CITY OF NEWPORT BEACH
MISCELLANEOUS AND SAFETY PLANS

BARTEL ASSOCIATES, LLC

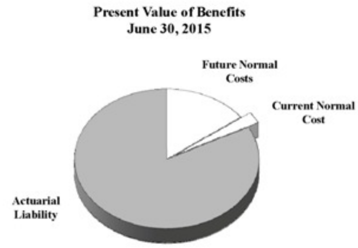
CalPERS Actuarial Issues – 6/30/15 Valuation
Preliminary Results

Presented by **John Bartel, President**
Prepared by Bianca Lin, Assistant Vice President
Matthew Childs, Actuarial Analyst
Bartel Associates, LLC

November 10, 2016

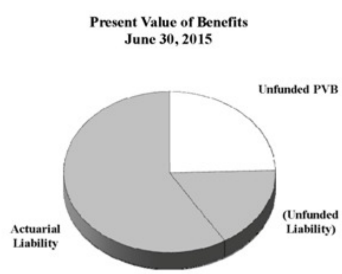
Agenda

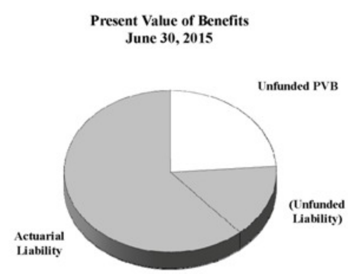
DEFINITIONS



- **PVB - Present Value of all Projected Benefits:**
  - Discounted value (at valuation date - 6/30/15), of all future expected benefit payments based on various (actuarial) assumptions
- **Actuarial Liability:**
  - Discounted value (at valuation date) of benefits earned through valuation date [value of past service benefit]
  - Portion of PVB "earned" at measurement
- **Current Normal Cost:**
  - Portion of PVB allocated to (or "earned" during) current year
  - Value of employee and employer current service benefit

DEFINITIONS



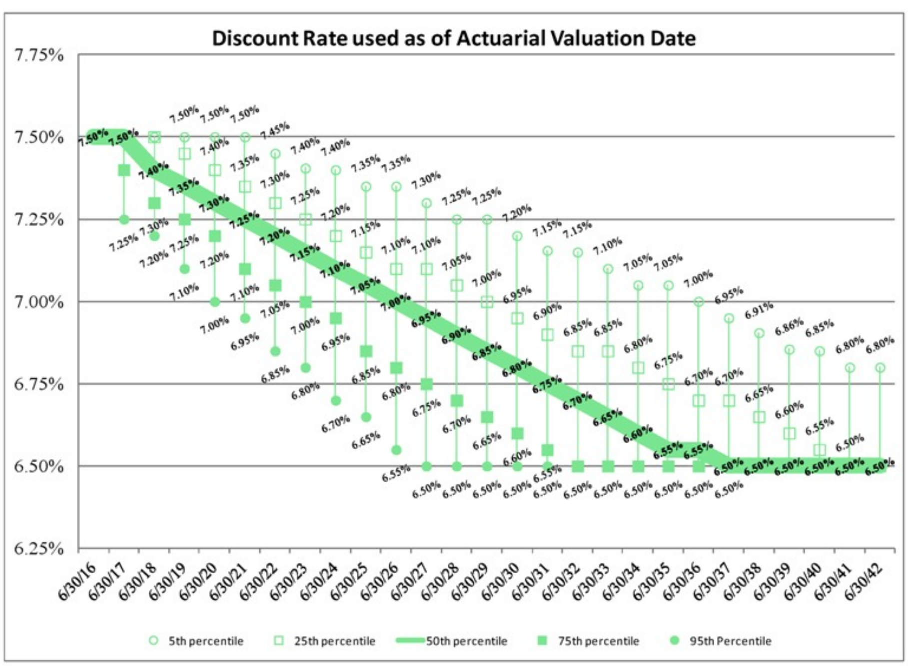


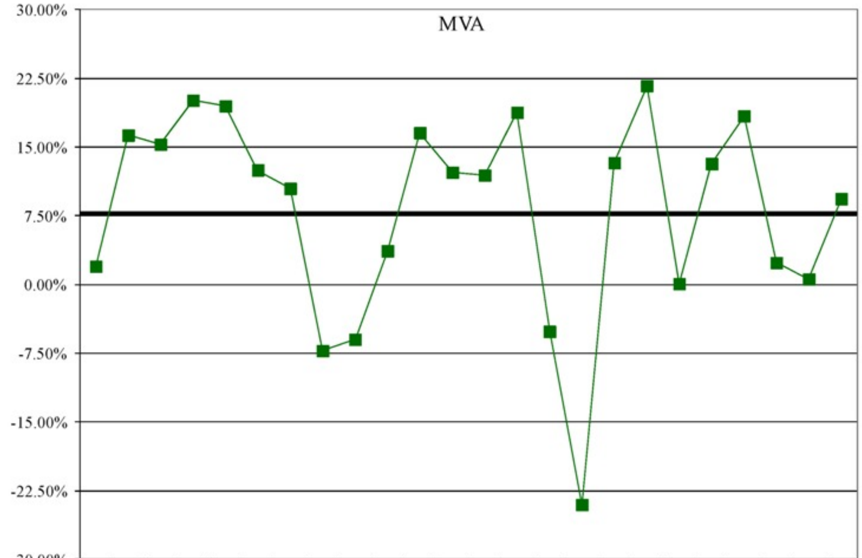
- **Target-** Have money in the bank to cover Actuarial Liability (past service)
- **Unfunded Liability -** Money short of target <u>at valuation date</u>
- **Excess Assets / Surplus:**
  - Money over and above target <u>at that point in time</u>
  - Doesn't mean you're done contributing
- **Super Funded:**
  - Assets cover whole pie (PVB)
  - If everything goes exactly like PERS calculated, you'll never have to put another (employer or employee) dime in

CalPERS Changes

- Contribution policy changes:
  - No asset smoothing
  - No rolling amortization
  - 5-year ramp up
  - Included in 6/30/13 valuation (first impact 15/16 rates; full impact 19/20)
- Assumption changes:
  - Anticipate future mortality improvement
  - Other, less significant, changes
  - Included in 6/30/14 valuation (first impact 16/17 rates; full impact 20/21)
- Risk Mitigation Strategy
  - Move to more conservative investments over time
  - Only when investment return is better than expected
  - Lower discount rate in concert
  - Essentially use ≈50% of investment gains to pay for cost increases
  - Likely get to 6.5% over ≈ 20 years
- CalPERS Board reviewing their Capital Market Assumptions next summer/fall
  - Likely results in reduction to discount rate of 25-50 basis points

CalPERS Changes





	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Est. 2017
MVA	2.0%	16.3%	15.3%	20.1%	19.5%	12.5%	10.5%	-7.2%	-6.0%	3.7%	16.6%	12.3%	11.9%	18.8%	-5.1%	-24.0	13.3%	21.7%	0.1%	13.2%	18.4%	2.4%	0.6%	9.4%

Above assumes contributions, payments, etc. received evenly throughout year.

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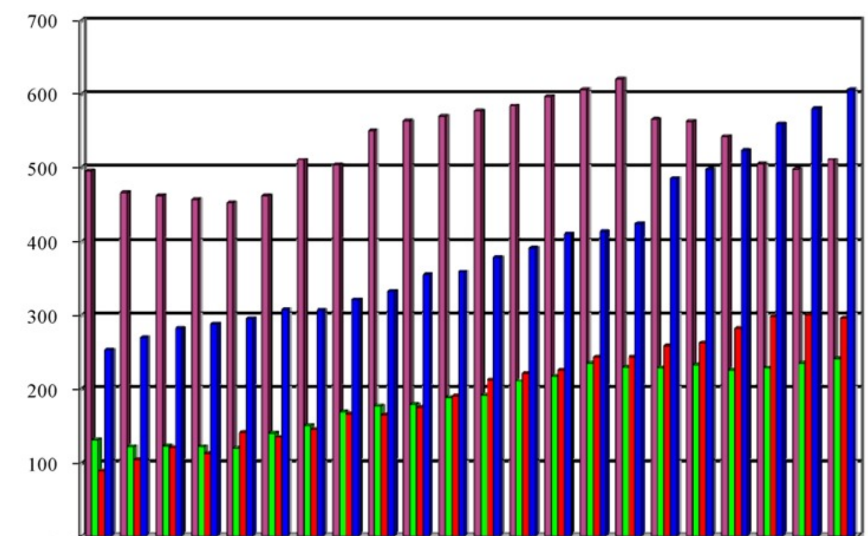
Summary of Demographic Information - Miscellaneous

	1993	2005	2014	2015
Actives				
■ Counts	499	576	497	510
■ Average				
• Age	40	42	44	45
• City Service	9	10	13	12
• PERSable Wages	$40,300	$59,400	$76,200	$77,500
■ Total PERSable Wages (millions)	20.1	34.2	37.9	39.5
Receiving Payments				
■ Counts				
• Service		298	493	516
• Disablity		38	44	45
• Beneficiaries		42	42	44
• Total	234	378	579	605
■ Average Annual City Provided Benefit[1]				
• Service		$13,700	$28,700	$29,000
• Disability		7,200	10,200	10,200
• Service Retirements in last 5 years		22,700	36,200	26,900

[1] Average City provided pensions are based on City service & City benefit formula, and are not representative of benefits for long service employees.

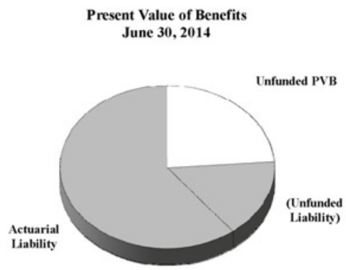
Members Included in Valuation - Miscellaneous

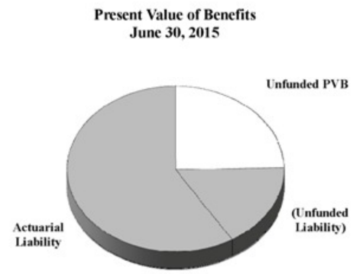


	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Active	495	465	461	456	452	461	510	503	550	563	569
Transfers	130	121	122	121	119	140	150	168	177	179	188
Vested Terminations	88	104	120	112	141	134	145	165	164	175	190
Receiving Payments	253	269	281	288	295	307	306	320	332	354	358

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Active	576	583	596	605	619	565	562	541	504	497	510
Transfers	191	210	217	234	229	228	232	225	228	234	240
Vested Terminations	212	221	225	242	242	258	262	281	298	300	296
Receiving Payments	378	390	410	413	423	485	497	523	559	579	605

PLAN FUNDED STATUS - MISCELLANEOUS

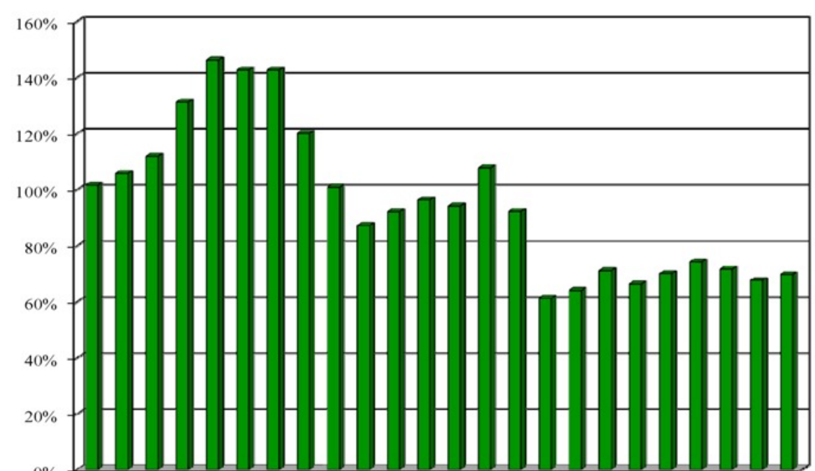




June 30, 2014		June 30, 2015
$ 133,100,000	**Active AAL**	$ 138,500,000
187,600,000	**Retiree AAL**	196,700,000
23,100,000	**Inactive AAL**	21,200,000
343,800,000	**Total AAL**	356,400,000
255,200,000	**Market Asset Value**	255,200,000
(88,600,000)	**(Unfunded Liability)**	(101,200,000)

$217,900,000

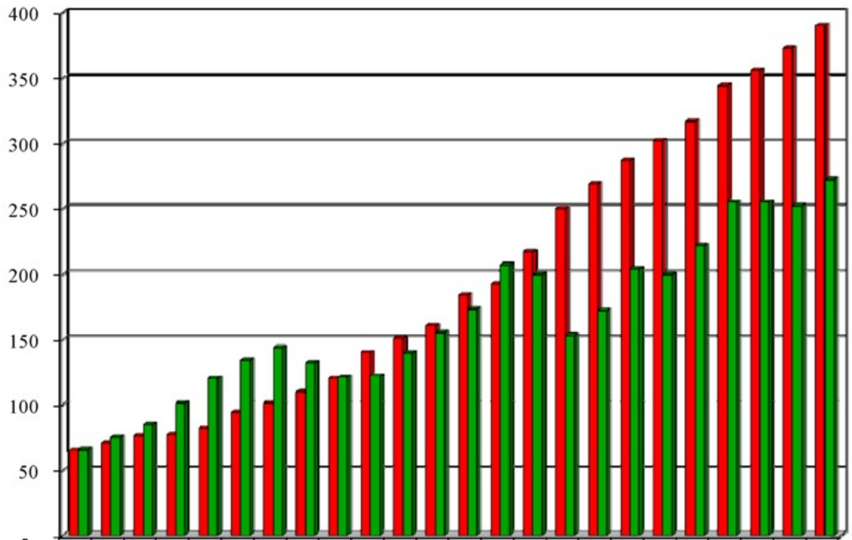
FUNDED RATIO - MISCELLANEOUS



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Funded Ratio - MVA	102%	106%	112%	131%	146%	143%	143%	120%	101%	87%	92%	96%	94%	108%	92%	61%	64%	71%	66%	70%	74%	72%	68%	70%

6/30/16 & 6/30/17 funded status estimated.

