



Metropolitan Government of Nashville and Davidson County

Actuarial Valuation as of June 30, 2015

Metro Open Pension Plan
February 2, 2016



Purpose

Purpose of the Actuarial Valuation

- To recommend a rate of pay to be contributed to the pension trust for the period July 1, 2016 – June 30, 2017
- Measure the funded status of the plan



Determining the Recommended Contribution

How is the Recommended Contribution Determined?

- Sum of-
 - The cost of benefits earned during the year (the “normal cost”)
 - Amortization of any unfunded liability
 - Interest

Desirable Characteristics of the Recommended Contribution

- Fund the benefits as they are earned
- Keep the plan well funded (80% or more)
- Be reasonably level
- Be reasonably predictable



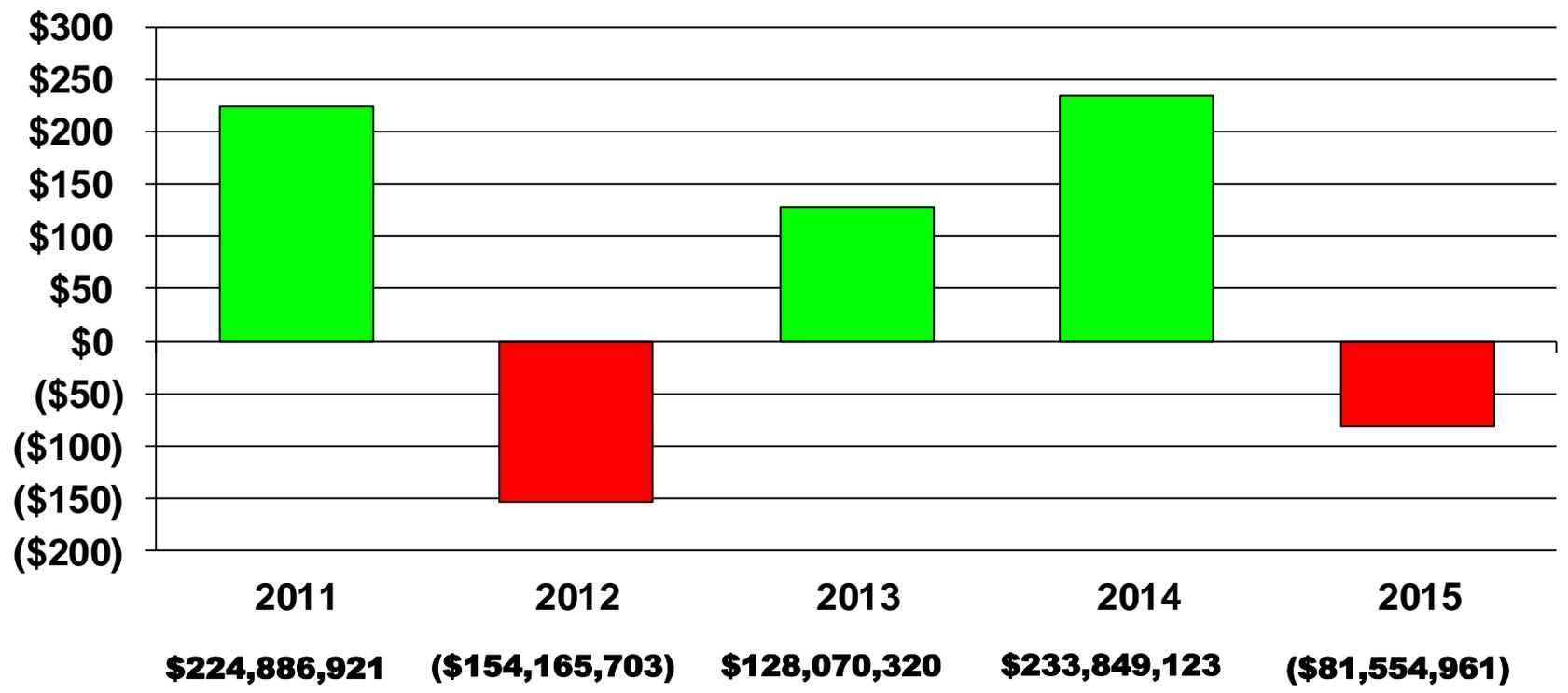
Plan Assets – Trust Activity for the Plan Year Ended June 30, 2015

Market Value of Assets on June 30, 2014	\$2,697,364,111
Contributions	94,103,892
Investment income	118,773,291
Disbursements to employees and beneficiaries	<u>(146,745,385)</u>
Market Value of Assets on June 30, 2015	\$2,763,495,909
Expected Income at 7.5%	\$200,328,252
Asset Loss to be Amortized	(\$81,554,961)



