

Monterey Bay Area Self Insurance Authority

**An Actuarial Review of the
Workers' Compensation Program**

**BAY ACTUARIAL CONSULTANTS
Moraga, California
March 22, 2017**

Bay Actuarial Consultants

March 22, 2017

Mr. Conor Boughey, ARM
Vice President
Alliant Insurance Services
100 Pine Street, 11th Floor
San Francisco, CA 94111

Dear Mr. Boughey:

We are pleased to present Bay Actuarial's Actuarial Review of the Monterey Bay Area Self Insurance Authority's workers' compensation program. We appreciate the opportunity to serve the Authority.

If you have any questions, please call me at (925) 377-5269.

Respectfully,

BAY ACTUARIAL CONSULTANTS


Jack Joyce, FCAS, MAAA
Principal

Monterey Bay Area Self Insurance Authority

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Monterey Bay Area Self Insurance Authority

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Introduction

Monterey Bay Area Self Insurance Authority

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Introduction

Background & Purpose

The Monterey Bay Area Self Insurance Authority ("MBASIA") self-insures its workers' compensation claims. Members of the Authority pay the temporary disability ("TD") and Section 4850 of workers' compensation claims directly. Therefore the Authority has no liability for unpaid 4850/TD benefits. Because of this fact we supply two sets of 2017-18 funding rates. The first set includes a provision for 4850/TD benefits and might be useful in evaluating excess insurance options that cover those benefits. The second set of rates excludes 4850/TD and might be useful for projecting the Authority's internal funding requirements. The specific topics covered in this report include the following:

- 1) **Projected 2017-18 Loss Rate.** Projections of the losses expected to be incurred during 2017-18, expressed in terms of rates of loss per \$100 of payroll. There are two sets of rates. The first set includes 4850/TD benefits and the second set doesn't.
- 2) **Unpaid Losses.** We estimated the Authority's liability for unpaid losses as of December 31, 2016 and projected the June 30, 2017 liability.
- 3) **Discounting.** We discounted the projected 2017-18 losses and the 6/30/17 liabilities at 1.5% interest. The discounted estimates take into account the time value of money as workers' compensation costs are disbursed over an extended timeframe.
- 4) **Variability of Estimates.** We included an analysis of items (1) and (2) above, in terms of "probability levels."
- 5) **Short-Term versus Long-Term.** We have broken out the liabilities into their short-term and long-term components.

Conditions & Limitations

We prepared this report for the Authority's internal use. The Authority may provide a copy to its financial auditors. Bay Actuarial does not authorize any other use. In particular, those interested in providing insurance to the Authority must perform their own actuarial analysis and may not rely upon our work.

JT² Claims Administrators and MBASIA provided the loss and payroll data. We did not audit this data and are not responsible for its accuracy. The accuracy and relevance of the conclusions and the reasonableness of the recommendations depend upon the accuracy of the underlying data. We use the term "losses" to refer to all costs that can be tied to a specific claim. These include loss payments, attorney's fees, and other expenses linked to a specific claim.

The actuarial projections in this report are estimates. Uncertainty is unavoidable because many of the events that will determine actual claims costs will take place in the future. These events include, but are not limited to, future legislation or ballot initiatives that may change statutory benefit levels or the workers' compensation laws, changes in the rate of inflation, and the outcomes of future administrative proceedings and litigation. Our projections are based upon the Authority's historical experience. We did not anticipate any extraordinary changes in the various factors that might affect the future cost of claims. We used actuarial methods that should produce reasonable results given current information. There is no guarantee, express or implied, that losses will develop as projected in this report.

Organization of the Report

We have divided the remainder of this report into nine sections: the *Management Summary*, the *Technical Approach* section, the *Summary Exhibits*, the *Fiscal Year End Exhibits*, the *Limited Ultimate Loss Exhibits*, the *Gross Loss Exhibits*, the *Future Loss Exhibits*, the *Discounting Exhibits*, and the *Claims Data Exhibits*.

Monterey Bay Area Self Insurance Authority

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Management Summary

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Management Summary

Projected 2017-18 Loss Rates

Table I shows the MBASIA's projected rates of loss for 2017-18 at various self-insured retentions ("SIR's) ranging between \$250,000 and \$1,000,000, plus unlimited. These rates are discounted at 1.5% interest and include 4850/TD benefits. Table II is similar except that it excludes 4850/TD benefits. The Table I and II rates do not cover claims handling fees, program administration, or excess insurance.

Tables I and II show actuarial central estimates and estimates at various probability levels. The higher probability level rates have higher probabilities of being adequate. For example, we estimate that there is a 70% probability that the actual 2017-18 \$250,000 SIR loss rate with and without 4850/TD will be less than **\$7.18** and **\$6.39**, respectively.

Table I: Projected 2017-18 Discounted Loss Rates (1.5% interest rate – INCLUDES 4850/TD)						
Probability Level	Projected Loss per \$100 of Payroll					
	\$250,000 SIR	\$350,000 SIR	\$500,000 SIR	\$750,000 SIR	\$1,000,000 SIR	Unlimited Retention
50%	5.99	6.73	7.33	7.83	8.06	8.39
Central Estimate	\$6.24	\$7.03	\$7.69	\$8.26	\$8.56	\$8.97
60%	6.55	7.38	8.07	8.67	8.99	9.42
70%	\$7.18	8.11	8.90	9.62	10.04	10.58
80%	7.92	8.99	9.90	10.78	11.32	12.02
90%	9.11	10.39	11.50	12.64	13.40	14.35
16-17 Central Estimate	\$6.37	\$7.17	\$7.87	\$8.47	\$8.77	\$9.21
Change in C.E.	-2.0%	-2.0%	-2.3%	-2.5%	-2.4%	-2.6%

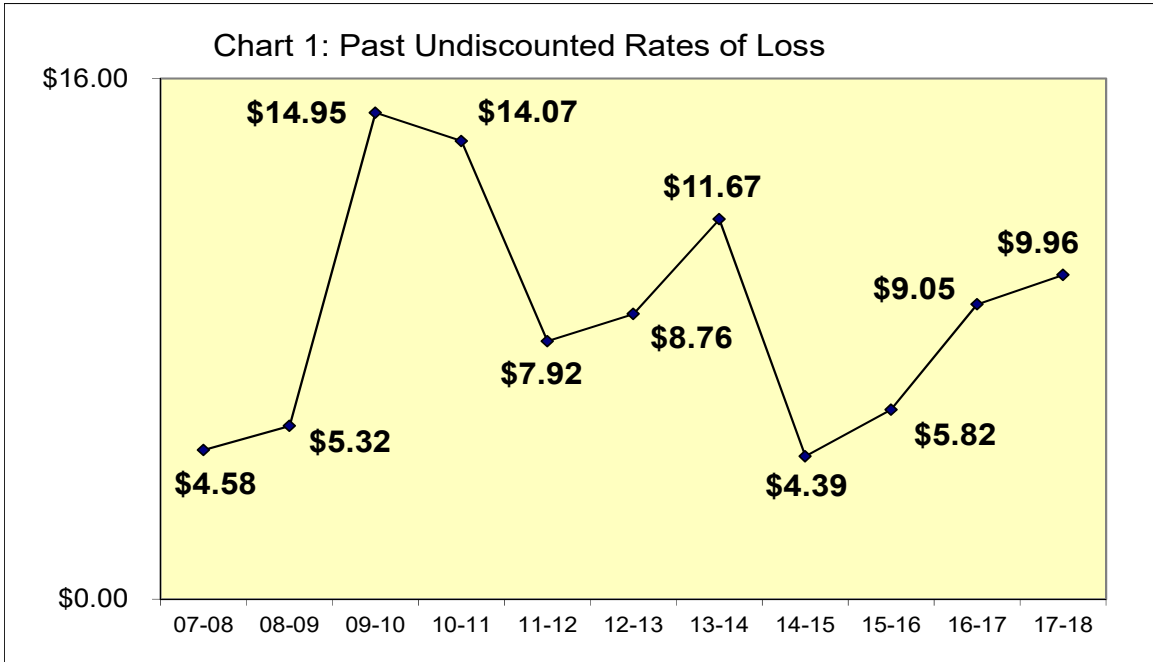
The next to last row in Table I shows last year's projected 2016-17 central value rates. The bottom row shows the percentage changes between last year's and this year's central value rates

Table II: Projected 2017-18 Discounted Loss Rates (1.5% interest rate – EXCLUDES 4850/TD)						
Probability Level	Projected Loss per \$100 of Payroll					
	\$250,000 SIR	\$350,000 SIR	\$500,000 SIR	\$750,000 SIR	\$1,000,000 SIR	Unlimited Retention
50%	5.13	5.87	6.49	6.97	7.22	7.55
Central Estimate	\$5.34	\$6.13	\$6.80	\$7.36	\$7.67	\$8.08
60%	5.61	6.44	7.14	7.73	8.05	8.48
70%	\$6.14	7.07	7.87	8.57	8.99	9.53
80%	6.78	7.84	8.76	9.60	10.14	10.83
90%	7.80	9.06	10.17	11.26	12.00	12.93
16-17 Central Estimate	\$5.49	\$6.30	\$7.00	\$7.61	\$7.91	\$8.35
Change in C.E.	-2.7%	-2.7%	-2.9%	-3.3%	-3.0%	-3.2%

Last year we estimated that 4850/TD constituted 9.9% of the total unlimited losses. This year the data indicates 9.3%. This higher percentage of 4850/TD caused the rates that exclude 4850/TD to fall farther than those that include it.

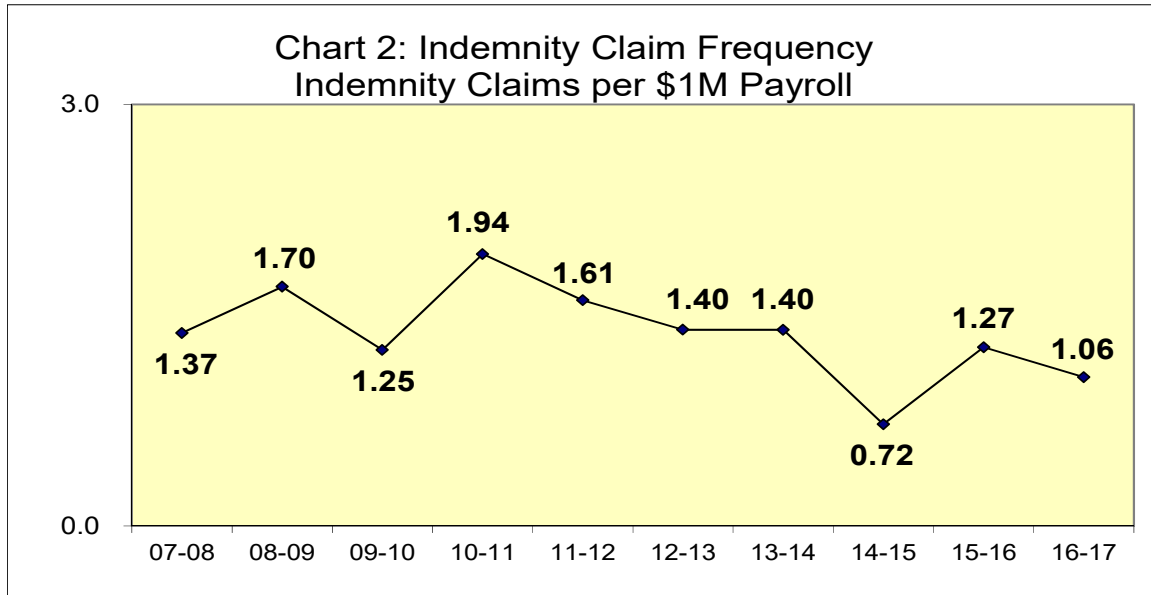
The Authority’s Past Rates of Loss

Chart 1 displays the Authority’s estimated past unlimited, undiscounted loss rates (no reduction for losses ceded to excess insurers). The loss rate is ultimate total loss per \$100 of payroll. **\$9.96** is the undiscounted central estimate unlimited rate for 2017-18. The rates in Chart 1 include 4850/TD.



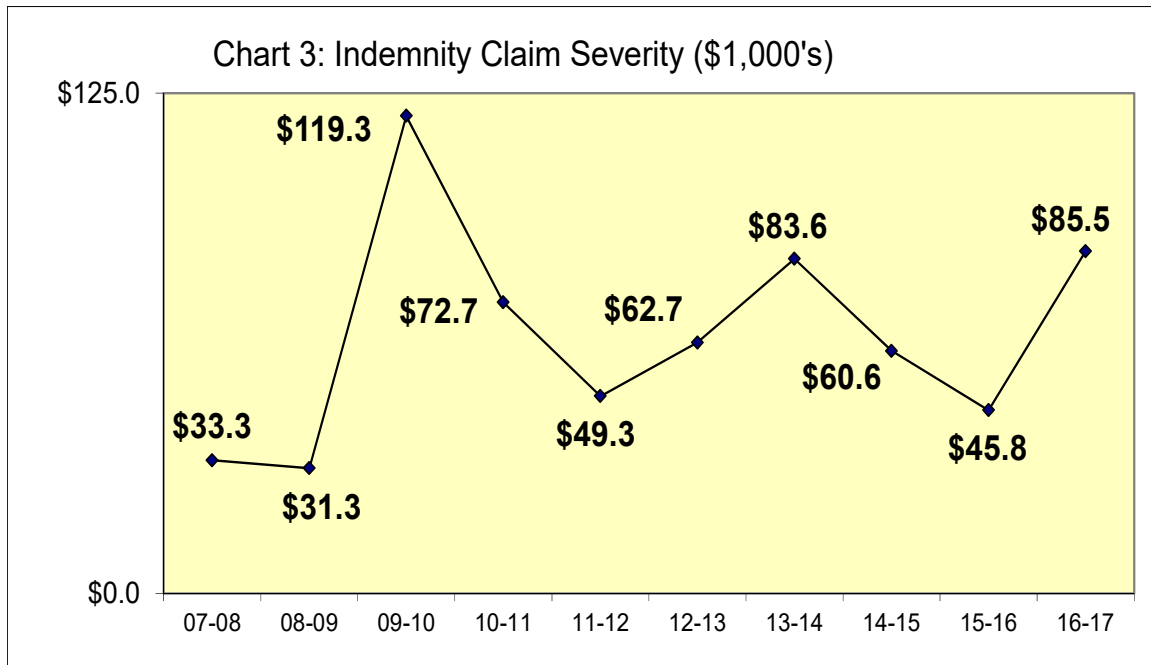
Claim Frequency

Indemnity claim frequency is the number of “indemnity” claims divided by payroll. Chart 2 displays indemnity claim frequency.