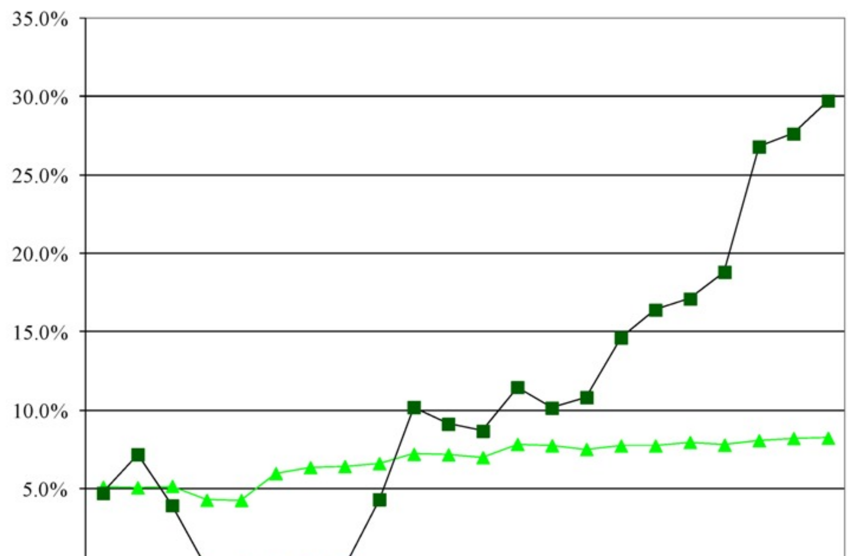
Funded Status (Millions) - Miscellaneous



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Actuarial Liability	65	71	76	77	82	94	101	110	120	140	151	161	184	192	217	250	269	287	302	317	344	356	373	390
Market Asset Value	66	75	85	101	120	134	144	132	121	122	139	155	173	207	200	153	172	204	200	222	255	255	252	272

6/30/16 & 6/30/17 funded status estimated.

Contribution Rates - Miscellaneous



	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
ER Normal Cost	5.1%	5.1%	5.2%	4.3%	4.3%	6.0%	6.4%	6.4%	6.6%	7.2%	7.2%	7.0%	7.9%	7.8%	7.5%	7.7%	7.7%	8.0%	7.8%	8.1%	8.2%	8.2%
Total ER Cont Rate	4.7%	7.2%	3.9%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	10.2%	9.1%	8.7%	11.5%	10.2%	10.8%	14.6%	16.4%	17.1%	18.8%	26.8%	27.6%	29.7%

CONTRIBUTION PROJECTIONS - MISCELLANEOUS

- Market Value Investment Return:
  - June 30, 2016 — 0.6%[2]
  - June 30, 2017 — 9.4%[3]
  - Future returns based on stochastic analysis using 1,000 trials

Single Year Returns at[4]	25th Percentile	50th Percentile	75th Percentile
7.5% Investment Mix	**0.6%**	**7.5%**	**15.3%**
6.5% Investment Mix	**1.3%**	**6.5%**	**11.9%**

- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Excludes Employer Paid Member Contributions (EPMC)
- Tier 2 2%@60 effective 11/24/12
- New hire assumptions:
  - Assumes 50% of 2013 new hires will be Classic Tier 2 Members (2%@60) and 50% will be New Members with PEPRA benefits
  - Assumes Classic Tier 2 Members will decrease from 50% to 0% of new hires over 20 years

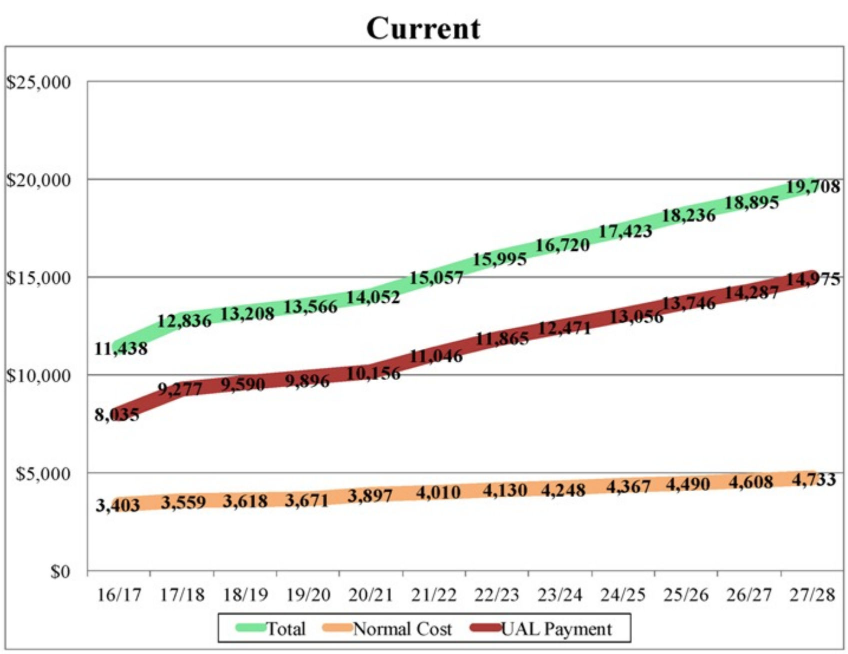
[2] Based on CalPERS press release on 7/18/16, preliminary investment return of 0.61%.
[3] June 30, 2017 return based on CalPERS return of 3.6% through 9/30/16 and assumed future returns for 9 months.
[4] Nth percentile means N percentage of our trials result in returns lower than the indicated rates.

CONTRIBUTION PROJECTIONS - MISCELLANEOUS

- Current Amortization
  - 2014 Base – 17 years level % of pay
  - 2014 Credit – 29 years (ramp up and ramp down)
  - 2015 Loss - 30 years (ramp up and ramp down)
  - 2016 Loss – 30 years (ramp up and ramp down), 1st payment in 2018/19
- Alternative #1 Amortization
  - 2014 Base – 17 years level % of pay
  - 2014 Credit – 29 years (ramp up and ramp down)
  - 2015 Loss – 20 years level % of pay
  - 2016 Loss – 20 years level % of pay, 1st payment in 2017/18
- Alternative #2 Amortization
  - 2014 Base – 17 years level dollar
  - 2014 Credit – 17 years level dollar
  - 2015 Loss – 17 years level dollar
  - 2016 Loss – 17 years level dollar, 1st payment in 2017/18

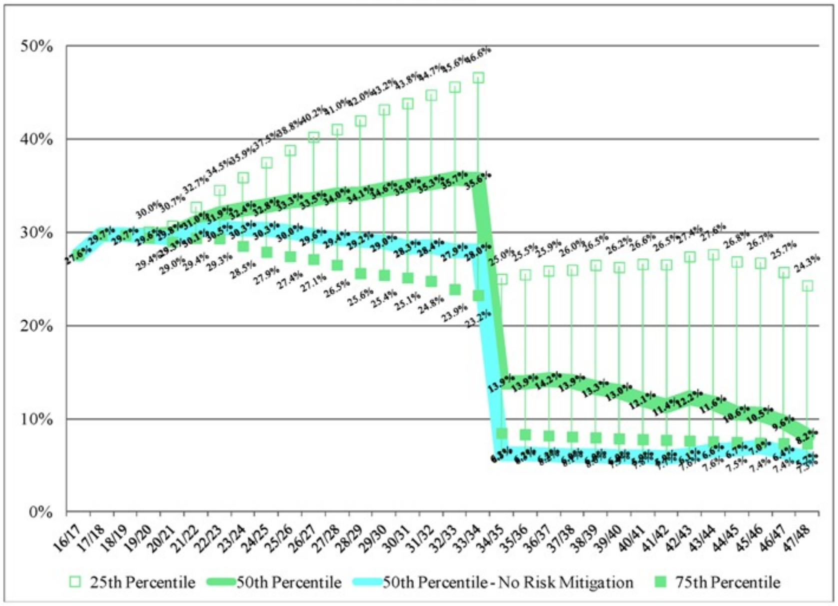
Contribution Projections - Miscellaneous

Contribution Projections - Miscellaneous



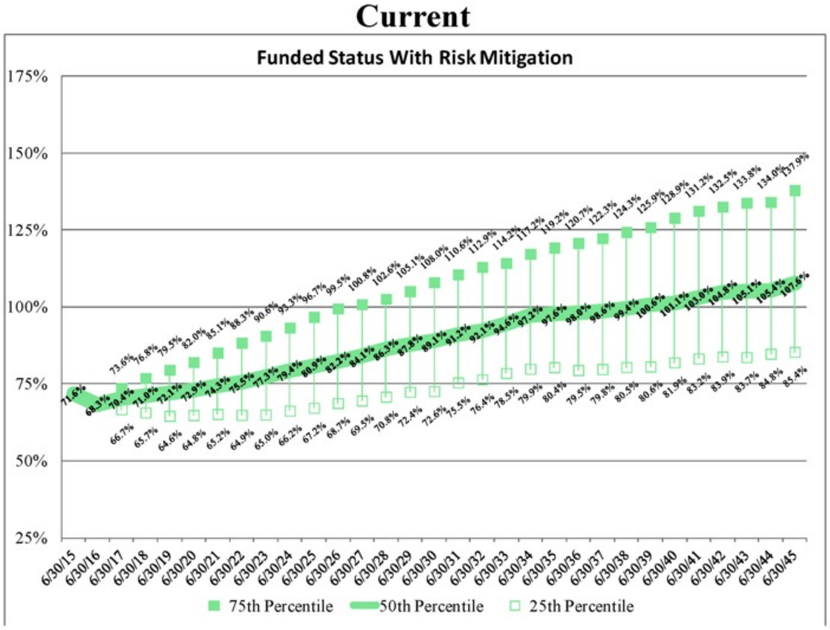
CONTRIBUTION PROJECTIONS - MISCELLANEOUS

