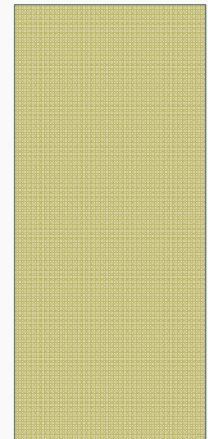


CARFAC ANALYSIS OF PENSION LIABILITY

AUGUST 14, 2017



DIRECTION FROM THE BOARD

Resolution 2017-03

NOW, THEREFORE, it is hereby ***RESOLVED*** that the Radnor Township Board of Commissioners requests CARFAC to work on the following priorities for 2017:

1) Planning & Budgeting

a. Continue our analysis of the Township's funding of its Capital Plan and Long-Term Liabilities, to include **how Radnor compares to other municipalities**, to help the Board determine appropriate funding and the most suitable rate of return for use in calculating the Municipality's Minimum Obligation (MMO).

SOURCES OF INFORMATION

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HOME : NEWS AND RESOURCES : MUNICIPAL PENSION / VFRA INFO : MUNICIPAL PENSION REPORTING PROGRAM (PERC)

Municipal Pension Reporting Program (formerly PERC)

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The Public Employee Retirement Commission (PERC) was abolished by Act 100 of 2016, and the former commission's duties relating to municipal pension reporting and analysis under Act 205 of 1984 and Act 293 of 1972 were transferred to the Department of the Auditor General. Effective August 1, 2016, the duties were fully transitioned to the newly created Municipal Pension Reporting Program (MPRP) within the Department of the Auditor General's Office of Budget and Financial Management. You can contact MPRP at 717-787-3636; 800-882-5073; email: Comptroller@PaAuditor.gov.

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Aud. Gen. DePasquale @PAAuditorGen

For this week's school audits, a district didn't sufficiently document transportation reimbursements—totaling \$200k. paauditor.gov/press-releases...

MOCKENHAUPT
BENEFITS GROUP

ACTUARIAL VALUATION REPORT

for the

RADNOR TOWNSHIP POLICE PENSION PLAN

as of
January 1, 2015

MOCKENHAUPT
BENEFITS GROUP

ACTUARIAL VALUATION REPORT

for the

THE RADNOR TOWNSHIP CIVILIAN EMPLOYEES PENSION PLAN

as of
January 1, 2015

... and Radnor and other Township CAFRs

IN ABSOLUTE DOLLARS, RADNOR HAS THE 18TH LARGEST UNFUNDED LIABILITY OF 1457 ENTITIES IN THE STATE

	Municipality	County	Assets	Liabilities	Unfunded Liability	Fund Ratio	Score	Distress Level
1	Philadelphia City	PHI	4,863,413,000	10,800,392,000	5,936,979,000	45	3	Severely Distressed
2	Pittsburgh City	ALL	687,547,580	1,205,509,606	517,962,026	57	2	Moderately Distressed
3	Scranton City	LAC	50,697,276	209,048,852	158,351,576	24	3	Severely Distressed
4	Erie City	ERI	246,925,051	333,389,329	86,464,278	74	1	Minimally Distressed
5	Reading City	BER	213,054,724	297,150,445	84,095,721	72	1	Minimally Distressed
6	Chester City	DEL	57,861,533	119,101,472	61,239,939	49	3	Severely Distressed
7	York City	YOR	105,586,145	161,204,332	55,618,187	65	2	Moderately Distressed
8	Wilkes Barre City	LUZ	80,985,791	130,436,535	49,450,744	62	2	Moderately Distressed
9	Allentown City	LEH	412,014,089	454,146,989	42,132,900	91	0	Not Distressed
10	Bethlehem City	NHP	270,469,320	306,467,694	35,998,374	88	1	Minimally Distressed
11	Westmoreland County Municipal Authority	WES	44,707,241	77,708,261	33,001,020	58	2	Moderately Distressed
12	Altoona City	BLA	87,504,261	116,864,042	29,359,781	75	1	Minimally Distressed
13	Easton City	NHP	62,746,215	91,965,327	29,219,112	68	2	Moderately Distressed
14	Hazleton City	LUZ	36,621,993	65,456,787	28,834,794	56	2	Moderately Distressed
15	Lancaster City	LAN	129,130,364	153,647,292	24,516,928	84	1	Minimally Distressed
16	Johnstown City	CMB	24,346,181	48,352,745	24,006,564	50	2	Moderately Distressed
17	Upper Darby Township	DEL	152,795,227	175,951,560	23,156,333	87	1	Minimally Distressed
18	Radnor Township	DEL	48,559,412	68,925,373	20,365,961	70	1	Minimally Distressed
19	New Castle City	LAW	29,433,722	49,318,241	19,884,519	60	2	Moderately Distressed
20	Haverford Township	DEL	57,484,348	76,916,278	19,431,930	75	1	Minimally Distressed
21	Cheltenham Township	MTG	57,880,807	76,426,242	18,545,435	76	1	Minimally Distressed
22	Penn Hills Township	ALL	46,749,595	65,130,325	18,380,730	72	1	Minimally Distressed
23	Falls Township	BUC	28,269,708	44,846,487	16,576,779	63	2	Moderately Distressed
24	Norristown Borough	MTG	39,565,008	55,646,390	16,081,382	71	1	Minimally Distressed
25	Williamsport City	LYC	78,318,569	94,287,591	15,969,022	83	1	Minimally Distressed

Radnor ranks 35th in population

COMPARISON TO NEIGHBORS AND PEER GROUP

<u>Neighbors</u>	<u>County</u>	<u>Peer Group</u>	<u>County</u>
Haverford	DEL	Falls	BUC
Marple	DEL	Lower Makefield	BUC
Tredyffrin	CHE	Warminster	BUC
Upper Merion	MTG	Ridley	DEL
Easttown	CHE	Springfield	DEL
Newtown	DEL	Horsham	MTG
Lower Merion	MTG	Lower Providence	MTG
		Montgomery	MTG
		Norristown	MTG
		Upper Dublin	MTG