Valuation Assets - Recent Gains and Losses

Millions





Plan Assets – Determination of Actuarial Value of Assets, June 30, 2015

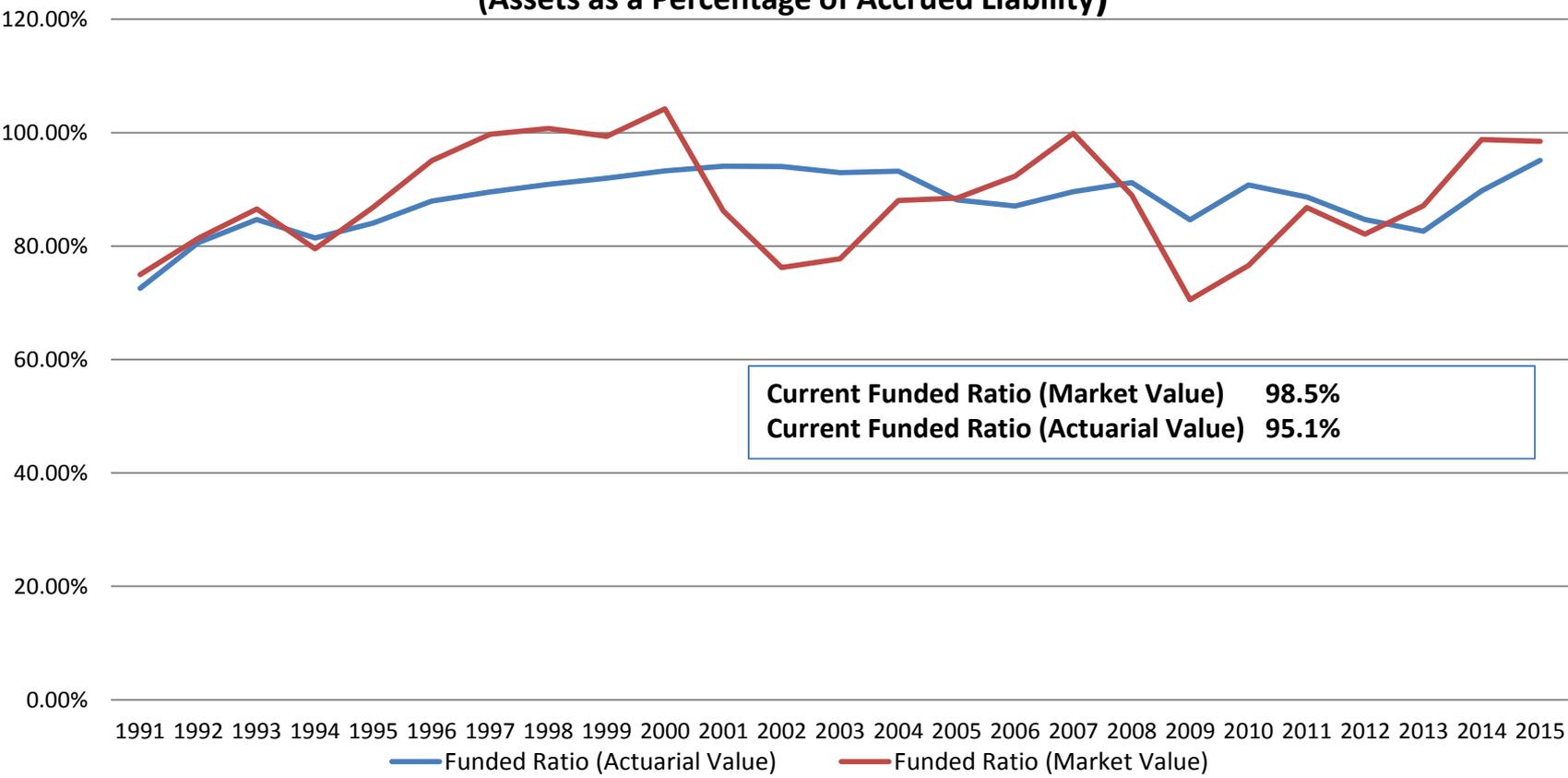
	June 30, 2015
	Valuation Assets
	<hr/>
Market Value of Assets on June 30, 2015	\$2,763,495,909
2012 Loss, Unrecognized	30,833,141
2013 Gain, Unrecognized	(51,228,128)
2014 Gain, Unrecognized	(140,309,474)
2015 Loss, Unrecognized	65,243,969
	<hr/>
Actuarial Value of Assets on June 30, 2015	\$2,668,035,417



Funded Status

Funded Ratio of the Plan

(Assets as a Percentage of Accrued Liability)





Contribution Rate – June 30, 2015

	June 30, 2015
Normal Cost	\$48,590,064
Amortization	\$14,601,064
Interest	\$2,369,668
Total	\$65,560,796
Compensation	\$531,266,978
Percent of Compensation Rate	12.340%