Average Claim Amount (“Severity”)

Chart 3 shows the average indemnity claim amount, calculated by dividing the estimated annual losses by the number of indemnity claims. The values in this chart are based on unlimited loss data, so they include the portions of claims are ceded to excess insurers. The Chart 3 severities include 4850/TD.



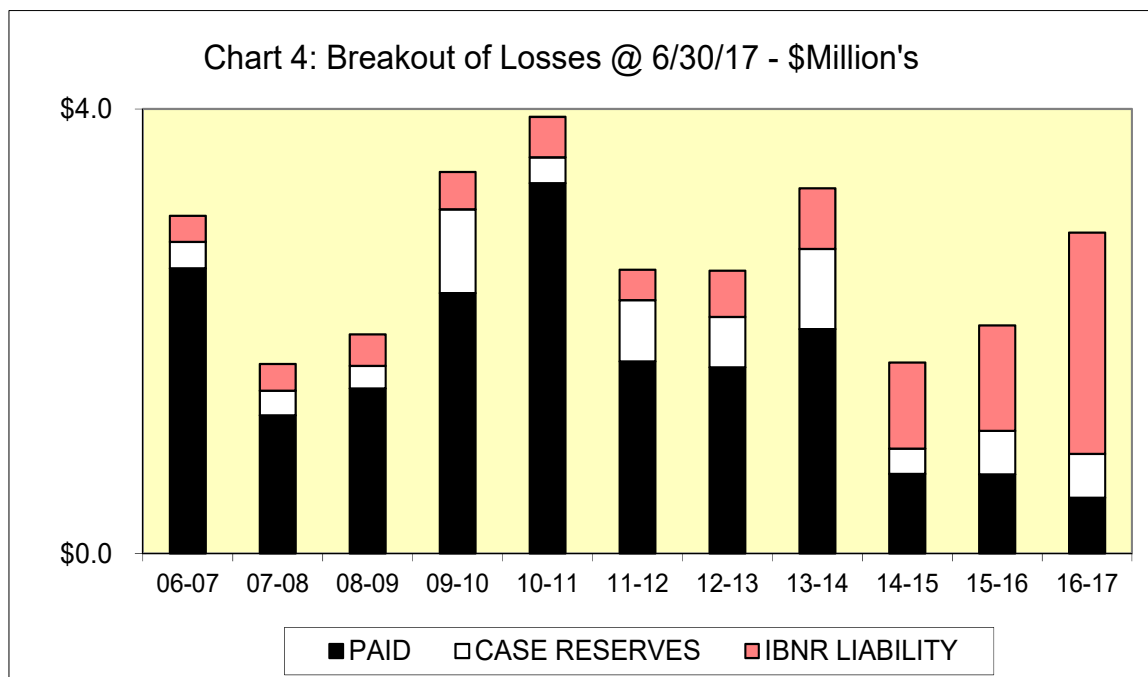
Limited Liability for Unpaid Losses @ 6/30/17

We project that the limited liability for unpaid losses will be **\$12,962,000** on June 30, 2017, on an undiscounted basis, or **\$11,476,000** if discounted at 1.5% interest. Table III shows these liabilities at various probability levels.

Table III: Projected Liability for Unpaid Losses As of June 30, 2017 - \$1,000's		
Probability	Undiscounted	Discounted at 1.5%
<u>Level</u>	<u>Losses</u>	<u>Interest Losses</u>
50%	12,832	11,361
Central Estimate	\$12,962	\$11,476
60%	13,221	11,706
70%	13,739	12,165
80%	14,388	12,739
90%	15,295	13,542

Loss Breakout as of 6/30/17

We project that the Authority's liability of **\$12,962,000** will comprise **\$5,769,000** in case reserves for known claims and an IBNR liability of **\$7,193,000**. Chart 4 breaks out the estimated total program year losses for 2005-06 through 2015-16 into their components: losses paid, case reserves, and IBNR liability. There is **\$1.25** of IBNR liability for every **\$1.00** of case reserves.

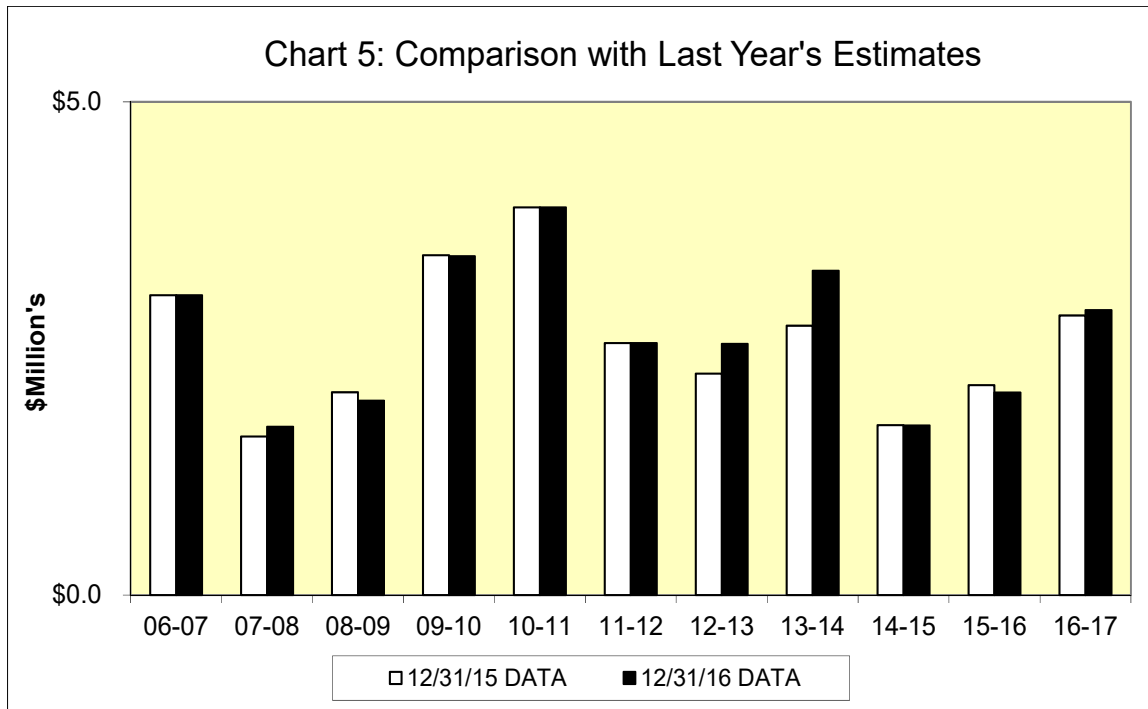


Short-Term Liability

Short-term liabilities are those expected to be expended within twelve months. The limited 6/30/17 liability comprises **\$1,753,000** in short-term and **\$11,209,000** in long-term liabilities.

Comparison with Last Year's Estimates

Chart 5 is a comparison of this year's estimates of the limited ultimate losses with last year's estimates. Chart 5 shows limited losses excluding 4850/TD benefits. The total change for all years through 2015-16 was a reduction of \$1,095,000.



Reconciling the 12/31/15 & 12/31/16 Liability Estimates

Last year we estimated that the liability for unpaid losses (including 4850/TD) was \$11,549,000 on December 31, 2015. Claims expenditures were \$2,442,000 during 2016. The change in the estimated losses incurred through 12/31/15 was an increase of \$1,059,000. We estimate that the total losses incurred during 2016 were \$2,850,000. Therefore starting with the December 31, 2015 liability, if we subtract the claims expenditures and add the change in the estimates and then add the total loss incurred during 2016 the indicated liability is \$13,018,000. This matches our direct calculation on page 29.

Interest Rates

We discounted the rates and liabilities using a 1.5% interest rate. Here are the adjustments to make for different interest rate assumptions:

Interest Rate	0.0%	1.0%	1.5%	1.82%	1.99%	2.0%
UNL Rate	+11.0%	+3.4%	+0.0%	-2.0%	-3.0%	-3.0%
1M Rate	+10.9%	+3.3%	+0.0%	-2.0%	-3.1%	-3.1%
750K Rate	+10.7%	+3.3%	+0.0%	-1.9%	-3.0%	-3.0%
500K Rate	+10.5%	+3.2%	+0.0%	-1.9%	-2.9%	-2.9%
350K Rate	+9.8%	+3.0%	+0.0%	-1.9%	-2.7%	-2.9%
250K Rate	+9.1%	+2.8%	+0.0%	-1.6%	-2.5%	-2.6%
Liabilities	+13.0%	+4.0%	+0.0%	-2.4%	-3.5%	-3.6%

We included columns labeled 1.82% and 1.99%. Those were the “risk-free buy-and-hold” interest rates appropriate for discounting the 2017-18 losses and the 6/30/17 liabilities, respectively. We calculated those rates by assembling hypothetical portfolios of US Treasury bills, notes, and bonds selected to mature just in time to provide exactly the funds that would be needed to pay the claims. The portfolio matching the expenditures on the 2017-18 claims yielded an overall interest rate of 1.82%. The portfolio matching the expenditures on the 6/30/17 liabilities yielded an overall interest rate of 1.99%. These are benchmarks that rise and fall with interest rates in general.

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Technical Approach

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Technical Approach

This section describes the actuarial calculations.

Exhibits

Summary Exhibits

These exhibits summarize the analysis and conclusions. Summary Exhibit 1 shows the projected limited liabilities for unpaid losses as of June 30, 2017. Summary Exhibit 2 shows our projected rate for the 2017-18 program year, which runs from July 1, 2017 to June 30, 2017. These rates include 4850/TD benefits. Summary Exhibit 3 shows the estimated limited unpaid losses as of June 30, 2017 by program year on both discounted and non-discounted bases. The limited unpaid losses exclude 4850/TD. Summary Exhibit 4 shows the ULAE liability at 12/31/16 and 6/30/17.

Fiscal Year End Exhibits

These exhibits show the estimated unpaid limited losses as of June 30, 2017. Fiscal Year End Exhibit 4 shows limited unpaid losses including 4850/TD benefits. Fiscal Year End Exhibit 3 shows the percentages of the total losses that derive from 4850/TD. Fiscal Year End Exhibit 2 shows the calculation that removes 4850/TD IBNR from the total IBNR liability. Fiscal Year End Exhibit 1 shows the limited unpaid losses excluding 4850/TD.

Limited Ultimate Loss Exhibits

These exhibits show the estimation of the limited ultimate losses for each program year, including 4850/TD benefits. We start with the gross (unlimited) loss estimates and adjust them to a limited basis to reflect the expected effect of excess insurance.

Gross Loss Exhibits

These exhibits show the various actuarial projection methods and summarize the results for each program year.

We use five different actuarial methods:

- 1) Reported loss projection method;
- 2) Paid loss projection method;
- 3) IBNR to Case Reserves Ratio method;
- 4) Bornhuetter-Ferguson method using reported losses; and
- 5) Frequency times Severity method.

Gross Loss Exhibit 1 summarizes these results.

Future Loss Exhibits

These exhibits show the projection of the projected gross (unlimited) rate for 2017-18, with and without 4850/TD benefits.

Discounting Exhibits

These exhibits show the discounting of the remaining unpaid losses and the projected future loss rate. They also include the Program Information Exhibit.

Claims Data Exhibits

These exhibits show the reported loss, paid loss, and claim count triangles as of December 31, 2016, and the associated loss and claim development factors.

**Monterey Bay Area Self Insurance Authority
Workers' Compensation Program**

**Actuarial Analysis of the
Workers' Compensation Program**

Summary Exhibits

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Unpaid Losses as of June 30, 2017
Limited Self-Insured Losses Excluding 4850/TD

(1) Projected Unpaid Losses:		\$12,961,715
(2) Discounted Value of Unpaid Losses: (Assuming 1.5% Interest Rate)		\$11,476,156

Probability Levels

Probability Level <u>(3)</u>	Probability Factor <u>(4)</u>	Discounted * Liability <u>(5)</u>
40%	0.96	11,017,110
50%	0.99	11,361,394
Central Estimate	1.00	\$11,476,156
60%	1.02	11,705,679
70%	1.06	12,164,725
80%	1.11	12,738,533
90%	1.18	13,541,864

* Multiply by 1.130 to obtain undiscounted values.

Notes:

- (1) Page 18, Column (1).
- (2) Page 18, Column (2).
- (3) Estimated probability that funding will be adequate.
- (4) Estimated by BAC.
- (5) (2) x (4).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Loss Funding Rate for 2017-18

\$250,000 SIR Loss rate
Limited Losses Including 4850/TD

(1) Discounted Loss Rate: (as of July 1, 2017, 1.5% interest rate)	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Loss Rates</td> </tr> <tr> <td style="text-align: center;">\$6.24</td> </tr> </table>	Loss Rates	\$6.24
Loss Rates			
\$6.24			

<u>Probability Levels</u>		
Probability Level <u>(2)</u>	Probability Factor <u>(3)</u>	Discounted * Rate <u>(4)</u>
0.20	0.70	\$4.37
0.30	0.79	4.93
0.40	0.88	5.49
0.50	0.96	5.99
Central Estimate	1.00	\$6.24
0.60	1.05	6.55
0.70	1.15	7.18
0.80	1.27	7.92
0.90	1.46	9.11

* Multiply by 1.091 to obtain undiscounted values.