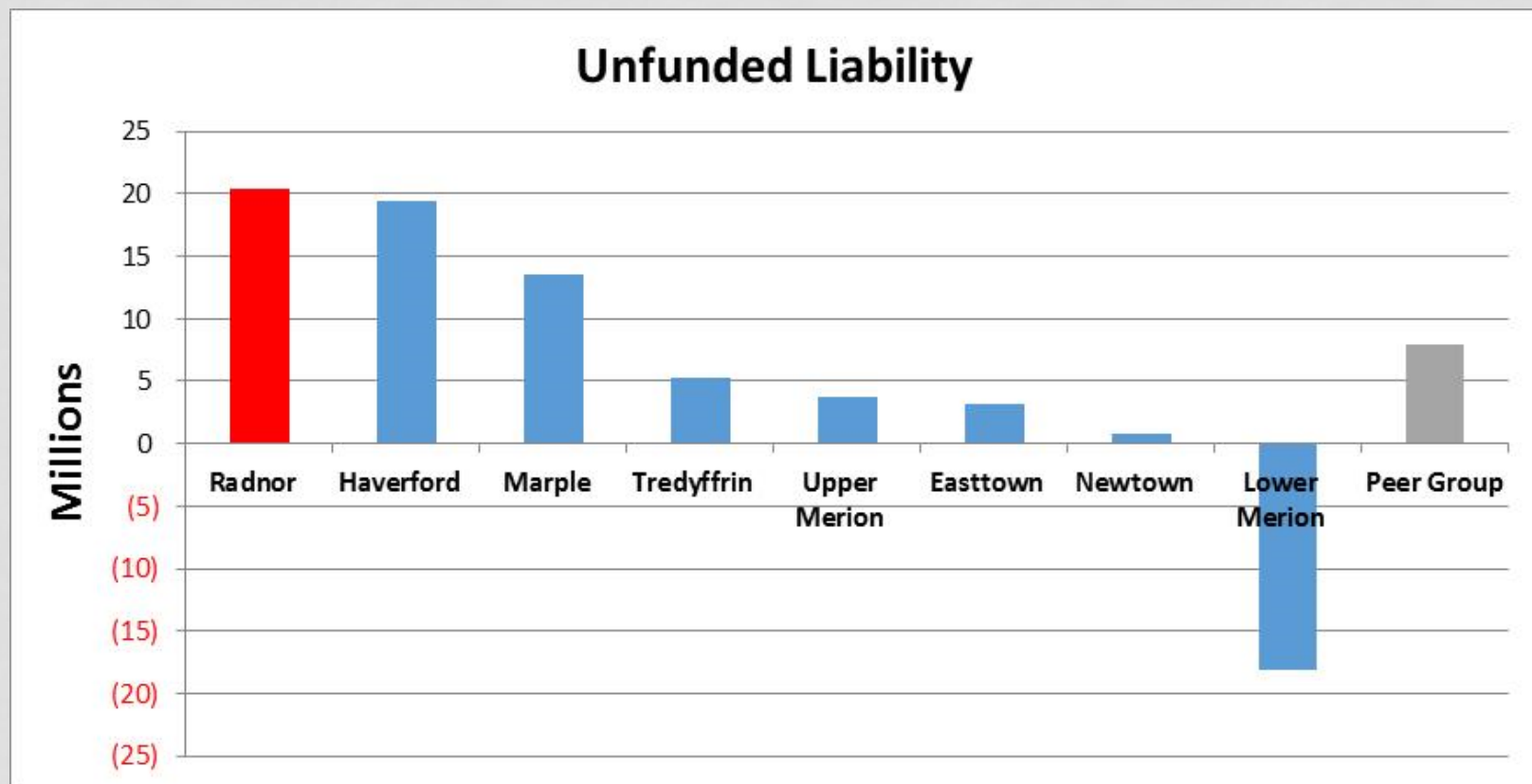
Neighbors = Adjacent to Radnor

Peer Group = Population 25,000 to 35,000 in Bucks, Delaware and Montgomery Counties, not including Neighbors. City of Chester, Delaware County excluded. None in Chester County qualify.