Current

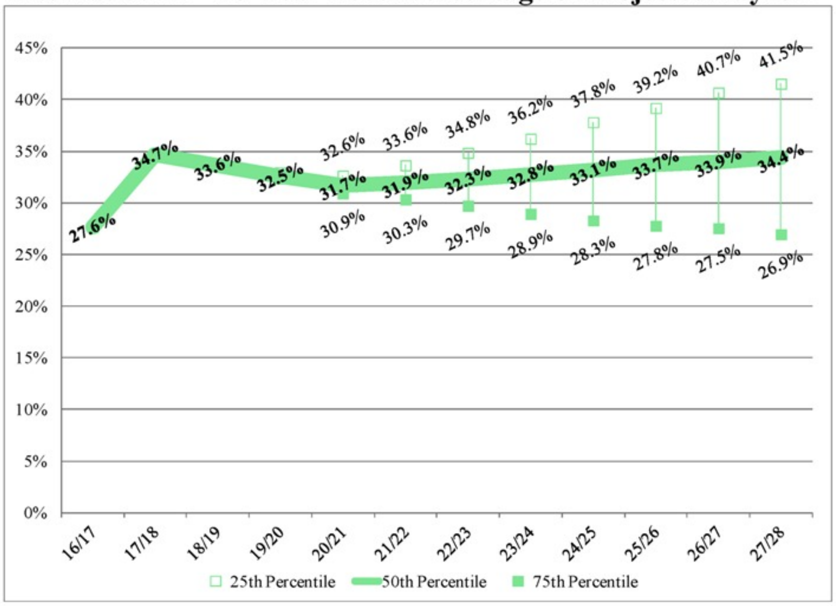


FUNDED STATUS - MISCELLANEOUS

Current

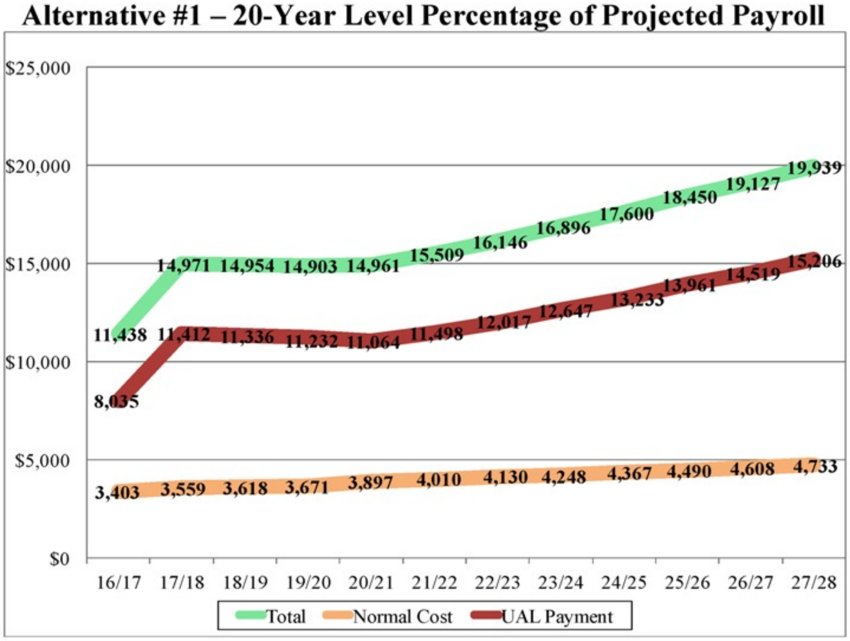


Alternative #1 – 20-Year Level Percentage of Projected Payroll



ALTERNATIVE #1 - MISCELLANEOUS

Alternative #1 – 20-Year Level Percentage of Projected Payroll



ALTERNATIVE #1 - MISCELLANEOUS

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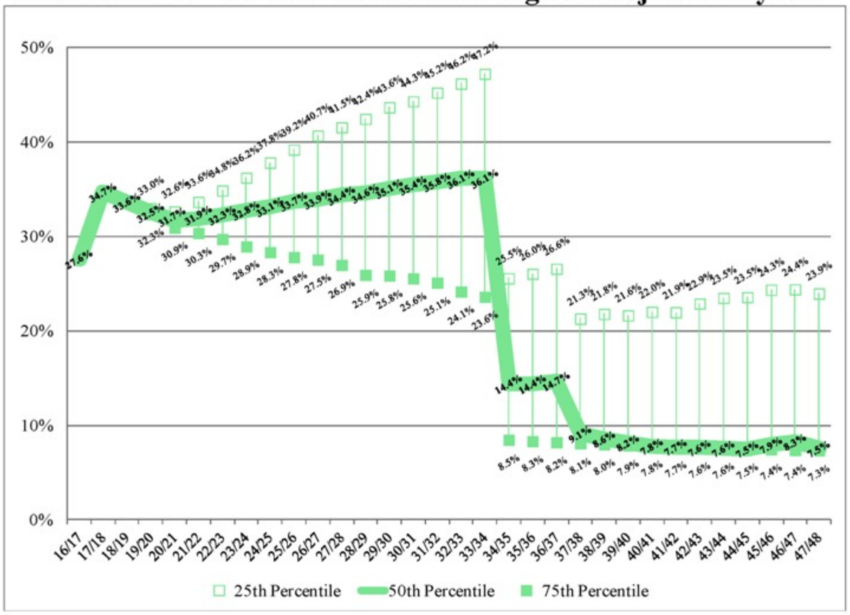

ALTERNATIVE #1 - MISCELLANEOUS

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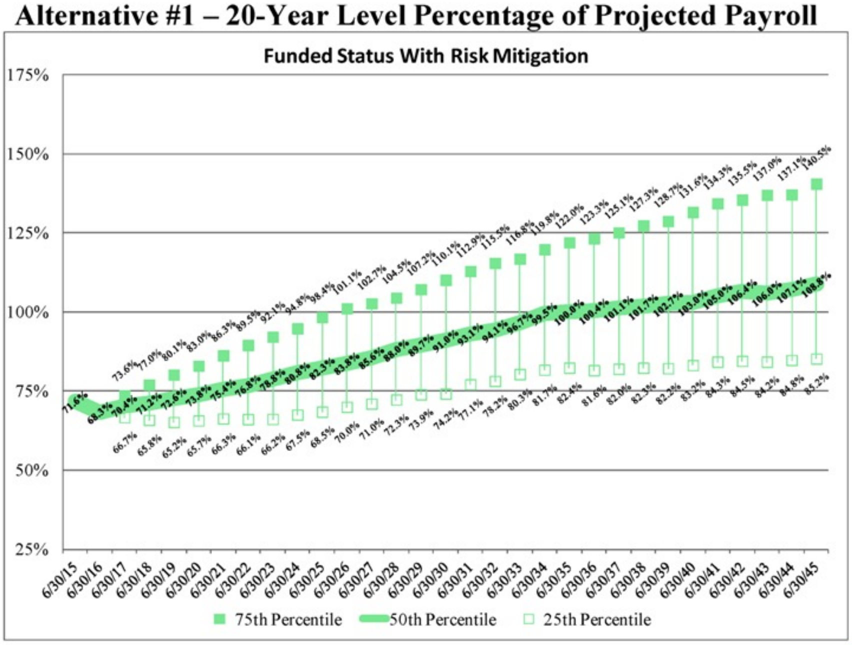
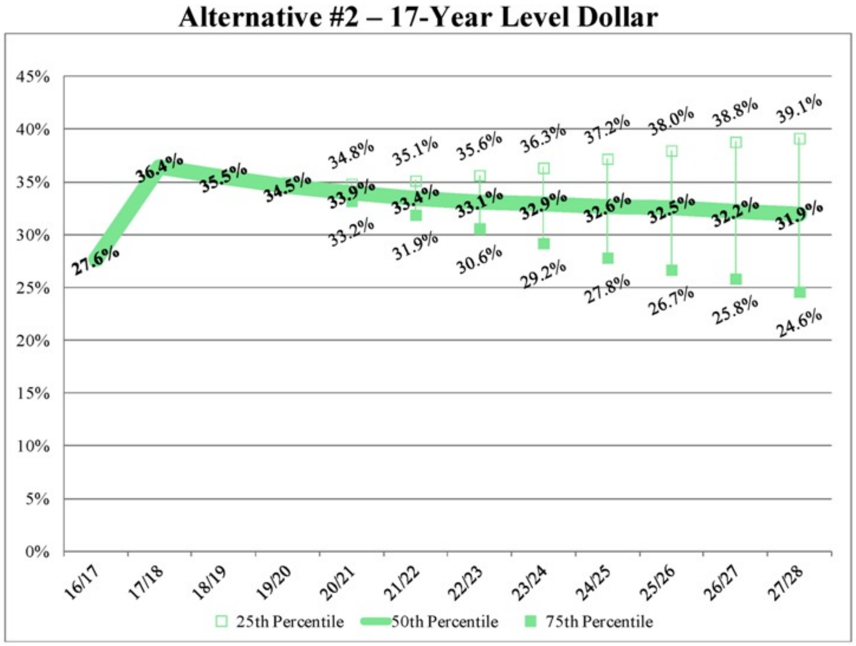
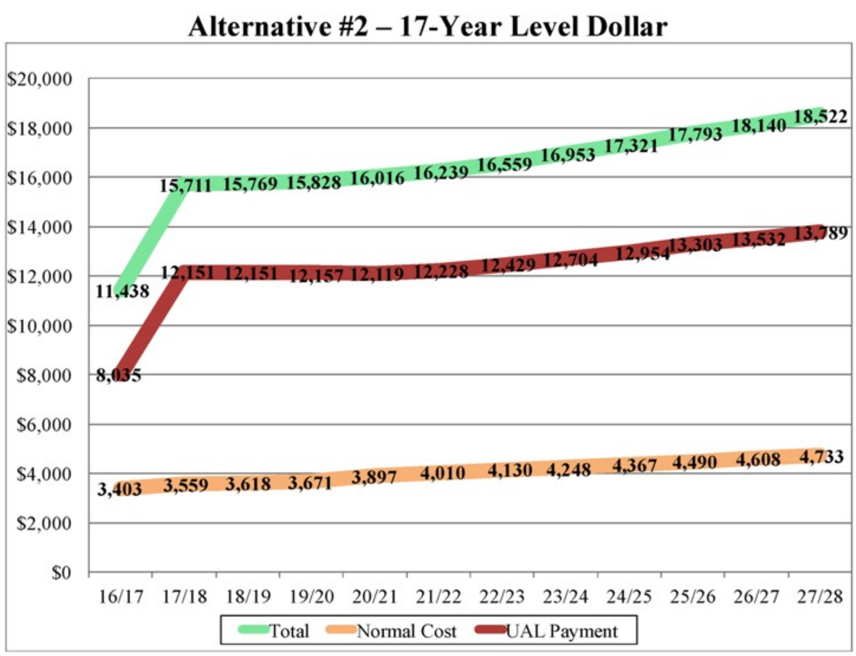