Notes:

- (1) [Page 53, Column (5)] x [Page 61, Item (4)], adjusted for \$250K SIR.
- (2) Estimated probability that funding will be adequate.
- (3) Estimated by BAC.
- (4) (1) x (3).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

June 30, 2017 Summary
Limited Self-Insured Losses Excluding 4850/TD

Program Year	Undiscounted Claims Liabilities as of 6/30/17 (1)	Discounted (1.5% Interest) Claims Liabilities as of 6/30/17 (2)	Estimated Ultimate Losses (3)
1985-86	\$2,684	\$2,531	\$395,000
1986-87	4,686	4,381	760,000
1987-88	2,833	2,637	134,000
1988-89	31,265	28,918	740,000
1989-90	420	384	739,000
1990-91	30,834	28,004	1,280,000
1991-92	75,715	68,554	1,354,000
1992-93	67,274	60,692	1,492,639
1993-94	53,547	48,378	1,168,561
1994-95	129,643	116,661	829,693
1995-96	21,750	19,392	879,518
1996-97	99,633	88,363	1,428,181
1997-98	149,425	132,090	1,142,837
1998-99	230,860	203,243	1,621,420
1999-00	63,984	56,211	1,432,757
2000-01	177,287	155,927	2,613,152
2001-02	231,148	204,958	2,141,203
2002-03	110,570	99,251	2,032,846
2003-04	163,176	146,629	1,873,776
2004-05	397,239	353,853	1,930,688
2005-06	117,555	103,941	1,105,790
2006-07	472,274	415,214	3,037,898
2007-08	463,509	406,884	1,705,596
2008-09	484,953	425,309	1,970,026
2009-10	1,090,618	952,527	3,433,608
2010-11	599,244	519,722	3,930,321
2011-12	824,649	708,279	2,552,083
2012-13	869,194	750,465	2,545,202
2013-14	1,267,667	1,109,478	3,286,157
2014-15	1,001,625	886,216	1,719,113
2015-16	1,341,947	1,204,733	2,052,635
2016-17	2,384,508	2,172,331	2,885,874
Total	\$12,961,715	\$11,476,156	\$56,213,574

Notes:

- (1) Page 56, Column (1).
- (2) Page 56, Column (3).
- (3) Page 21, Column (1).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

ULAE Projections and Calculation of Unpaid ULAE

(1) Selected ULAE Ratio: **12.0%**

	<u>Case Reserves with Development</u>	<u>"True" IBNR</u>	<u>Total</u>
(2) ULAE Ratio:	6.0%	12.0%	
(3) Estimated Unpaid Losses as of 12/31/16:	\$21,043,647	\$1,279,207	\$22,322,853
(4) Estimated Unpaid ULAE as of 12/31/16:	\$1,262,619	\$153,505	\$1,416,124
(5) Discounted Unpaid ULAE as of 12/31/16: (1.5% interest rate)			\$1,253,270

We project that the ULAE liability will not change between 12/31/16 & 06/30/17.

Notes:

- (1) Estimated by BAC.
- (2) "50-50 Rule."
- (3) From gross ultimates on Page 38 and gross claims data, assuming 90% of IBNR is development on known claims.
- (4) (2) x (3).
- (5) (4) x [Page 56, Item (4)].

**Monterey Bay Area Self Insurance Authority
Workers' Compensation Program**

**Actuarial Analysis of the
Workers' Compensation Program**

Fiscal Year End Exhibits

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Unpaid Losses as of June 30, 2017
Limited Self-Insured Losses Excluding 4850/TD

Program Year	Estimated Ultimate Losses (1)	Limited Paid Losses less 4850/TD Paid 6/30/17 (2)	Limited Case Reserves less 4850/TD Case 6/30/17 (3)	Lim Reported less 4850/TD Reported 6/30/17 (4)	Limited IBNR less 4850/TD IBNR 6/30/17 (5)	Projected Unpaid Losses excluding 4850/TD 6/30/17 (6)
1985-86	\$395,000	\$392,316	\$980	\$393,297	\$1,703	\$2,684
1986-87	760,000	755,314	646	755,960	4,040	4,686
1987-88	134,000	131,167	66	131,232	2,768	2,833
1988-89	740,000	708,735	23,948	732,683	7,317	31,265
1989-90	739,000	738,580	30	738,610	390	420
1990-91	1,280,000	1,249,166	17,561	1,266,726	13,274	30,834
1991-92	1,354,000	1,278,285	60,638	1,338,923	15,077	75,715
1992-93	1,492,639	1,425,365	36,960	1,462,325	30,314	67,274
1993-94	1,168,561	1,115,014	33,793	1,148,807	19,754	53,547
1994-95	829,693	700,050	110,700	810,750	18,943	129,643
1995-96	879,518	857,768	8,416	866,184	13,335	21,750
1996-97	1,428,181	1,328,548	73,607	1,402,155	26,026	99,633
1997-98	1,142,837	993,411	120,687	1,114,099	28,738	149,425
1998-99	1,621,420	1,390,560	193,200	1,583,760	37,660	230,860
1999-00	1,432,757	1,368,773	37,218	1,405,990	26,766	63,984
2000-01	2,613,152	2,435,865	82,804	2,518,669	94,483	177,287
2001-02	2,141,203	1,910,055	130,463	2,040,519	100,685	231,148
2002-03	2,032,846	1,922,276	54,214	1,976,490	56,355	110,570
2003-04	1,873,776	1,710,601	58,583	1,769,184	104,592	163,176
2004-05	1,930,688	1,533,450	280,328	1,813,778	116,911	397,239
2005-06	1,105,790	988,236	53,058	1,041,293	64,497	117,555
2006-07	3,037,898	2,565,624	239,070	2,804,694	233,204	472,274
2007-08	1,705,596	1,242,087	222,030	1,464,117	241,479	463,509
2008-09	1,970,026	1,485,073	202,082	1,687,155	282,871	484,953
2009-10	3,433,608	2,342,990	753,708	3,096,698	336,909	1,090,618
2010-11	3,930,321	3,331,077	233,782	3,564,859	365,461	599,244
2011-12	2,552,083	1,727,434	552,828	2,280,262	271,821	824,649
2012-13	2,545,202	1,676,008	451,704	2,127,712	417,490	869,194
2013-14	3,286,157	2,018,491	722,541	2,741,031	545,126	1,267,667
2014-15	1,719,113	717,488	225,592	943,080	776,033	1,001,625
2015-16	2,052,635	710,688	393,209	1,103,897	948,738	1,341,947
2016-17	2,885,874	501,366	394,276	895,642	1,990,232	2,384,508
Total	\$56,213,574	\$43,251,859	\$5,768,722	\$49,020,581	\$7,192,993	\$12,961,715

Notes:
(1) - (6) Page 27 entries - Page 24 entries.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Calculation of 4850/TD IBNR

Program Year	Total Case Reserves 12/31/16 (1)	4850/TD Case Reserves 12/31/16 (2)	4850/TD Case Reserves Percentage (3)	Total IBNR as of 12/31/16 (4)	4850/TD IBNR as of 12/31/16 (5)	IBNR Net of 4850/TD as of 12/31/16 (6)
1985-86	\$883	\$0	0.0%	\$1,913	\$0	\$1,913
1986-87	0	0	0.0%	4,940	0	4,940
1987-88	0	0	0.0%	3,078	0	3,078
1988-89	24,229	0	0.0%	7,988	0	7,988
1989-90	0	0	0.0%	421	0	421
1990-91	18,553	0	0.0%	14,938	0	14,938
1991-92	62,116	0	0.0%	16,021	0	16,021
1992-93	40,176	0	0.0%	32,004	0	32,004
1993-94	36,730	0	0.0%	21,076	0	21,076
1994-95	113,023	0	0.0%	19,651	0	19,651
1995-96	8,500	0	0.0%	13,798	0	13,798
1996-97	78,320	0	0.0%	26,480	0	26,480
1997-98	125,603	0	0.0%	29,664	0	29,664
1998-99	201,990	0	0.0%	38,635	0	38,635
1999-00	39,371	0	0.0%	27,903	0	27,903
2000-01	89,202	0	0.0%	99,712	0	99,712
2001-02	142,458	0	0.0%	113,614	0	113,614
2002-03	58,070	0	0.0%	65,743	0	65,743
2003-04	60,524	0	0.0%	107,204	0	107,204
2004-05	286,570	0	0.0%	120,579	0	120,579
2005-06	52,985	0	0.0%	68,616	0	68,616
2006-07	239,022	0	0.0%	249,745	0	249,745
2007-08	212,389	0	0.0%	279,965	0	279,965
2008-09	207,083	0	0.0%	297,170	0	297,170
2009-10	775,840	1,994	0.3%	355,735	0	355,735
2010-11	233,105	0	0.0%	376,474	0	376,474
2011-12	555,447	1,628	0.3%	283,482	0	283,482
2012-13	487,990	0	0.0%	476,317	0	476,317
2013-14	723,994	18,456	2.5%	667,668	0	667,668
2014-15	265,703	28,978	10.9%	862,130	4,701	857,429
2015-16	367,746	21,659	5.9%	1,381,541	12,205	1,369,336
2016-17	123,964	27,705	22.3%	1,321,963	88,635	1,233,327
Total	\$5,631,586	\$100,420	\$0	\$7,386,167	\$105,542	\$7,280,625

Notes:

- (1) Page 29, Column (3).
- (2) Provided by JT2.
- (3) (2) / (1).
- (4) Page 29, Column (5).
- (5) (2) x 'IBNR to case reserves' ratio.
Ratio is [(4) / (1)], reduced 70% in 2016-17, 85% in 2015-16, & 95% in 2014-15.
4850/TD IBNR is \$0 for all other years.
- (6) (4) - (5).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

4850/TD as % of Total Losses

Program Year	4850/TD <u>(1)</u>	Estimated Ultimate Gross Loss <u>(2)</u>	4850/TD Percentage <u>(3)</u>
2008-09	\$529,974	\$2,500,000	21.2%
2009-10	666,392	6,800,000	9.8%
2010-11	669,679	6,400,000	10.5%
2011-12	447,917	3,600,000	12.4%
2012-13	354,798	3,700,000	9.6%
2013-14	713,843	5,100,000	14.0%
2014-15	180,887	2,000,000	9.0%
2015-16	447,365	2,700,000	16.6%
Total	\$4,010,856	\$32,800,000	12.2%
Last Year:			9.3%

Selected Percentages

Gross Loss:	9.9%
\$1M Limit:	10.4%
\$750K Limit:	10.8%
\$500K Limit:	11.6%
\$350K Limit:	12.8%
\$250K Limit:	14.5%
\$150K Limit:	18.5%

(1) Page 26, Column (4).

(2) Page 38, Column (6).

(3) (1) / (2).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Unpaid Losses as of June 30, 2017

4850/TD Only

Program Year	Estimated Ultimate 4850/TD (1)	Projected 4850/TD Paid as of 6/30/17 (2)	Projected 4850/TD Case Reserves as of 6/30/17 (3)	Projected 4850/TD Reported as of 6/30/17 (4)	Projected 4850/TD IBNR as of 6/30/17 (5)	Projected Unpaid Losses excluding 4850/TD 6/30/17 (6)
1985-86	\$0	\$0	\$0	\$0	\$0	\$0
1986-87	0	0	0	0	0	0
1987-88	0	0	0	0	0	0
1988-89	0	0	0	0	0	0
1989-90	0	0	0	0	0	0
1990-91	0	0	0	0	0	0
1991-92	0	0	0	0	0	0
1992-93	27,361	27,361	0	27,361	0	0
1993-94	51,439	51,439	0	51,439	0	0
1994-95	150,307	150,307	0	150,307	0	0
1995-96	220,482	220,482	0	220,482	0	0
1996-97	181,819	181,819	0	181,819	0	0
1997-98	197,163	197,163	0	197,163	0	0
1998-99	118,580	118,580	0	118,580	0	0
1999-00	137,243	137,243	0	137,243	0	0
2000-01	316,848	316,848	0	316,848	0	0
2001-02	448,797	448,797	0	448,797	0	0
2002-03	487,154	487,154	0	487,154	0	0
2003-04	326,224	326,224	0	326,224	0	0
2004-05	469,312	469,312	0	469,312	0	0
2005-06	294,210	294,210	0	294,210	0	0
2006-07	562,102	562,102	0	562,102	0	0
2007-08	394,404	394,404	0	394,404	0	0
2008-09	529,974	529,974	0	529,974	0	0
2009-10	666,392	665,396	996	666,392	0	996
2010-11	669,679	669,679	0	669,679	0	0
2011-12	447,917	446,452	1,465	447,917	0	1,465
2012-13	354,798	354,798	0	354,798	0	0
2013-14	713,843	701,068	12,775	713,843	0	12,775
2014-15	180,887	164,468	16,420	180,887	0	16,420
2015-16	447,365	261,670	42,737	304,406	142,959	185,695
2016-17	314,126	64,090	74,560	138,650	175,476	250,036
Total	\$8,708,426	\$8,241,039	\$148,952	\$8,389,991	\$318,435	\$467,387

Notes:

- (1) Page 26, Column (4).
- (2) Page 25, Column (3).
- (3) (4) - (2).
- (4) Page 25, Column (6).
- (5) (1) - (4).
- (6) (1) - (2).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Paid and Reported Losses between 1/1/17 and 6/30/17
4850/TD Only

Program Year	Losses Paid as of 12/31/16 (1)	Projected Losses Paid 1/1/17 - 6/30/17 (2)	Projected Losses Paid as of 6/30/17 (3)	Losses Reported as of 12/31/16 (4)	Projected Losses Reported 1/1/17 - 6/30/17 (5)	Projected Losses Reported as of 6/30/17 (6)
1985-86	\$0	\$0	\$0	\$0	\$0	\$0
1986-87	0	0	0	0	0	0
1987-88	0	0	0	0	0	0
1988-89	0	0	0	0	0	0
1989-90	0	0	0	0	0	0
1990-91	0	0	0	0	0	0
1991-92	0	0	0	0	0	0
1992-93	27,361	0	27,361	27,361	0	27,361
1993-94	51,439	0	51,439	51,439	0	51,439
1994-95	150,307	0	150,307	150,307	0	150,307
1995-96	220,482	0	220,482	220,482	0	220,482
1996-97	181,819	0	181,819	181,819	0	181,819
1997-98	197,163	0	197,163	197,163	0	197,163
1998-99	118,580	0	118,580	118,580	0	118,580
1999-00	137,243	0	137,243	137,243	0	137,243
2000-01	316,848	0	316,848	316,848	0	316,848
2001-02	448,797	0	448,797	448,797	0	448,797
2002-03	487,154	0	487,154	487,154	0	487,154
2003-04	326,224	0	326,224	326,224	0	326,224
2004-05	469,312	0	469,312	469,312	0	469,312
2005-06	294,210	0	294,210	294,210	0	294,210
2006-07	562,102	0	562,102	562,102	0	562,102
2007-08	394,404	0	394,404	394,404	0	394,404
2008-09	529,974	0	529,974	529,974	0	529,974
2009-10	664,399	998	665,396	666,392	0	666,392
2010-11	669,679	0	669,679	669,679	0	669,679
2011-12	446,289	163	446,452	447,917	0	447,917
2012-13	354,798	0	354,798	354,798	0	354,798
2013-14	695,387	5,681	701,068	713,843	0	713,843
2014-15	151,909	12,558	164,468	180,887	0	180,887
2015-16	108,253	153,417	261,670	129,912	174,494	304,406
2016-17	51,698	12,392	64,090	79,403	59,247	138,650
Total	\$8,055,830	\$185,209	\$8,241,039	\$8,156,250	\$233,741	\$8,389,991

