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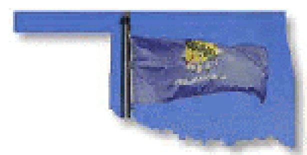

Oklahoma State Pension Commission

Summary of Actuarial Reports

February 20, 2013

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- **NEPC is asked to review the Oklahoma State Pension Plans from an actuarial standpoint**

- **Oklahoma Retirement System comprises seven plans**
  - Teachers' Retirement System of Oklahoma ("Teachers")
  - Oklahoma Public Employees Retirement System ("OPERS")
  - Oklahoma Firefighters Pension and Retirement System ("Firefighters")
  - Oklahoma Police Pension and Retirement System ("Police")
  - Oklahoma Law Enforcement Retirement System ("Law Enforcement")
  - State of Oklahoma Uniform Retirement System for Justices and Judges ("Justices and Judges")
  - Retirement Plan for Full-Time Employees of the Department of Wildlife Conservation ("Wildlife")

- **Information contained in this report is based on July 1, 2012 Actuarial Valuation reports from plan actuaries[1] and system financial statements**

- **The goals of this presentation are:**
  - To present the funded position of the seven pension plans
  - To review the comprehensive return performance of both asset and liabilities
  - To assess the actuarial assumptions and methods for reasonability
  - To note changes in legislation that affect the plans

1. Buck Consultants, Cavanaugh Macdonald Consulting, and Gabriel, Roeder, Smith & Company

System Summary

- **Funded status of the overall plans has declined since the July 2011 valuations**
  - Aggregate funded status for the plans was **64.9%** as of July 1, 2012 vs. 66.7% as of July 1, 2011
- **Average asset return on the plans' Market Value was 1.4% for the fiscal year ending June 30, 2012**
  - However, average asset return on the plans' Actuarial Value was **3.4%** for the fiscal year ending June 30, 2012
    - Gains and losses recognized over 5 years; still smoothing in 2008-09 losses (final year)
    - Lower than the 7.0% to 8.0% assumed
- **Major legislative actions from last year are now fully reflected in valuations**
  - Removal of COLAs
  - Increases to retirement ages for some participants
- **Teachers' plan remains the largest and most poorly funded of the seven plans**
  - $18.6 billion in liabilities, $10.2 billion in assets, 54.8% funded
  - If current funding and benefit levels continue, Unfunded Accrued Liability will be funded after 22 years (same as 2011)
    - Prior to 2011, actuaries projected the period needed to fund Unfunded Accrued Liability as "infinite"

Recent Public Pension Fund Trends

- **Reducing long-term expected return on assets assumption**
  - Median plan now below 8% for the first time (7.8%)

- **Slower liability growth**
  - Benefit reductions
  - Declining number of state/local government jobs

- **Increased use of alternative assets**
  - Cash flow dynamics of each plan (contributions vs. benefit payments) lead to differences in appetite for illiquidity