ALTERNATIVE #2 - MISCELLANEOUS

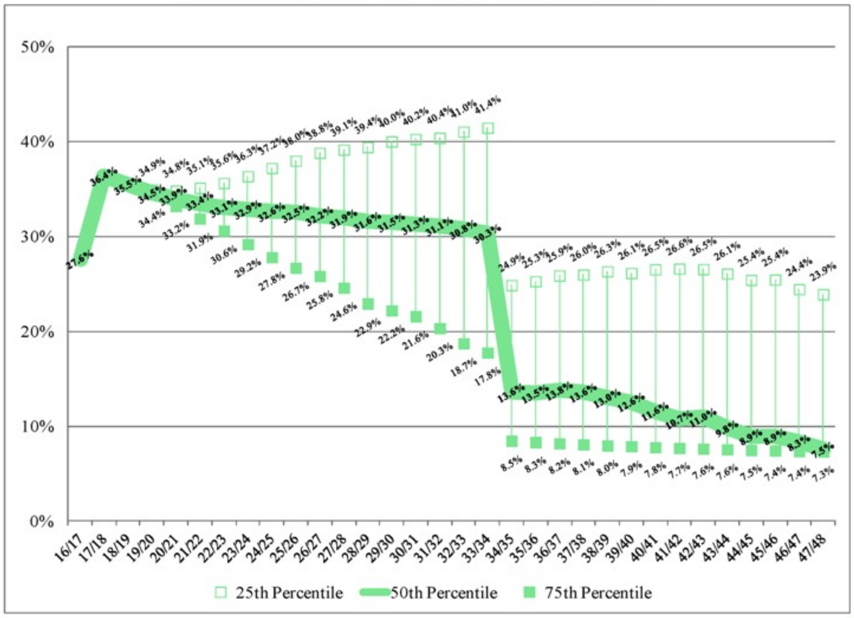


ALTERNATIVE #2 - MISCELLANEOUS



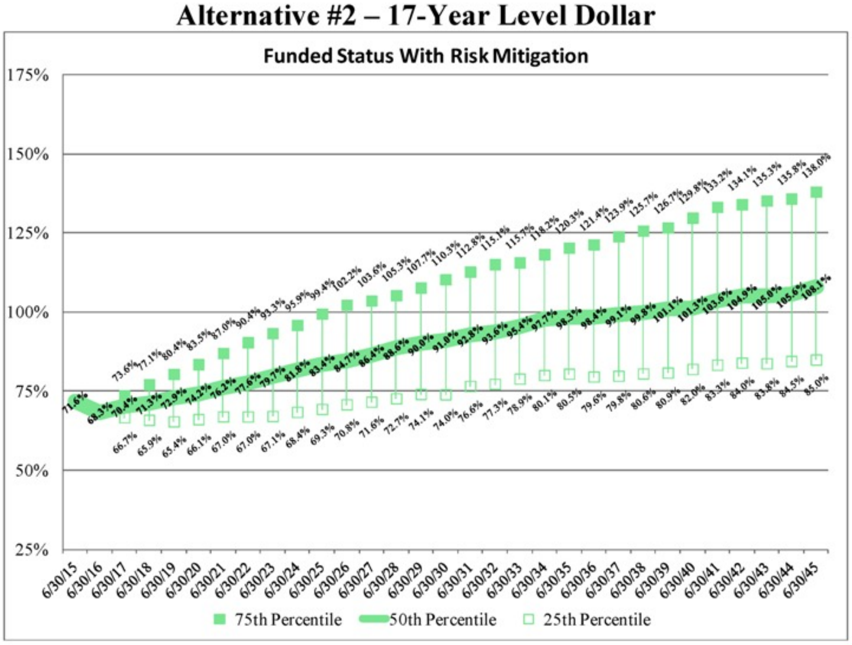
ALTERNATIVE #2 - MISCELLANEOUS

Alternative #2 – 17-Year Level Dollar

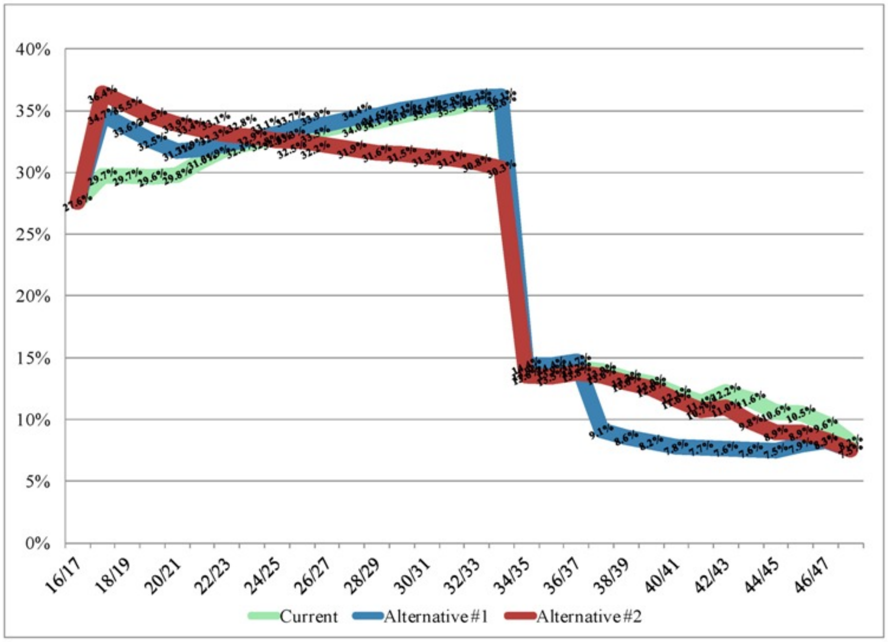


ALTERNATIVE #2 - MISCELLANEOUS

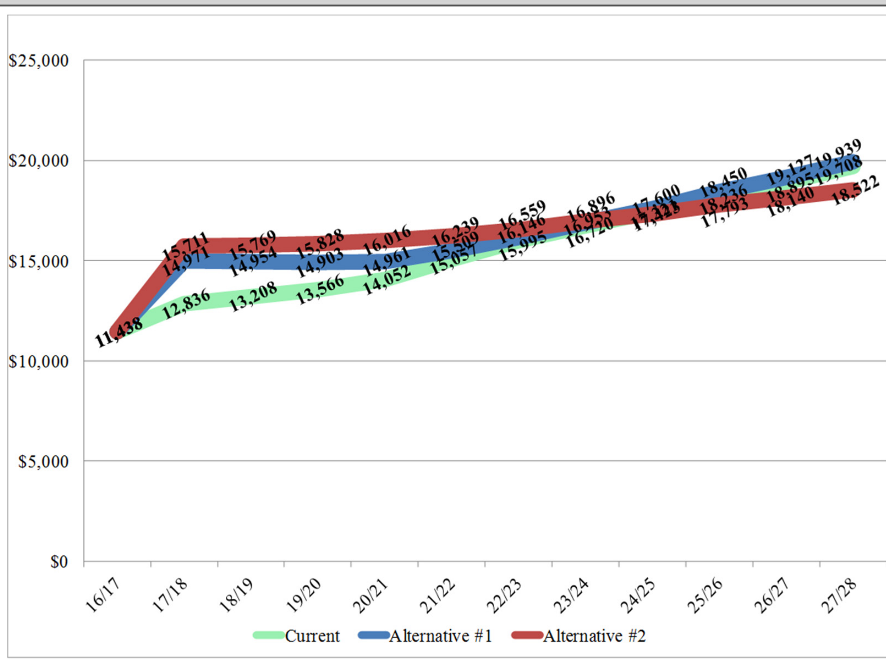
Alternative #2 – 17-Year Level Dollar



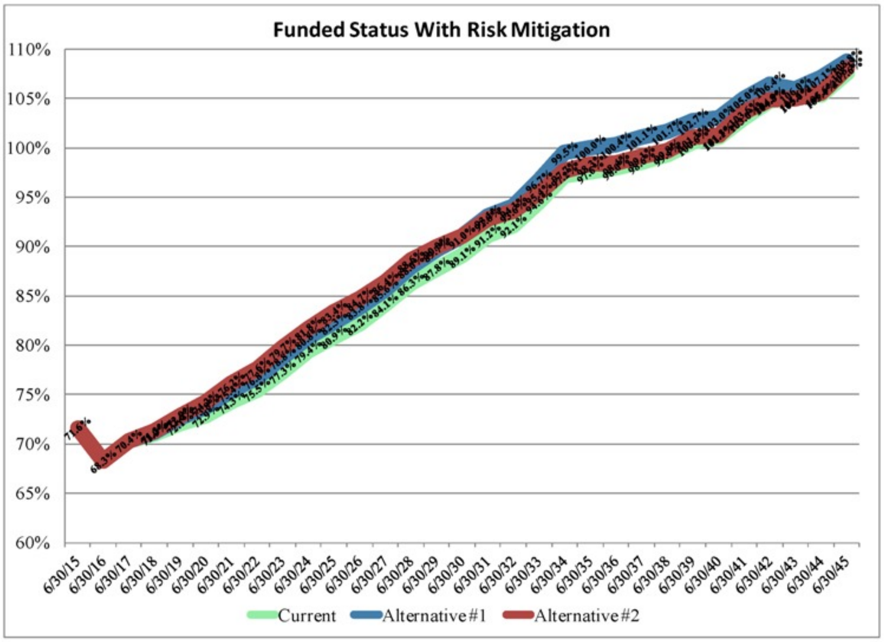
ALTERNATIVE COMPARISON - MISCELLANEOUS



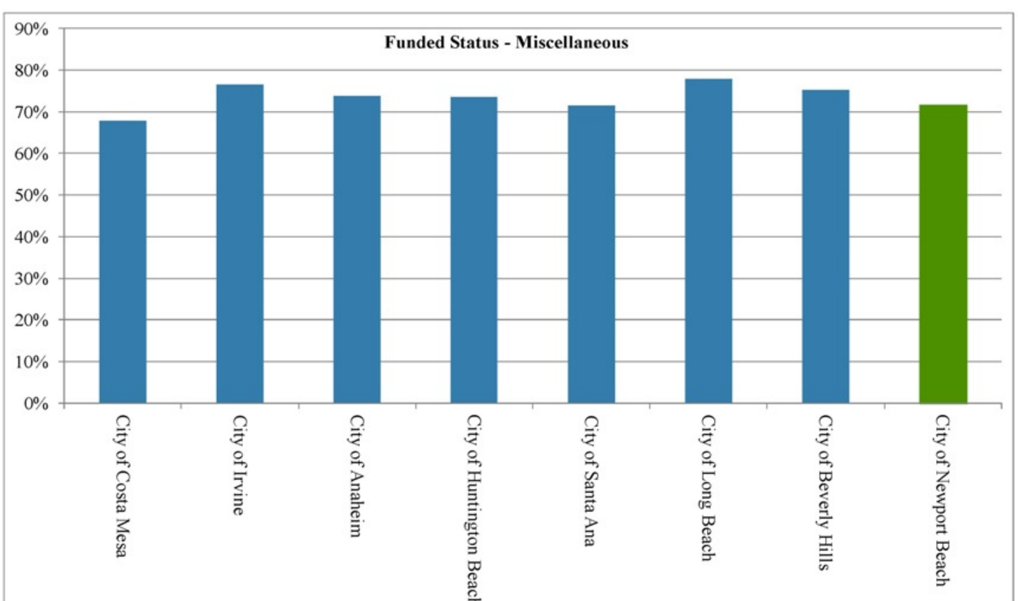
ALTERNATIVE COMPARISON - MISCELLANEOUS



Alternative Comparison - Miscellaneous

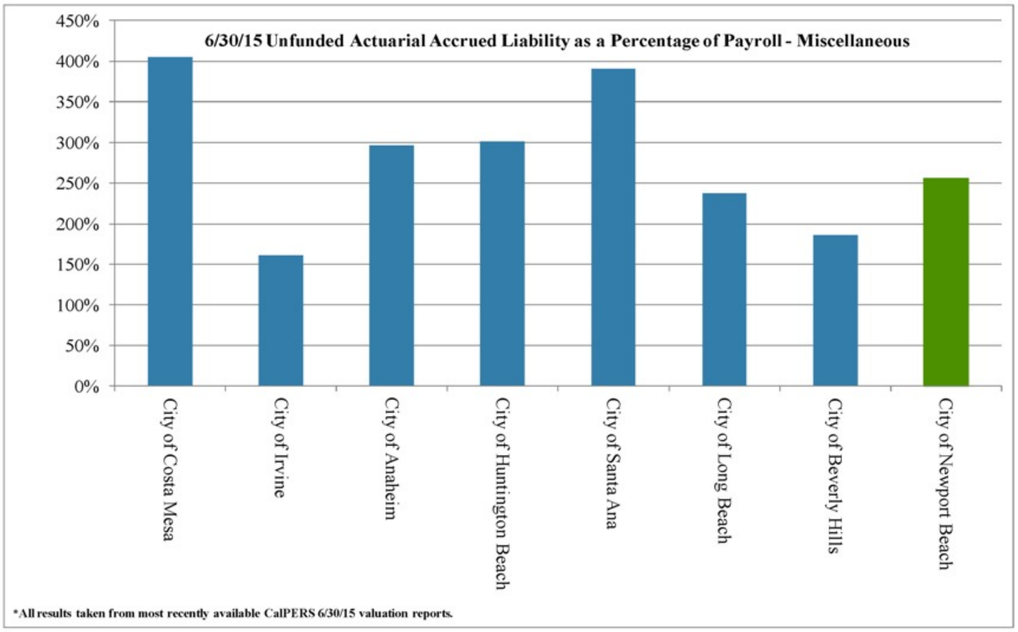


Agency Comparison - Miscellaneous

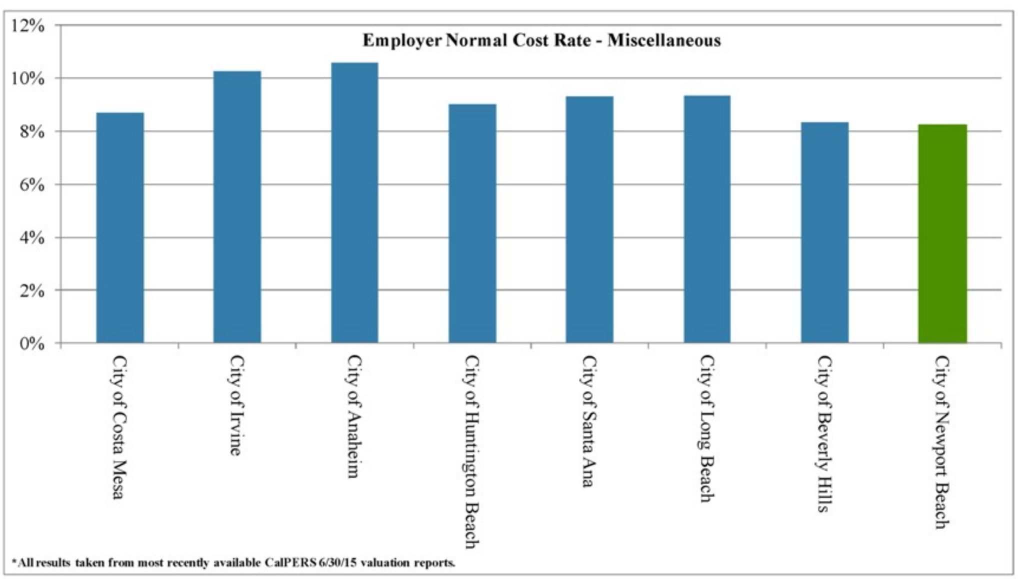


*All results taken from most recently available CalPERS 6/30/15 valuation reports.

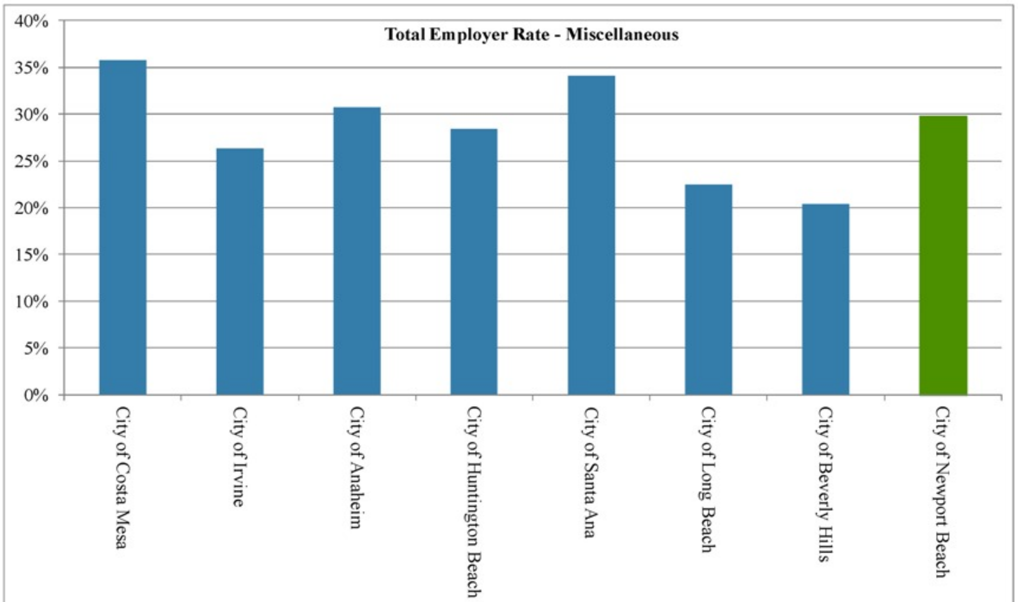
AGENCY COMPARISON - MISCELLANEOUS



AGENCY COMPARISON - MISCELLANEOUS



AGENCY COMPARISON - MISCELLANEOUS



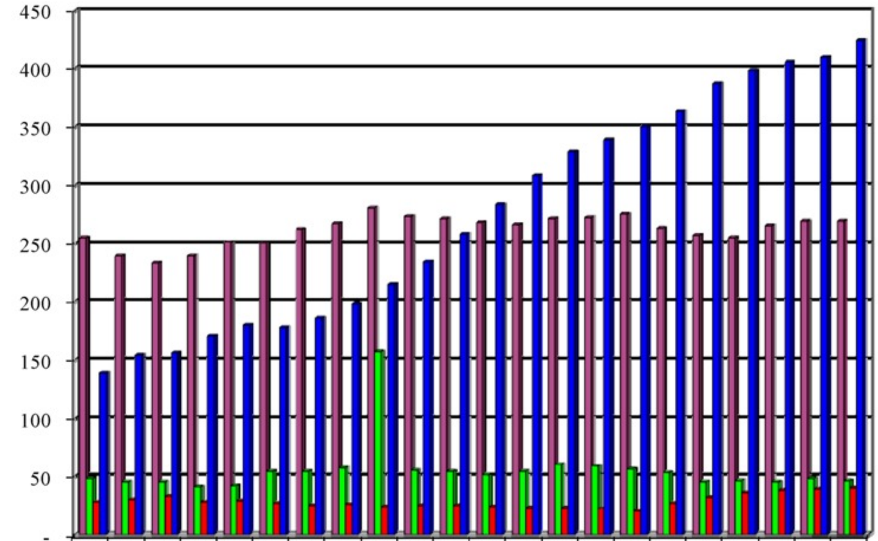
*All results taken from most recently available CalPERS 6/30/15 valuation reports.