Notes:

- (1) Page 26, Column (1).
- (2) Projected by BAC.
- (3) (1) + (2).
- (4) Provided by JT2.
- (5) Projected by BAC.
- (6) (4) + (5).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Paid Loss Development
4850/TD

Program Year	Cumulative Paid Losses as of 12/31/16 (1)	Paid Development Factor as of 12/31/16 (2)	Projected Ultimate Losses (3)	Selected Ultimate Losses (4)
1985-86	\$0	1.000	\$0	\$0
1986-87	0	1.000	0	0
1987-88	0	1.000	0	0
1988-89	0	1.000	0	0
1989-90	0	1.000	0	0
1990-91	0	1.000	0	0
1991-92	0	1.000	0	0
1992-93	27,361	1.000	27,361	27,361
1993-94	51,439	1.000	51,439	51,439
1994-95	150,307	1.000	150,307	150,307
1995-96	220,482	1.000	220,482	220,482
1996-97	181,819	1.000	181,819	181,819
1997-98	197,163	1.000	197,163	197,163
1998-99	118,580	1.000	118,580	118,580
1999-00	137,243	1.000	137,243	137,243
2000-01	316,848	1.000	316,848	316,848
2001-02	448,797	1.000	448,797	448,797
2002-03	487,154	1.000	487,154	487,154
2003-04	326,224	1.000	326,224	326,224
2004-05	469,312	1.000	469,312	469,312
2005-06	294,210	1.000	294,210	294,210
2006-07	562,102	1.000	562,102	562,102
2007-08	394,404	1.000	394,404	394,404
2008-09	529,974	1.000	529,974	529,974
2009-10	664,399	1.000	664,399	666,392
2010-11	669,679	1.025	686,255	669,679
2011-12	446,289	1.025	457,335	447,917
2012-13	354,798	1.030	365,419	354,798
2013-14	695,387	1.019	708,850	713,843
2014-15	151,909	1.008	153,167	180,887
2015-16	108,253	1.101	119,236	447,365
2016-17	51,698	3.499	180,896	314,126
Total	\$8,055,830		\$8,248,974	\$8,708,426

Notes:

- (1) Provided by JT2.
- (2) Estimated by BAC.
- (3) (1) x (2), rounded.
- (4) Selected based upon (3) & case incurred values.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Unpaid Losses as of June 30, 2017
Limited Self-Insured Losses Including 4850/TD

Program Year	Estimated Ultimate Losses (1)	Projected Paid Losses as of 6/30/17 (2)	Projected Case Reserves 6/30/17 (3)	Projected Reported Losses as of 6/30/17 (4)	Projected IBNR as of 6/30/17 (5)	Projected Unpaid Losses as of 6/30/17 (6)
1985-86	\$395,000	\$392,316	\$980	\$393,297	\$1,703	\$2,684
1986-87	760,000	755,314	646	755,960	4,040	4,686
1987-88	134,000	131,167	66	131,232	2,768	2,833
1988-89	740,000	708,735	23,948	732,683	7,317	31,265
1989-90	739,000	738,580	30	738,610	390	420
1990-91	1,280,000	1,249,166	17,561	1,266,726	13,274	30,834
1991-92	1,354,000	1,278,285	60,638	1,338,923	15,077	75,715
1992-93	1,520,000	1,452,726	36,960	1,489,686	30,314	67,274
1993-94	1,220,000	1,166,453	33,793	1,200,246	19,754	53,547
1994-95	980,000	850,357	110,700	961,057	18,943	129,643
1995-96	1,100,000	1,078,250	8,416	1,086,665	13,335	21,750
1996-97	1,610,000	1,510,367	73,607	1,583,974	26,026	99,633
1997-98	1,340,000	1,190,575	120,687	1,311,262	28,738	149,425
1998-99	1,740,000	1,509,140	193,200	1,702,340	37,660	230,860
1999-00	1,570,000	1,506,016	37,218	1,543,234	26,766	63,984
2000-01	2,930,000	2,752,713	82,804	2,835,517	94,483	177,287
2001-02	2,590,000	2,358,852	130,463	2,489,315	100,685	231,148
2002-03	2,520,000	2,409,430	54,214	2,463,645	56,355	110,570
2003-04	2,200,000	2,036,824	58,583	2,095,408	104,592	163,176
2004-05	2,400,000	2,002,761	280,328	2,283,089	116,911	397,239
2005-06	1,400,000	1,282,445	53,058	1,335,503	64,497	117,555
2006-07	3,600,000	3,127,726	239,070	3,366,796	233,204	472,274
2007-08	2,100,000	1,636,491	222,030	1,858,521	241,479	463,509
2008-09	2,500,000	2,015,047	202,082	2,217,129	282,871	484,953
2009-10	4,100,000	3,008,386	754,704	3,763,091	336,909	1,091,614
2010-11	4,600,000	4,000,756	233,782	4,234,539	365,461	599,244
2011-12	3,000,000	2,173,886	554,293	2,728,179	271,821	826,114
2012-13	2,900,000	2,030,806	451,704	2,482,510	417,490	869,194
2013-14	4,000,000	2,719,559	735,315	3,454,874	545,126	1,280,441
2014-15	1,900,000	881,955	242,011	1,123,967	776,033	1,018,045
2015-16	2,500,000	972,358	435,946	1,408,304	1,091,696	1,527,642
2016-17	3,200,000	565,456	468,836	1,034,291	2,165,709	2,634,544
Total	\$64,922,000	\$51,492,898	\$5,917,674	\$57,410,572	\$7,511,428	\$13,429,102

Notes:

- (1) Page 31, Column (6).
- (2) Page 28, Column (3).
- (3) (4) - (2).
- (4) Page 28, Column (6).
- (5) (1) - (4).
- (6) (1) - (2).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Paid and Reported Losses between 1/1/17 and 6/30/17
Limited Self-Insured Losses Including 4850/TD

Program Year	Losses Paid as of 12/31/16 (1)	Projected Losses Paid 1/1/17 - 6/30/17 (2)	Projected Losses Paid as of 6/30/17 (3)	Losses Reported as of 12/31/16 (4)	Projected Losses Reported 1/1/17 - 6/30/17 (5)	Projected Losses Reported as of 6/30/17 (6)
1985-86	\$392,204	\$113	\$392,316	\$393,087	\$210	\$393,297
1986-87	755,060	254	755,314	755,060	900	755,960
1987-88	130,922	245	131,167	130,922	310	131,232
1988-89	707,783	952	708,735	732,012	671	732,683
1989-90	738,579	1	738,580	738,579	31	738,610
1990-91	1,246,510	2,656	1,249,166	1,265,062	1,664	1,266,726
1991-92	1,275,863	2,422	1,278,285	1,337,979	945	1,338,923
1992-93	1,447,820	4,906	1,452,726	1,487,996	1,690	1,489,686
1993-94	1,162,194	4,258	1,166,453	1,198,924	1,322	1,200,246
1994-95	847,326	3,031	850,357	960,349	708	961,057
1995-96	1,077,702	548	1,078,250	1,086,202	464	1,086,665
1996-97	1,505,200	5,166	1,510,367	1,583,520	454	1,583,974
1997-98	1,184,732	5,842	1,190,575	1,310,336	926	1,311,262
1998-99	1,499,375	9,765	1,509,140	1,701,365	975	1,702,340
1999-00	1,502,726	3,291	1,506,016	1,542,097	1,137	1,543,234
2000-01	2,741,086	11,627	2,752,713	2,830,288	5,229	2,835,517
2001-02	2,333,928	24,924	2,358,852	2,476,386	12,929	2,489,315
2002-03	2,396,187	13,244	2,409,430	2,454,257	9,388	2,463,645
2003-04	2,032,272	4,552	2,036,824	2,092,796	2,612	2,095,408
2004-05	1,992,851	9,910	2,002,761	2,279,421	3,668	2,283,089
2005-06	1,278,399	4,046	1,282,445	1,331,384	4,119	1,335,503
2006-07	3,111,233	16,493	3,127,726	3,350,255	16,541	3,366,796
2007-08	1,607,646	28,844	1,636,491	1,820,035	38,485	1,858,521
2008-09	1,995,747	19,300	2,015,047	2,202,830	14,299	2,217,129
2009-10	2,968,425	39,961	3,008,386	3,744,265	18,826	3,763,091
2010-11	3,990,422	10,335	4,000,756	4,223,526	11,013	4,234,539
2011-12	2,161,071	12,815	2,173,886	2,716,518	11,661	2,728,179
2012-13	1,935,693	95,113	2,030,806	2,423,683	58,826	2,482,510
2013-14	2,608,338	111,221	2,719,559	3,332,332	122,542	3,454,874
2014-15	772,167	109,788	881,955	1,037,870	86,097	1,123,967
2015-16	750,713	221,645	972,358	1,118,459	289,845	1,408,304
2016-17	154,074	411,382	565,456	278,037	756,254	1,034,291
Total	\$50,304,247	\$1,188,651	\$51,492,898	\$55,935,833	\$1,474,739	\$57,410,572

Notes:

- (1) Page 33, Column (1).
- (2) Projected by BAC.
- (3) (1) + (2).
- (4) Page 32, Column (1).
- (5) Projected by BAC.
- (6) (4) + (5).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Estimated Unpaid Losses as of December 31, 2016
Limited Self-Insured Losses Including 4850/TD

Program Year	Estimated Ultimate Losses (1)	Paid Losses as of 12/31/16 (2)	Case Reserves 12/31/16 (3)	Reported Losses as of 12/31/16 (4)	Estimated IBNR as of 12/31/16 (5)	Estimated Unpaid Losses as of 12/31/16 (6)
1985-86	\$395,000	\$392,204	\$883	\$393,087	\$1,913	\$2,796
1986-87	760,000	755,060	0	755,060	4,940	4,940
1987-88	134,000	130,922	0	130,922	3,078	3,078
1988-89	740,000	707,783	24,229	732,012	7,988	32,217
1989-90	739,000	738,579	0	738,579	421	421
1990-91	1,280,000	1,246,510	18,553	1,265,062	14,938	33,490
1991-92	1,354,000	1,275,863	62,116	1,337,979	16,021	78,137
1992-93	1,520,000	1,447,820	40,176	1,487,996	32,004	72,180
1993-94	1,220,000	1,162,194	36,730	1,198,924	21,076	57,806
1994-95	980,000	847,326	113,023	960,349	19,651	132,674
1995-96	1,100,000	1,077,702	8,500	1,086,202	13,798	22,298
1996-97	1,610,000	1,505,200	78,320	1,583,520	26,480	104,800
1997-98	1,340,000	1,184,732	125,603	1,310,336	29,664	155,268
1998-99	1,740,000	1,499,375	201,990	1,701,365	38,635	240,625
1999-00	1,570,000	1,502,726	39,371	1,542,097	27,903	67,274
2000-01	2,930,000	2,741,086	89,202	2,830,288	99,712	188,914
2001-02	2,590,000	2,333,928	142,458	2,476,386	113,614	256,072
2002-03	2,520,000	2,396,187	58,070	2,454,257	65,743	123,813
2003-04	2,200,000	2,032,272	60,524	2,092,796	107,204	167,728
2004-05	2,400,000	1,992,851	286,570	2,279,421	120,579	407,149
2005-06	1,400,000	1,278,399	52,985	1,331,384	68,616	121,601
2006-07	3,600,000	3,111,233	239,022	3,350,255	249,745	488,767
2007-08	2,100,000	1,607,646	212,389	1,820,035	279,965	492,354
2008-09	2,500,000	1,995,747	207,083	2,202,830	297,170	504,253
2009-10	4,100,000	2,968,425	775,840	3,744,265	355,735	1,131,575
2010-11	4,600,000	3,990,422	233,105	4,223,526	376,474	609,578
2011-12	3,000,000	2,161,071	555,447	2,716,518	283,482	838,929
2012-13	2,900,000	1,935,693	487,990	2,423,683	476,317	964,307
2013-14	4,000,000	2,608,338	723,994	3,332,332	667,668	1,391,662
2014-15	1,900,000	772,167	265,703	1,037,870	862,130	1,127,833
2015-16	2,500,000	750,713	367,746	1,118,459	1,381,541	1,749,287
2016-17	1,600,000	154,074	123,964	278,037	1,321,963	1,445,926
Total	\$63,322,000	\$50,304,247	\$5,631,586	\$55,935,833	\$7,386,167	\$13,017,753

Notes:

- (1) Page 31, Column (6).
2016-17 value adjusted for 6 month exposure through 12/31/16.
- (2) Page 33, Column (1).
- (3) (4) - (2).
- (4) Page 32, Column (1).
- (5) (1) - (4).
- (6) (3) + (5).

**Monterey Bay Area Self Insurance Authority
Workers' Compensation Program**

**Actuarial Analysis of the
Workers' Compensation Program**

**Limited Loss Exhibits
Including 4850/TD**

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Selected Ultimate Losses
Limited Self-Insured Losses Including 4850/TD

Program Year	Limited Reported Projection (1)	Limited Paid Projection (2)	Lim IBNR to Case Reserves Ratio (3)	B-F Limited Method Using Reported (4)	B-F Limited Method Using Paid (5)	Selected Ultimate Losses (6)
1985-86	\$394,094	\$400,546	\$393,211	\$394,555	\$402,477	\$395,000
1986-87	758,712	776,677	755,060	760,126	783,432	760,000
1987-88	131,925	135,395	130,922	131,960	135,202	134,000
1988-89	738,579	733,524	740,226	738,424	732,720	740,000
1989-90	743,795	765,506	738,579	743,614	763,752	739,000
1990-91	1,278,410	1,300,791	1,271,259	1,279,125	1,305,576	1,280,000
1991-92	1,351,755	1,335,230	1,356,427	1,351,076	1,333,491	1,354,000
1992-93	1,505,130	1,526,233	1,499,446	1,508,134	1,541,188	1,520,000
1993-94	1,216,036	1,236,571	1,210,127	1,215,228	1,232,067	1,220,000
1994-95	977,052	912,053	996,177	976,623	915,293	980,000
1995-96	1,102,049	1,154,137	1,088,557	1,103,460	1,159,060	1,100,000
1996-97	1,608,497	1,624,418	1,604,510	1,609,697	1,624,632	1,610,000
1997-98	1,332,391	1,286,776	1,343,495	1,345,076	1,346,172	1,340,000
1998-99	1,731,538	1,640,870	1,752,468	1,728,780	1,638,062	1,740,000
1999-00	1,571,896	1,661,342	1,551,861	1,579,346	1,688,972	1,570,000
2000-01	2,891,462	3,075,391	2,851,875	2,920,824	3,211,009	2,930,000
2001-02	2,545,924	2,696,652	2,512,713	2,542,106	2,662,527	2,590,000
2002-03	2,551,383	2,888,131	2,470,981	2,544,295	2,798,987	2,520,000
2003-04	2,239,418	2,558,384	2,121,061	2,234,496	2,481,352	2,200,000
2004-05	2,380,763	2,457,611	2,362,526	2,379,278	2,431,756	2,400,000
2005-06	1,398,971	1,602,863	1,347,968	1,394,413	1,543,645	1,400,000
2006-07	3,547,512	3,972,941	3,432,717	3,569,311	3,960,076	3,600,000
2007-08	1,970,387	2,129,869	1,916,035	2,040,457	2,318,217	2,100,000
2008-09	2,405,730	2,716,146	2,299,331	2,471,529	2,843,430	2,500,000
2009-10	4,133,681	4,152,241	4,126,754	4,042,727	3,873,336	4,100,000
2010-11	4,649,162	5,471,229	4,342,642	4,477,198	4,737,651	4,600,000
2011-12	3,048,375	3,105,865	3,025,902	3,021,461	3,011,555	3,000,000
2012-13	2,830,704	3,104,955	2,725,261	2,803,891	2,931,098	2,900,000
2013-14	4,292,176	4,709,083	4,059,946	3,952,541	3,843,219	4,000,000
2014-15	1,437,411	1,714,314	1,309,684	1,851,125	2,381,125	1,900,000
2015-16	2,078,060	2,720,220	1,766,060	2,515,983	2,940,772	2,500,000
2016-17	2,079,399	4,933,549	1,325,902	3,238,226	3,466,341	3,200,000
Total	\$62,922,377	\$70,499,513	\$60,429,684	\$64,465,086	\$68,038,191	\$64,922,000

- (1) Page 32, Column (3).
- (2) Page 33, Column (3).
- (3) Page 34, Column (6).
- (4) Page 35, Column (6).
- (5) Page 36, Column (6).
- (6) Selected on the basis of (1) - (5).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Reported Loss Development
Limited Self-Insured Losses Including 4850/TD

Program Year	Cumulative Reported Losses as of 12/31/16 (1)	Reported Development Factor as of 12/31/16 (2)	Projected Ultimate Losses (3)
1985-86	\$393,087	1.003	\$394,094
1986-87	755,060	1.005	758,712
1987-88	130,922	1.008	131,925
1988-89	732,012	1.009	738,579
1989-90	738,579	1.007	743,795
1990-91	1,265,062	1.011	1,278,410
1991-92	1,337,979	1.010	1,351,755
1992-93	1,487,996	1.012	1,505,130
1993-94	1,198,924	1.014	1,216,036
1994-95	960,349	1.017	977,052
1995-96	1,086,202	1.015	1,102,049
1996-97	1,583,520	1.016	1,608,497
1997-98	1,310,336	1.017	1,332,391
1998-99	1,701,365	1.018	1,731,538
1999-00	1,542,097	1.019	1,571,896
2000-01	2,830,288	1.022	2,891,462
2001-02	2,476,386	1.028	2,545,924
2002-03	2,454,257	1.040	2,551,383
2003-04	2,092,796	1.070	2,239,418
2004-05	2,279,421	1.044	2,380,763
2005-06	1,331,384	1.051	1,398,971
2006-07	3,350,255	1.059	3,547,512
2007-08	1,820,035	1.083	1,970,387
2008-09	2,202,830	1.092	2,405,730
2009-10	3,744,265	1.104	4,133,681
2010-11	4,223,526	1.101	4,649,162
2011-12	2,716,518	1.122	3,048,375
2012-13	2,423,683	1.168	2,830,704
2013-14	3,332,332	1.288	4,292,176
2014-15	1,037,870	1.385	1,437,411
2015-16	1,118,459	1.858	2,078,060
2016-17	278,037	7.479	2,079,399
Total	\$55,935,833		\$62,922,377

Notes:

- (1) Provided by JT2.
- (2) Page 39, Column (2), tempered for SIR.
- (3) (1) x (2), rounded.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Paid Loss Development
Limited Self-Insured Losses Including 4850/TD

Program Year	Cumulative Paid Losses as of 12/31/16 (1)	Paid Development Factor as of 12/31/16 (2)	Projected Ultimate Losses (3)
1985-86	\$392,204	1.021	\$400,546
1986-87	755,060	1.029	776,677
1987-88	130,922	1.034	135,395
1988-89	707,783	1.036	733,524
1989-90	738,579	1.036	765,506
1990-91	1,246,510	1.044	1,300,791
1991-92	1,275,863	1.047	1,335,230
1992-93	1,447,820	1.054	1,526,233
1993-94	1,162,194	1.064	1,236,571
1994-95	847,326	1.076	912,053
1995-96	1,077,702	1.071	1,154,137
1996-97	1,505,200	1.079	1,624,418
1997-98	1,184,732	1.086	1,286,776
1998-99	1,499,375	1.094	1,640,870
1999-00	1,502,726	1.106	1,661,342
2000-01	2,741,086	1.122	3,075,391
2001-02	2,333,928	1.155	2,696,652
2002-03	2,396,187	1.205	2,888,131
2003-04	2,032,272	1.259	2,558,384
2004-05	1,992,851	1.233	2,457,611
2005-06	1,278,399	1.254	1,602,863
2006-07	3,111,233	1.277	3,972,941
2007-08	1,607,646	1.325	2,129,869
2008-09	1,995,747	1.361	2,716,146
2009-10	2,968,425	1.399	4,152,241
2010-11	3,990,422	1.371	5,471,229
2011-12	2,161,071	1.437	3,105,865
2012-13	1,935,693	1.604	3,104,955
2013-14	2,608,338	1.805	4,709,083
2014-15	772,167	2.220	1,714,314
2015-16	750,713	3.624	2,720,220
2016-17	154,074	32.021	4,933,549
Total	\$50,304,247		\$70,499,513

Notes:

- (1) Provided by JT2.
- (2) Page 40, Column (2), tempered for SIR.
- (3) (1) x (2), rounded.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

IBNR to Case Reserves Ratio Method
Limited Self-Insured Losses Including 4850/TD

Program Year	Limited Reported LDF (1)	Limited Paid LDF (2)	Limited IBNR to Case Reserves Ratio (3)	Limited Case Reserves (4)	Estimated IBNR as of Reserves (5)	Estimated Ultimate Losses (6)
1985-86	1.003	1.021	0.140	\$883	\$124	\$393,211
1986-87	1.005	1.029	0.209	0	0	755,060
1987-88	1.008	1.034	0.299	0	0	130,922
1988-89	1.009	1.036	0.339	24,229	8,214	740,226
1989-90	1.007	1.036	0.249	0	0	738,579
1990-91	1.011	1.044	0.334	18,553	6,197	1,271,259
1991-92	1.010	1.047	0.297	62,116	18,448	1,356,427
1992-93	1.012	1.054	0.285	40,176	11,450	1,499,446
1993-94	1.014	1.064	0.305	36,730	11,203	1,210,127
1994-95	1.017	1.076	0.317	113,023	35,828	996,177
1995-96	1.015	1.071	0.277	8,500	2,355	1,088,557
1996-97	1.016	1.079	0.268	78,320	20,990	1,604,510
1997-98	1.017	1.086	0.264	125,603	33,159	1,343,495
1998-99	1.018	1.094	0.253	201,990	51,103	1,752,468
1999-00	1.019	1.106	0.248	39,371	9,764	1,551,861
2000-01	1.022	1.122	0.242	89,202	21,587	2,851,875
2001-02	1.028	1.155	0.255	142,458	36,327	2,512,713
2002-03	1.040	1.205	0.288	58,070	16,724	2,470,981
2003-04	1.070	1.259	0.467	60,524	28,265	2,121,061
2004-05	1.044	1.233	0.290	286,570	83,105	2,362,526
2005-06	1.051	1.254	0.313	52,985	16,584	1,347,968
2006-07	1.059	1.277	0.345	239,022	82,462	3,432,717
2007-08	1.083	1.325	0.452	212,389	96,000	1,916,035
2008-09	1.092	1.361	0.466	207,083	96,501	2,299,331
2009-10	1.104	1.399	0.493	775,840	382,489	4,126,754
2010-11	1.101	1.371	0.511	233,105	119,116	4,342,642
2011-12	1.122	1.437	0.557	555,447	309,384	3,025,902
2012-13	1.168	1.604	0.618	487,990	301,578	2,725,261
2013-14	1.288	1.805	1.005	723,994	727,614	4,059,946
2014-15	1.385	2.220	1.023	265,703	271,814	1,309,684
2015-16	1.858	3.624	1.761	367,746	647,601	1,766,060
2016-17	7.479	32.021	8.453	123,964	1,047,865	1,325,902
Total				\$5,631,586	\$4,493,851	\$60,429,684

Notes:

- (1) Page 32, Column (2).
- (2) Page 33, Column (2).
- (3) $[(1) - 1.000] \times (2) / [(2) - (1)]$.
- (4) $[\text{Page 32, Column (1)}] - [\text{Page 33, Column (1)}]$.
- (5) (3) x (4), rounded.
- (6) (5) + Page 32, Column (1).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Bornhuetter-Ferguson Using Reported Losses
Limited Self-Insured Losses Including 4850/TD

Program Year	A Priori Ultimate Losses (1)	Cumulative Reported Loss Development Factors (2)	Percentage of Losses Not Yet Reported (3)	Expected Unreported Losses (4)	Losses Reported as of 12/31/16 (5)	Estimated Ultimate Losses (6)
1985-86	\$489,178	1.003	0.3%	\$1,468	\$393,087	\$394,555
1986-87	1,013,293	1.005	0.5%	5,066	755,060	760,126
1987-88	129,696	1.008	0.8%	1,038	130,922	131,960
1988-89	712,475	1.009	0.9%	6,412	732,012	738,424
1989-90	719,237	1.007	0.7%	5,035	738,579	743,614
1990-91	1,406,340	1.011	1.0%	14,063	1,265,062	1,279,125
1991-92	1,309,725	1.010	1.0%	13,097	1,337,979	1,351,076
1992-93	1,830,747	1.012	1.1%	20,138	1,487,996	1,508,134
1993-94	1,164,557	1.014	1.4%	16,304	1,198,924	1,215,228
1994-95	957,289	1.017	1.7%	16,274	960,349	976,623
1995-96	1,232,701	1.015	1.4%	17,258	1,086,202	1,103,460
1996-97	1,636,056	1.016	1.6%	26,177	1,583,520	1,609,697
1997-98	2,043,548	1.017	1.7%	34,740	1,310,336	1,345,076
1998-99	1,612,639	1.018	1.7%	27,415	1,701,365	1,728,780
1999-00	1,960,486	1.019	1.9%	37,249	1,542,097	1,579,346
2000-01	4,311,222	1.022	2.1%	90,536	2,830,288	2,920,824
2001-02	2,434,063	1.028	2.7%	65,720	2,476,386	2,542,106
2002-03	2,369,412	1.040	3.8%	90,038	2,454,257	2,544,295
2003-04	2,180,000	1.070	6.5%	141,700	2,092,796	2,234,496
2004-05	2,322,251	1.044	4.3%	99,857	2,279,421	2,379,278
2005-06	1,313,101	1.051	4.8%	63,029	1,331,384	1,394,413
2006-07	3,911,721	1.059	5.6%	219,056	3,350,255	3,569,311
2007-08	2,900,291	1.083	7.6%	220,422	1,820,035	2,040,457
2008-09	3,198,802	1.092	8.4%	268,699	2,202,830	2,471,529
2009-10	3,175,127	1.104	9.4%	298,462	3,744,265	4,042,727
2010-11	2,757,303	1.101	9.2%	253,672	4,223,526	4,477,198
2011-12	2,797,645	1.122	10.9%	304,943	2,716,518	3,021,461
2012-13	2,640,333	1.168	14.4%	380,208	2,423,683	2,803,891
2013-14	2,768,792	1.288	22.4%	620,209	3,332,332	3,952,541
2014-15	2,925,379	1.385	27.8%	813,255	1,037,870	1,851,125
2015-16	3,024,943	1.858	46.2%	1,397,524	1,118,459	2,515,983
2016-17	3,418,232	7.479	86.6%	2,960,189	278,037	3,238,226
Total	\$66,666,583			\$8,529,253	\$55,935,833	\$64,465,086

Notes:

- (1) Page 43, Column (4), or Page 38, Column (6), adjusted for SIR.
- (2) Page 32, Column (2).
- (3) $100\% - [1.000 / (2)]$.
- (4) $(1) \times (3)$.
- (5) Page 32, Column (1).
- (6) $(4) + (5)$.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Bornhuetter-Ferguson Using Paid Losses
Limited Self-Insured Losses Including 4850/TD

Program Year	<i>A Priori</i> Ultimate Losses (1)	Cumulative Paid Loss Development Factors (2)	Percentage of Losses Not Yet Paid (3)	Expected Unpaid Losses (4)	Losses Paid as of 12/31/16 (5)	Estimated Ultimate Losses (6)
1985-86	\$489,178	1.021	2.1%	\$10,273	\$392,204	\$402,477
1986-87	1,013,293	1.029	2.8%	28,372	755,060	783,432
1987-88	129,696	1.034	3.3%	4,280	130,922	135,202
1988-89	712,475	1.036	3.5%	24,937	707,783	732,720
1989-90	719,237	1.036	3.5%	25,173	738,579	763,752
1990-91	1,406,340	1.044	4.2%	59,066	1,246,510	1,305,576
1991-92	1,309,725	1.047	4.4%	57,628	1,275,863	1,333,491
1992-93	1,830,747	1.054	5.1%	93,368	1,447,820	1,541,188
1993-94	1,164,557	1.064	6.0%	69,873	1,162,194	1,232,067
1994-95	957,289	1.076	7.1%	67,967	847,326	915,293
1995-96	1,232,701	1.071	6.6%	81,358	1,077,702	1,159,060
1996-97	1,636,056	1.079	7.3%	119,432	1,505,200	1,624,632
1997-98	2,043,548	1.086	7.9%	161,440	1,184,732	1,346,172
1998-99	1,612,639	1.094	8.6%	138,687	1,499,375	1,638,062
1999-00	1,960,486	1.106	9.5%	186,246	1,502,726	1,688,972
2000-01	4,311,222	1.122	10.9%	469,923	2,741,086	3,211,009
2001-02	2,434,063	1.155	13.5%	328,599	2,333,928	2,662,527
2002-03	2,369,412	1.205	17.0%	402,800	2,396,187	2,798,987
2003-04	2,180,000	1.259	20.6%	449,080	2,032,272	2,481,352
2004-05	2,322,251	1.233	18.9%	438,905	1,992,851	2,431,756
2005-06	1,313,101	1.254	20.2%	265,246	1,278,399	1,543,645
2006-07	3,911,721	1.277	21.7%	848,843	3,111,233	3,960,076
2007-08	2,900,291	1.325	24.5%	710,571	1,607,646	2,318,217
2008-09	3,198,802	1.361	26.5%	847,683	1,995,747	2,843,430
2009-10	3,175,127	1.399	28.5%	904,911	2,968,425	3,873,336
2010-11	2,757,303	1.371	27.1%	747,229	3,990,422	4,737,651
2011-12	2,797,645	1.437	30.4%	850,484	2,161,071	3,011,555
2012-13	2,640,333	1.604	37.7%	995,405	1,935,693	2,931,098
2013-14	2,768,792	1.805	44.6%	1,234,881	2,608,338	3,843,219
2014-15	2,925,379	2.220	55.0%	1,608,958	772,167	2,381,125
2015-16	3,024,943	3.624	72.4%	2,190,059	750,713	2,940,772
2016-17	3,418,232	32.021	96.9%	3,312,267	154,074	3,466,341
Total	\$66,666,583			\$17,733,944	\$50,304,247	\$68,038,191

Notes:

- (1) Page 35, Column (1).
- (2) Page 33, Column (2).
- (3) $100\% - [1.000 / (2)]$.
- (4) $(1) \times (3)$.
- (5) Page 33, Column (2).
- (6) $(4) + (5)$.

**Monterey Bay Area Self Insurance Authority
Workers' Compensation Program**

**Actuarial Analysis of the
Workers' Compensation Program**

Gross Loss Exhibits

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Selected Ultimate Losses
Unlimited Losses Including 4850/TD

Program Year	Reported Projection (1)	Paid Projection (2)	IBNR to Case Reserves Ratio (3)	B-F Method Using Reported (4)	Frequency Times Severity (5)	Selected Ultimate Losses (6)
1985-86	\$542,342	\$517,163	\$554,320			\$550,000
1986-87	1,096,086	1,079,327	1,104,047			1,090,000
1987-88	132,675	136,148	130,922			136,000
1988-89	743,494	737,860	746,792			748,000
1989-90	765,284	786,411	751,039			756,000
1990-91	1,462,436	1,414,429	1,500,333			1,480,000
1991-92	1,374,983	1,352,556	1,394,069			1,380,000
1992-93	1,922,872	1,849,119	1,981,345			1,950,000
1993-94	1,240,345	1,255,131	1,229,079			1,240,000
1994-95	997,143	925,640	1,047,716			1,020,000
1995-96	1,310,171	1,254,058	1,345,154			1,330,000
1996-97	1,784,538	1,825,627	1,760,239			1,790,000
1997-98	2,102,482	1,514,271	2,440,228			2,270,000
1998-99	1,796,171	1,724,078	1,835,079			1,820,000
1999-00	2,296,602	2,480,182	2,201,388			2,250,000
2000-01	5,003,326	4,837,893	5,084,911			5,040,000
2001-02	2,804,659	2,851,711	2,784,204			2,810,000
2002-03	2,620,062	2,972,924	2,482,363			2,550,000
2003-04	2,239,418	2,558,384	2,121,061			2,180,000
2004-05	2,442,976	2,537,565	2,409,237			2,460,000
2005-06	1,437,562	1,658,627	1,356,552			1,400,000
2006-07	4,171,396	4,448,677	4,064,403			4,200,000
2007-08	2,036,588	2,196,231	1,959,787	\$2,152,694	\$2,944,354	2,000,000
2008-09	2,482,650	2,792,023	2,338,055	2,597,133	4,141,725	2,500,000
2009-10	6,887,468	6,508,158	7,064,247	6,478,438	3,113,283	6,800,000
2010-11	6,478,452	6,962,430	6,194,040	6,029,152	5,070,827	6,400,000
2011-12	3,590,734	3,457,333	3,669,094	3,613,881	4,437,838	3,600,000
2012-13	3,689,340	3,788,895	3,633,148	3,669,978	3,784,017	3,700,000
2013-14	5,278,909	5,173,057	5,366,168	4,850,626	4,127,465	5,100,000
2014-15	1,579,576	1,842,788	1,420,748	2,459,061	2,355,700	2,000,000
2015-16	2,181,603	2,932,733	1,816,441	3,242,444	4,443,349	2,700,000
2016-17	2,236,996	5,053,161	1,435,362	4,657,691	4,328,500	4,700,000
Total	\$76,729,339	\$81,424,590	\$75,221,569			\$79,950,000
07/08-16/17	\$36,442,316	\$40,706,809	\$34,897,091	\$39,751,099	\$38,747,058	\$39,500,000

(1) Page 39, Column (3).

(2) Page 40, Column (3).

(3) Page 41, Column (6).

(4) Page 42, Column (6).

(5) Page 46, Column (4).

(6) Selected on the basis of (1) - (5).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Reported Loss Development
Unlimited Losses Including 4850/TD

Program Year	Cumulative Reported Losses as of 12/31/16 <u>(1)</u>	Reported Development Factor as of 12/31/16 <u>(2)</u>	Projected Ultimate Losses <u>(3)</u>
1985-86	\$537,191	1.010	\$542,342
1986-87	1,083,619	1.012	1,096,086
1987-88	130,922	1.013	132,675
1988-89	732,012	1.016	743,494
1989-90	751,039	1.019	765,284
1990-91	1,429,216	1.023	1,462,436
1991-92	1,337,979	1.028	1,374,983
1992-93	1,865,185	1.031	1,922,872
1993-94	1,198,924	1.035	1,240,345
1994-95	960,349	1.038	997,143
1995-96	1,258,293	1.041	1,310,171
1996-97	1,708,391	1.045	1,784,538
1997-98	2,007,019	1.048	2,102,482
1998-99	1,710,451	1.050	1,796,171
1999-00	2,177,687	1.055	2,296,602
2000-01	4,715,320	1.061	5,003,326
2001-02	2,633,071	1.065	2,804,659
2002-03	2,454,257	1.068	2,620,062
2003-04	2,092,796	1.070	2,239,418
2004-05	2,279,421	1.072	2,442,976
2005-06	1,331,384	1.080	1,437,562
2006-07	3,832,010	1.089	4,171,396
2007-08	1,820,035	1.119	2,036,588
2008-09	2,202,830	1.127	2,482,650
2009-10	6,055,785	1.137	6,887,468
2010-11	5,466,000	1.185	6,478,452
2011-12	2,972,249	1.208	3,590,734
2012-13	2,916,239	1.265	3,689,340
2013-14	3,713,894	1.421	5,278,909
2014-15	1,037,870	1.522	1,579,576
2015-16	1,118,459	1.951	2,181,603
2016-17	278,037	8.046	2,236,996
Total	\$65,807,932		\$76,729,339

Notes:

- (1) Provided by JT2.
- (2) Estimated by BAC.
- (3) (1) x (2), rounded.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Paid Loss Projection
Unlimited Losses Including 4850/TD

Program Year	Cumulative Paid Losses as of 12/31/16 (1)	Paid Development Factor as of 12/31/16 (2)	Projected Ultimate Losses (3)
1985-86	\$502,233	1.030	\$517,163
1986-87	1,042,099	1.036	1,079,327
1987-88	130,922	1.040	136,148
1988-89	707,783	1.042	737,860
1989-90	751,039	1.047	786,411
1990-91	1,343,636	1.053	1,414,429
1991-92	1,275,863	1.060	1,352,556
1992-93	1,728,204	1.070	1,849,119
1993-94	1,162,194	1.080	1,255,131
1994-95	847,326	1.092	925,640
1995-96	1,132,407	1.107	1,254,058
1996-97	1,630,071	1.120	1,825,627
1997-98	1,339,516	1.130	1,514,271
1998-99	1,508,461	1.143	1,724,078
1999-00	2,138,316	1.160	2,480,182
2000-01	4,083,540	1.185	4,837,893
2001-02	2,346,291	1.215	2,851,711
2002-03	2,396,187	1.241	2,972,924
2003-04	2,032,272	1.259	2,558,384
2004-05	1,992,851	1.273	2,537,565
2005-06	1,278,399	1.297	1,658,627
2006-07	3,374,544	1.318	4,448,677
2007-08	1,607,646	1.366	2,196,231
2008-09	1,995,747	1.399	2,792,023
2009-10	4,543,848	1.432	6,508,158
2010-11	4,639,621	1.501	6,962,430
2011-12	2,214,808	1.561	3,457,333
2012-13	2,180,948	1.737	3,788,895
2013-14	2,673,419	1.935	5,173,057
2014-15	772,167	2.387	1,842,788
2015-16	750,713	3.907	2,932,733
2016-17	154,074	32.797	5,053,161
Total	\$56,277,147		\$81,424,590

Notes:

- (1) Provided by JT2.
- (2) Estimated by BAC.
- (3) (1) x (2), rounded.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

IBNR to Case Reserves Ratio Method
Unlimited Losses Including 4850/TD

Program Year	Reported Development Factor as of 12/31/16 (1)	Paid Development Factor as of 12/31/16 (2)	IBNR to Case Reserves Ratio (3)	Case Reserves 12/31/16 (4)	Estimated IBNR Losses as of 12/31/16 (5)	Estimated Ultimate Losses (6)
1985-86	1.010	1.030	0.490	\$34,957	\$17,129	\$554,320
1986-87	1.012	1.036	0.492	41,519	20,428	1,104,047
1987-88	1.013	1.040	0.525	0	0	130,922
1988-89	1.016	1.042	0.610	24,229	14,780	746,792
1989-90	1.019	1.047	0.706	0	0	751,039
1990-91	1.023	1.053	0.831	85,580	71,117	1,500,333
1991-92	1.028	1.060	0.903	62,116	56,090	1,394,069
1992-93	1.031	1.070	0.848	136,981	116,160	1,981,345
1993-94	1.035	1.080	0.821	36,730	30,155	1,229,079
1994-95	1.038	1.092	0.773	113,023	87,367	1,047,716
1995-96	1.041	1.107	0.690	125,886	86,861	1,345,154
1996-97	1.045	1.120	0.662	78,320	51,848	1,760,239
1997-98	1.048	1.130	0.649	667,503	433,209	2,440,228
1998-99	1.050	1.143	0.617	201,990	124,628	1,835,079
1999-00	1.055	1.160	0.602	39,371	23,701	2,201,388
2000-01	1.061	1.185	0.585	631,779	369,591	5,084,911
2001-02	1.065	1.215	0.527	286,779	151,133	2,784,204
2002-03	1.068	1.241	0.484	58,070	28,106	2,482,363
2003-04	1.070	1.259	0.467	60,524	28,265	2,121,061
2004-05	1.072	1.273	0.453	286,570	129,816	2,409,237
2005-06	1.080	1.297	0.475	52,985	25,168	1,356,552
2006-07	1.089	1.318	0.508	457,466	232,393	4,064,403
2007-08	1.119	1.366	0.658	212,389	139,752	1,959,787
2008-09	1.127	1.399	0.653	207,083	135,225	2,338,055
2009-10	1.137	1.432	0.667	1,511,937	1,008,462	7,064,247
2010-11	1.185	1.501	0.881	826,379	728,040	6,194,040
2011-12	1.208	1.561	0.920	757,440	696,845	3,669,094
2012-13	1.265	1.737	0.975	735,291	716,909	3,633,148
2013-14	1.421	1.935	1.588	1,040,475	1,652,274	5,366,168
2014-15	1.522	2.387	1.441	265,703	382,878	1,420,748
2015-16	1.951	3.907	1.898	367,746	697,982	1,816,441
2016-17	8.046	32.797	9.336	123,964	1,157,325	1,435,362
Total				\$9,530,786	\$9,413,637	\$75,221,569

Notes:

- (1) Page 39, Column (2).
- (2) Page 40, Column (2).
- (3) $[(1) - 1.000] \times (2) / [(2) - (1)]$.
- (4) Page 39, Column (1) - Page 40, Column (1).
- (5) (3) x (4), rounded.
- (6) (5) + Page 39, Column (1).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Bornhuetter-Ferguson Using Reported Losses
Unlimited Losses Including 4850/TD

Program Year	<i>A Priori</i> Ultimate Losses (1)	Cumulative Reported Loss Development Factors (2)	Percentage of Losses Not Yet Reported (3)	Expected Unreported Losses (4)	Losses Reported as of 12/31/16 (5)	Estimated Ultimate Losses (6)
2007-08	\$3,138,296	1.119	10.6%	\$332,659	\$1,820,035	\$2,152,694
2008-09	3,489,405	1.127	11.3%	394,303	2,202,830	2,597,133
2009-10	3,492,998	1.137	12.1%	422,653	6,055,785	6,478,438
2010-11	3,609,948	1.185	15.6%	563,152	5,466,000	6,029,152
2011-12	3,730,421	1.208	17.2%	641,632	2,972,249	3,613,881
2012-13	3,589,235	1.265	21.0%	753,739	2,916,239	3,669,978
2013-14	3,840,311	1.421	29.6%	1,136,732	3,713,894	4,850,626
2014-15	4,143,413	1.522	34.3%	1,421,191	1,037,870	2,459,061
2015-16	4,361,365	1.951	48.7%	2,123,985	1,118,459	3,242,444
2016-17	4,999,605	8.046	87.6%	4,379,654	278,037	4,657,691
	\$38,394,997			\$12,169,700	\$27,581,399	\$39,751,099