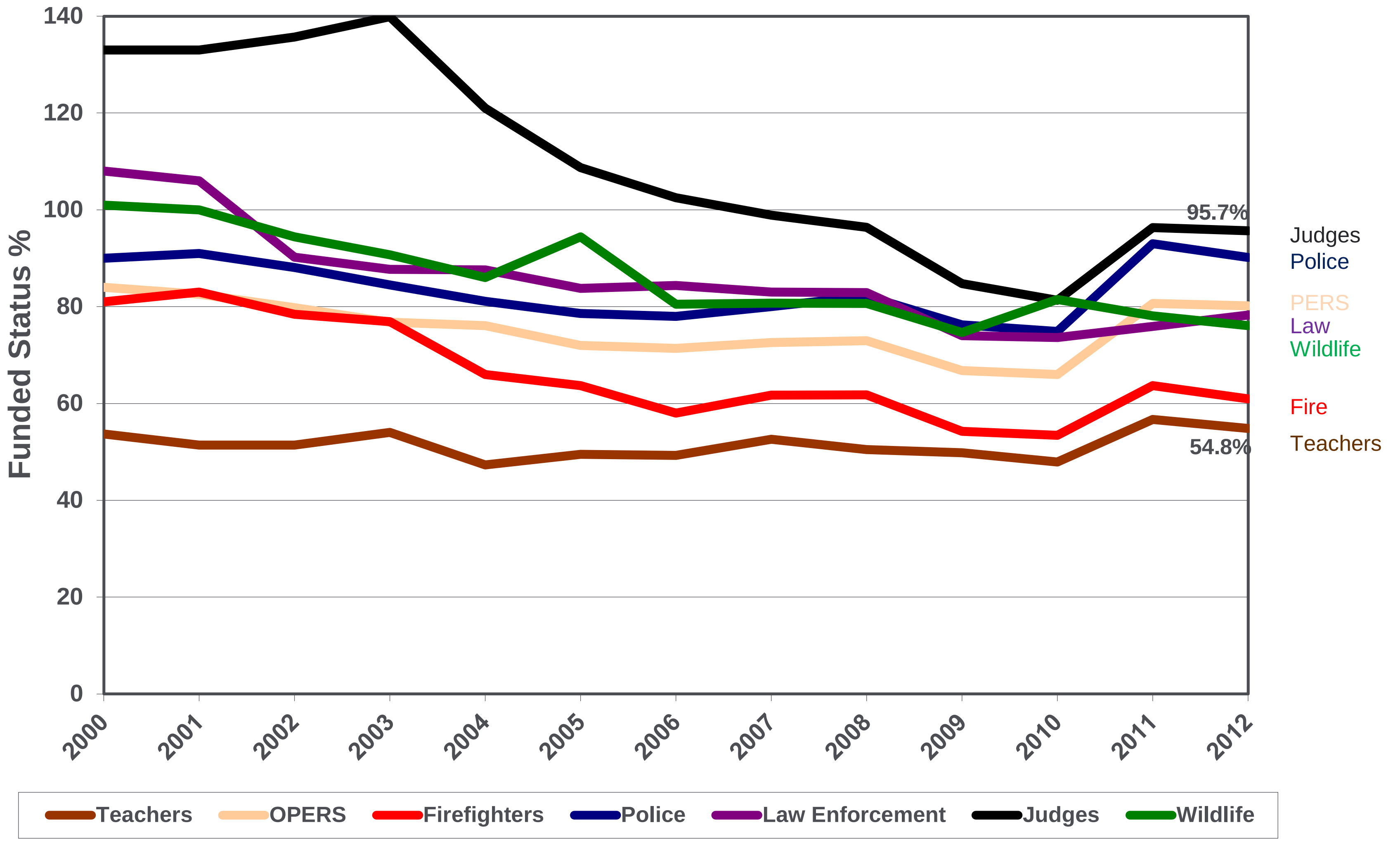
System Summary – Funded Position

Plan	Actuarial Value of Assets (in millions)	Actuarial Accrued Liability (in millions)	Funded Status as of 7/1/2012	Funded Status as of 7/1/2011
Teachers	$10,190	$18,588	**54.8%**	56.7%
Public Employees (OPERS)	$6,682	$8,335	**80.2%**	80.7%
Firefighters	$1,759	$2,886	**60.9%**	63.7%
Police	$1,834	$2,034	**90.2%**	93.0%
Law Enforcement	$688	$879	**78.3%**	75.9%
Judges	$239	$249	**95.7%**	96.4%
Wildlife	$77	$101	**76.1%**	78.1%
Total	**$21,468**	**$33,072**	**64.9%**	66.7%

- **Aggregate funded status of the plans declined since 2011**
  - Asset returns were positive but below expectations
    - 1.4% return on Market Value basis, 3.4% return on Actuarial Value basis
  - Liabilities grew by 4.3%