SUMMARY OF DEMOGRAPHIC INFORMATION - SAFETY

	1993	2005	2014	2015
Actives				
■ Counts	263	268	269	269
■ Average				
• Age	39	40	39	39
• City Service	14	13	11	11
• PERSable Wages	$54,000	$90,700	$111,200	$111,800
■ Total PERSable Wages (millions)	14.2	24.3	29.9	30.1
Receiving Payments				
■ Counts				
• Service		153	255	263
• Disablity		108	124	126
• Beneficiaries		22	31	35
• Total	132	283	410	424
■ Average Annual City Provided Benefit[5]				
• Service		$13,700	$73,100	$76,500
• Disability		7,200	43,800	44,500
• Service Retirements in last 5 years		62,300	90,200	93,000

[5] Average City provided pensions are based on City service & City benefit formula, and are not representative of benefits for long service employees.

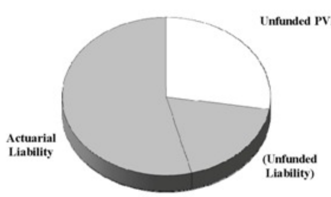
Members Included in Valuation - Safety



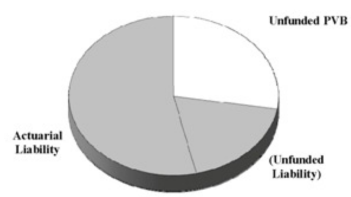
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Active	255	239	233	239	251	250	262	267	280	273	271	268	266	271	272	275	263	257	255	265	269	269
Transfers	48	45	45	41	42	54	54	57	157	55	54	51	54	60	59	56	53	45	46	45	48	46
Vested Terminations	28	30	33	28	29	27	25	26	24	25	25	24	23	23	22	20	27	32	36	38	39	40
Receiving Payments	139	154	156	170	180	178	186	198	215	234	258	283	308	329	339	350	363	387	398	406	410	424

Plan Funded Status - Safety

Present Value of Benefits
June 30, 2014



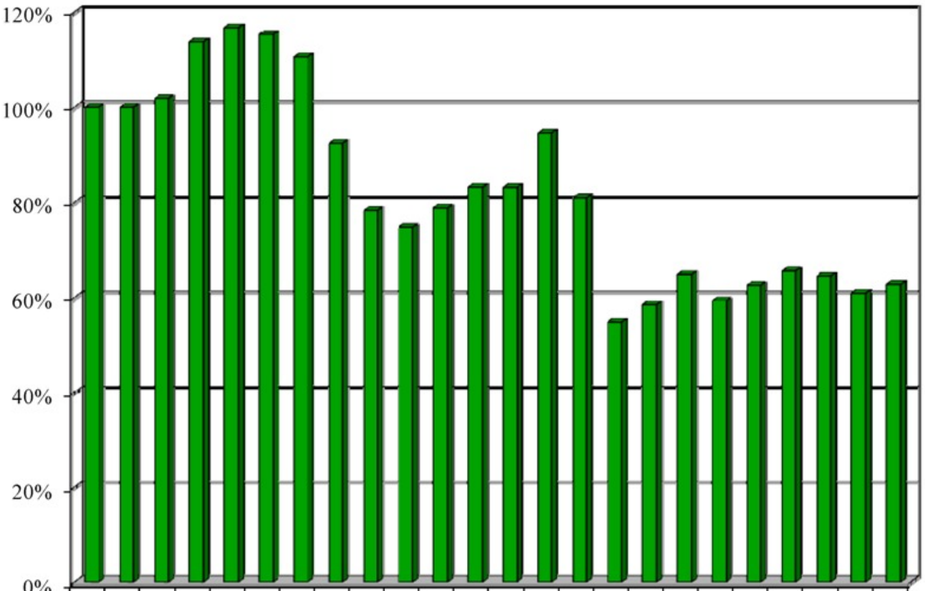
Present Value of Benefits
June 30, 2015



June 30, 2014		June 30, 2015
$ 120,500,000	**Active AAL**	$ 117,600,000
343,400,000	**Retiree AAL**	365,500,000
12,100,000	**Inactive AAL**	8,900,000
476,000,000	**Total AAL**	492,000,000
312,100,000	**Market Asset Value**	317,500,000
(163,900,000)	**(Unfunded Liability)**	(174,500,000)

$374,400,000

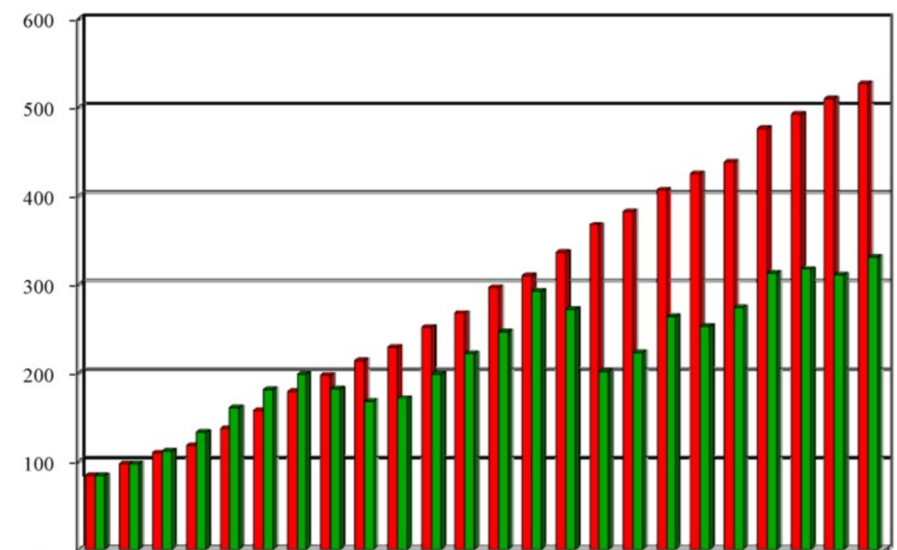
FUNDED RATIO - SAFETY



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Funded Ratio - MVA	100%	100%	102%	114%	117%	115%	111%	92%	78%	75%	79%	83%	83%	94%	81%	55%	58%	65%	59%	63%	66%	64%	61%	63%

6/30/16 & 6/30/17 funded status estimated.

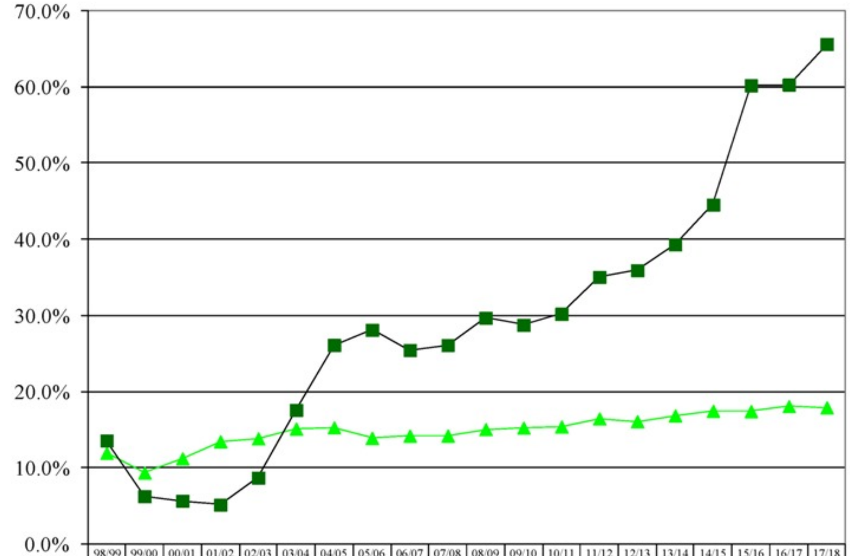
FUNDED STATUS (MILLIONS) - SAFETY



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Actuarial Liability	84	97	109	117	137	157	179	197	213	229	251	267	296	309	336	367	382	406	425	438	476	492	509	527
Market Asset Value	84	97	111	133	160	181	198	182	167	171	198	222	246	292	272	201	223	263	252	274	312	317	310	331

6/30/16 & 6/30/17 funded status estimated.

CONTRIBUTION RATES - SAFETY



	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
ER Normal Cost	11.9%	9.3%	11.2%	13.5%	13.9%	15.1%	15.3%	13.9%	14.2%	14.2%	15.0%	15.3%	15.4%	16.5%	16.1%	16.9%	17.5%	17.4%	18.1%	17.9%
Total ER Cont Rate	13.6%	6.3%	5.7%	5.2%	8.7%	17.6%	26.1%	28.1%	25.5%	26.1%	29.7%	28.8%	30.2%	35.0%	35.9%	39.3%	44.5%	60.2%	60.3%	65.6%

CONTRIBUTION PROJECTIONS - SAFETY

- Market Value Investment Return:
  - June 30, 2016 0.6%[6]
  - June 30, 2017 9.4%[7]
  - Future returns based on stochastic analysis using 1,000 trials

Single Year Returns at[8]	25th Percentile	50th Percentile	75th Percentile
7.5% Investment Mix	**0.6%**	**7.5%**	**15.3%**
6.5% Investment Mix	**1.3%**	**6.5%**	**11.9%**

- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Excludes Employer Paid Member Contributions (EPMC)
- Tier 2 Police 3%@55 and Fire 2%@50 effective 11/24/12
- New hire assumptions:
  - Assumes 50% of 2013 new hires will be Classic Tier 2 Members and 50% will be New Members with PEPRA benefits
  - Assumes Classic Tier 2 Members will decrease from 50% to 0% of new hires over 10 years

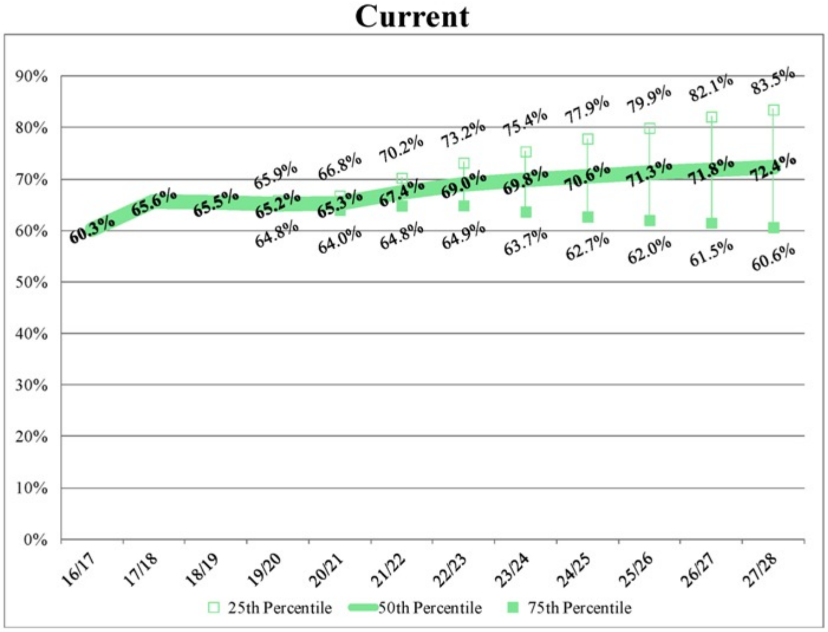
6 Based on CalPERS press release on 7/18/16, preliminary investment return of 0.61%.
7 June 30, 2017 return based on CalPERS return of 3.6% through 9/30/16 and assumed future returns for 9 months.
8 N^{th} percentile means N percentage of our trials result in returns lower than the indicated rates.