Notes:

- (1) Page 43, Column (4).
- (2) Page 39, Column (2).
- (3) $100\% - [1.000 / (2)]$.
- (4) $(1) \times (3)$.
- (5) Page 39, Column (1).
- (6) $(4) + (5)$.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

A Priori Losses for Bornhuetter-Ferguson
Unlimited Losses Including 4850/TD

Program Year	<i>A Priori</i> Loss Rate (1)	Factor to Remove Trend (2)	Trended Payroll (\$00's) (3)	<i>A Priori</i> Ultimate Losses (4)
2007-08	\$9.63	0.624	\$522,255	\$3,138,296
2008-09	9.63	0.658	550,680	3,489,405
2009-10	9.63	0.694	522,652	3,492,998
2010-11	9.63	0.732	512,110	3,609,948
2011-12	9.63	0.772	501,781	3,730,421
2012-13	9.63	0.815	457,318	3,589,235
2013-14	9.63	0.860	463,705	3,840,311
2014-15	9.63	0.907	474,378	4,143,413
2015-16	9.63	0.957	473,243	4,361,365
2016-17	9.63	1.000	519,170	4,999,605
Total			\$4,997,292	\$38,394,997

Notes:

- (1) Page 44, Item (5).
- (2) Estimated by BAC.
- (3) Page 66, Column (3).
- (4) (1) x (2) x (3).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

A Priori Loss Rate for Bornhuetter-Ferguson Method
Unlimited Losses Including 4850/TD

Program Year	<i>A Priori</i> Ultimate Losses (1)	Estimated Pure Premium Trend (2)	Trended Payroll (\$00's) (3)	Constant Dollar Loss Rate (4)
2002-03	\$2,783,260	1.483	\$470,888	\$8.76
2003-04	2,385,971	1.577	520,023	7.24
2004-05	2,486,205	1.678	509,656	8.19
2005-06	1,537,973	1.785	534,203	5.14
2006-07	4,296,803	1.692	521,951	13.93
2007-08	2,108,472	1.604	522,255	6.47
2008-09	2,620,682	1.520	550,680	7.23
2009-10	6,719,583	1.441	522,652	18.53
2010-11	6,692,023	1.366	512,110	17.85
2011-12	3,532,535	1.295	501,781	9.11
2012-13	3,731,289	1.227	457,318	10.01
2013-14	5,234,082	1.163	463,705	13.13
2014-15	1,682,070	1.102	474,378	3.91
2015-16	2,431,744	1.045	473,243	5.37
2016-17	2,791,756	1.000	519,170	5.38
Total	\$51,034,448		\$7,554,014	\$9.35
02/03-15/16	\$34,752,480		\$4,478,122	\$9.63
			(5) Selected A Priori 2016-17 Loss Rate:	\$9.63

Notes:

- (1) Page 45, Column (3).
- (2) Estimated by BAC.
- (3) Page 66, Column (3).
- (4) $(1) \times (2) / (3)$.
- (5) Selected on the basis of (4).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

A Priori Ultimate losses
Unlimited Losses Including 4850/TD

Program Year	Reported Loss Projection (1)	Paid Loss Projection (2)	<i>A Priori</i> Selection (3)
1985-86	\$542,342	\$517,163	\$537,191
1986-87	1,096,086	1,079,327	1,087,806
1987-88	132,675	136,148	134,389
1988-89	743,494	737,860	740,714
1989-90	765,284	786,411	775,703
1990-91	1,462,436	1,414,429	1,438,773
1991-92	1,374,983	1,352,556	1,363,944
1992-93	1,922,872	1,849,119	1,886,681
1993-94	1,240,345	1,255,131	1,247,579
1994-95	997,143	925,640	962,300
1995-96	1,310,171	1,254,058	1,282,979
1996-97	1,784,538	1,825,627	1,804,367
1997-98	2,102,482	1,514,271	2,007,019
1998-99	1,796,171	1,724,078	1,761,650
1999-00	2,296,602	2,480,182	2,384,029
2000-01	5,003,326	4,837,893	4,925,164
2001-02	2,804,659	2,851,711	2,826,635
2002-03	2,620,062	2,972,924	2,783,260
2003-04	2,239,418	2,558,384	2,385,971
2004-05	2,442,976	2,537,565	2,486,205
2005-06	1,437,562	1,658,627	1,537,973
2006-07	4,171,396	4,448,677	4,296,803
2007-08	2,036,588	2,196,231	2,108,472
2008-09	2,482,650	2,792,023	2,620,682
2009-10	6,887,468	6,508,158	6,719,583
2010-11	6,478,452	6,962,430	6,692,023
2011-12	3,590,734	3,457,333	3,532,535
2012-13	3,689,340	3,788,895	3,731,289
2013-14	5,278,909	5,173,057	5,234,082
2014-15	1,579,576	1,842,788	1,682,070
2015-16	2,181,603	2,932,733	2,431,744
2016-17	2,236,996	5,053,161	2,791,756
Total	\$76,729,339	\$81,424,590	\$78,201,371

Notes:

- (1) Page 39, Column (3).
- (2) Page 40, Column (3).
- (3) Selected on the basis of (1) and (2).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Frequency Times Severity Method

Program Year	Selected Claim Severity (1)	Factor to Remove Trend (2)	Selected Ultimate Claims (3)	Estimated Ultimate Losses (4)
2007-08	\$78,700	0.624	60	\$2,944,354
2008-09	78,700	0.658	80	4,141,725
2009-10	78,700	0.694	57	3,113,283
2010-11	78,700	0.732	88	5,070,827
2011-12	78,700	0.772	73	4,437,838
2012-13	78,700	0.815	59	3,784,017
2013-14	78,700	0.860	61	4,127,465
2014-15	78,700	0.907	33	2,355,700
2015-16	78,700	0.957	59	4,443,349
2016-17	78,700	1.000	55	4,328,500
Total				\$38,747,058

Notes:

- (1) Page 47, Item (5).
- (2) Estimated by BAC.
- (3) Page 48, Column (3).
- (4) (1) x (2) x (3).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Calculation of Expected Claim Severity
Frequency Times Severity Method
Unlimited Losses Including 4850/TD

Program Year	<i>A Priori</i> Ultimate Losses (1)	Estimated Severity Trend (2)	Selected Claim Count (3)	Trended Claim Severity (4)
2005-06	\$1,537,973	1.785	54	\$50,839
2006-07	4,296,803	1.692	76	95,658
2007-08	2,108,472	1.604	60	56,358
2008-09	2,620,682	1.520	80	49,798
2009-10	6,719,583	1.441	57	169,863
2010-11	6,692,023	1.366	88	103,861
2011-12	3,532,535	1.295	73	62,645
2012-13	3,731,289	1.227	59	77,603
2013-14	5,234,082	1.163	61	99,800
2014-15	1,682,070	1.102	33	56,195
2015-16	2,431,744	1.045	59	43,071
2016-17	2,791,756	1.000	55	50,759
Total	\$43,379,012		755	\$76,371
05/06-15/16	\$40,587,256		700	\$78,700
			(5) Selected Severity:	\$78,700

Notes:

- (1) Page 45, Column (3).
- (2) Estimated by BAC.
- (3) Page 48, Column (3).
- (4) $(1) \times (2) / (3)$.
- (5) Selected on the basis of (4).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Selected Claim Counts

Program Year	Reported Claim Count Projection <u>(1)</u>	Bornhuetter- Ferguson Method <u>(2)</u>	Selected Claim Count <u>(3)</u>
1985-86	10		10
1986-87	12		12
1987-88	8		8
1988-89	22		22
1989-90	40		40
1990-91	49		49
1991-92	46		46
1992-93	37		37
1993-94	50		50
1994-95	45		45
1995-96	45		45
1996-97	54		54
1997-98	61		61
1998-99	55		55
1999-00	51		51
2000-01	63		63
2001-02	71		71
2002-03	74		74
2003-04	73		73
2004-05	68		68
2005-06	54		54
2006-07	76		76
2007-08	60		60
2008-09	80		80
2009-10	57		57
2010-11	88		88
2011-12	73		73
2012-13	59		59
2013-14	61		61
2014-15	33		33
2015-16	59		59
2016-17	36	55	55
Total	1,670		1,689

Notes:

- (1) Page 49, Column (3).
- (2) Page 50, Column (6).
- (3) Selected on the basis of (1) and (2).

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projection of Ultimate # of Indemnity Claims

Program Year	Total Indemnity Claims Reported 12/31/16 (1)	Development Factors as of 12/31/16 (2)	Projected Ultimate Indemnity Claims (3)
1985-86	10	1.000	10
1986-87	12	1.000	12
1987-88	8	1.000	8
1988-89	22	1.000	22
1989-90	40	1.000	40
1990-91	49	1.000	49
1991-92	46	1.000	46
1992-93	37	1.000	37
1993-94	50	1.000	50
1994-95	45	1.000	45
1995-96	45	1.000	45
1996-97	54	1.000	54
1997-98	61	1.000	61
1998-99	55	1.000	55
1999-00	51	1.000	51
2000-01	63	1.000	63
2001-02	71	1.000	71
2002-03	74	1.000	74
2003-04	73	1.000	73
2004-05	68	1.000	68
2005-06	54	1.000	54
2006-07	75	1.019	76
2007-08	60	1.000	60
2008-09	80	1.000	80
2009-10	57	1.000	57
2010-11	88	1.000	88
2011-12	73	1.005	73
2012-13	59	1.008	59
2013-14	61	1.007	61
2014-15	33	1.012	33
2015-16	57	1.037	59
2016-17	15	2.387	36
Total	1,646		1,670

Notes:

- (1) Provided by JT2.
- (2) Estimated by BAC.
- (3) (1) x (2), rounded.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projection of Ultimate # of Indemnity Claims
Bornhuetter-Ferguson Method

Program Year	A Priori Claim Count (1)	Claim Development Factor (2)	Estimated Percentage of Claims Unreported (3)	Estimated Unreported Claims (4)	Reported Claims as of 12/31/16 (5)	Projected Ultimate Claims (6)
2016-17	68	2.387	58.1%	40	15	55

Notes:

- (1) Page 51, Item (6).
- (2) Page 49, Column (2).
- (3) $100\% - [1.000 / (2)]$.
- (4) $(1) \times (3)$.
- (5) Page 49, Column (1).
- (6) $(4) + (5)$.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Calculation of Expected Claim Counts
A Priori Claim Count

Program Year	Projected Ultimate Claim Counts <u>(1)</u>	Trended Payroll (\$Millions) <u>(2)</u>	Indicated Claim Frequency <u>(3)</u>
2009-10	57	\$52.3	1.09
2010-11	88	51.2	1.72
2010-11	88	51.2	1.72
2011-12	73	50.2	1.45
2012-13	59	45.7	1.29
2013-14	61	46.4	1.32
2014-15	33	47.4	0.70
2015-16	59	47.3	1.25
2016-17	36	51.9	0.69
Total	554	\$443.6	1.25
09/10-15/16	518	\$391.7	1.32
	(4) Selected Claim Frequency:		1.32
	(5) 2016-17 Trended Payroll (\$Millions):		\$51.9
	(6) 2016-17 A Priori Claim Count:		68

Notes:

- (1) Page 49, Column (3).
- (2) Page 66, Column (3) / 10,000.
- (3) (1) / (2).
- (4) Selected on the basis of (3).
- (5) Page 66, Column (3) / 10,000.
- (6) (4) x (5).

**Monterey Bay Area Self Insurance Authority
Workers' Compensation Program**

**Actuarial Analysis of the
Workers' Compensation Program**

Future Loss Exhibits

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Projected Ultimate Unlimited Loss Rate for 2017-18
Unlimited Losses Including 4850/TD

Program Year	2016-17 Level Loss Rate (1)	Expected Increase for 2017-18 (2)	Trended Payroll (\$00's) (3)	Projected Ultimate Losses (4)	Projected 2017-18 Unlimited Loss Rate (5)
2017-18	\$9.82	1.035	\$519,170	5,276,686	\$9.96
				(6) 4850 percentage:	9.9%
				(7) Gross Rate ex 4850 :	\$8.97
				(8) 1M Limit Rate ex 4850 :	\$8.50
				(9) 750K Limit Rate ex 4850 :	\$8.15
				(10) 500K Limit Rate ex 4850 :	\$7.51
				(11) 350K Limit Rate ex 4850 :	\$6.73
				(12) 250K Limit Rate ex 4850 :	\$5.82
				(13) 150K Limit Rate ex 4850 :	\$4.36

Notes:

- (1) Page 54, Item (11).
- (2) 3.5% Expected Increase Estimated by BAC.
- (3) Page 66, Column (2).
- (4) (1) x (2) x (3), rounded.
- (5) (4) / [Page 66, Column (2)], rounded.
- (6) Page 23, Column (3).
- (7) [1.00 - (6)] x Unlimited Loss Rate.
- (8) - (13) Unlimited Loss Rate adjusted for Stated Limit & Percentages on Page 23.