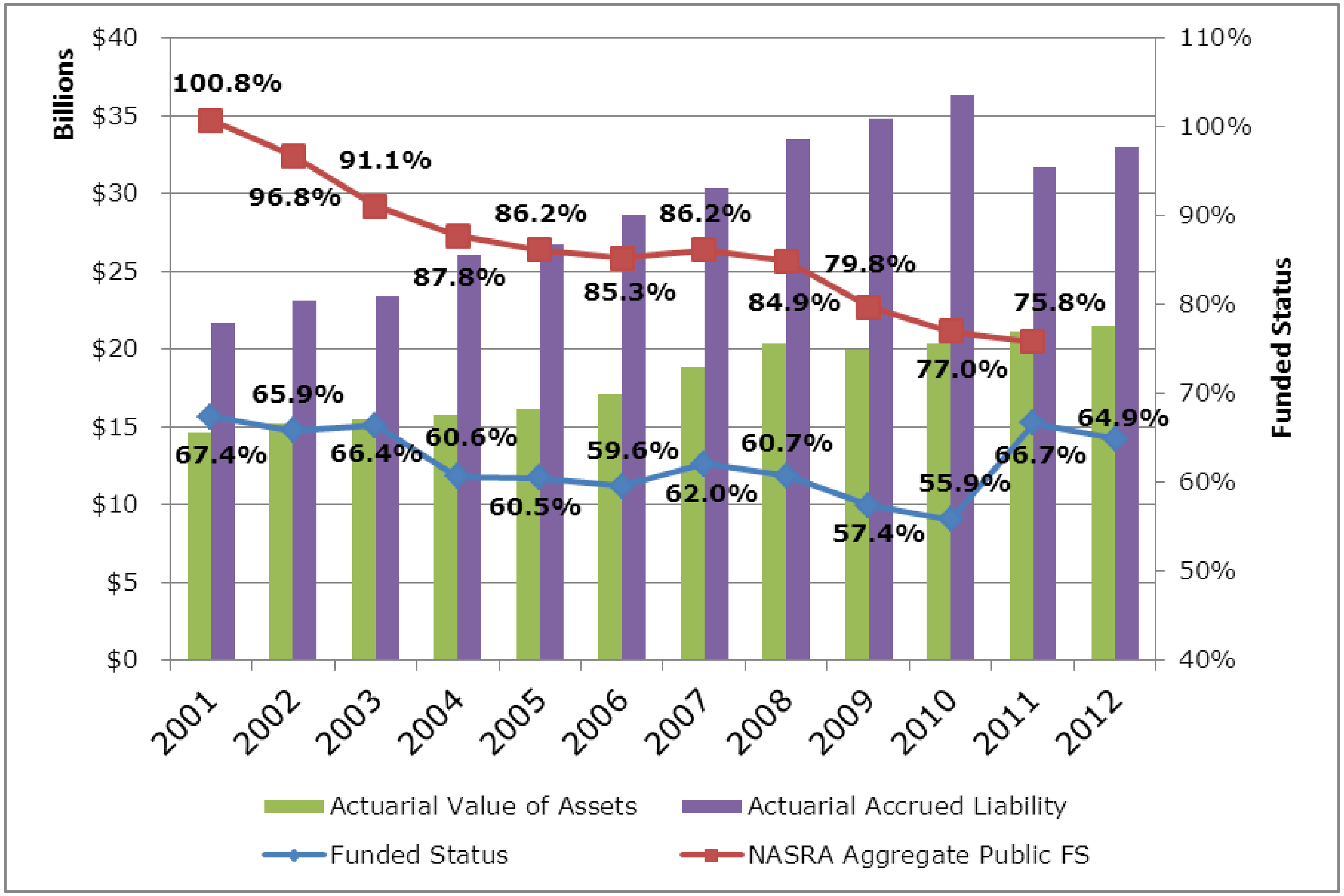
- **Law Enforcement changed several assumptions which resulted in lower accrued liabilities**
  - More than offset funded status declines from investment performance

Funded Status History (Actuarial Basis)



Sources: 1999 and earlier: R.V. Kuhns & Associates,
2000 and later: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company
2010: Buck Consultants, Cavanaugh Macdonald Consulting, and Gabriel, Roeder, Smith & Company

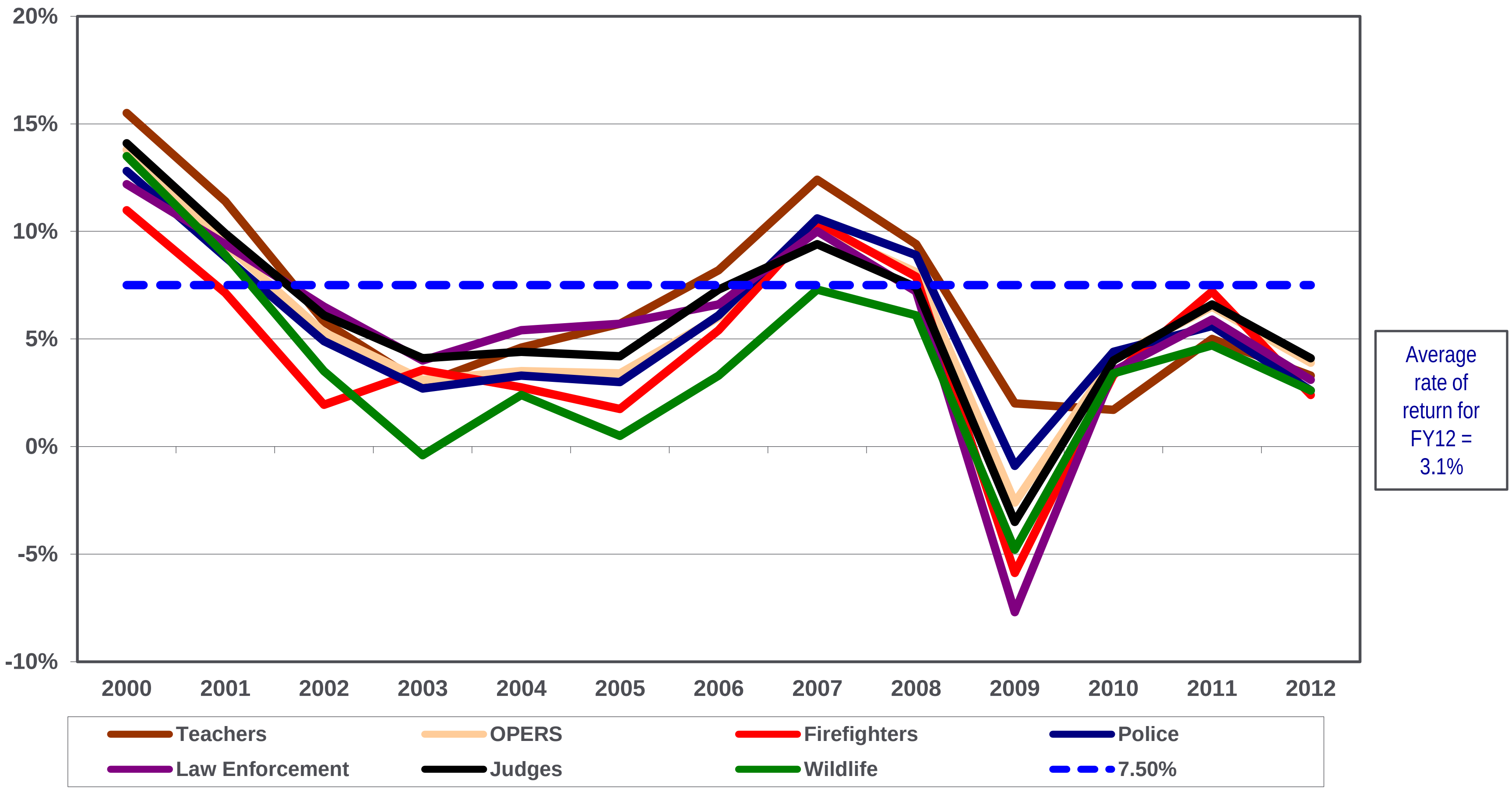
Funded Status History vs. Average Public Fund (Combined Plans)



- **Funded status has consistently trailed the average public plan[1], but some convergence in 2011 after legislative changes implemented**

1. Average public plan results from the Public Fund Survey Summary Findings for FY 2011 (published November 2012 by the National Association of State Retirement Administrators), representing 85% of the state/local government pension community

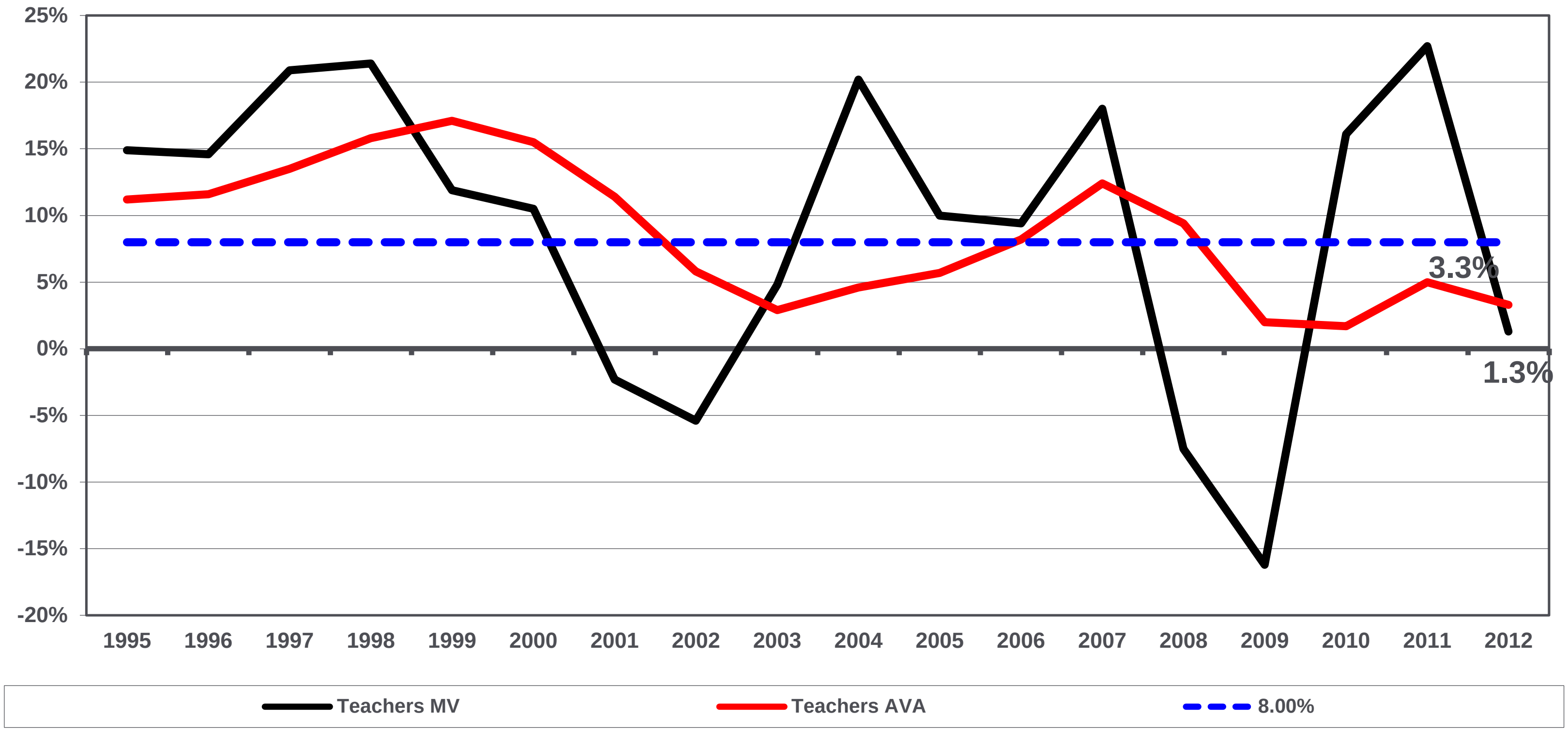
Investment Return on Actuarial Value of Assets



- **Largely due to 2008-09 losses, actuarial investment returns have fallen short of assumptions over the last several years**

Sources: 1999 and earlier: R.V. Kuhns & Associates,
2000 and later: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company
2010: Buck Consultants, Cavanaugh Macdonald Consulting, and Gabriel, Roeder, Smith & Company

Investment Return (Teachers)



- **Actuarial Value is now fairly close to Market Value, as losses (2008-09) and gains (2009-11) are smoothed over 5 years**
- **FY 12 was last year for partial recognition of 2008-09 losses, meaning AV is likely to trail MV next year**

Sources: 1999 and earlier: R.V. Kuhns & Associates,
2000 and later: Gabriel, Roeder, Smith & Company

- **House Bill 2321 (OPERS)**
  - Eliminates six-month rounding to years of service; actual years and months will be credited
- **House Bill 2322 (OPERS)**
  - Permits elected officials to participate in the "Step Up" program, which allows members to pay an extra 2.91% of their pay for an increased benefit multiplier of 2.5%
- **House Bill 2939 (OPERS)**
  - Education employees who were transferred to OPERS under IT consolidation bill were provided the option to transfer back to Oklahoma Teachers Retirement System (OTRS)
  - OPERS will have to refund contributions collected since the transfer; members will also have their service transferred to OTRS
  - One-time option; must be exercised within 30 days of the effective date of the bill
- **Senate Bill 1001 (Law Enforcement)**
  - Increased agency contribution rate to 11% pay as of November 1, 2012
  - Eliminated half-pay for certain members hired on or after November 1, 2012

- **The following table summarizes the post-employee contribution requirements and mandated contribution rates for the 2012 and 2013 fiscal years**

	FY 2012 Contribution Requirements			FY 2013 Contribution Requirements	
Pension Plan	**Total post-EE Contribution as % Pay**	**Total post-EE Contribution Required ($)**	**Actual post-EE Contribution ($)**	**Total post-EE Contribution as % Pay**	**Total post-EE Contribution Required ($)**
Teachers	14.9%	$588	$682	15.1%	$620
OPERS	15.3%	$240	$263	15.7%	$257
Firefighters	58.4%	$142	$101	62.1%	$159
Police	25.5%	$65	$61	30.1%	$79
Law Enforcement	68.5%	$49	$26	62.5%	$45
Judges	21.4%	$7	$4	22.2%	$7
Wildlife	26.0%	$4	$4	29.1%	$4
Total as % of Payroll	**17.7%**		**18.4%**	**18.9%**	
Total in Millions $	**$1,094**	**$1,094**	**$1,141**	**$1,171**	**$1,171**

- **For fiscal year ending 2012, the GASB recommended contribution to the Oklahoma pension plans was $1.09 billion (17.7% of payroll)**
  - $1.14 billion was actually contributed, or 104% of required amount (ARC)
  - Average percentage of Required Contribution (ARC) paid by public plans was approx. 86% in 2011[1]
- **For fiscal year ending 2013, the GASB recommended contribution is $1.17 billion (or 18.9% of payroll)**
  - Current year contributions are in line with last year's amounts

1. Results from the Public Fund Survey Summary Findings for FY 2011, published November 2012 by the National Association of State Retirement Administrators

Contribution History – State and Municipalities

Required **Employer Contribution (assuming GASB 25 funding requirements) - After reduction for estimated Employee contributions**

	7/1/02	7/1/03	7/1/04	7/1/05	7/1/06	7/1/07	7/1/08	7/1/09	7/1/10	7/1/11	7/1/12
Teachers*	$585	$535	$722	$535	$576	$591	$714	$742	$822	$588	$620
OPERS	$233	$257	$266	$310	$339	$364	$323	$389	$402	$240	$257
Firefighters**	$77	$74	$107	$118	$147	$147	$158	$187	$196	$142	$159
Police**	$72	$64	$74	$85	$95	$101	$103	$132	$147	$65	$79
Law Enforcement**	$23	$25	$25	$30	$33	$33	$37	$48	$50	$49	$45
Judges	$0	$0	$2	$4	$6	$8	$8	$11	$13	$7	$7
Wildlife	$2	$2	$2	$3	$3	$3	$3	$4	$3	$4	$4
Total	**$991**	**$956**	**$1,198**	**$1,086**	**$1,197**	**$1,246**	**$1,374**	**$1,514**	**$1,633**	**$1,094**	**$1,171**

Actual **Employer Contribution**

	7/1/02	7/1/03	7/1/04	7/1/05	7/1/06	7/1/07	7/1/08	7/1/09	7/1/10	7/1/11	7/1/12
Teachers*	$362	$375	$406	$460	$536	$597	$619	$621	$638	$682	TBD
OPERS	$138	$134	$140	$171	$198	$220	$243	$260	$253	$263	TBD
Firefighters**	$73	$23	$82	$82	$118	$83	$83	$82	$92	$101	TBD
Police**	$44	$24	$49	$50	$56	$56	$59	$55	$56	$61	TBD
Law Enforcement**	$21	$13	$21	$22	$24	$25	$25	$23	$25	$26	TBD
Judges	--	--	$1	$1	$1	$2	$2	$9	$3	$4	TBD
Wildlife	$1	$1	$3	$3	$3	$3	$3	$4	$3	$4	TBD
Total	**$639**	**$570**	**$701**	**$788**	**$936**	**$986**	**$1,034**	**$1,054**	**$1,070**	**$1,141**	**TBD**