CONTRIBUTION PROJECTIONS - SAFETY

- Current Amortization
  - 2014 Base – 17 years level % of pay
  - 2014 Credit – 29 years (ramp up and ramp down)
  - 2015 Loss - 30 years (ramp up and ramp down)
  - 2016 Loss – 30 years (ramp up and ramp down), 1st payment in 2018/19
- Alternative #1 Amortization
  - 2014 Base – 17 years level % of pay
  - 2014 Credit – 29 years (ramp up and ramp down)
  - 2015 Loss – 20 years level % of pay
  - 2016 Loss – 20 years level % of pay, 1st payment in 2017/18
- Alternative #2 Amortization
  - 2014 Base – 17 years level dollar
  - 2014 Credit – 17 years level dollar
  - 2015 Loss – 17 years level dollar
  - 2016 Loss – 17 years level dollar, 1st payment in 2017/18

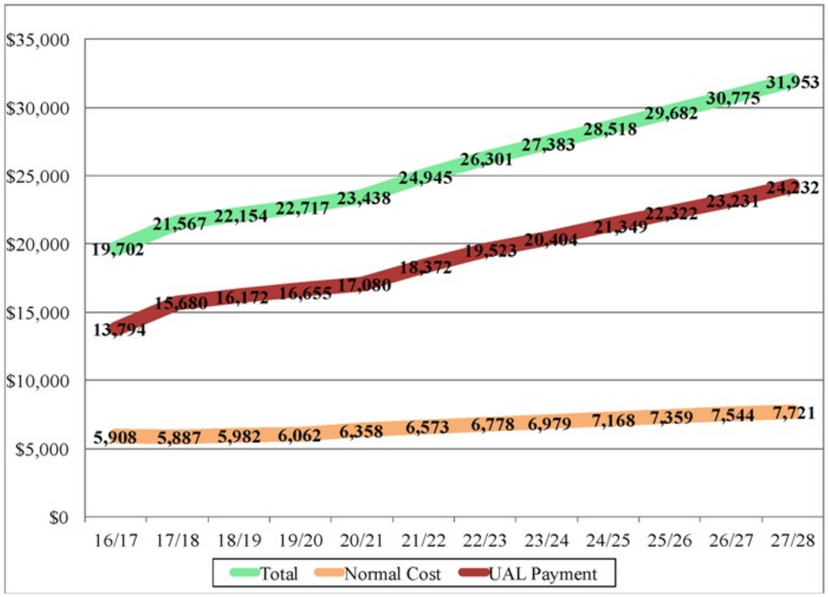
CONTRIBUTION PROJECTIONS - SAFETY

Current



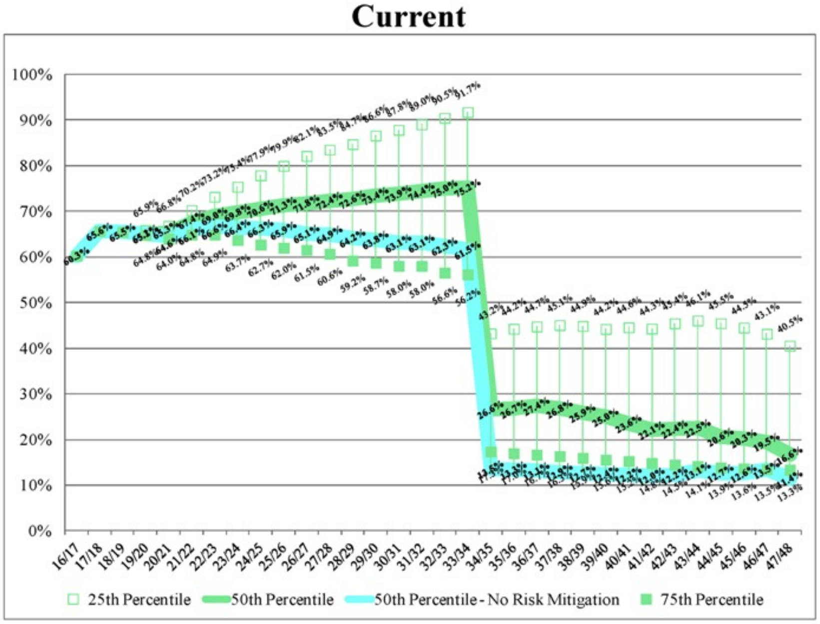
CONTRIBUTION PROJECTIONS - SAFETY

Current



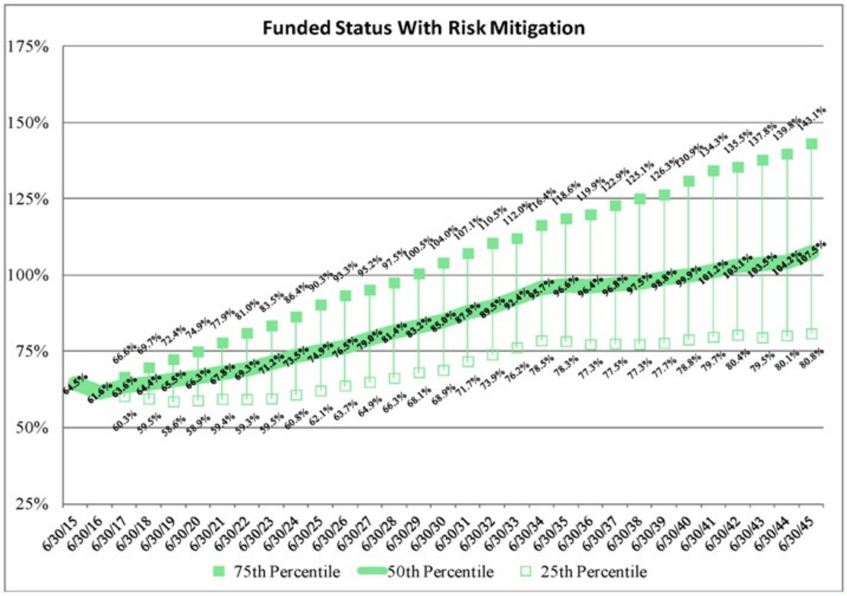
CONTRIBUTION PROJECTIONS - SAFETY

Current



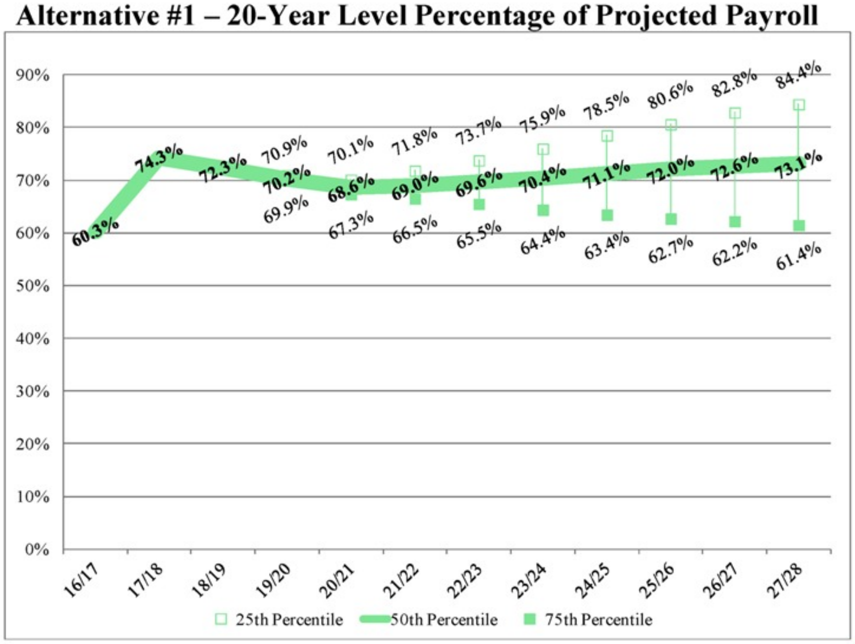
Funded Status - Safety

Current



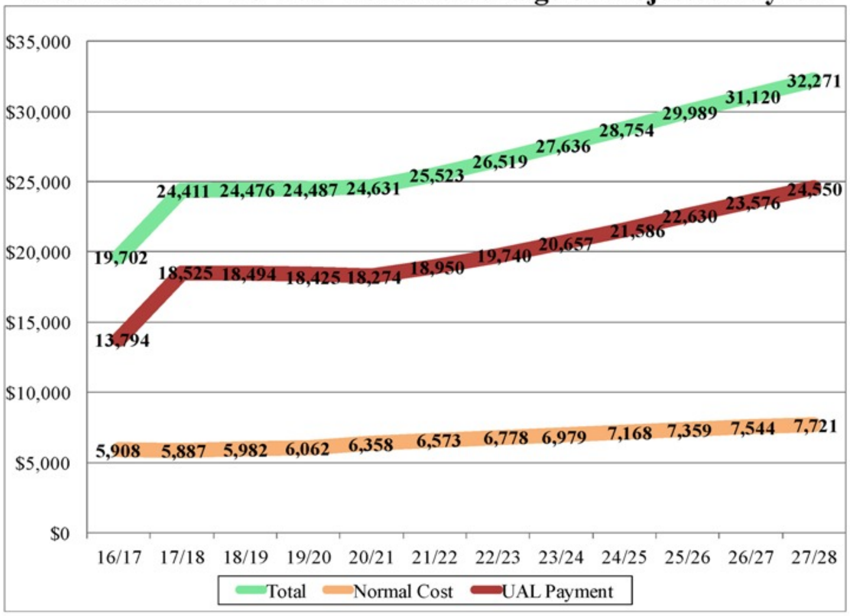
Alternative #1 - Safety

Alternative #1 – 20-Year Level Percentage of Projected Payroll



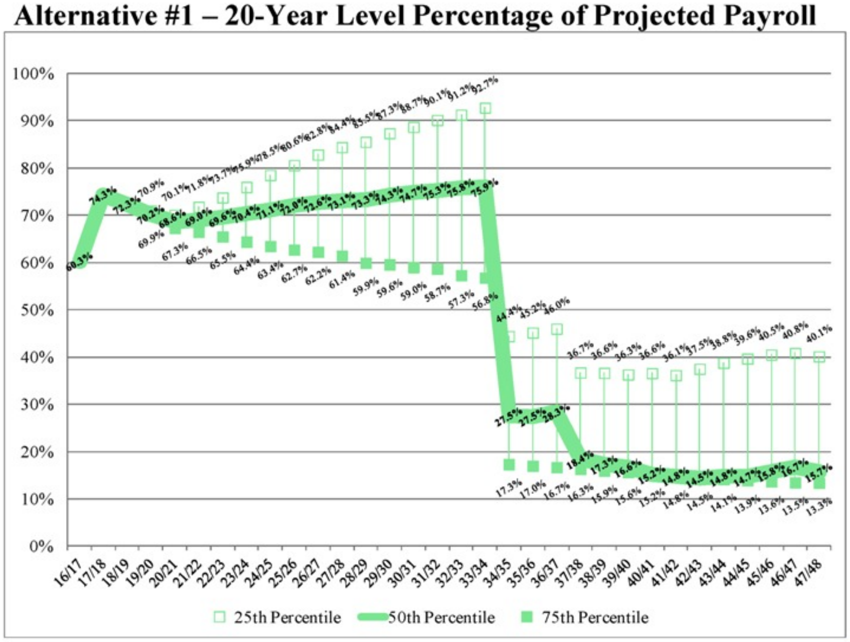
ALTERNATIVE #1 - SAFETY

Alternative #1 – 20-Year Level Percentage of Projected Payroll



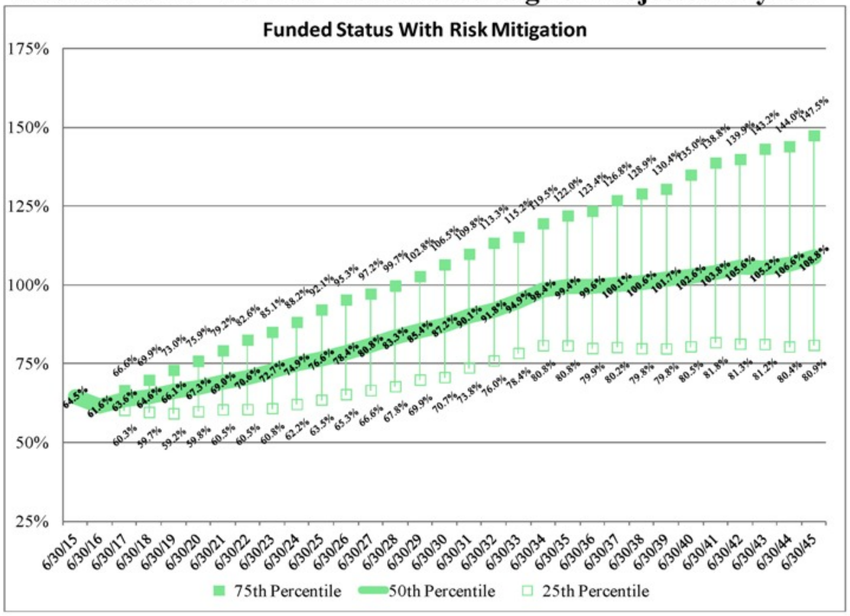
ALTERNATIVE #1 - SAFETY

Alternative #1 – 20-Year Level Percentage of Projected Payroll



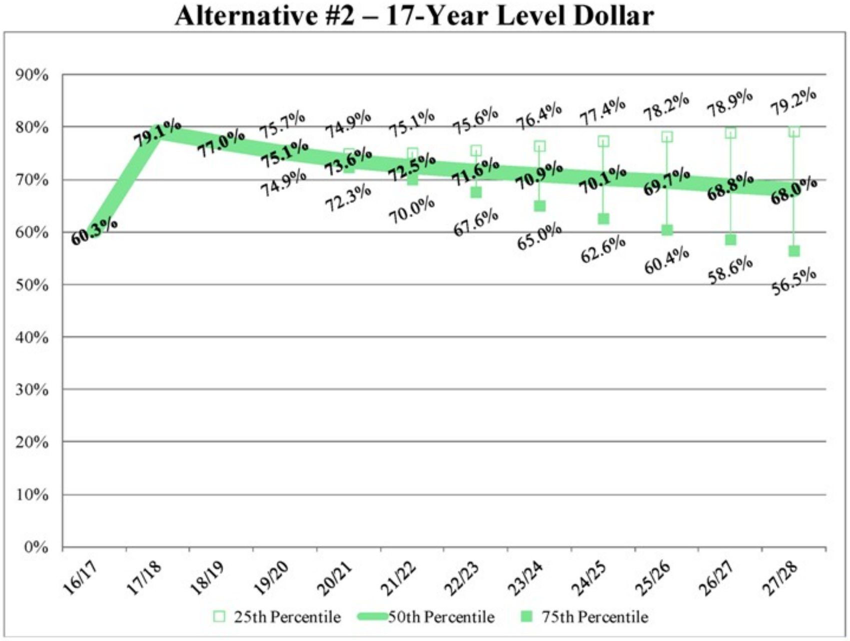
ALTERNATIVE #1 - SAFETY

Alternative #1 – 20-Year Level Percentage of Projected Payroll

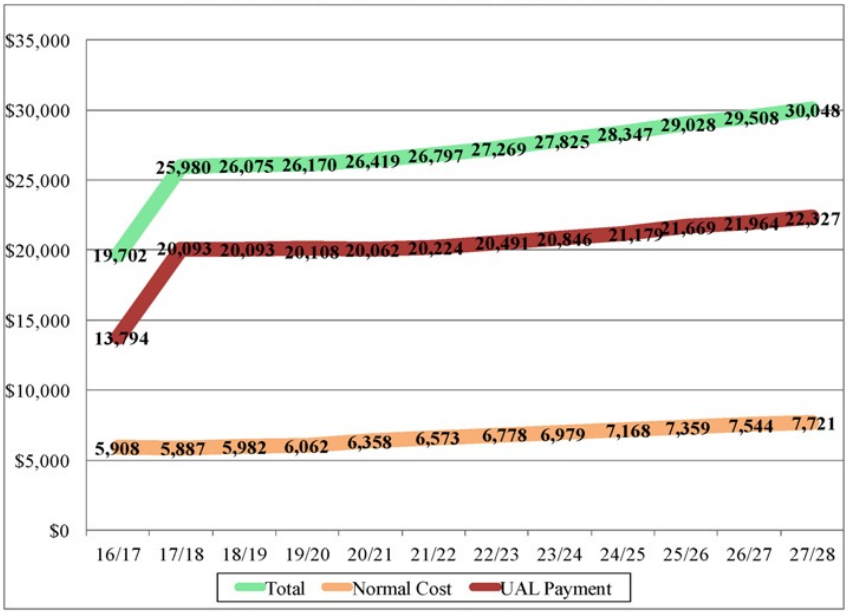


ALTERNATIVE #2 - SAFETY

Alternative #2 – 17-Year Level Dollar

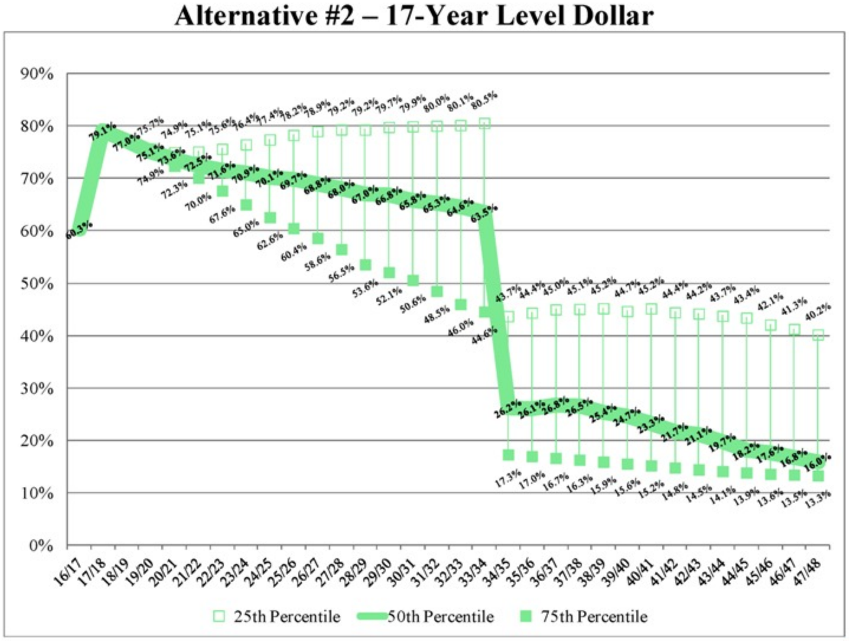


Alternative #2 – 17-Year Level Dollar



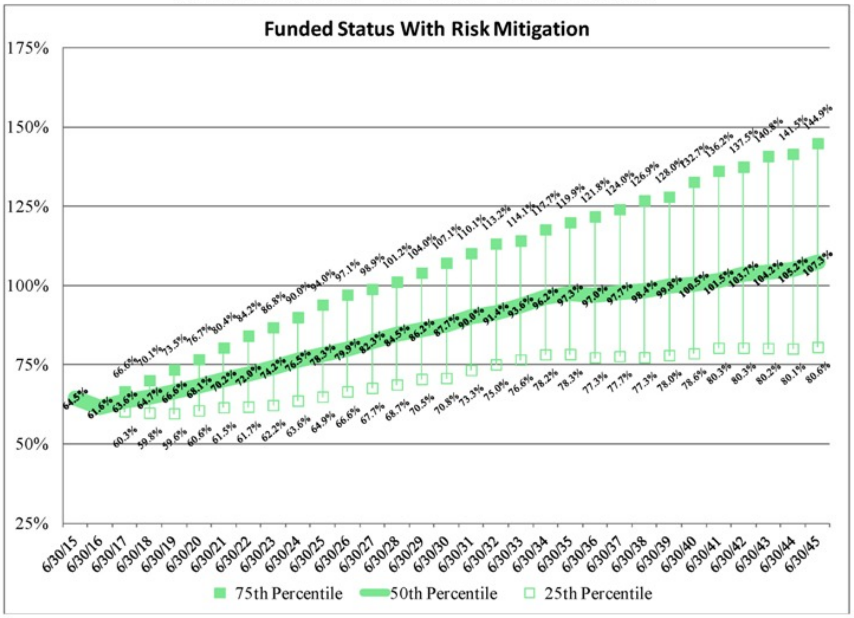
ALTERNATIVE #2 - SAFETY

Alternative #2 – 17-Year Level Dollar

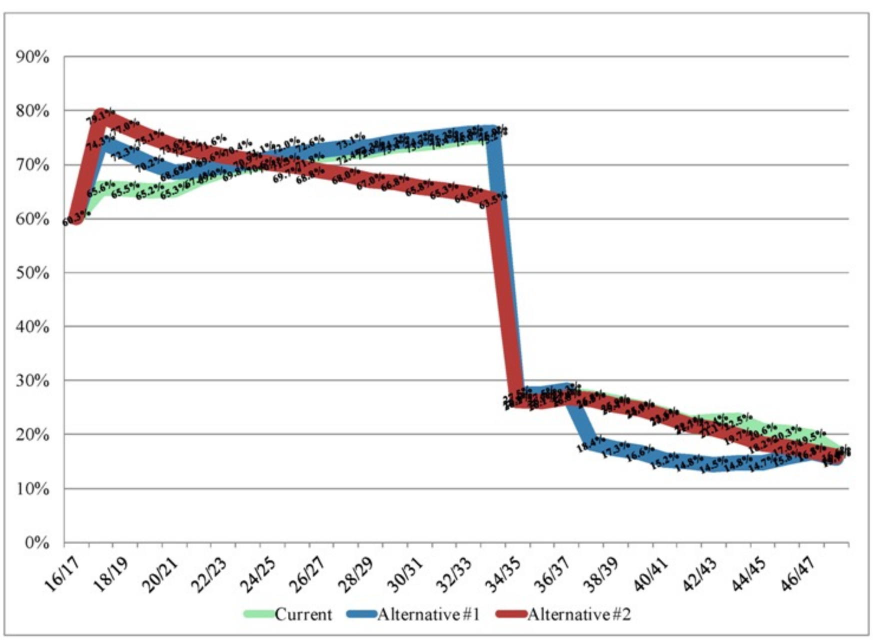


