



**Cavanaugh Macdonald**  
CONSULTING, LLC

*The experience and dedication you deserve*

## **Montana Public Employees' Retirement Board**

### **Valuation Results June 30, 2016**

**Presented October 6, 2016**

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➤ Basic Retirement Funding Equation

$$C + I = B + E$$

C = Contributions

I = Investment Income

B = Benefits Paid

E = Expenses (administration)

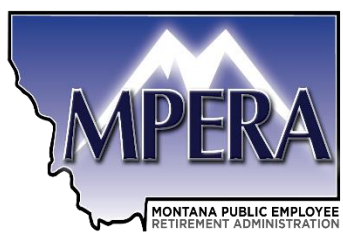
$$C + I = B + E$$

B depends on

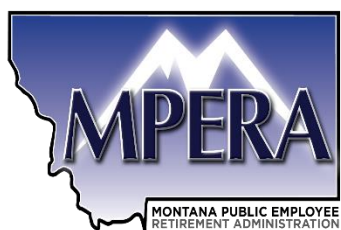
- Plan Provisions
- Experience

C depends on

- Short Term: Actuarial Assumptions  
Actuarial Cost Method
- Long Term: I, B, E



# Results



# Comments on Valuation

(\$ Millions)



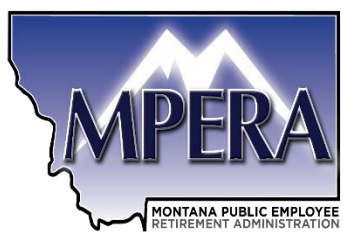
- As part of our transition work, we replicated the June 30, 2015, actuarial valuation. Results were within acceptable limits of professional standards.
- The table below compares the results of the actuarial accrued liability calculated as of June 30, 2015 by CMC and the previous actuary Cheiron for each system.

(\$ in Millions)							
System	Actuarial Accrued Liability			System	Actuarial Accrued Liability		
	CMC	Cheiron	Percentage Change		CMC	Cheiron	Percentage Change
PERS	\$6,462.3	\$6,470.3	(0.12%)	MPORS	\$488.3	\$497.2	(1.79%)
JRS	\$51.2	\$51.9	(1.43%)	FURS	\$441.6	\$441.8	(0.01%)
HPORS	\$193.4	\$193.0	0.19%	VFCA	\$43.8	\$44.3	(1.11%)
SRS	\$349.9	\$348.9	0.28%	DCRP	\$3.2	\$3.2	(0.47%)
GWPORS	\$172.0	\$172.2	(0.08%)				

## ➤ Asset returns

- Market asset returns averaged 2.05% vs. 7.75% expected (5.70% less than expected).
- Actuarial asset returns averaged 8.60% vs. 7.75% expected (0.85% greater than expected).
  - Actuarial value of assets smooth investment gains and losses on a market value basis over a four year period.
  - The actuarial value of assets is greater than the market value of assets which indicates unrecognized investment losses will be recognized over the next three years.

- Funded Ratios
  - Funded ratios increased for all systems except for SRS and GWPORS.
- Amortization Periods for Unfunded Liability
  - Amortization periods declined for all systems except for SRS and GWPORS which do not amortize in 30 years. The statutory funding rates for SRS and GWPORS are not sufficient to amortize their unfunded liabilities.
- Actuarial Experience
  - In general, actuarial investment experience exceeded the assumed rate of return which was partially offset by demographic losses.



# Comments on Valuation



## ➤ Contributions

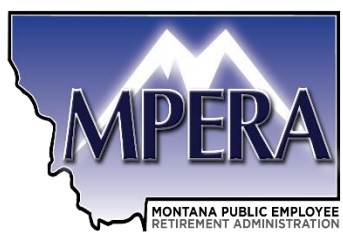
### – PERS

– In accordance with statute, the employer contribution rate was increased by 0.1%.

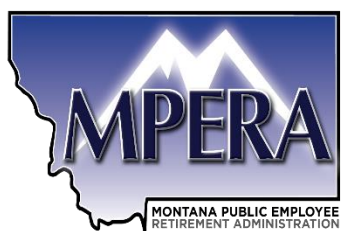
### – HPORS

– In accordance with statute, member contribution rate was increased by 1%.