Percent of Required Employer Contribution Actually Contributed

	7/1/02	7/1/03	7/1/04	7/1/05	7/1/06	7/1/07	7/1/08	7/1/09	7/1/10	7/1/11	7/1/12
Teachers*	62%	70%	56%	86%	93%	101%	87%	84%	78%	116%	TBD
OPERS	59%	52%	53%	55%	58%	61%	75%	67%	63%	110%	TBD
Firefighters**	95%	31%	77%	70%	80%	56%	53%	44%	47%	71%	TBD
Police**	62%	38%	66%	59%	59%	56%	57%	41%	38%	94%	TBD
Law Enforcement**	92%	53%	85%	73%	75%	77%	68%	48%	50%	53%	TBD
Judges	0%	0%	23%	18%	20%	22%	27%	81%	24%	57%	TBD
Wildlife	80%	60%	119%	96%	104%	97%	100%	100%	100%	100%	TBD
Total	**64%**	**60%**	**58%**	**73%**	**78%**	**79%**	**75%**	**70%**	**66%**	**104%**	**TBD**

* Teachers plan contributions include State, Employer, and Federal funds

** Contributions include State and Agency or Municipality funds

- **The following table summarizes the current Employee and Employer contribution rates as of July 1, 2012 as a % of payroll**

Pension Plan	EE Contribution Rate	Employer + Federal Mandated Contrib rate	Municipality / Agency Mandated Contrib rate	State Mandated Contrib rate
Teachers	7.00%	EESIP: 9.5% Non-EESIP: 8.55% Federal grants: 8.0%*		5% of tax and lottery revenue
OPERS	3.50%			16.50%
Firefighters	8.00%		13.00%	34% of insurance premium tax
Police	8.00%		13.00%	14% of insurance premium tax + a % of special tax credit fund
Law Enforcement	8.00%		11.00%	5.0% of insurance premium tax + 1.2% of drivers license tax
Judges	8.00%			13%*
Wildlife	5.00%			

* Represent FY 2013 rates

- **For comparison purposes:**
  - Median public plan employee contribution rates are 5.0% if participating in Social Security, 8.0% if not [1]
  - Median public plan employer contribution rates are 10.3% if participating in Social Security, 13.4% if not [1]

1. Results from the Public Fund Survey Summary Findings for FY 2011, published November 2012 by the National Association of State Retirement Administrators

- **The plans' assumptions are within a reasonable range**
- **All plans employ Entry Age Normal actuarial cost method, which is conservative**
- **All plans have in place long term amortization schedules to fund the Unfunded Accrued Liability**
  - However some schedules are "open" (re-determined each year) and some "closed"
  - Some plans with "closed" amortization schedules are currently amortizing over 6 or 9 years (Police and Law Enforcement, respectively)
  - These are shorter amortization timeframes than some other plans currently amortizing over …
    - 15 years (Judges and OPERS)
    - 21 years (Firefighters)
    - 30 years (Teachers)
- **All plans employ similar actuarial asset valuation methods, where gains and losses are smoothed over 5 years**
- **Investment return assumptions (8.0% for Teachers, 7.0% for Wildlife, 7.5% for all other plans) are in line with other public funds; but these (particularly 8.0% assumption) have faced increased pressure lately**
  - Median discount rate for public plans was 7.8% in 2011[1]; further declines likely
  - Sample NEPC public fund client: Our 5-7 year expected return fell from 6.8% (2012) to 6.1% (2013); 30-year expected return from 7.5% to 7.0%

1. Results from the Public Fund Survey Summary Findings for FY 2011, published November 2012 by the National Association of State Retirement Administrators

- **In aggregate, the State's plans are 64.9% funded as of June 30, 2012**
  - Funded status declined slightly in 6 out of 7 plans (Law Enforcement increased slightly)
  - Teachers' plan is the least funded at 54.8%
- **Weak asset performance in the 2012 fiscal year**
  - However, fiscal year-to-date 2013 investment performance has likely been strong
- **Several plans have taken steps to increase contribution rates to help fund liabilities**
  - Justices and Judges has scheduled increases each year until the employer contribution rate reaches 22% in FY2019 (currently 13%)
  - Law Enforcement increased agency contributions from 10% to 11% (effective November 2012)
  - Teachers' completed a series of employer contribution rate increases in FY2011
- **The plans' assumptions are within a reasonable range, but subdued investment return expectations are putting pressure on long-term ROA assumptions for many plans**
- **Rating agencies continue to scrutinize states and municipalities for debt ratings – pension plan health is one item for review**