ALTERNATIVE #2 - SAFETY

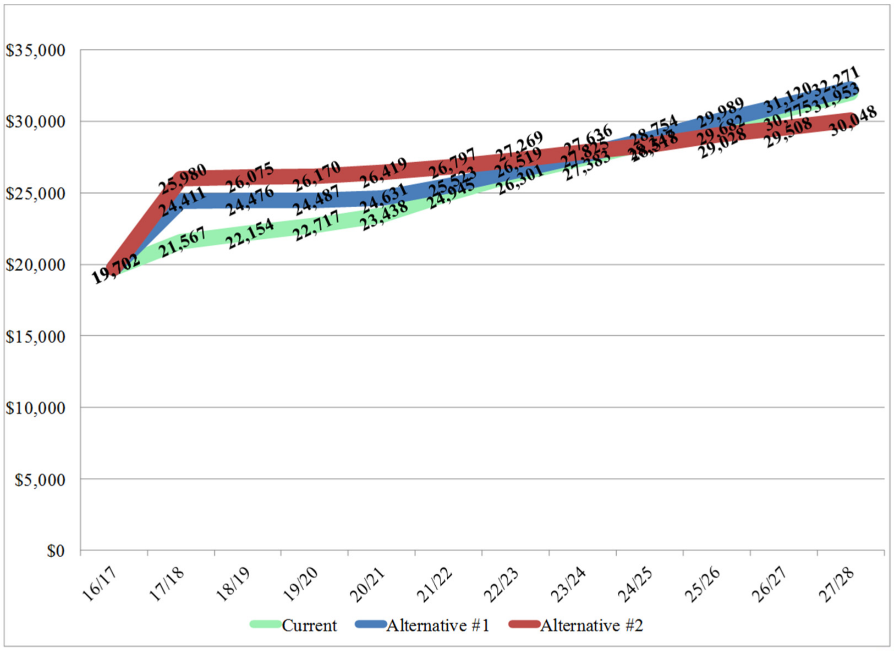
Alternative #2 – 17-Year Level Dollar



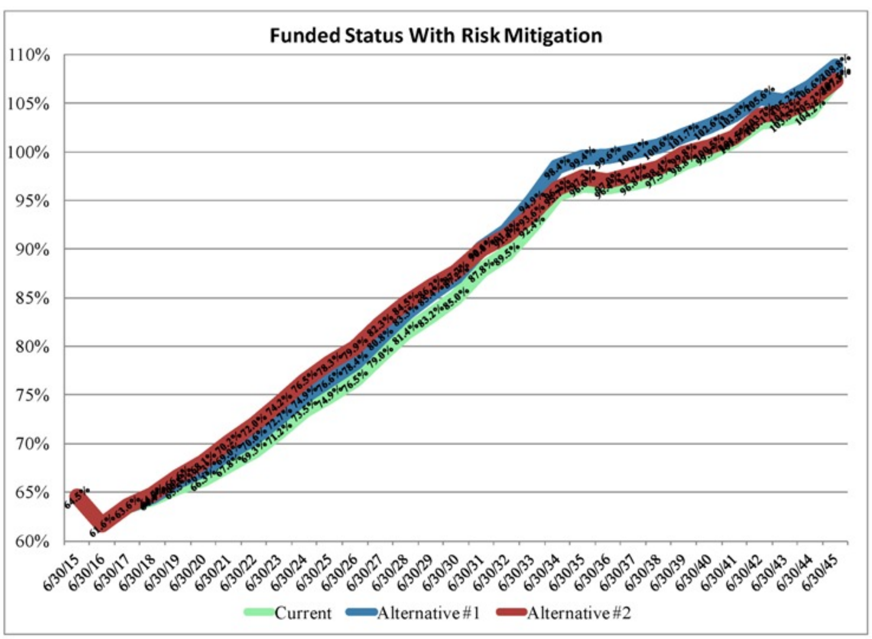
ALTERNATIVE COMPARISON - SAFETY



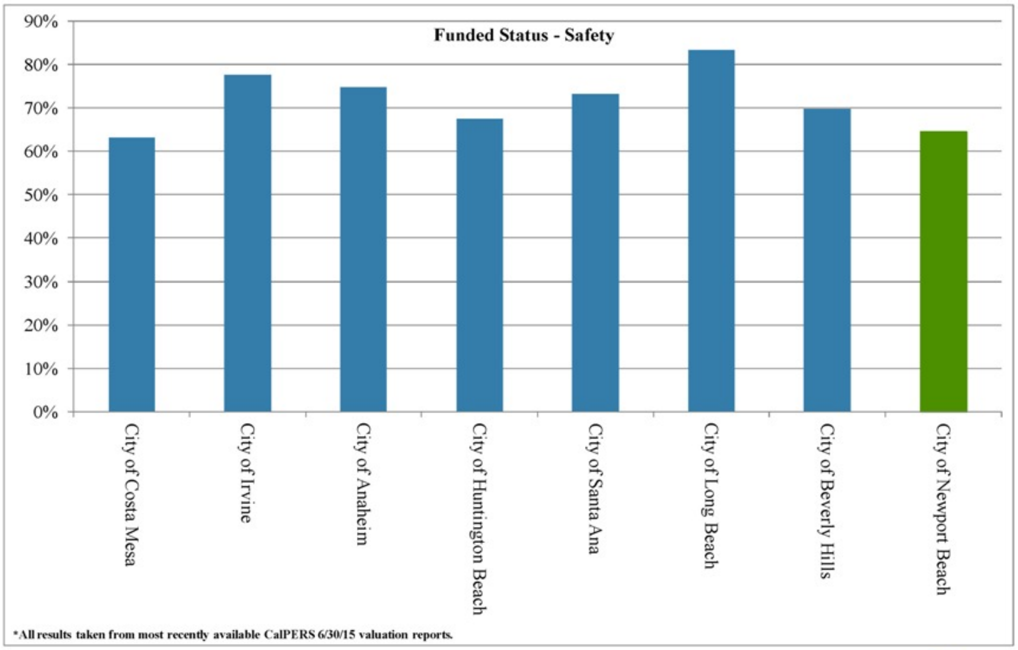
ALTERNATIVE COMPARISON - SAFETY



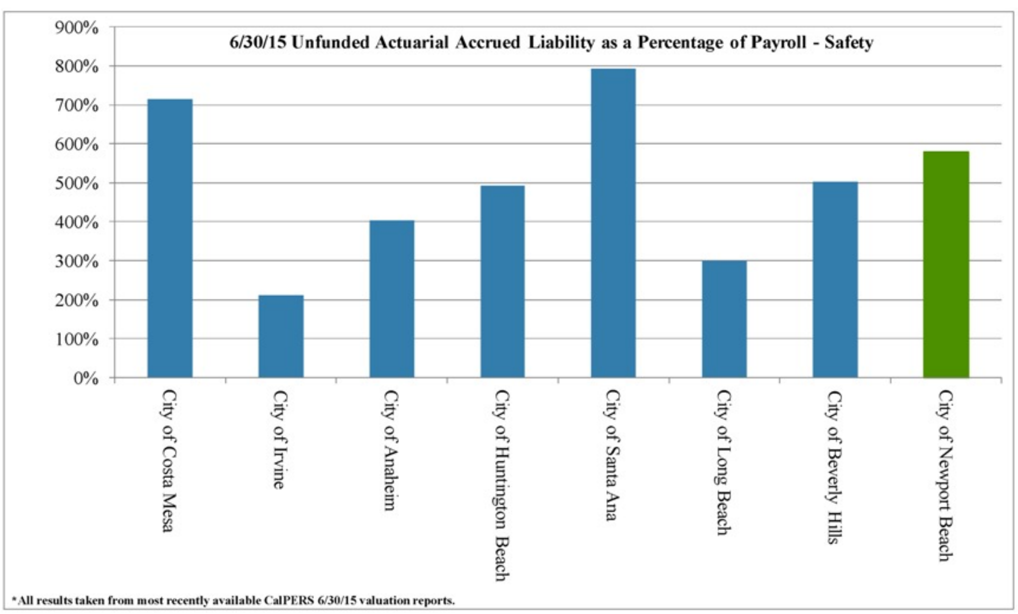
ALTERNATIVE COMPARISON - SAFETY



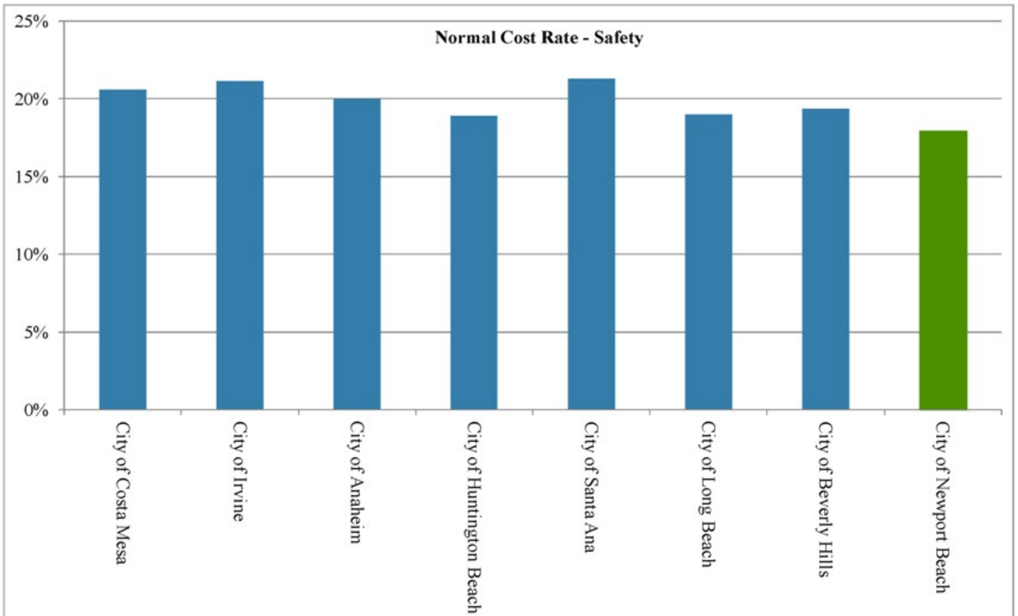
AGENCY COMPARISON - SAFETY



AGENCY COMPARISON - SAFETY

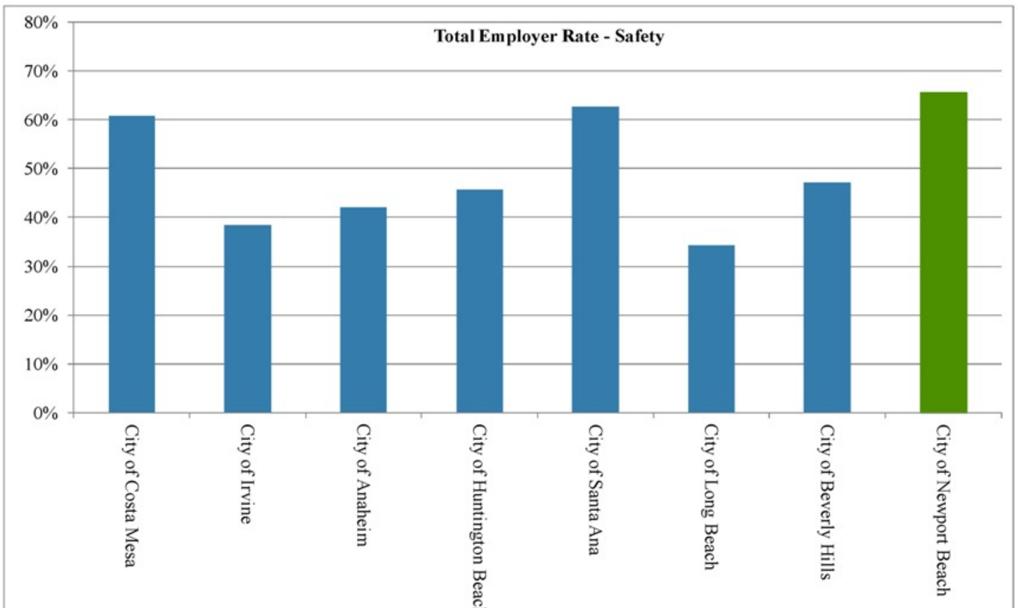


AGENCY COMPARISON - SAFETY



*All results taken from most recently available CalPERS 6/30/15 valuation reports.

AGENCY COMPARISON - SAFETY



*All results taken from most recently available CalPERS 6/30/15 valuation reports.

PEPRA

- Target of 50% of total normal cost for everyone
- *New members* must pay greater of 50% of total normal cost or bargained amount if higher
- Employer cannot pay any part of *new member* required employee contributions
- Employer may impose current employees pay 50% of total normal cost (limited to certain amounts) if not agreed through collective bargaining by 1/1/18
- Miscellaneous Plan:

	Classic Members		New Members
	Tier 1 2.5%@55 FAE1	Tier 2 2%@60 FAE3	PEPRA 2%@62 FAE3
● Employer Normal Cost	8.6%	5.8%	5.58%
● Member Normal Cost	8.0%	7.0%	5.50%
● Total Normal Cost	16.6%	12.8%	11.08%
● 50% Target	8.3%	6.4%	5.54%

PEPRA

- Safety Plan:

	Classic Members			New Members
	Tier 1 3%@50 FAE1	Tier 2 Police 3%@55 FAE3	Tier 2 Fire 2%@50 FAE3	PEPRA 2.7%@57 FAE3
● Employer Normal Cost	18.6%	15.8%	14.2%	10.68%
● Member Normal Cost	9.0%	9.0%	9.0%	10.50%
● Total Normal Cost	27.6%	24.8%	23.2%	21.18%
● 50% Target	13.8%	12.4%	11.6%	10.59%

PAYING DOWN THE UNFUNDED LIABILITY

- Accelerated Funding
  - Fresh Start
    - Higher short term payments
    - Less interest and lower long term payments
  - One time payments
    - City resolution to use portion of one time money