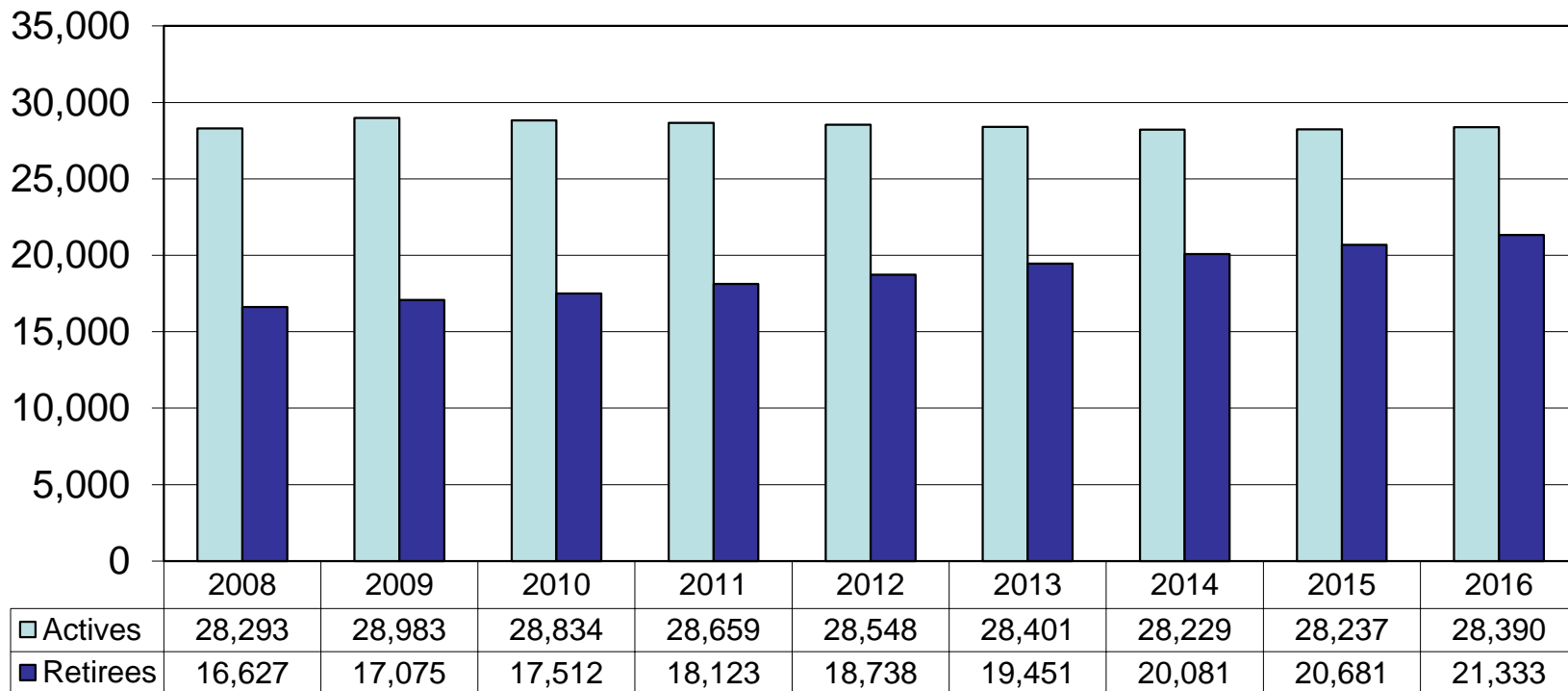




# PERS Valuation Results



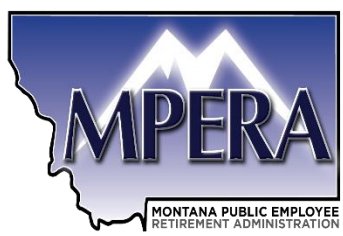
# PERS Active and Retired Membership



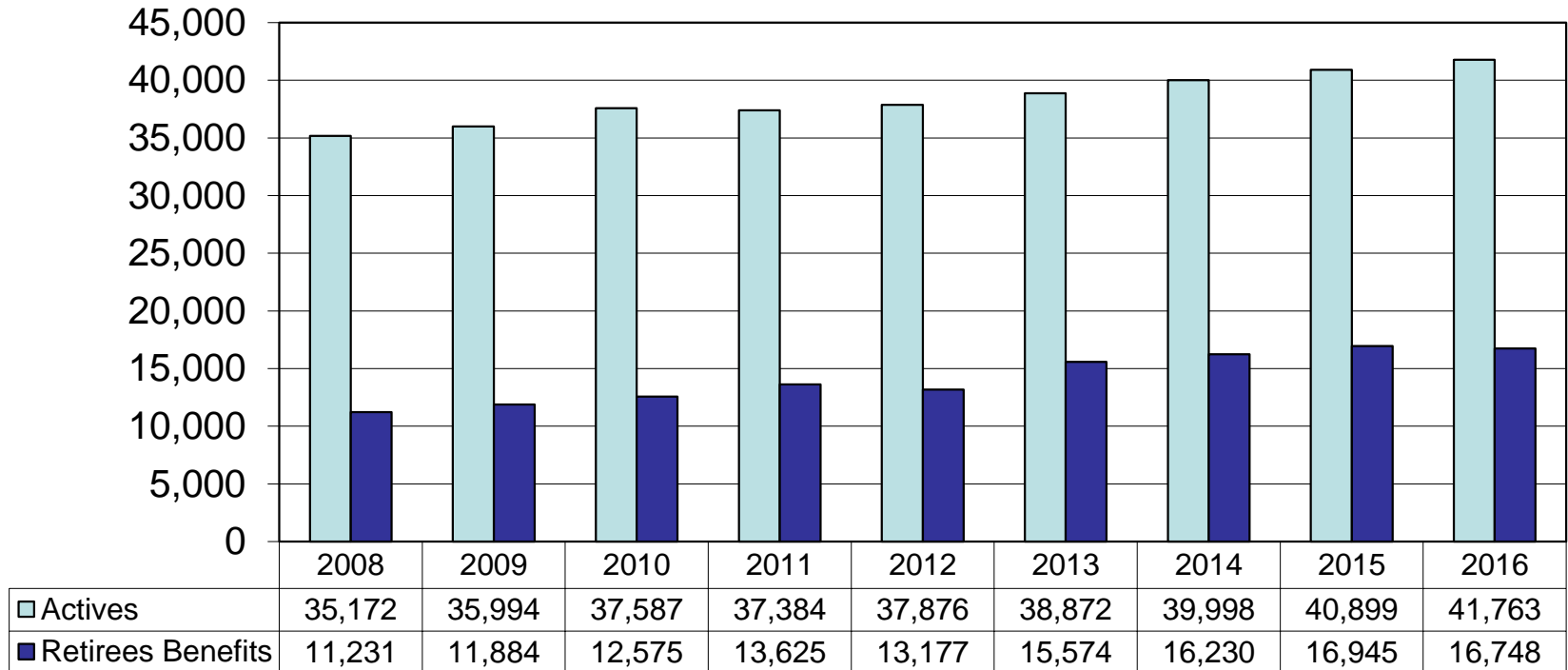
0.04% annual increase for active members since 2008; 0.54% increase for 2016.

3.16% annual increase for retired members since 2008; 3.15% increase for 2016.

0.59 retirees per active 8 years ago; 0.75 retirees per active now.

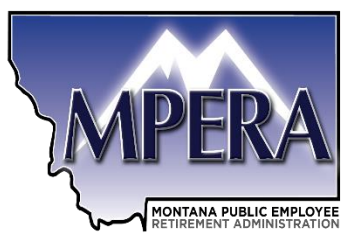


# PERS Average Salary and Benefits

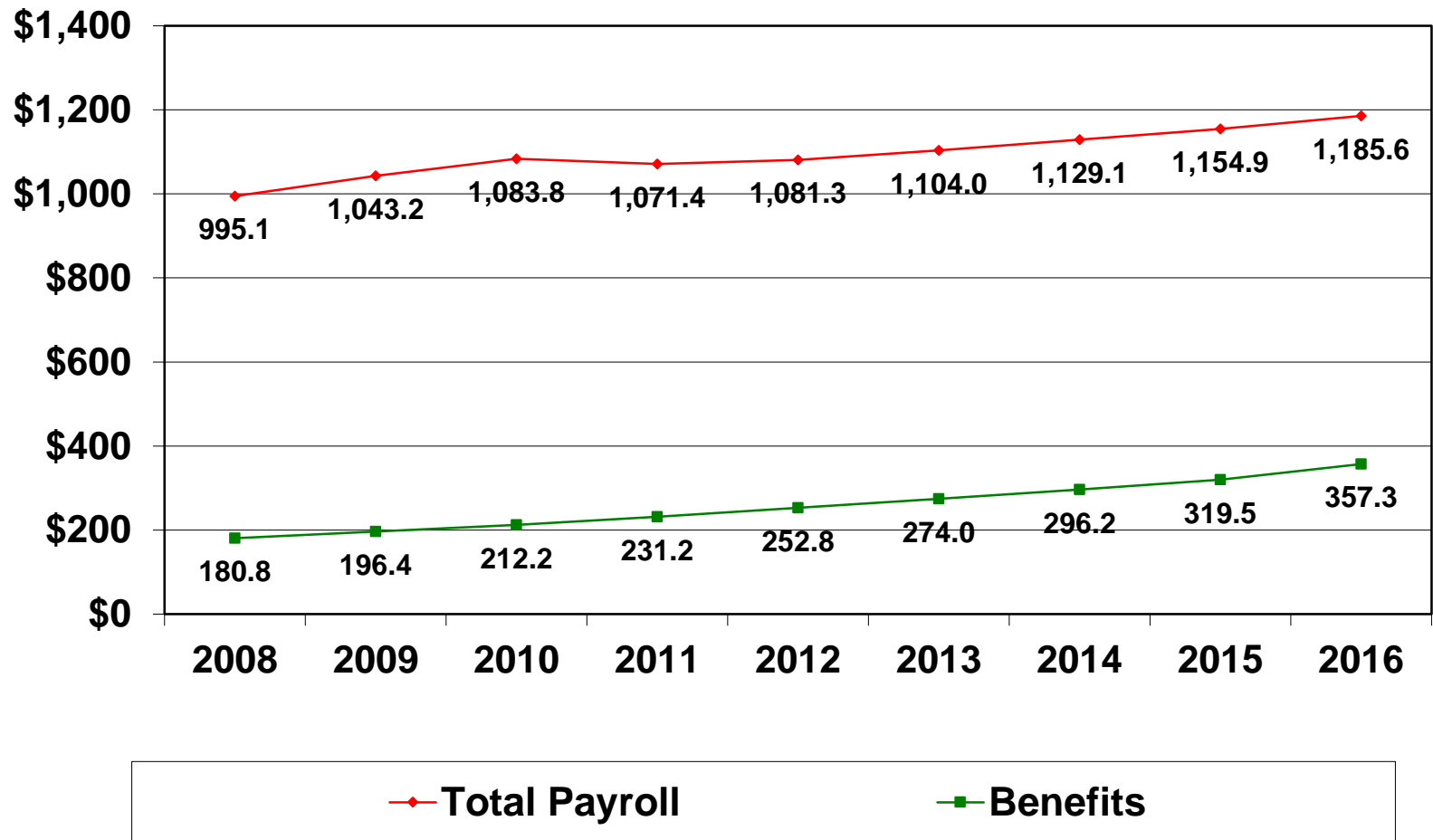


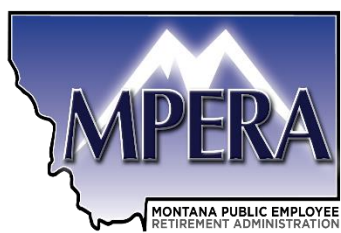
2.2% annual increase for average salary since 2008; 2.1% increase for 2016.

5.1% annual increase for average benefits since 2008; 1.1% increase for 2016.

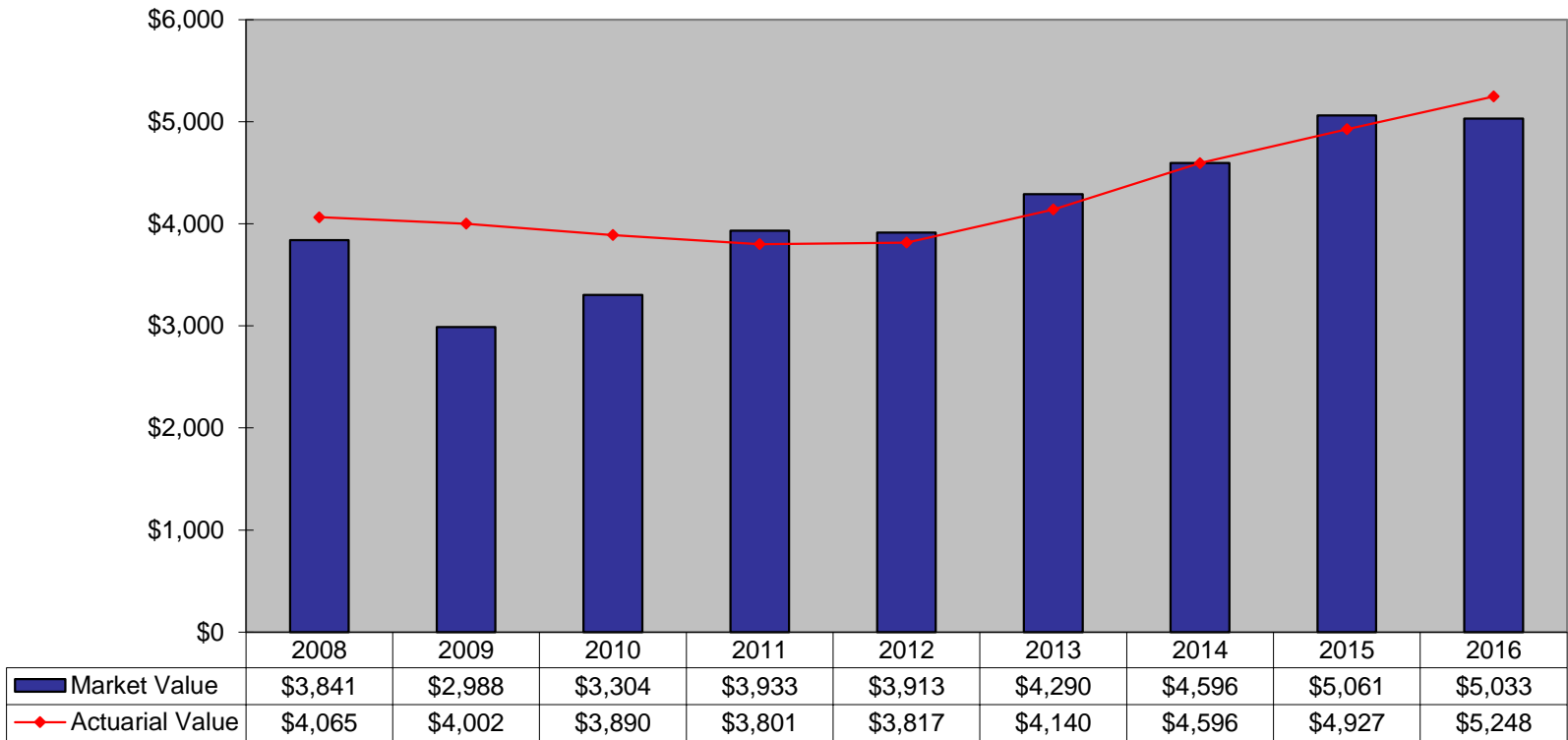


# PERS Payroll & Benefits (\$ Millions)

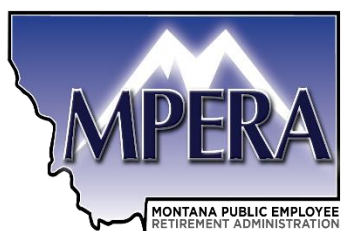




# PERS Assets (\$ Millions)



	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Market Return</b>	<b>(4.9)%</b>	<b>(20.9)%</b>	<b>12.9%</b>	<b>21.7%</b>	<b>2.3%</b>	<b>13.0%</b>	<b>17.1%</b>	<b>4.6%</b>	<b>2.0%</b>
<b>Actuarial Return</b>	<b>7.6%</b>	<b>(0.2)%</b>	<b>(1.2)%</b>	<b>(0.1)%</b>	<b>3.3%</b>	<b>11.9%</b>	<b>13.2%</b>	<b>9.6%</b>	<b>9.3%</b>

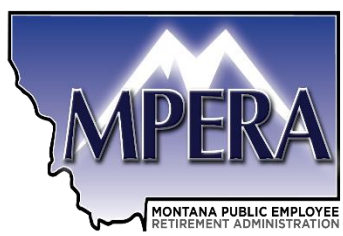


# PERS Funding Results

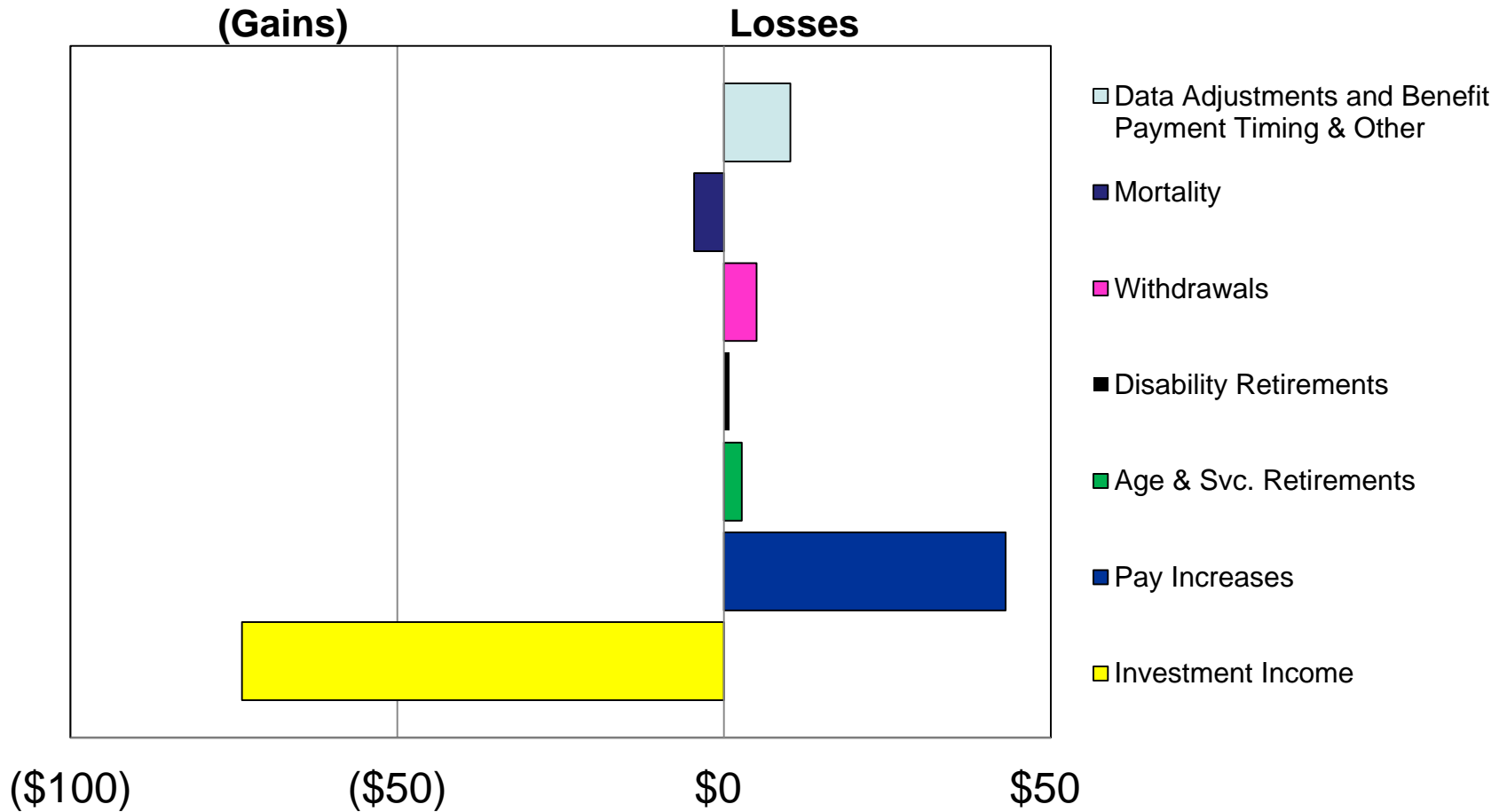


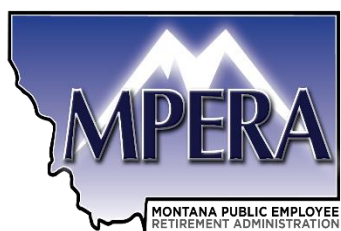
	July 1, 2016 Valuation	July 1, 2015 Valuation
Total Normal Cost Rate	11.34%	11.18%
Administrative Expense Load	0.27%	0.27%
Rate to Amortize UAL	4.72%	4.78%
Transfer to DB Education Fund	<u>0.04%</u>	<u>0.04%</u>
Statutory Funding Rate*	16.37%	16.27%
Actuarial Accrued Liability	\$6,788.0 million	\$6,470.3 million
Actuarial Value of Assets	\$5,247.7 million	\$4,926.5 million
Unfunded Accrued Liability	\$1,540.3 million	\$1,543.8 million
Funded Ratio	77.31%	76.14%
Amortization Period*	26 Years	28 Years

\* Reflects anticipated increases in employer supplemental contribution rates and projected coal tax revenue. Payable in fiscal year immediately following the valuation date.



# PERS 2016 (Gain)/Loss Analysis (\$ Millions)





# Valuation Results – Other Plans



System	Funded Ratio		Amortization Period		Statutory Rate***		30-Year Funding Rate**	
	2016	2015	2016	2015	2016	2015	2016	2015
JRS	166%	164%	0	0	32.81%	32.81%	(3.43%)	(2.13%)
HPORS	66%	65%	28	29	51.38%	50.38%	50.20%	49.66%
SRS	83%	83%	Does not amortize	Does not amortize	19.36%	19.36%	22.75%	22.84%
GWPORS	84%	84%	Does not amortize	Does not amortize	19.56%	19.56%	21.64%	21.52%
MPORS	69%	66%	18	19	52.78%	52.78%	45.79%	45.55%
FURS	78%	76%	9	10	57.66%	57.66%	39.01%	40.48%
VFCA*	80%	75%	7	10	5% of premium taxes		\$1,110,005	\$1,331,372

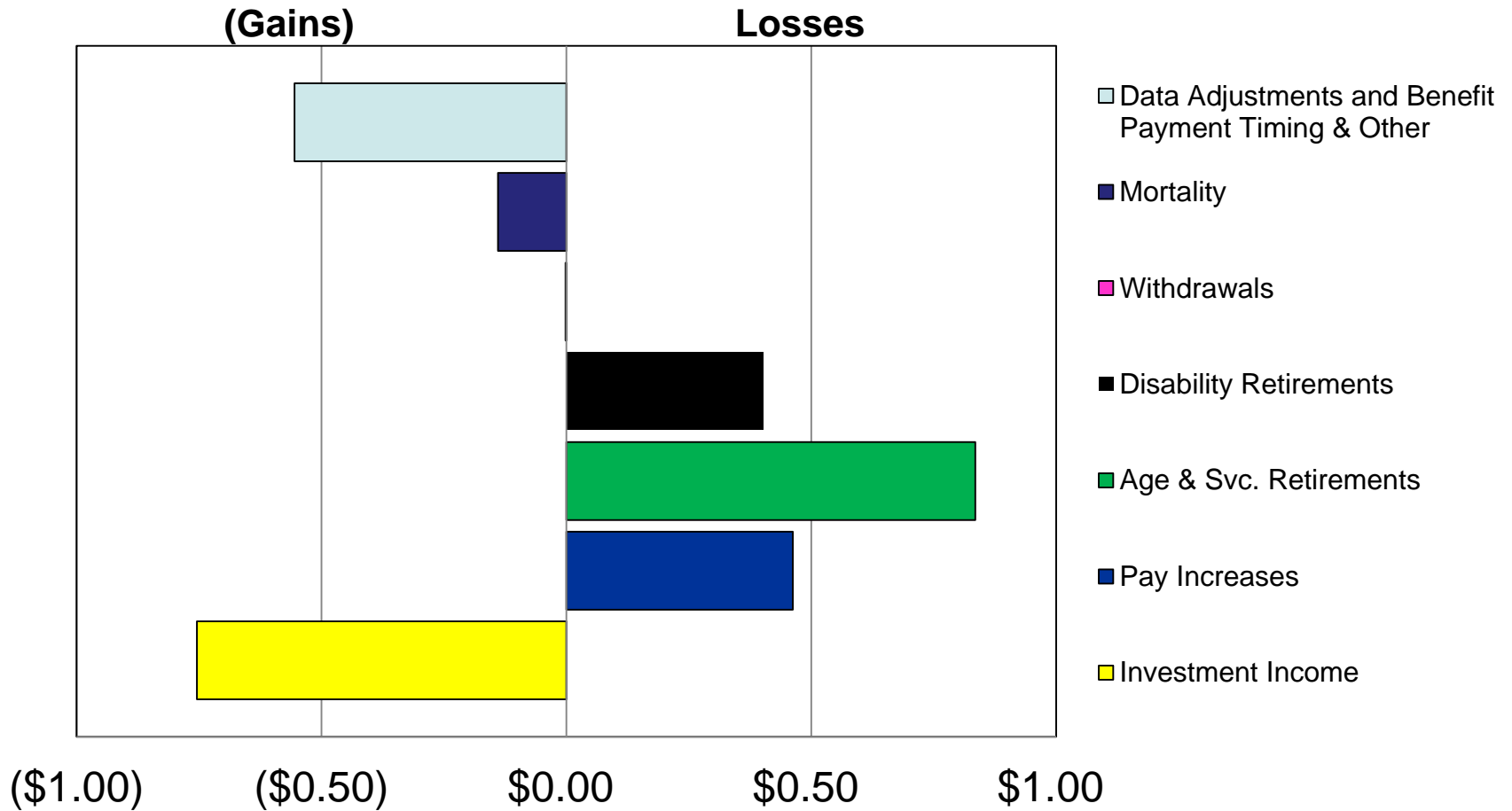
\* The actual contributions for the fiscal year ending 2016 and 2015 were \$2,036,297 and \$1,913,482, respectively.

\*\* The amortization period for VFCA is 20 years.

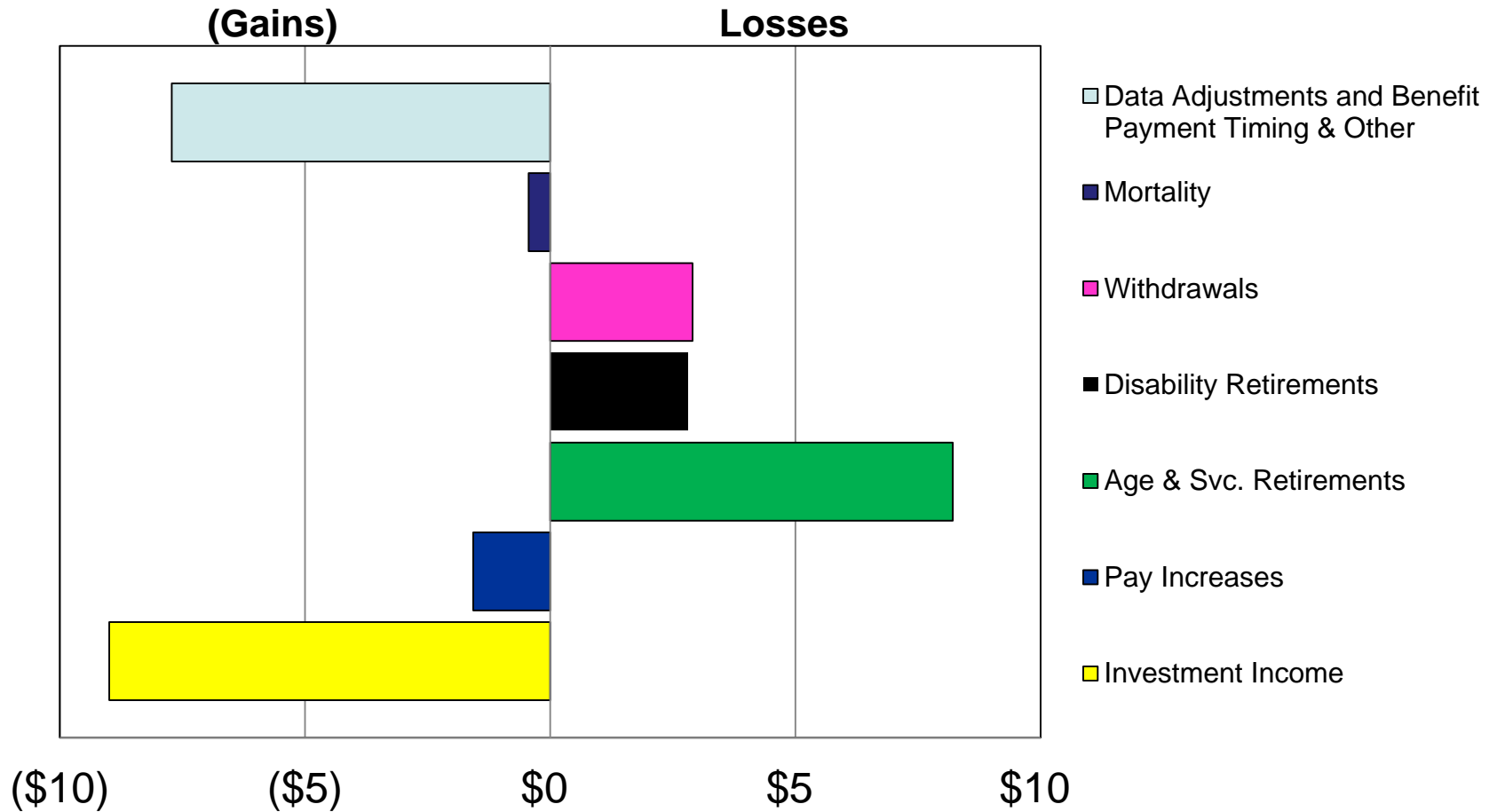
\*\*\* The mandatory member contribution rate increased by 1% beginning for the fiscal year ended 2017 and beyond.



# JRS 2016 (Gain)/Loss Analysis (\$ Millions)



# Public Safety 2016 (Gain)/Loss Analysis (\$ Millions)



## PERS DCRP Long Term Disability Plan

	July 1, 2016 Valuation	July 1, 2015 Valuation
Total Normal Cost Rate	0.30%	0.32%
Rate to Amortize UAL	<u>0.00%</u>	<u>(0.02%)</u>
Statutory Funding Rate	0.30%	0.30%
Actuarial Accrued Liability	\$3,591,249	\$3,235,065
Actuarial Value of Assets	\$3,118,397	\$2,781,120
Unfunded Accrued Liability	\$472,852	\$453,945
Funded Ratio	86.83%	85.97%
Amortization Period	Does not amortize	Does not amortize
30-Year Funding Rate	0.31%	0.33%