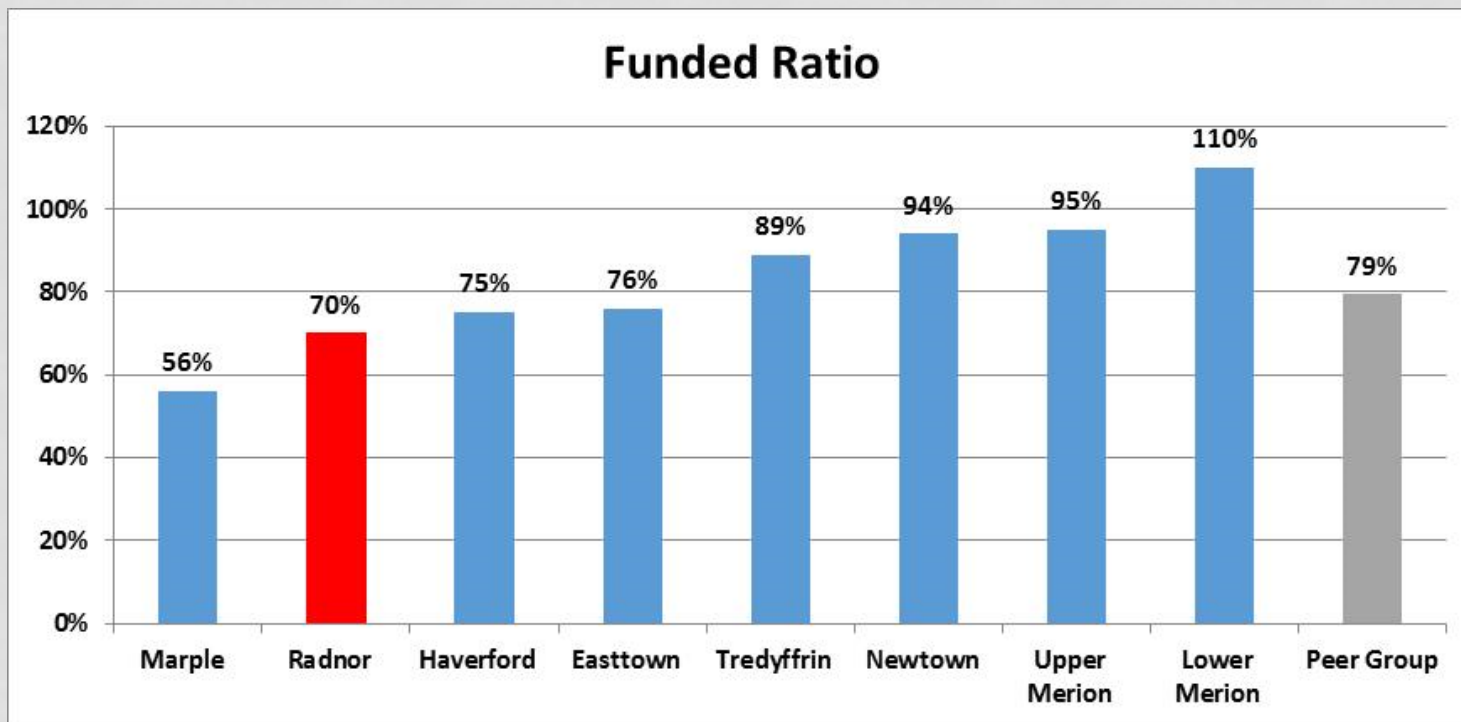
Radnor Population = 31,532

Source: https://en.wikipedia.org/wiki/List_of_municipalities_in_Pennsylvania

IN DOLLARS, RADNOR HAS THE LARGEST UNFUNDED LIABILITY, OVER TWICE AS LARGE AS THE PEER GROUP



RADNOR'S 70% FUNDED RATIO IS SECOND LOWEST AMONG NEIGHBORS AND 9% POINTS BELOW PEERS



State Average = 86%

Excluding Philadelphia and Pittsburgh

Radnor's 70% ratio ranks 95th in the state

RADNOR IS JUST ABOVE THE LOWER CUTOFF FOR DISTRESS LEVEL 1 AND WILL LIKELY BE AT LEVEL 2 IN THE NEXT ACTUARIAL VALUATION

DISTRESS SCORE BY DISTRESS LEVEL

Level	# of Municipalities			% of Municipalities			# of Active Members			% of Active Members		
	2016	2014	2012	2016	2014	2012	2016	2014	2012	2016	2014	2012
0 (Not Distressed)	944	808	801	65.2%	55.8%	55.3%	17,703	12,446	13,009	26.3%	18.7%	19.3%
1 (Minimal)	411	500	497	28.4%	34.5%	34.3%	15,013	17,631	18,465	22.3%	26.5%	27.4%
2 (Moderate)	80	117	125	5.5%	8.1%	8.6%	5,972	8,870	35,022	8.8%	13.4%	52.0%
3 (Severe)	13	23	26	0.9%	1.6%	1.8%	28,723	27,477	844	42.6%	41.4%	1.3%
	1,448	1,448	1,449				67,411	66,424	67,340			

First Class Townships

48

31 ← Radnor

10

0

89

DISTRESS SCORING

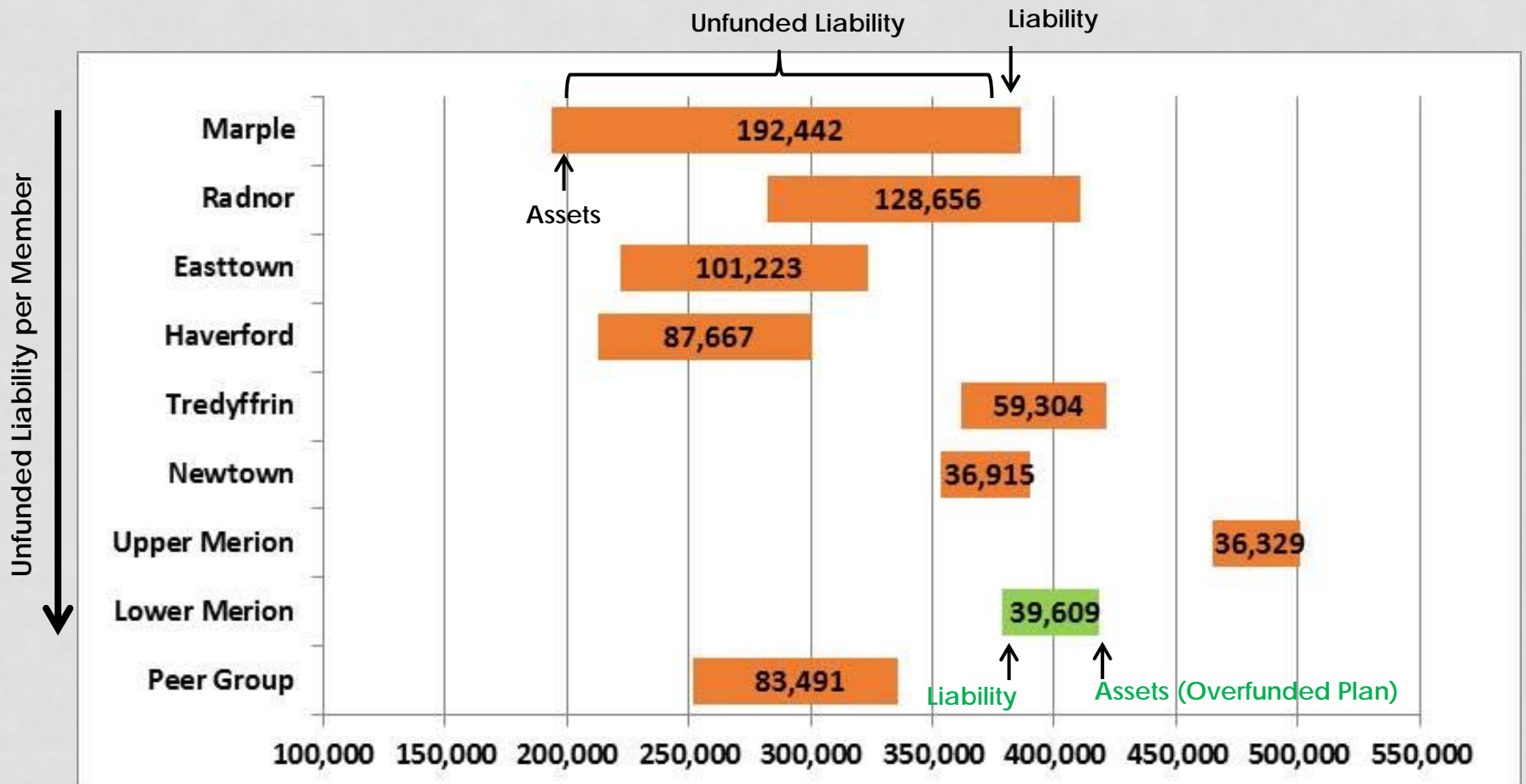
Funded Ratio	Score	Distress Level	Election Form
90% and above	0	None	No election form, unless (read below)
70% to 89%	1	Level 1 (Minimal)	Voluntary Remedies
50% to 69%	2	Level 2 (Moderate)	Mandatory and Voluntary Remedies
Less than 50%	3	Level 3 (Severe)	Mandatory and Voluntary Remedies

Source:

http://www.paauditor.gov/media/default/MunPenReporting/RPT_2016_MuniPension_STATUS_REPORT_Dec2016_FINAL.pdf

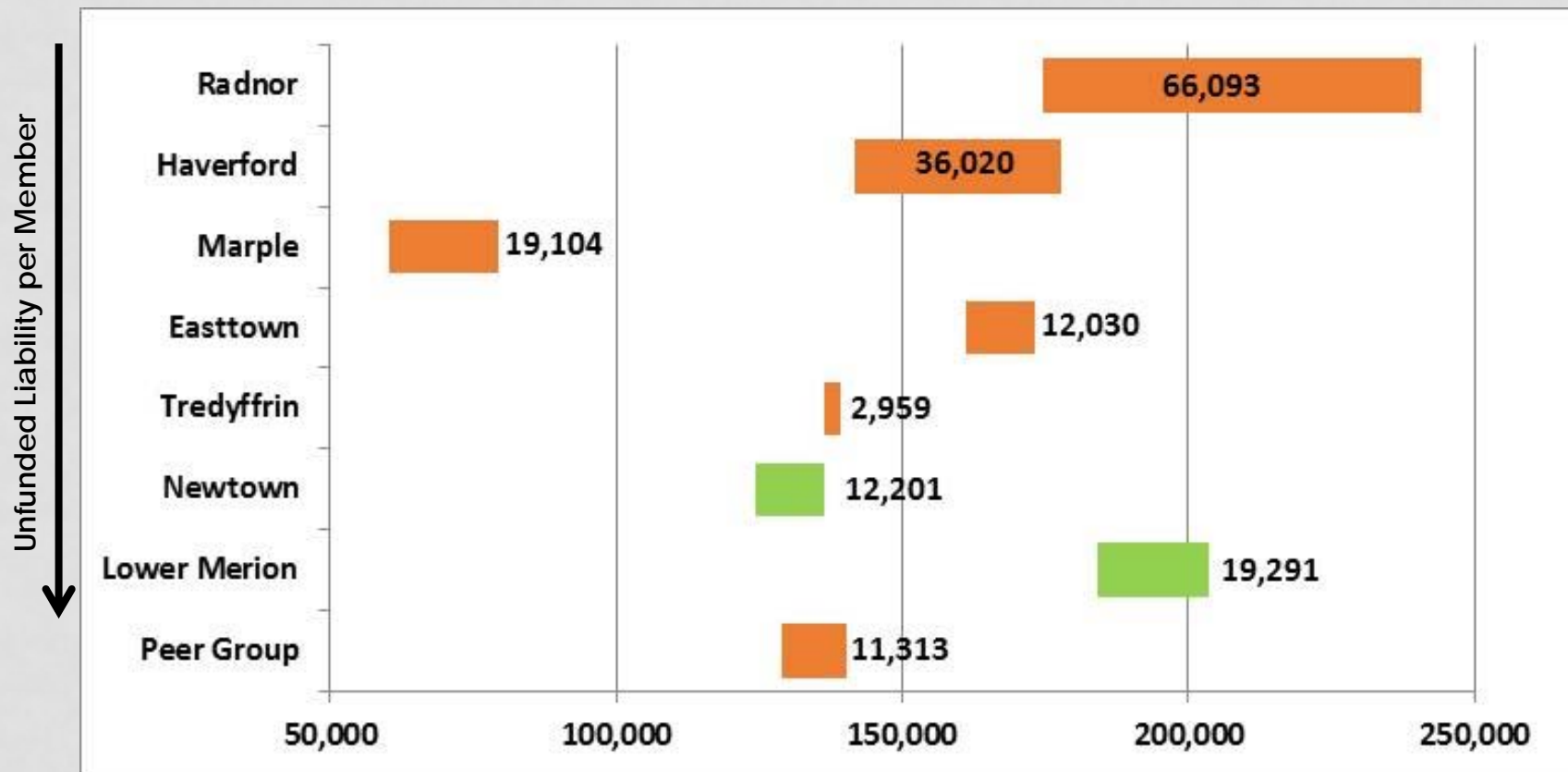
AMONG POLICE FUNDS, ON A PER PARTICIPANT BASIS, RADNOR IS IN THE MIDDLE OF ASSETS PER MEMBER, AT THE HIGHER END OF LIABILITIES PER MEMBER, AND THE SECOND HIGHEST UNFUNDED LIABILITY PER MEMBER

Per Participant Assets, Liabilities and Unfunded Liability – Police Funds



AMONG CIVILIAN FUNDS, RADNOR IS THE HIGHEST IN LIABILITIES AND UNFUNDED LIABILITIES AND ONLY LOWER MERION HAS HIGHER ASSETS PER MEMBER

Per Participant Assets, Liabilities and Unfunded Liability – Civilian Funds



For Civilian Plans, there can be a large variance in the tenure and number of active vs retired members, plan design, and if the plan is open or closed.

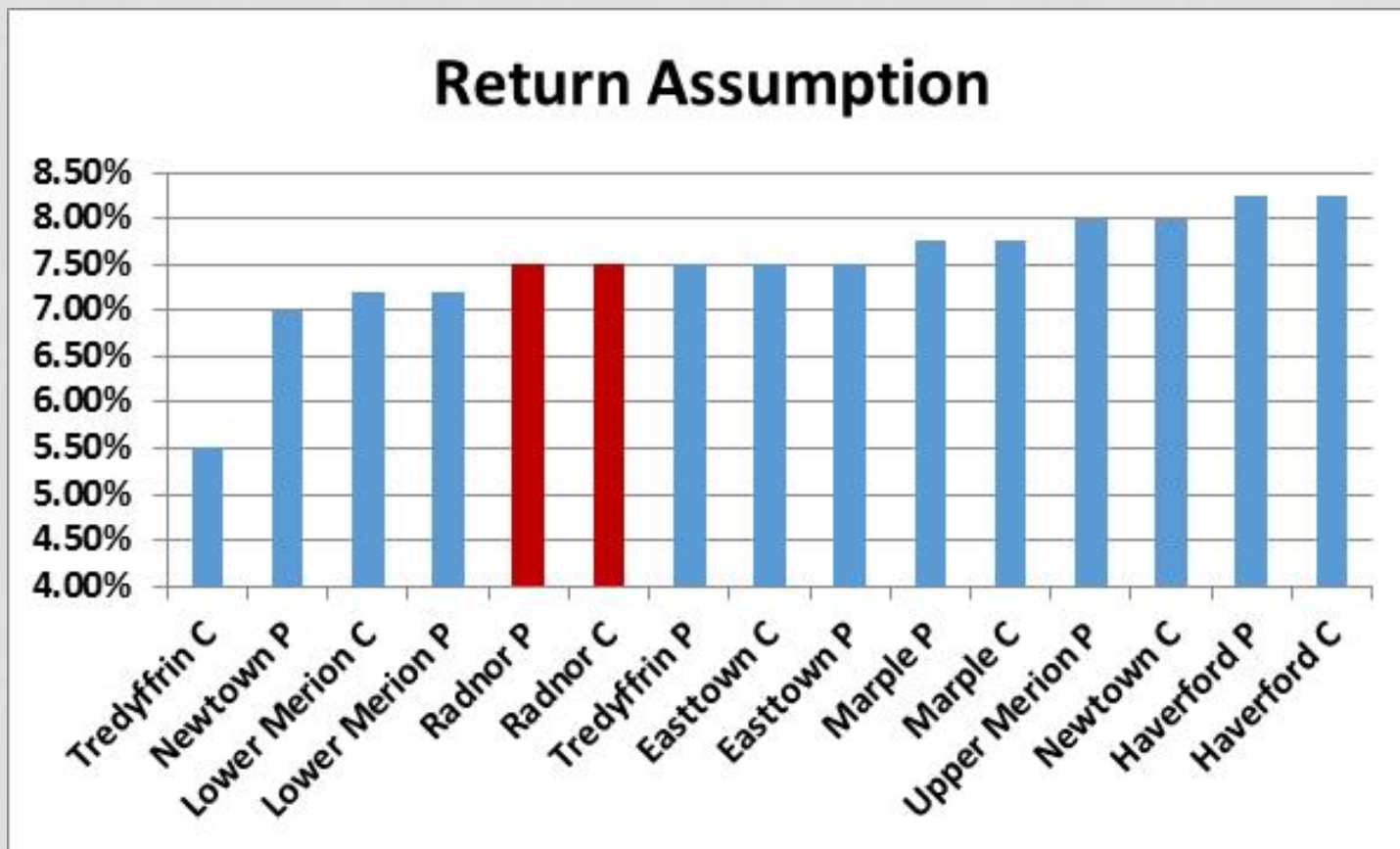
STATEWIDE INTEREST RATE ASSUMPTIONS BASED ON 2013 VALUATIONS (WAS NOT AVAILABLE FOR 2015)

INTEREST RATE AND SALARY SCALE ASSUMPTIONS ¹

Distribution by Asset Size							
Asset Size	No. of Plans	Interest Rate			Salary Scale		
		MIN	MAX	AVG	MIN	MAX	AVG
<= \$100,000	104	4.0%	8.0%	5.6%	2.0%	6.5%	4.0%
> \$100,000 - \$1,000,000	836	4.0%	8.5%	6.2%	2.0%	6.0%	4.3%
> \$1,000,000 - \$5,000,000	807	4.5%	8.5%	6.8%	3.0%	6.0%	4.6%
> \$5,000,000	390	5.5%	8.5%	7.2%	3.0%	6.0%	4.7%
Frequency within Specified Ranges							
Interest Rate	No. of Plans	Percent	Salary Rate	No. of Plans	Percent		
4.0 to 4.4% ²	7	0.3					
4.5 to 4.9% ²	56	2.6					
5.0 to 5.4%	39	1.8	0.1 to 3.9%	200	9.4		
5.5 to 5.9%	725	33.3	4.0 to 4.4%	872	40.8		
6.0 to 6.4%	126	5.8	4.5 to 4.9%	240	11.2		
6.5 to 6.9%	104	4.8	5.0 to 5.4%	715	33.5		
7.0 to 7.4%	398	18.3	5.5 to 5.9%	82	3.8		
7.5 to 7.9%	449	20.6	6.0 to 6.4%	27	1.3		
8.0 to 8.4%	265	12.2	6.5 to 6.9%	1	0		
8.5 to 8.9%	9	0.4	7.0 to 7.4%	0	0		
9.0%	0	0					

Source: <http://www.paauditor.gov/media/default/MunPenReporting/2014StatusReport.pdf>

RADNOR'S RATE OF RETURN ASSUMPTION IS IN THE MIDDLE OF THE PACK OF NEIGHBORING PLANS AND JUST ABOVE THE STATEWIDE AVERAGE FOR PLANS OF OUR SIZE (PRIOR SLIDE)

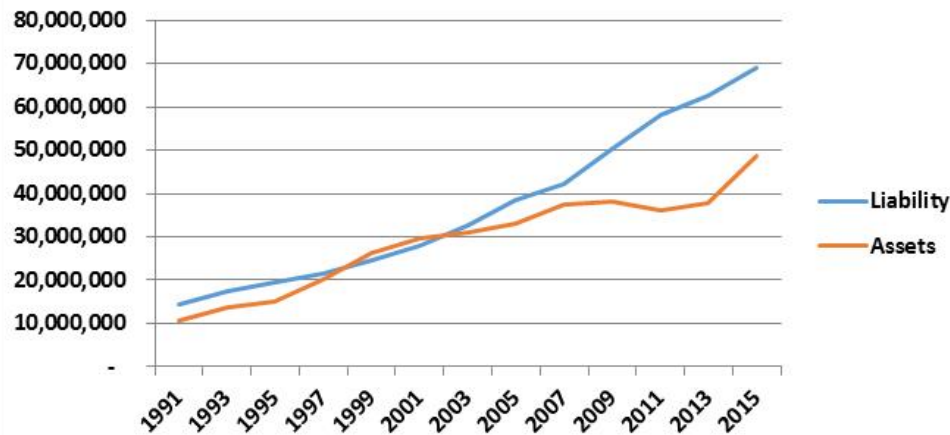


P = Police, C = Civilian

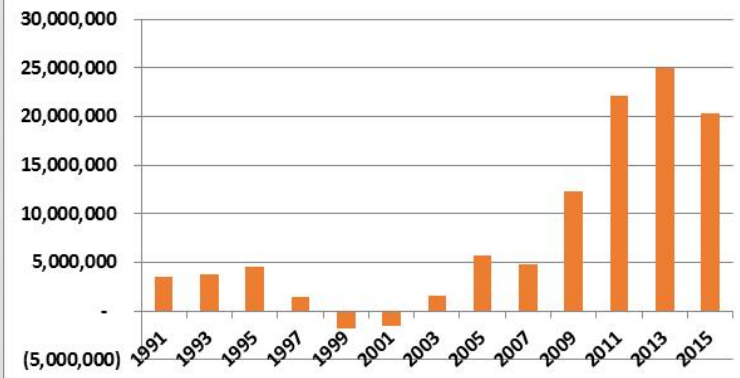
Upper Merion does not have a defined benefit civilian plan

HISTORY OF RADNOR'S PENSION FUNDING

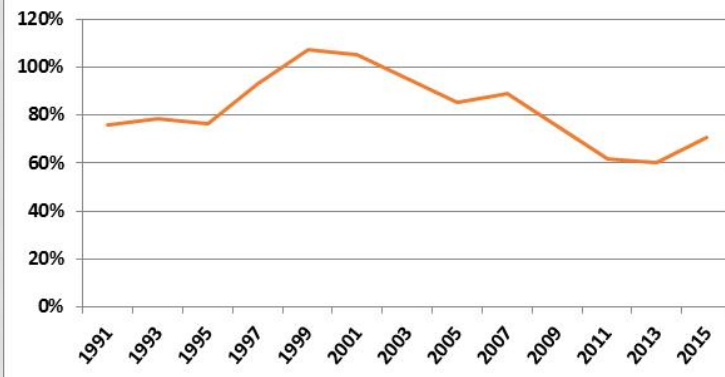
Assets and Liabilities



Unfunded Liability



Funded Ratio



The \$3.2M excess contributions in 2012 and 2013, along with strong market returns in 2013 and 2014, improved the funding position for the 1/1/2015 valuation for the first time since 2007.

For the 1/1/2017 valuation, we anticipate a reversal. The 0% return in 2015 on fund investments alone equals a shortfall of over \$3M.

OBSERVATIONS

1. Radnor's unfunded pension liability is the largest among neighbors and a peer group.
2. On a per participant basis, the unfunded liability is the largest of all but one other plan.
3. Radnor may be more fully recognizing its true liabilities than some neighbors and peers, but is still not at the level of the better funded municipalities.
4. Excess funding in 2012/13 and good market returns in 2013/14 improved the funding position.
5. The next valuation is likely to return to a weakening funding position, suggesting further action.

APPENDIX

DISTRESS LEVEL REMEDIES

Level 1 (Minimal Distress)

Voluntary Remedies –

- Aggregation of pension funds for administration and investment
- Establishment of total member contributions
- Deviation from municipal contribution limitations
- May pay 75% or more of the amortization requirement for 2 years
- Increase in the asset smoothing corridor from 20% to 30% for an additional 2 years (expired on 12/31/2012, whether elected or not elected)

Level 2 (Moderate Distress)

Voluntary Remedies –

- Establishment of total member contributions
- Deviation from municipal contribution limitations
- Utilization of the special taxing authority under Act 205
- Establishment of a revised benefit plan for newly hired employees
- May pay 75% or more of the amortization requirement for 4 years
- Increase in the asset smoothing corridor from 20% to 30% for an additional 4 years (expired on 12/31/2014, whether elected or not elected)

Mandatory Remedies –

- Aggregation of pension funds for administration and investment
- Submission of a plan for administrative improvement

Level 3 (Severe Distress)

Voluntary Remedies –

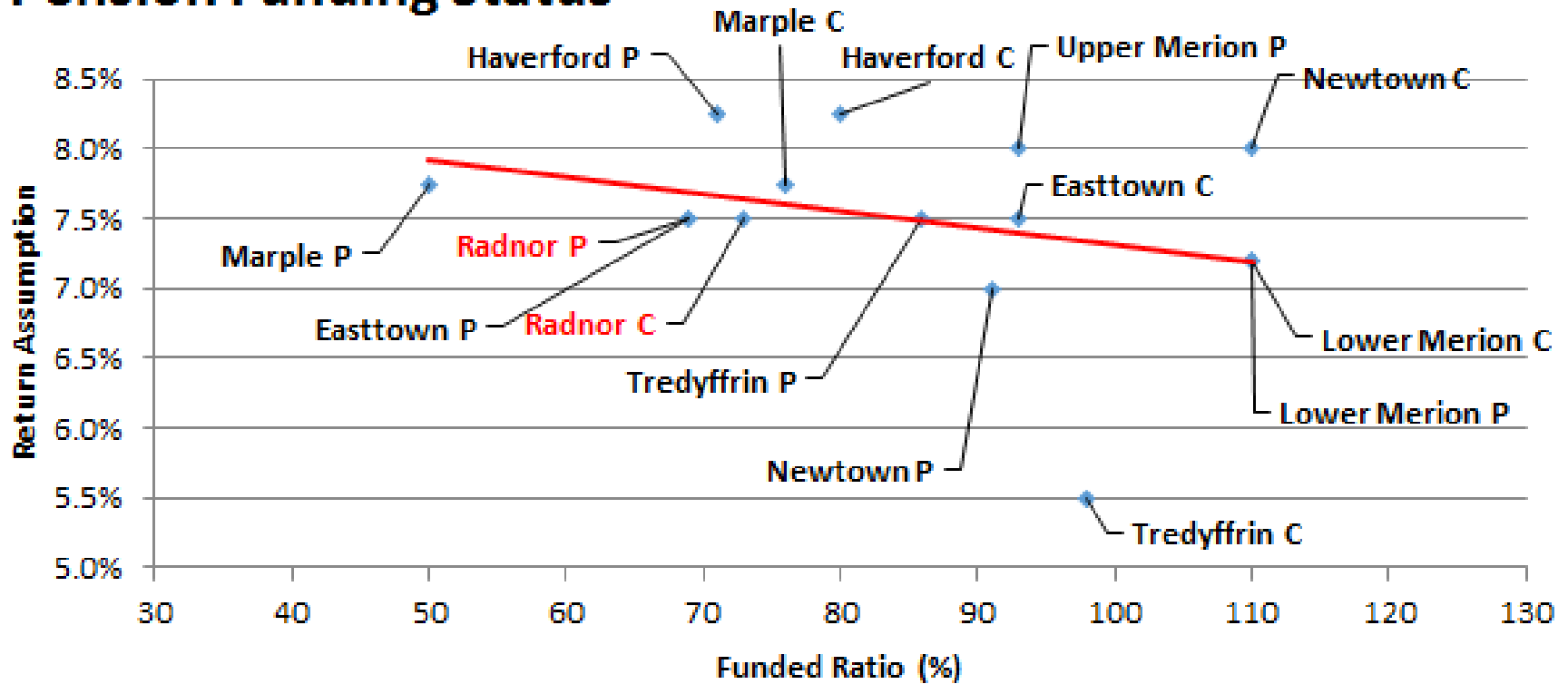
- Establishment of total member contributions
- Deviation from municipal contribution limitations
- Utilization of the special taxing authority under Act 205
- May pay 75% or more of the amortization requirement for 6 years
- Increase in the asset smoothing corridor from 20% to 30% for an additional 4 years (expired on 12/31/2014, whether elected or not elected)

Mandatory Remedies –

- Aggregation of pension funds for administration and investment
- Establishment of a revised benefit plan for newly hired employees
- Submission of a plan for administrative improvement

RADNOR'S RATE OF RETURN ASSUMPTION IS AT THE MIDPOINT OF NEIGHBORS, BUT BELOW THE **TREND LINE** FOR FUNDED RATIO

Pension Funding Status



P = Police, C = Civilian

Upper Merion does not have a defined benefit civilian plan

AMORTIZATION ANALYSIS POLICE

Source	Original Amount	Year Est.	Target Year	Remaining Balance	Remaining Payments	Annual Amount	
Ben Mod. - Actives	\$ 385,900	2005	2017	\$ 124,806	3	\$ 44,645	Normal retirement changed to 50, from 52
Experience Loss	\$ 1,086,335	2005	2017	\$ 351,339	3	\$ 125,678	Returns < 8.0% on a smoothed basis; 2 disability retirements; salary increases > assumed (Note: also changed to on-going basis (from termination) impact on disability assumption
Experience Gain	\$ (6,479)	2007	2020	\$ (3,608)	6	\$ (714)	Termination of 6 participants from active service; returns > 8.0%, offset by delay in contribution adj
Assumption Change	\$ (1,651,226)	2009	2022	\$ (1,142,941)	8	\$ (181,517)	Cap of smoothing increased to 130%
Ben Mod. - Actives	\$ 342,650	2009	2022	\$ 237,173	8	\$ 37,667	\$500 maximum placed on \$100/year service increment
Experience Loss	\$ 3,873,303	2009	2022	\$ 2,681,006	8	\$ 425,787	Returns < 8.0%; also 1 disability retirement
Assumption Change	\$ 1,620,713	2011	2024	\$ 1,310,461	10	\$ 177,596	Return assumption changed to 7.5%, salary increases to 5% (from 5.5%), mortality tables; final pay assumption increased by 20% for unused leave pay; change assum on actual retire age; pre-retire death calc
Experience Loss	\$ 5,208,296	2011	2024	\$ 4,211,274	10	\$ 570,720	Losses on value of actuarial assets, continued recognition of 2007-08 losses and deferral of 2009-10 gains; 1 disability retirement; impact of lump sum payouts on actual retirements
Experience Loss	\$ 4,328,265	2013	2032	\$ 4,120,870	18	\$ 394,948	Delay in contribution adj; returns < 8.0%, 1 disability retirement; lower than expected mortality; impact of lump sums in actual retirements
Assumption Change	\$ 159,012	2015	2029	\$ 159,012	15	\$ 16,757	Change in valuation of disability benefit
Experience Gain	\$ (341,664)	2015	2034	\$ (341,664)	20	\$ (31,176)	Excess contributions and returns > 7.5%, largely offset by 2 disability retirements
				\$ 11,707,728		\$ 1,580,391	
Ben Mod. - Actives				\$ 361,979		\$ 82,312	
Assumption Change				\$ 326,532		\$ 12,836	
Experience Loss				\$ 11,364,489		\$ 1,517,133	
Experience Gain				\$ (345,272)		\$ (31,890)	
				\$ 11,707,728		\$ 1,580,391	

AMORTIZATION ANALYSIS CIVILIAN

Source	Original Amount	Year Est.	Target Year	Remaining Balance	Remaining Payments	Annual Amount	
Ben Mod. - Actives	\$ 462,381	1999	2018	\$ 154,357	4	\$ 42,870	?
Assumption Change	\$ (481,718)	2001	2018	\$ (168,901)	4	\$ (46,911)	Return assumption increased from 7.5% to 8.0%; mortality table changes
Ben Mod. - Actives	\$ 1,157,629	2001	2018	\$ 405,896	4	\$ 112,733	Final comp based on 36 months (vs 48), early retirement at 62; joint survivor option, pre-retire death benefit
Experience Loss	\$ 550,341	2001	2015	\$ 59,024	1	\$ 59,024	Addition of 3 participants given back credit to date of hire
Assumption Change	\$ 2,075,939	2003	2020	\$ (1,016,394)	6	\$ (201,430)	Four year smoothing of actuarial assets; discontinue load to pre-retire death benefit
Ben Mod. - Actives	\$ 434,740	2003	2020	\$ 212,851	6	\$ 42,183	Retire at 55 with 15 years; 10 year certain benefit
Experience Loss	\$ 3,411,929	2003	2017	\$ 1,018,947	3	\$ 364,487	81% due to 2001-02 returns < 8.0%; remainder primarily salary increase > 5.5% assumption
Experience Loss	\$ 1,578,246	2005	2019	\$ 730,568	5	\$ 167,972	Primarily returns < 8.0% (on smoothed basis). Also, salary increases > 5.5% and delay in contributin adj
Experience Gain	\$ (244,069)	2007	2021	\$ (147,388)	7	\$ (25,885)	Salary increases < 5.5%, partially offset by delay in contribution adjustment
Assumption Change	\$ (976,177)	2009	2027	\$ (798,621)	13	\$ (91,425)	Cap of smoothing increased to 130%
Ben Mod. - Actives	\$ 3,750,196	2009	2027	\$ 3,068,083	13	\$ 351,229	23 participants in Early Retirement Incentive Program (ERIP)
Experience Loss	\$ 2,965,604	2009	2027	\$ 2,426,199	13	\$ 277,747	Returns < 8.0%, amortized over 19 years (previously 15 years)
Assumption Change	\$ 1,607,866	2011	2025	\$ 1,332,507	11	\$ 169,443	Return assumption changed to 7.5%, salary increases to 5% (from 5.5%), mortality tables
Experience Loss	\$ 2,533,864	2011	2028	\$ 2,216,189	14	\$ 242,848	Losses on value of actuarial assets, continued recognition of 2007-08 losses and deferral of 2009-10 gains
Experience Loss	\$ 642,316	2013	2032	\$ 611,539	18	\$ 58,610	Delay in contribution adjustment; returns < 7.5%; offset by salary increases < 5.0%
Experience Gain	\$ (1,446,623)	2015	2034	\$ (1,446,623)	20	\$ (132,002)	Primarily excess contribution in 2013. Also, returns > 7.5%
				\$ 8,658,233		\$ 1,391,493	

Ben Mod. - Actives				\$ 3,841,187		\$ 549,015
Assumption Change				\$ (651,409)		\$ (170,323)
Experience Loss				\$ 7,062,466		\$ 1,170,688
Experience Gain				\$ (1,594,011)		\$ (157,887)
				\$ 8,658,233		\$ 1,391,493