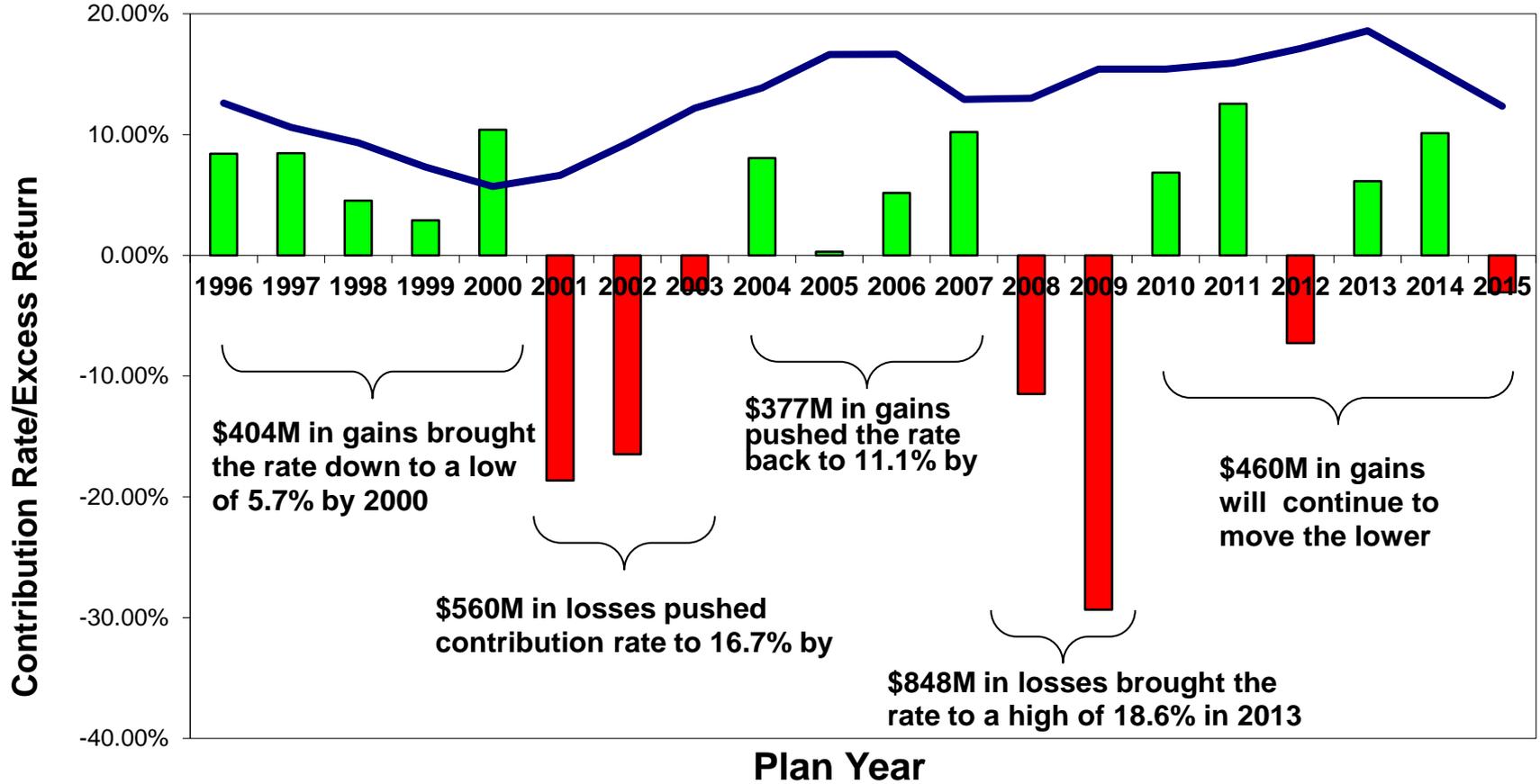


Contribution Rate – June 30, 2015

	June 30, 2015	June 30, 2014
Normal Cost	\$48,590,064	\$47,264,107
Amortization	\$14,601,064	\$29,538,765
Interest	\$2,369,668	\$2,880,107
Total	\$65,560,796	\$79,682,979
Compensation	\$531,266,978	\$513,759,048
Percent of Compensation Rate	12.340%	15.510%



Surplus/Shortfall Returns and the Contribution Rate





Contribution Rate Changes

2014 Aggregate Contribution Rate	15.510%
<i>Economic Experience (Decrease of 2.251%)</i>	
<i>Investment Return</i>	-1.827%
<i>Actual vs. Expected COLA</i>	-0.286%
<i>Actual vs. Expected Pay Increase</i>	0.214%
<i>Contribution Timing</i>	-0.352%
<i>Demographic Experience (Decrease of 0.919%)</i>	
<i>New entrants</i>	-0.178%
<i>Retiree Mortality</i>	-0.110%
<i>Turnover/Retirements</i>	-0.219%
<i>Data Corrections</i>	-0.238%
<i>Other</i>	-0.173%
2015 Aggregate Contribution Rate	12.340%



Expense Loading

	<u>Investment Expenses</u>	<u>Administrative Expenses</u>	<u>Total</u>
2014-2015 Plan Year	0.28%	0.22% *	0.50%
10-Year Average	0.41%	0.15%	0.56%

*Includes \$2,936,394 for Benefit Calculation System



Contribution Rates Percentage of Total Payroll

Minimum (Metro Code)	11.377%
Minimum (State Law)	11.620%
Recommended (15 Year Amortization)	12.340%
Optional (With $\frac{1}{2}$ of Additional Expense)	12.603%



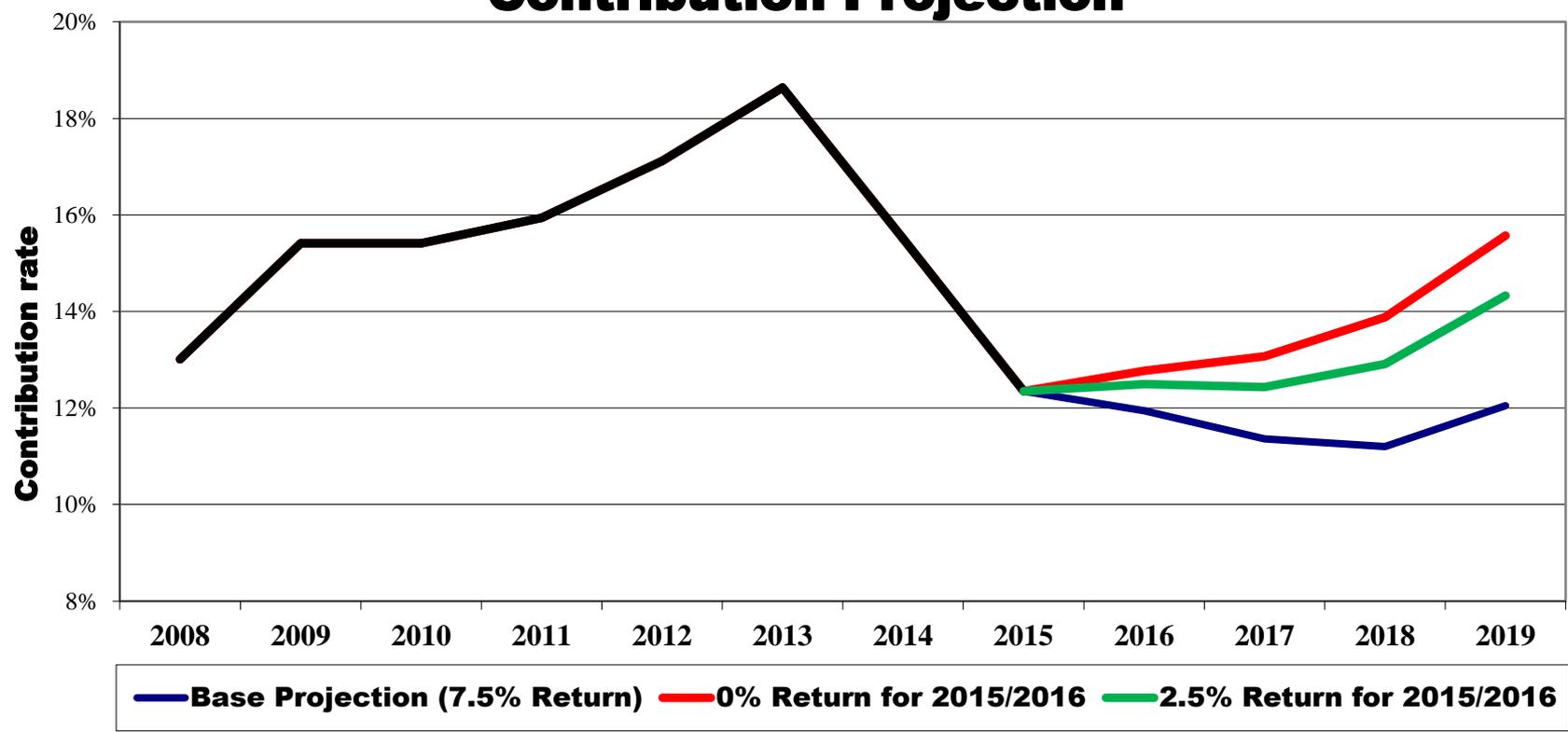
Contribution Rate Trend – Projection Assumptions

- Existing gains and losses continue to be recognized
- Three Investment return scenarios:
 - 7.5% annual return for all future years
 - 2.5% annual return for 2015-2016 with 7.5% thereafter
 - 0% annual return for 2015-2016 with 7.5% thereafter
- All other plan assumptions are realized with respect to retirements, deaths, salary increases and turnover
- Future new entrant groups are consistent with 2014-2015 new entrants



Projected Contribution Rate Trend

Metro Open Plan Contribution Projection





Questions/Discussion





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Summary of Plan Provisions

	Division A	Division B
Group Covered	Metro employees hired after April 1, 1963 and before July 1, 1995. Division A employees could elect to transfer to Division B.	Metro employees hired after July 1, 1995 and those Division A employees who elected to transfer to Division B.
Eligibility	Six months of service	Six months of service
Retirement Benefit	GG: 1% of average base earnings plus 1.75% of average excess earnings (base is generally \$7,800) FP : 2% of average earnings for each of the first 25 years of service, 1.75% for each additional year up to 65, 1% base plus 1.75% excess earnings minimum after 65	GG: 1.75% of average earnings for each year of service FP : 2% of average earnings for each of the first 25 years of service, 1.75% for each additional year
Average Earnings	60 consecutive months producing the highest average	60 consecutive months producing the highest average
Normal Retirement Date	GG : Age 65 FP: Age 55 with 20 years of service	GG: Age plus service equals 85, not before age 60 FP: Age plus service equals 75, not before age 53
Early Retirement	GG: Age 55 with 20 years of service (actuarial reduction from NRD) FP: Age 55 with 5 years of service or age 50 with 20 years (reduced 4% for each of the first 5 years, 8% each additional year)	GG: Age 50 with 10 years of service (reduced 4% for each of the first 5 years, 8% each additional year) FP: Age 45 with 10 years of service (reduced 4% for each of the first 5 years, 8% each additional year)
Cost of Living Increase	Consumer Price Increase as of the prior September 30, up to 5%	80% of the Consumer Price Increase in excess of 1% as of the prior September 30 up to 5%
Disability Benefit	Must have 10 years of service, benefit is 60% of 12 months earnings, plus 10% for dependent children, less OASDI benefit	Must have 10 years of service (unless in line of duty), benefit is 50% of 12 months earnings, plus 10% for dependent children. Benefit is reduced from 50% to 30% if eligible for OASDI benefit
Vested Benefit	Five years of service (Ten for those hired after December 31, 2012)	Five years of service (Ten for those hired after December 31, 2012)



Summary of Actuarial Assumptions

	<u>Current Assumption</u>
<i>Economic Assumptions</i>	
Discount Rate	7.50%
Cost of Living Increase	2.50% for Div A 1.50% for Div B
Salary Increase	Declining Scale by Age Age 30 - 4.9% Age 40 - 4.3% Age 50 - 3.7% Age 60 - 3.1%
Asset Valuation Method	Five Year Smoothing of Gains and Losses
<i>Demographic Assumptions</i>	
Retiree Mortality	110% RP-2000 Healthy Annuitant
Disability Mortality/Recovery	RP-2000 Disabled Table (150% to age 60)
Active Mortality	110% RP-2000 Employee Table
Retirement Rates	GG: Based on 2007-2012 Experience FP: Based on 2002-2007 Experience
Disability Rates	GG: 100% 1985 Disability Study (Class 1) FP: 100% 1985 Disability Study (Class 3)
Turnover Rates	GG: Based on historical experience FP: Based on historical experience
<i>Amortization Period</i>	
15-year Open Amortization	

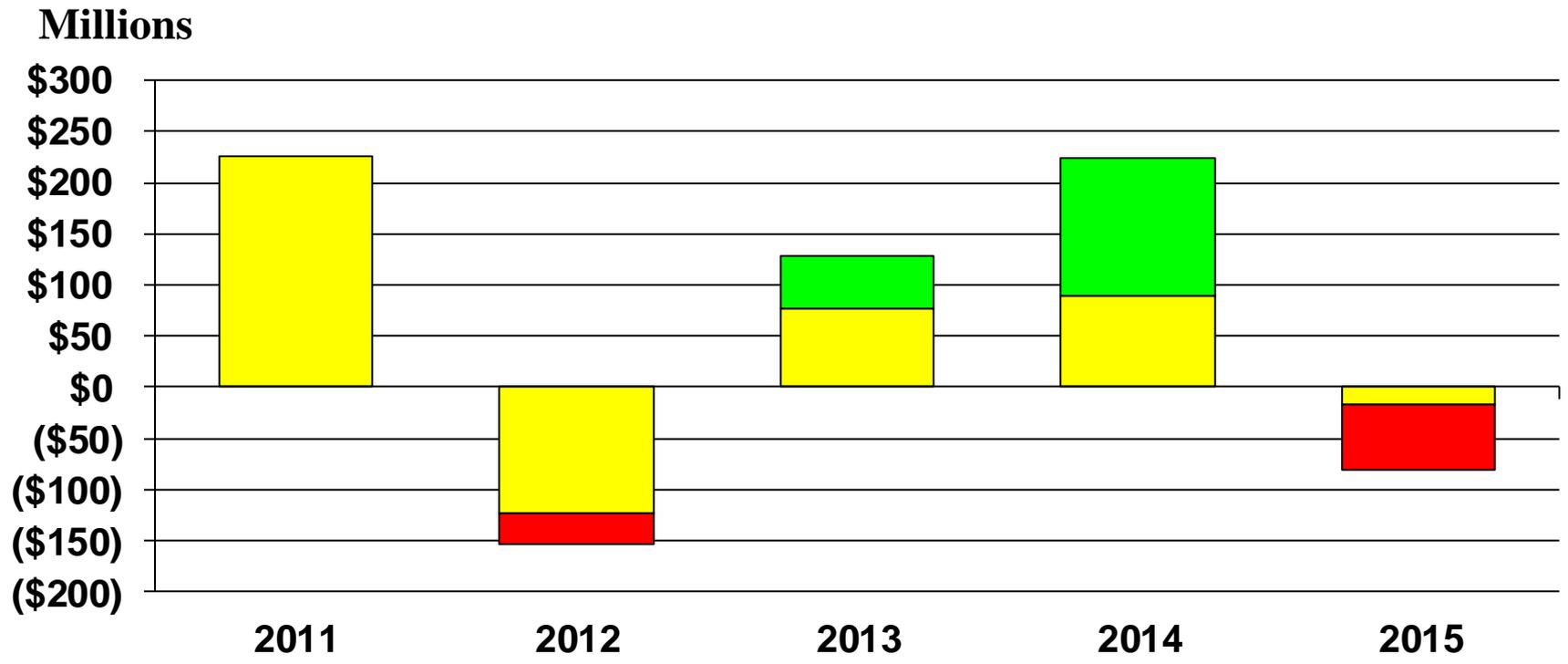


Plan Census Information

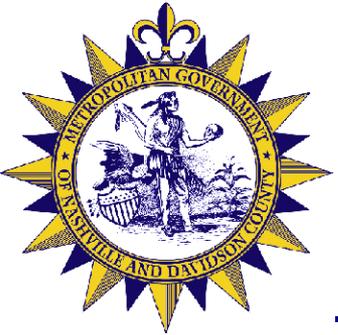
	<u>2014</u>	<u>2015</u>	<u>Percent Change</u>
Active Members			
Division A	80	74	-7.50%
Division B	11,314	11,497	1.62%
Total	11,394	11,571	1.55%
Compensation	\$513,759,048	\$531,266,978	3.41%
Average Compensation	\$45,090	\$45,914	1.83%
Inactive Members and Beneficiaries			
Retired/Disabled	8,262	8,498	2.86%
Deferred Vested	3,301	3,519	6.60%



Valuation Assets - Recent Gains and Losses

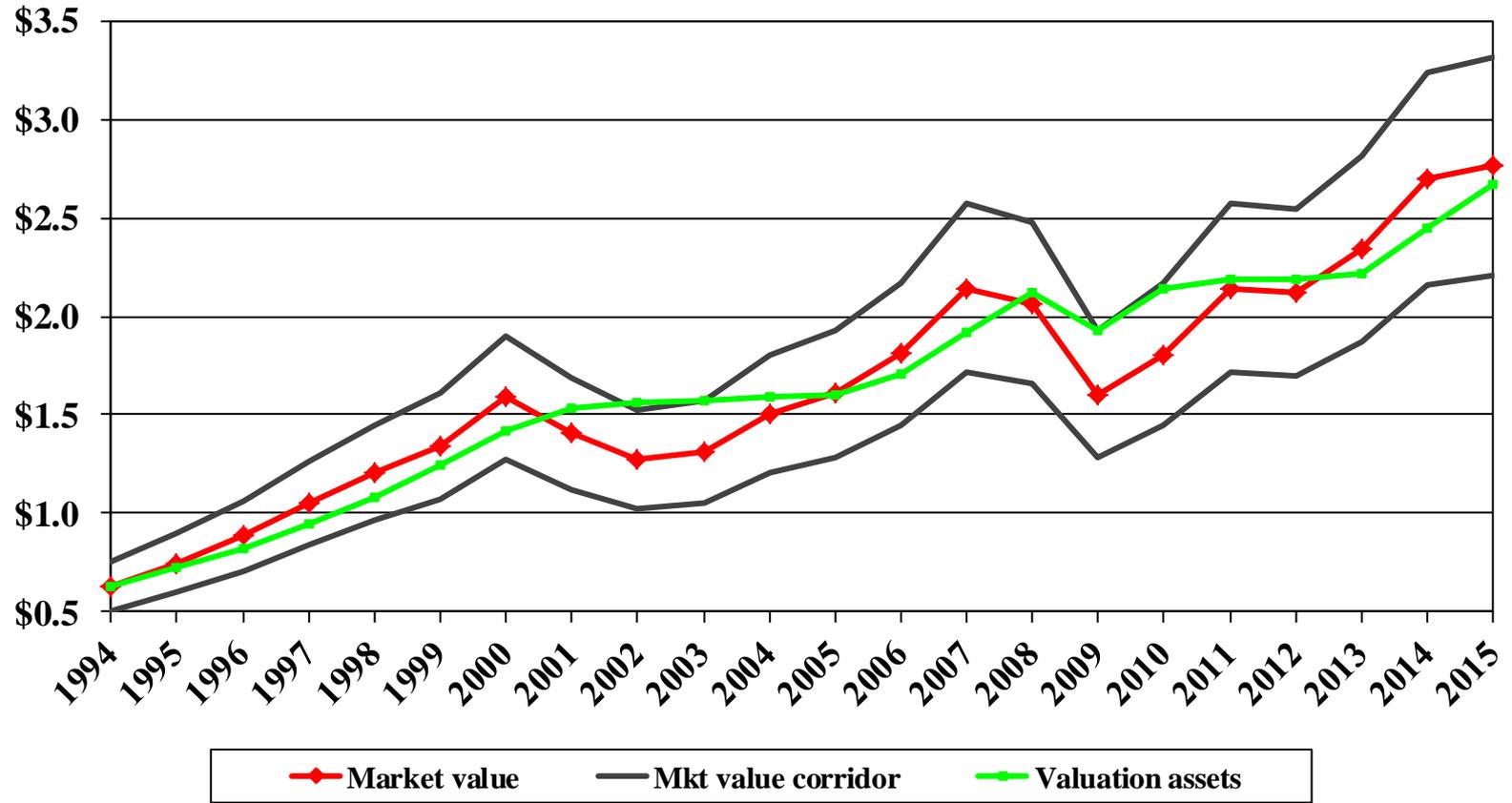


Total Gain/(Loss)	\$224,886,921	(\$154,165,703)	\$128,070,320	\$233,849,123	(\$81,554,961)
Recognized	\$224,886,921	(\$123,332,562)	\$76,842,192	\$93,539,649	(\$16,310,992)
Deferred	\$ 0	(\$30,833,141)	\$51,228,128	\$140,309,474	(\$65,243,969)



Valuation Asset Comparison

Billions





Plan Liabilities – Present Value of Benefits

Present value of all benefits expected to be earned by the current group of employees over their career

- Accrued Liability - PVB due to past service
- Normal Cost - PVB due to service in the current year
- Present Value of Future Normal Costs - PVB due to future service



Determination of the Recommended Contribution

Recommended contribution is determined as the sum of the following items

- Normal Cost –
 - Present value of benefits earned during the current plan year
- Amortization of Unfunded Liability –
 - Amortization payment on the portion of the liability (that is attributable to past service) in excess of the actuarial asset value
- Interest –
 - Interest to the middle of the plan year (assumes uniform contributions throughout the year)



Factors in Determining the Contribution

How the normal cost and amortization of unfunded liabilities are determined depends on a number of factors

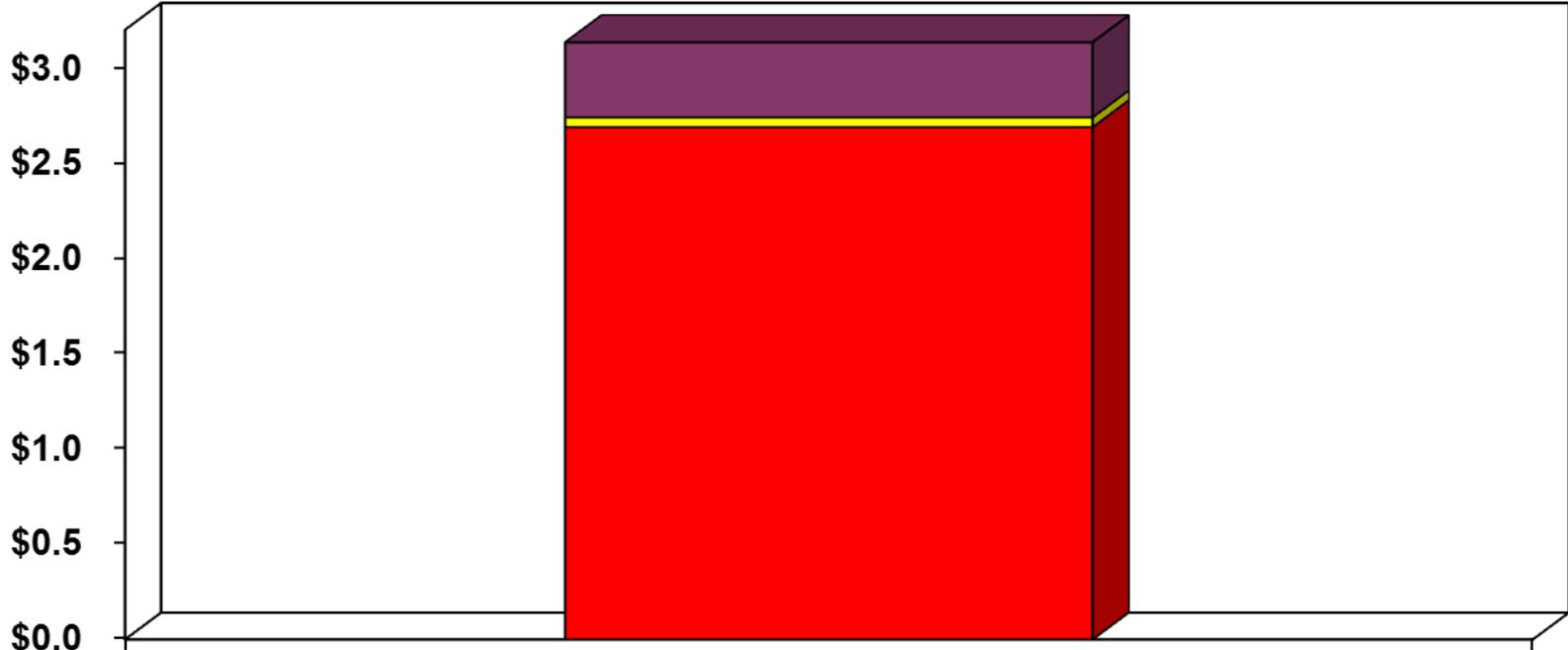
- Plan Assumptions –
 - Determined periodically based on plan experience study
 - Key assumptions –
 - 7.5% discount rate
 - 2.5% inflation
 - 5.5% - 3.0% salary increases
 - Mortality based on Metro experience
- Amortization Period –
 - Unfunded Liabilities (Amortized over 15 years)
 - Asset gains and losses (Recognized over 5 years)



Present Value of Benefits June 30, 2015

\$3,230,265,476

Billions



■ Accrued Liability ■ Normal Cost ■ Future Employee Cost ■ Future Normal Costs

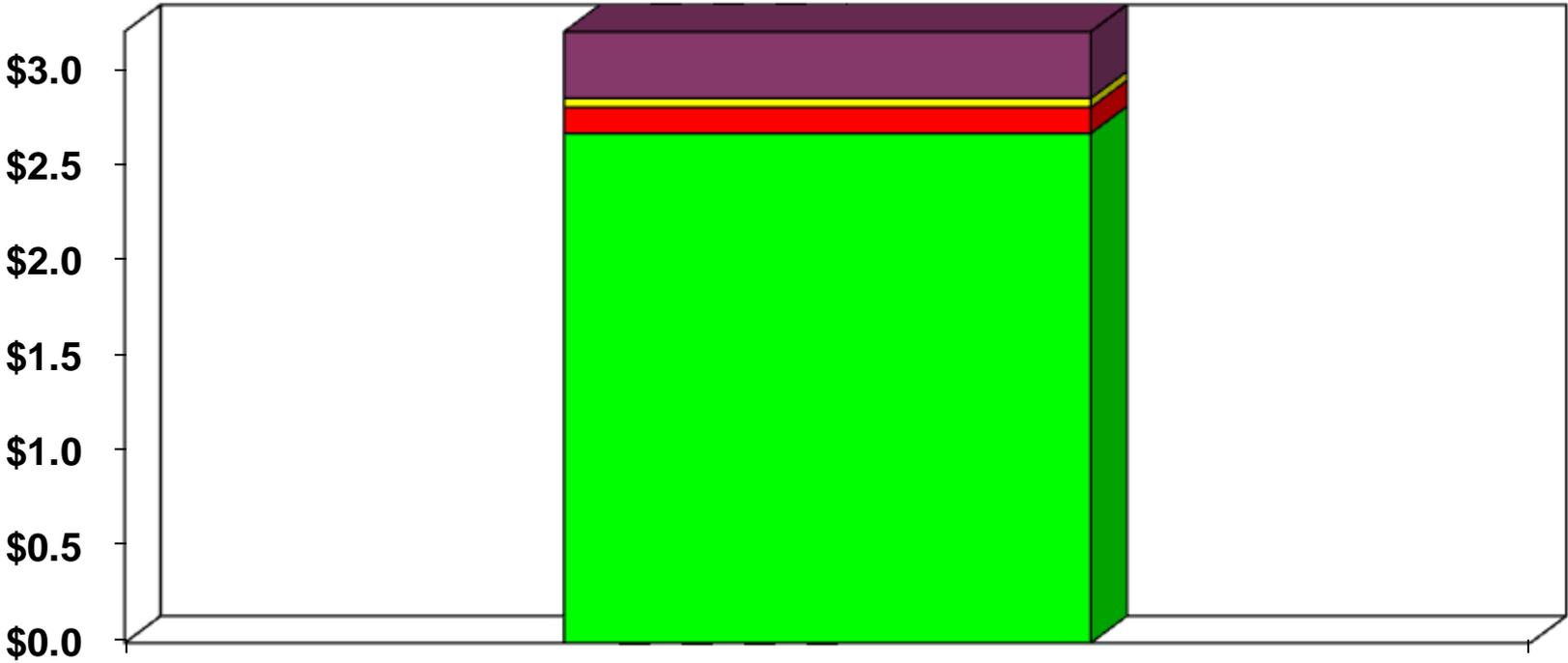
\$2,806,587,788 \$48,590,064 \$0 \$375,087,624



Present Value of Benefits June 30, 2015

\$ 3,230,265,476

Billions



■ Valuation Assets ■ Unfunded Accrued Liability ■ Normal Cost ■ Future Normal Costs

\$2,668,035,418 \$138,552,370 \$48,590,064 \$375,087,624