  - Target specific amortization bases
    - Shorter periods – bigger rate impact but lower long term savings
    - Longer periods: lower rate impact but higher long term savings
- Pension Obligation Bond (POB)
  - Interest arbitrage between expected CalPERS earnings and rate paid on POB
  - Not guaranteed

PAYING DOWN THE UNFUNDED LIABILITY

- Borrow from General Fund
  - Pay GF back like a loan
  - Payments come from all funds
- Internal Service Fund
  - Restricted investments
    - Likely low (0.5% - 1.0%) investment returns
    - Short term/high quality
    - Designed for preservation of principal
  - Assets could be used by Council for other purposes

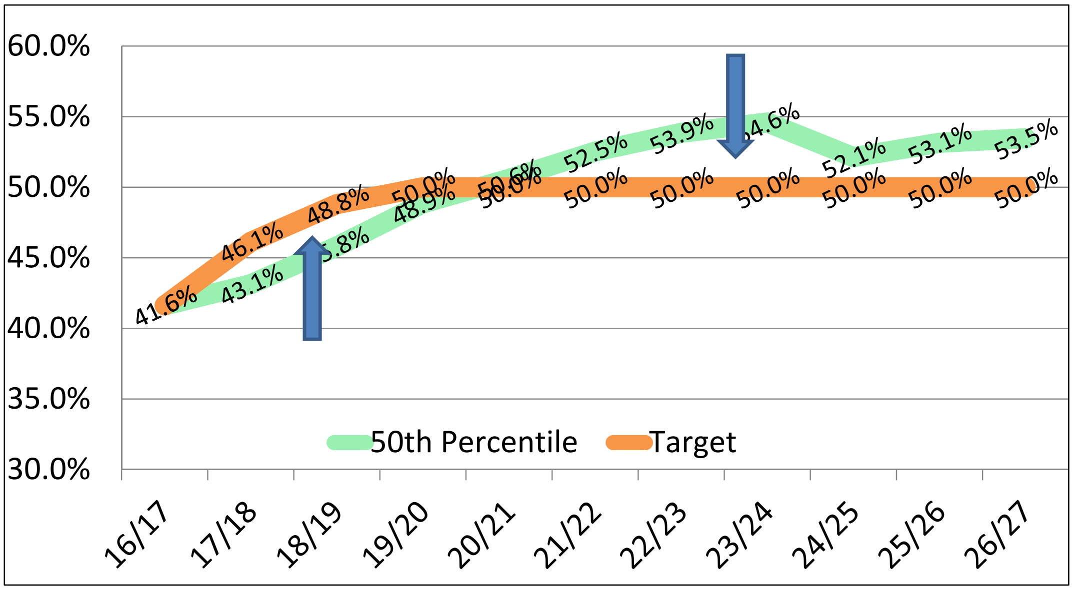
IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST

- > 50 trusts established
- PARS & PFM
- Investments significantly less restricted than City investment funds
  - Designed for long term returns
  - Likely much higher (5% - 7%) investment return
- Assets could not be used by the Board for other purposes
- Can only be used to
  - Reimburse City for CalPERS contributions
  - Make payments directly to CalPERS
- Reasons agencies have established:
  - Mitigate Rate Volatility
  - Mitigate impact of Normal Cost minimum contribution
  - Pay down Unfunded Liability
    - Not as compelling

IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST

- GASB will almost certainly weigh in on certain accounting issues
  - Can Supplemental Pension Trust assets be included in Fiduciary Net Position?
  - If assets can be included would inclusion impact discount rate?
- Parameters:
  - Initial seed money?
  - Additional amount contributed in future years?
  - Target budget rate?
  - Year target budget rate kicks in?
    - Before or after CalPERS rate exceeds budgeted rate?

IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST



IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST