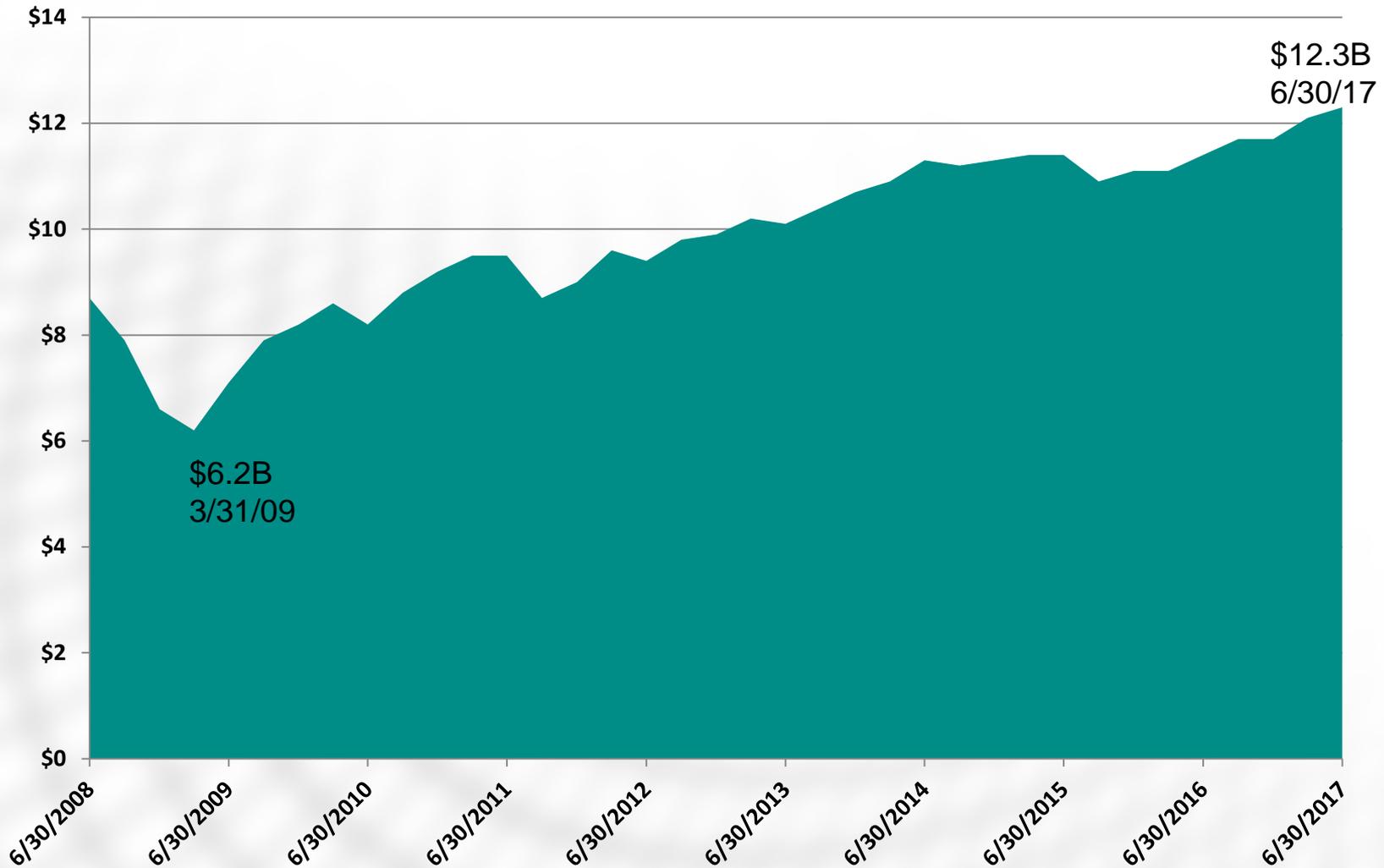
NMERB Annualized Returns
As of June 30, 2017
Net of Fees
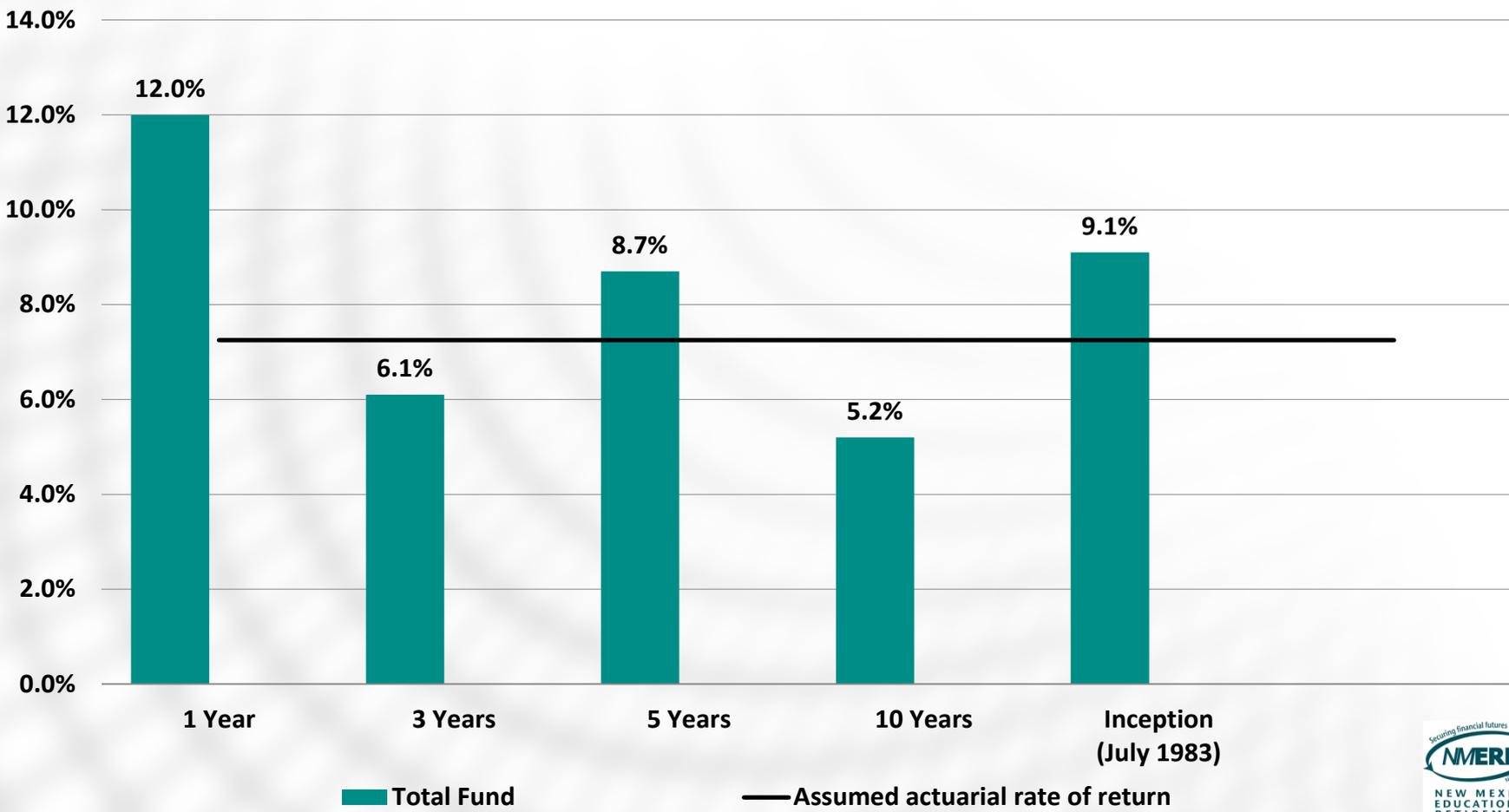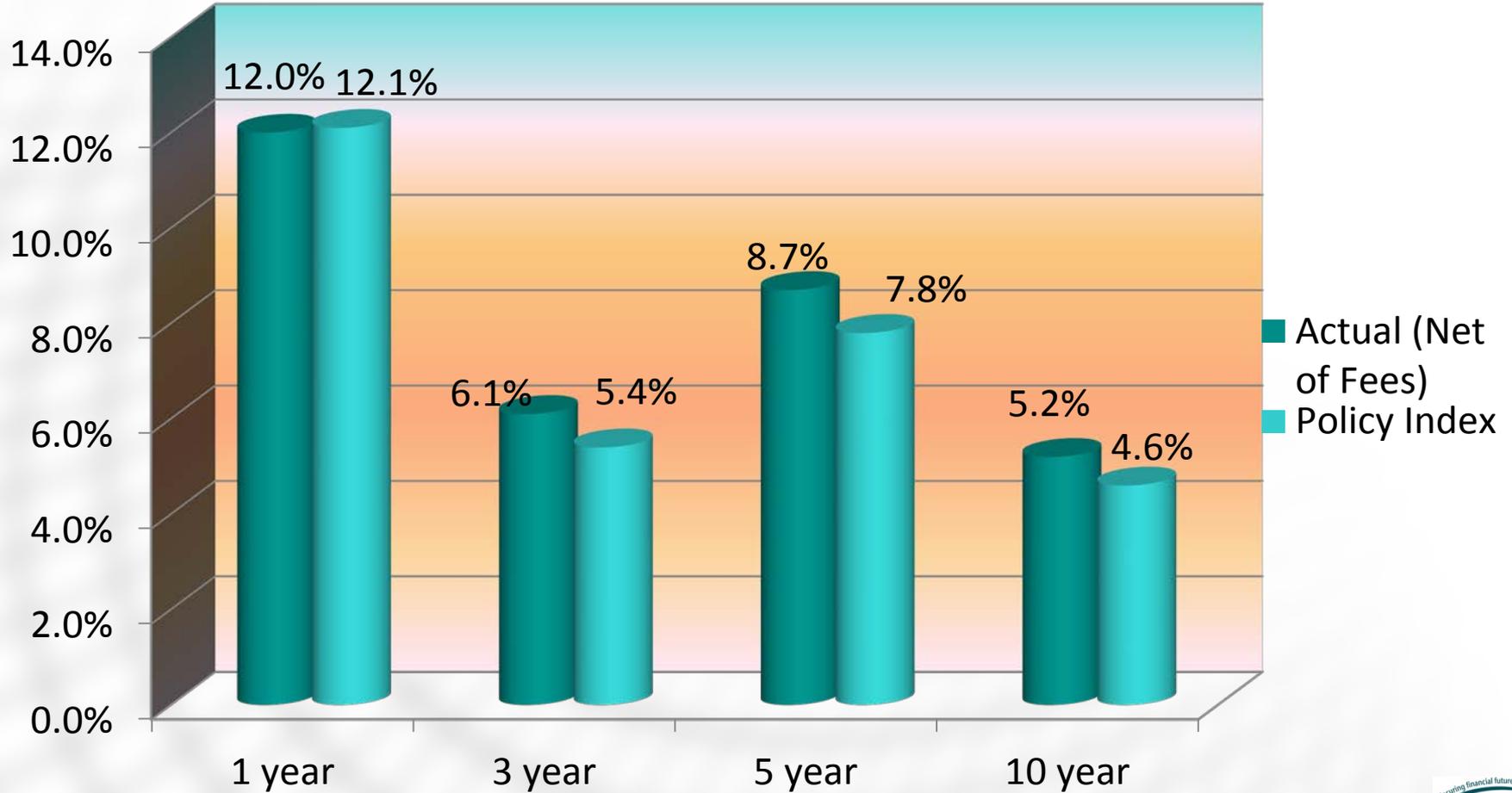
June 30, 2017 Universe Rankings

	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	30 Years
ERB Portfolio Net Return	12.0%	6.1%	8.7%	5.2%	7.3%	6.4%	9.1%
Investor Force Median	12.6%	5.1%	8.7%	4.7%	6.8%	6.3%	7.8%
ERB Percentile Rank	69	9	49	27	22	38	9

Comparative Risk and Return

5 Years Ending June 30, 2017

10 Years Ending June 30, 2017

Current Allocation — bar chart values (top to bottom): 16.3%, 2.4%, 4.8%, 9.8%, 8.0%, 18.8%, 1.8%, 0.0%, 10.0%, 7.3%, 11.3%, 6.3%, 3.3%

Policy Target — bar chart values (top to bottom): 18.0%, 2.0%, 5.0%, 10.0%, 6.0%, 20.0%, 2.0%, 6.0%, 10.0%, 7.0%, 11.0%, 8.0%, 1.0%
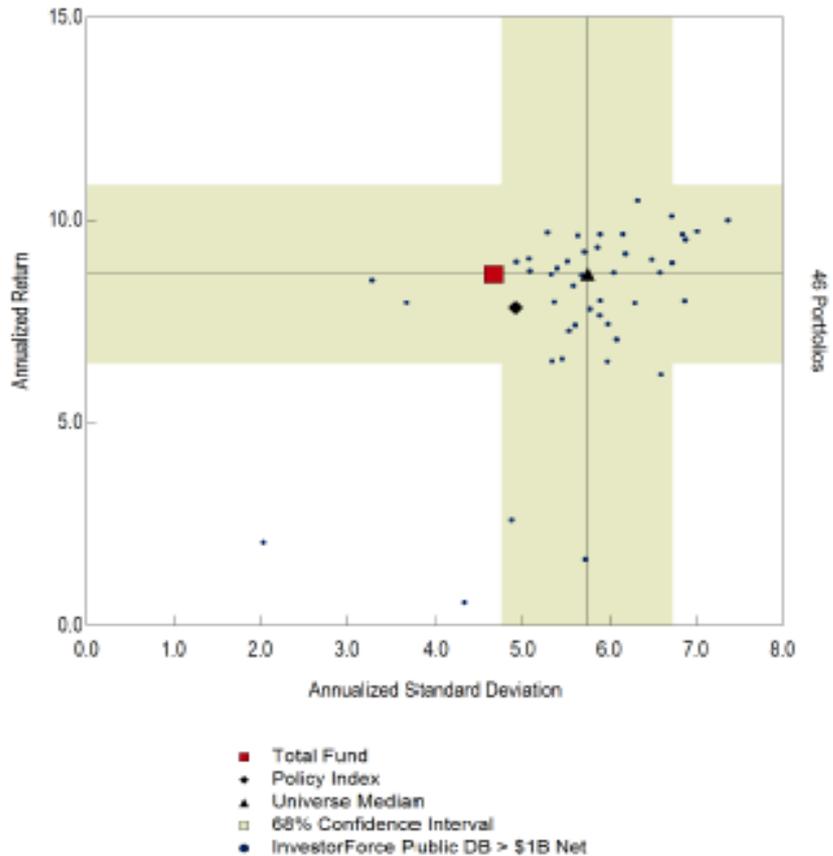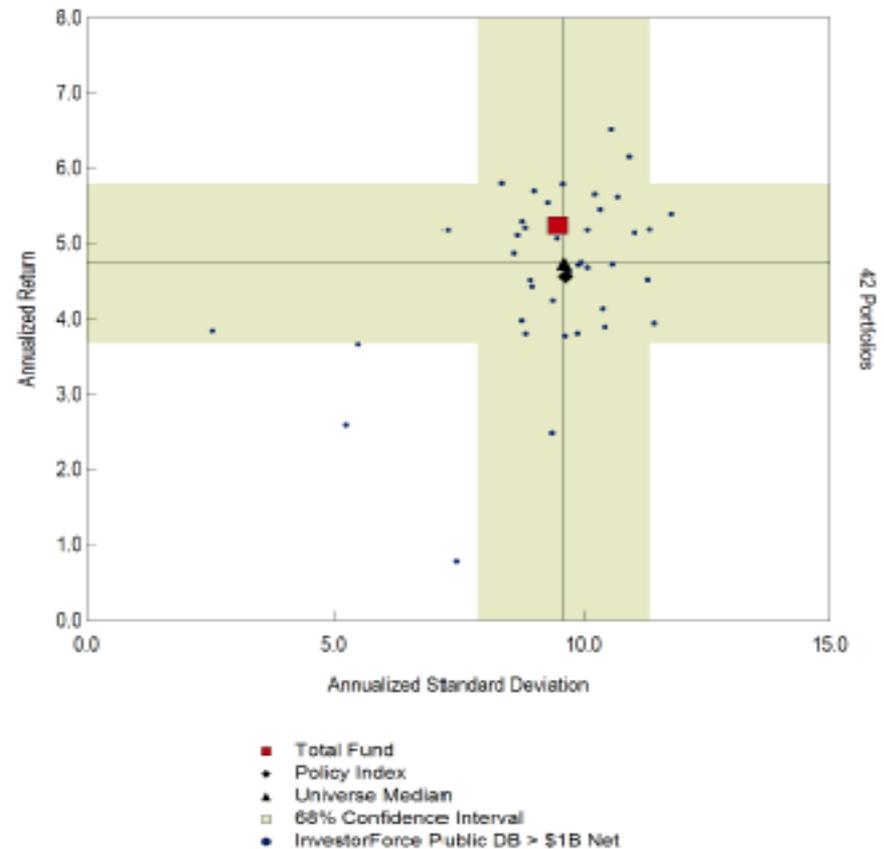
	Current Mkt Value	Current Allocation	Policy Target[1]	Difference	Policy Range	Within Range
Equity	$4,105,336,761	33.3%	35.0%	-1.7%	20% - 55%	Yes
U.S. Equity	$2,306,612,638	18.7%	20.0%	-1.3%	15% - 30%	Yes
U.S. Large Cap Equity	$2,009,687,198	16.3%	18.0%	-1.7%	15% - 25%	Yes
U.S. Small/Mid Cap Equity	$296,925,440	2.4%	2.0%	0.4%	0% - 5%	Yes
Non-U.S. Equity	$1,798,724,123	14.6%	15.0%	-0.4%	5% - 25%	Yes
Non-U.S. Developed Mkts	$592,992,257	4.8%	5.0%	-0.2%	0% - 10%	Yes
Non-U.S. Emerging Mkts	$1,205,731,866	9.8%	10.0%	-0.2%	5% - 15%	Yes
Fixed Income	$3,515,861,684	28.5%	28.0%	0.5%	10% - 40%	Yes
Core Fixed Income	$983,174,925	8.0%	6.0%	2.0%	0% - 15%	Yes
Opportunistic Credit	$2,316,650,789	18.8%	20.0%	-1.2%	0% - 30%	Yes
Emerging Mkts Debt	$216,035,970	1.8%	2.0%	-0.2%	0% - 8%	Yes
Alternatives	$4,303,750,981	34.9%	36.0%	-1.1%	10% - 40%	Yes
Absolute Return	$577,139	0.0%	0.0%	0.0%	0% - 10%	Yes
Global Asset Allocation/Risk Parity	$1,230,523,551	10.0%	10.0%	0.0%		
Global Asset Allocation	$601,965,199	4.9%	5.0%	-0.1%	0% - 10%	Yes
Risk Parity	$628,558,353	5.1%	5.0%	0.1%	0% - 10%	Yes
Real Estate	$899,639,445	7.3%	7.0%	0.3%	0% - 10%	Yes
REITs	$356,322,243	2.9%	3.0%	-0.1%		
Private Real Estate	$543,317,202	4.4%	4.0%	0.4%		
Private Equity	$1,393,923,377	11.3%	11.0%	0.3%	0% - 15%	Yes
Inflation-Linked Assets	$779,087,468	6.3%	8.0%	-1.7%	0% - 12%	Yes
Cash	$408,526,608	3.3%	1.0%	2.3%	0% - 10%	Yes
Total	$12,333,534,379	100.0%	100.0%	0.0%		

[1] Long-Term Policy Target approved by the Board in June 2014.

Note: Allocations shown here include cash held in separately managed portfolios.

Totals may not add to 100% due to rounding. Total Plan includes Legacy Assets portfolio totaling $58,345.

EDUCATIONAL RETIREMENT BOARD

ERB Retirement Eligibility: Tier Structure

Tier 1: ERB Membership Prior to July 1, 2010

* "25 and Out" – Earned service credits + allowed service credits = 25 or more years. There is no minimum age required.

* "Rule of 75" – Your age + earned service credits = 75 or more. Under the Rule of 75, allowed service credits are used to calculate retirement benefit but do not count toward eligibility. There are permanent and significant reductions if you are under age 60, and even more if you are under age 55.

• "65 and 5" – If you are at least 65 years old and have at least five years of earned service credit, you are eligible for retirement.

Tier 2: ERB Membership Beginning on or after July 1, 2010, but prior to July 1, 2013

* "30 and Out" – Earned service credits + allowed service credits = 30 or more years. There is no minimum age required.

* "Rule of 80" – Your age + earned service credits = 80 or more. As with the Rule of 75, allowed service credits are used to calculate retirement benefit but do not count toward eligibility. There are permanent and significant reductions if you are under age 65, and even more if you are under age 60.

* "67 and 5" – If you are at least 67 years old and have at least five years of earned service credit, you are eligible for retirement.

Tier 3: ERB Membership Beginning on or after July 1, 2013

* Same retirement eligibilities as immediately above. If member receives pension benefit before age 55 with 30 and Out retirement eligibility, benefit will be actuarially reduced.

* Cost of Living Adjustment (COLA) begins at age 67 or on July 1 of the year following member's effective retirement date, whichever is later.

ERB Benefit Structure

* Final average salary (FAS) x service credit x .0235 = annual benefit

* Cost Of Living Adjustment (COLA) available on July 1 of the year in which you reach age 65 or on July 1 of the year following member's effective retirement date, whichever is later for Tier 1 and Tier 2 members. For Tier 3 members, COLA begins at age 67 or on July 1 of the year following member's effective retirement date, whichever is later. The amount depends on the annual change in the Consumer Price Index (CPI). The average COLA over time has been 2%. COLA was reduced as part of the 2013 sustainability bill until ERB is 100% funded.

* Five year vesting period

• No minimum retirement age (with exception of reductions in Rule of 75 and Rule of 80)

Examples of retirement percentage rates:

25 years x .0235 = 58.75%   30 years x .0235 = 70.5%   35 years x .0235 = 82.25%

History of ERB Retirement Benefits			
YEAR	RETIREMENT ELIGIBILITY	MULTIPLIER	COLA
1962	30 years of service with actuarial reduction if younger than age 60 Age 60 with 15 years of service	1.5% first $4,000 of Final Average Salary (FAS) and 1% thereafter	Ad Hoc
1965	30 years of service with actuarial reduction if younger than age 60 Age 60 with 15 years' service Age 65 with 10 years of service	SAME	Ad Hoc
1971	35 years of service 30 years of service with actuarial reduction if younger than age 60 Age 60 with 15 years of service Age 65 with 5 years of service	1.50%	Ad Hoc
1974	35 years of service Rule of 75 with reduction if younger than age 60 Age 65 with 5 years of service	1.5% for years before July 1, 1957 2% for years after July 1, 1957	Ad Hoc
1979	SAME	SAME	Based on change in CPI, capped at 2%. Can decrease - but not below original retirement benefit. Begins after 4 years of retirement.
1981	30 years of service Rule of 75 with reduction if younger than age Age 65 with 5 years of service	SAME	SAME
1984	25 years of service Rule of 75 with reduction if younger than age 60 Age 65 with 5 years of service	SAME	Based on change in CPI, capped at 4%. On average, 2%. Begins the later of age 65 or one year following retirement.
1987	SAME	2.15%	SAME
1991	SAME	2.35%	SAME
2010	SAME	SAME	Elimination of negative COLA
2010	Hired prior to 7/1/2010: SAME Hired after 7/1/2010: 30 years of service Rule of 80 with reduction if younger than 65 Age 67 with 5 years of service	SAME	SAME
2013	Hired after 7/1/2013: Actuarially reduced benefit if member retires with 30 years of service and is younger than age 55	SAME	Hired after 7/1/2013: COLA begins at later of age 67 or one year following retirement **Until ERB is > 90% funded:** Retirees with benefits at or below the median AND with 25 or more years' service have a 10% COLA reduction from statutory COLA formula. All other retirees have a 20% COLA reduction. **ERB Funding >90% <100%** Retirees with benefits at or below the median AND with 25 or more years' service have a 5% COLA reduction from statutory COLA formula. All other retirees have a 10% COLA reduction. **ERB Funding=100%** COLA reductions cease.

SCHEDULE OF CONTRIBUTION RATES

Fiscal Year	Wage category	Date Range	Member Rate	Employer Rate	Total	% of Total Contribution Employee Pays
58-59		7/1/1957 -6/30/1959	3.00%	4.00%	7.00%	42.86%
60-74		7/1/1959 -6/30/1974	4.00%	6.50%	10.50%	38.10%
75-79		7/1/1974 -6/30/1979	5.50%	6.50%	12.00%	45.83%
80-81		7/1/1979 -6/30/1981	6.50%	6.50%	13.00%	50.00%
82-84		7/1/1981 -6/30/1984	6.80%	6.80%	13.60%	50.00%
85-93		7/1/1984 -6/30/1993	7.60%	7.60%	15.20%	50.00%
94-2005		7/1/1993 -6/30/2005	7.60%	8.65%	16.25%	46.77%
2006		7/1/2005 -6/30/2006	7.675%	9.40%	17.075%	44.95%
2007		7/1/2006 -6/30/2007	7.75%	10.15%	17.90%	43.30%
2008		7/1/2007 -6/30/2008	7.825%	10.90%	18.725%	41.79%
2009		7/1/2008 -6/30/2009	7.90%	11.65%	19.55%	40.41%
2010 & 2011	$20k or less	7/1/2009 -6/30/2011	7.90%	12.40%	20.30%	38.92%
2010 & 2011	Over $20K	7/1/2009 -6/30/2011	9.40%	10.90%	20.30%	46.31%
2012	$20k or less	7/1/2011 - 6/30/2012	7.90%	12.40%	20.30%	38.92%
2012	Over $20K	7/1/2011 - 6/30/2012	11.15%	9.15%	20.30%	54.93%
2013	$20k or less	7/1/2012 - 6/30/2013	7.90%	12.40%	20.30%	38.92%
2013	Over $20K	7/1/2012 - 6/30/2013	9.40%	10.90%	20.30%	46.31%
2014	$20k or less	7/1/2013 - 6/30/2014	7.90%	13.15%	21.05%	37.53%
2014	Over $20K	7/1/2013 - 6/30/2014	7.90%	13.90%	21.80%	36.24%
2015	$20k or less	7/1/2014 - future	7.90%	13.90%	21.80%	36.24%
2015	Over $20K	7/1/2014 - future	10.70%	13.90%	24.60%	43.50%

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