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Unlimited Losses Including 4850/TD

Projected Future Loss Rate

Program Year	Estimated Ultimate Losses (1)	Pure Premium Trend (2)	Trended Payroll (\$00's) (3)	Trended Loss Rate (4)
2004-05	\$2,460,000	1.678	\$509,656	\$8.10
2005-06	1,400,000	1.785	534,203	4.68
2006-07	4,200,000	1.692	521,951	13.61
2007-08	2,000,000	1.604	522,255	6.14
2008-09	2,500,000	1.520	550,680	6.90
2009-10	6,800,000	1.441	522,652	18.75
2010-11	6,400,000	1.366	512,110	17.07
2011-12	3,600,000	1.295	501,781	9.29
2012-13	3,700,000	1.227	457,318	9.93
2013-14	5,100,000	1.163	463,705	12.79
2014-15	2,000,000	1.102	474,378	4.65
2015-16	2,700,000	1.045	473,243	5.96
Total	\$39,000,000		\$5,000,073	\$9.82

(5) Selected Loss Rate: \$9.82

Program Year	Largest Claim (6)	Severity Trend (7)	LDF (8)	Trended Developed Max Claim (9)
2004-05	\$466,956	1.678	1.072	\$839,730
2005-06	273,605	1.785	1.080	527,336
2006-07	822,795	1.692	1.089	1,515,426
2007-08	271,928	1.604	1.119	487,992
2008-09	430,181	1.520	1.127	737,002
2009-10	2,811,520	1.441	1.137	4,607,458
2010-11	760,657	1.366	1.185	1,231,315
2011-12	387,338	1.295	1.208	605,779
2012-13	652,978	1.227	1.265	1,013,673
2013-14	390,173	1.163	1.421	645,050

(10) Factor for Unlimited Retention: 1.000

(11) Unlimited 2016-17 Rate: **\$9.82**

Notes:

- (1) Page 38, Column (6).
- (2) Page 44, Column (2).
- (3) Page 66, Column (3).
- (4) (1) x (2) / (3).
- (5) Based on Column (4).
- (6) Provided by JT2.
- (7) Page 47, Column (2). Indexed to 2016-17.
- (8) Page 39, Column (2).
- (9) (6) x (7) x (8).
- (10) Estimated by BAC.
- (11) (5) x (10).

**Monterey Bay Area Self Insurance Authority
Workers' Compensation Program**

**Actuarial Analysis of the
Workers' Compensation Program**

Discounting Exhibits

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Discounted Value of Unpaid Losses as of June 30, 2017
Assuming a 1.5% Interest Rate

Limited Self-Insured Losses Excluding 4850/TD

Program Year	Projected Unpaid Losses (1)	Discount Factor (2)	Discounted Unpaid Losses (3)
1985-86	\$2,684	0.943	\$2,531
1986-87	4,686	0.935	4,381
1987-88	2,833	0.931	2,637
1988-89	31,265	0.925	28,918
1989-90	420	0.914	384
1990-91	30,834	0.908	28,004
1991-92	75,715	0.905	68,554
1992-93	67,274	0.902	60,692
1993-94	53,547	0.903	48,378
1994-95	129,643	0.900	116,661
1995-96	21,750	0.892	19,392
1996-97	99,633	0.887	88,363
1997-98	149,425	0.884	132,090
1998-99	230,860	0.880	203,243
1999-00	63,984	0.879	56,211
2000-01	177,287	0.880	155,927
2001-02	231,148	0.887	204,958
2002-03	110,570	0.898	99,251
2003-04	163,176	0.899	146,629
2004-05	397,239	0.891	353,853
2005-06	117,555	0.884	103,941
2006-07	472,274	0.879	415,214
2007-08	463,509	0.878	406,884
2008-09	484,953	0.877	425,309
2009-10	1,090,618	0.873	952,527
2010-11	599,244	0.867	519,722
2011-12	824,649	0.859	708,279
2012-13	869,194	0.863	750,465
2013-14	1,267,667	0.875	1,109,478
2014-15	1,001,625	0.885	886,216
2015-16	1,341,947	0.898	1,204,733
2016-17	2,384,508	0.911	2,172,331
Total	\$12,961,715		\$11,476,156

(4) Indicated Discount Factor: 0.885

Notes:

- (1) Page 21, Column (6).
- (2) (3) / (1).
- (3) Based upon a 1.5% interest rate.
- (4) [Sum of Column (3)] / [Sum of Column (1)].

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Discounted Value of 2017-18 Losses as of July 1, 2017
Assuming a 1.5% Interest rate

Unlimited Losses Including 4850/TD

Fiscal Year	Projected Loss Payments (1)	Discount Factor (2)	Discounted Value of Payments (3)
2017-18	\$581,743	0.993	\$577,429
2018-19	952,091	0.978	931,064
2019-20	533,205	0.963	513,723
2020-21	683,922	0.949	649,195
2021-22	422,658	0.935	395,269
2022-23	281,043	0.921	258,946
2023-24	181,872	0.908	165,096
2024-25	205,141	0.894	183,466
2025-26	96,151	0.881	84,721
2026-27	59,664	0.868	51,795
2027-28	65,559	0.855	56,071
2028-29	62,617	0.843	52,763
2029-30	36,591	0.830	30,378
2030-31	58,478	0.818	47,830
2031-32	64,388	0.806	51,886
2032-33	112,116	0.794	89,011
2033-34	112,750	0.782	88,191
2034-35	78,435	0.771	60,444
2035-36	56,547	0.759	42,933
2036-37	45,417	0.748	33,973
2037-38	42,066	0.737	31,001
2038-39	64,533	0.726	46,856
2039-40	66,318	0.715	47,440
2040-41	45,240	0.705	31,884
2041-42	46,090	0.694	32,003
42-43 to 52-53	322,051	0.631	203,276
Total	\$5,276,686		\$4,756,644

(4) Indicated Discount Factor: 0.901

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 1.5% interest rate.
- (3) (1) x (2).
- (4) [Sum of Column (3)] / [Sum of Column (1)].

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Discounted Value of 2017-18 Losses as of July 1, 2017
Assuming a 1.5% Interest rate

\$1 Million SIR
Limited Self-Insured Losses Including 4850/TD

Fiscal Year	Projected Loss Payments (1)	Discount Factor (2)	Discounted Value of Payments (3)
2017-18	\$554,047	0.993	\$549,938
2018-19	906,763	0.978	886,737
2019-20	507,819	0.963	489,265
2020-21	651,362	0.949	618,288
2021-22	402,536	0.935	376,451
2022-23	267,663	0.921	246,618
2023-24	173,213	0.908	157,236
2024-25	195,374	0.894	174,732
2025-26	91,573	0.881	80,688
2026-27	56,824	0.868	49,329
2027-28	62,438	0.855	53,401
2028-29	59,636	0.843	50,251
2029-30	36,070	0.830	29,945
2030-31	56,820	0.818	46,474
2031-32	62,332	0.806	50,229
2032-33	107,495	0.794	85,343
2033-34	107,862	0.782	84,368
2034-35	74,305	0.771	57,262
2035-36	53,560	0.759	40,665
2036-37	43,012	0.748	32,174
2037-38	39,834	0.737	29,356
2038-39	61,100	0.726	44,363
2039-40	63,009	0.715	45,073
2040-41	42,795	0.705	30,161
2041-42	43,593	0.694	30,269
42-43 to 52-53	304,435	0.631	192,099
Total	\$5,025,472		\$4,530,715

(4) Indicated Discount Factor: 0.902

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 1.5% interest rate.
- (3) (1) x (2).
- (4) [Sum of Column (3)] / [Sum of Column (1)].

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Discounted Value of 2017-18 Losses as of July 1, 2017
Assuming a 1.5% Interest rate

\$500,000 SIR
Limited Self-Insured Losses Including 4850/TD

Fiscal Year	Projected Loss Payments (1)	Discount Factor (2)	Discounted Value of Payments (3)
2017-18	\$496,556	0.993	\$492,873
2018-19	812,671	0.978	794,723
2019-20	455,125	0.963	438,496
2020-21	586,819	0.949	557,023
2021-22	381,630	0.935	356,899
2022-23	258,142	0.921	237,846
2023-24	171,400	0.908	155,590
2024-25	187,366	0.894	167,569
2025-26	94,763	0.881	83,498
2026-27	63,531	0.868	55,151
2027-28	66,856	0.855	57,180
2028-29	63,049	0.843	53,127
2029-30	28,510	0.830	23,668
2030-31	45,373	0.818	37,111
2031-32	49,765	0.806	40,102
2032-33	86,136	0.794	68,385
2033-34	86,050	0.782	67,307
2034-35	59,481	0.771	45,837
2035-36	42,718	0.759	32,433
2036-37	34,211	0.748	25,590
2037-38	31,608	0.737	23,294
2038-39	48,343	0.726	35,101
2039-40	12,839	0.715	9,184
2040-41	37,419	0.705	26,372
2041-42	38,098	0.694	26,454
42-43 to 52-53	265,538	0.631	167,489
Total	\$4,503,994		\$4,078,302

(4) Indicated Discount Factor: 0.905

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 1.5% interest rate.
- (3) (1) x (2).
- (4) [Sum of Column (3)] / [Sum of Column (1)].

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Discounted Value of 2017-18 Losses as of July 1, 2017
Assuming a 1.5% Interest rate

\$350,000 SIR
Limited Self-Insured Losses Including 4850/TD

Fiscal Year	Projected Loss Payments (1)	Discount Factor (2)	Discounted Value of Payments (3)
2017-18	\$454,219	0.993	\$450,850
2018-19	742,973	0.978	726,564
2019-20	420,013	0.963	404,667
2020-21	567,820	0.949	538,989
2021-22	360,404	0.935	337,049
2022-23	245,030	0.921	225,765
2023-24	164,658	0.908	149,470
2024-25	174,856	0.894	156,382
2025-26	92,488	0.881	81,494
2026-27	64,442	0.868	55,942
2027-28	65,751	0.855	56,236
2028-29	61,127	0.843	51,508
2029-30	20,536	0.830	17,049
2030-31	34,236	0.818	28,002
2031-32	37,880	0.806	30,525
2032-33	67,260	0.794	53,399
2033-34	67,226	0.782	52,583
2034-35	47,586	0.771	36,671
2035-36	34,057	0.759	25,857
2036-37	27,204	0.748	20,349
2037-38	25,078	0.737	18,481
2038-39	38,252	0.726	27,774
2039-40	10,452	0.715	7,477
2040-41	14,443	0.705	10,179
2041-42	31,715	0.694	22,022
42-43 to 52-53	219,650	0.630	138,350
Total	\$4,089,356		\$3,723,634

(4) Indicated Discount Factor: 0.911

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 1.5% interest rate.
- (3) (1) x (2).
- (4) [Sum of Column (3)] / [Sum of Column (1)].

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Discounted Value of 2017-18 Losses as of July 1, 2017
Assuming a 1.5% Interest rate

\$250,000 SIR
Limited Self-Insured Losses Including 4850/TD

Fiscal Year	Projected Loss Payments (1)	Discount Factor (2)	Discounted Value of Payments (3)
2017-18	\$406,570	0.993	\$403,555
2018-19	719,935	0.978	704,035
2019-20	398,008	0.963	383,466
2020-21	489,975	0.949	465,096
2021-22	323,700	0.935	302,724
2022-23	218,621	0.921	201,432
2023-24	146,970	0.908	133,414
2024-25	151,860	0.894	135,815
2025-26	82,214	0.881	72,441
2026-27	58,297	0.868	50,608
2027-28	58,064	0.855	49,661
2028-29	53,208	0.843	44,835
2029-30	15,949	0.830	13,241
2030-31	26,312	0.818	21,521
2031-32	28,957	0.806	23,334
2032-33	50,922	0.794	40,428
2033-34	50,523	0.782	39,519
2034-35	35,418	0.771	27,294
2035-36	25,252	0.759	19,172
2036-37	20,112	0.748	15,044
2037-38	18,495	0.737	13,630
2038-39	8,242	0.726	5,984
2039-40	10,823	0.715	7,742
2040-41	11,288	0.705	7,956
2041-42	25,130	0.694	17,449
42-43 to 52-53	172,827	0.630	108,823
Total	\$3,607,673		\$3,308,219

(4) Indicated Discount Factor: 0.917

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 1.5% interest rate.
- (3) (1) x (2).
- (4) [Sum of Column (3)] / [Sum of Column (1)].

**Monterey Bay Area Self Insurance Authority
Workers' Compensation Program**

**Actuarial Analysis of the
Workers' Compensation Program**

Claims Data Exhibits

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Cumulative Reported Losses (\$000's) as of December 31, 2016 - Unlimited

Program Year	Months of Development										
	<u>6</u>	<u>18</u>	<u>30</u>	<u>42</u>	<u>54</u>	<u>66</u>	<u>78</u>	<u>90</u>	<u>102</u>	<u>114</u>	<u>126</u>
1994										1,070	1,053
1995									746	747	767
1996								841	838	849	855
1997							1,502	1,656	1,665	1,676	1,682
1998						1,124	1,054	1,035	1,027	1,028	1,086
1999					1,161	1,279	1,290	1,286	1,356	1,441	1,451
2000				1,082	1,243	1,263	1,230	1,277	1,471	1,557	1,970
2001			1,697	2,579	2,857	2,668	3,101	3,477	3,769	4,114	4,088
2002		1,239	1,886	2,196	2,336	2,291	2,328	2,367	2,375	2,354	2,361
2003	644	2,163	2,625	2,510	2,494	2,445	2,452	2,452	2,440	2,440	2,415
2004	676	1,643	1,676	1,757	1,803	1,906	1,862	1,788	1,781	1,852	1,998
2005	882	1,861	1,899	2,025	2,284	1,955	2,133	2,183	2,166	2,146	2,257
2006	507	1,453	1,896	2,268	1,889	1,664	1,672	1,683	1,644	1,320	1,331
2007	696	3,220	4,322	3,231	3,180	3,579	3,866	3,789	3,785	3,789	3,832
2008	317	1,879	1,778	1,423	1,428	1,526	1,620	2,071	1,772	1,820	
2009	488	1,618	2,060	1,916	1,940	2,331	2,207	2,334	2,203		
2010	657	2,758	3,500	3,588	5,609	5,938	6,019	6,056			
2011	1,155	4,758	4,564	4,256	5,135	5,490	5,466				
2012	586	1,659	2,086	2,501	2,742	2,972					
2013	266	1,347	2,301	2,538	2,916						
2014	400	1,704	2,849	3,714							
2015	79	822	1,038								
2016	464	1,118									
2017	278										
	<u>6 - 18</u>	<u>18 - 30</u>	<u>30 - 42</u>	<u>42 - 54</u>	<u>54 - 66</u>	<u>66 - 78</u>	<u>78 - 90</u>	<u>90 - 102</u>	<u>102 - 114</u>	<u>114 - 126</u>	<u>126 - Ult.</u>
ALL YR VOL	3.582	1.226	1.039	1.118	1.033	1.024	1.035	1.002	1.011	1.029	
REFERENCE	2.872	1.314	1.163	1.116	1.062	1.029	1.011	1.009	1.007	1.004	1.089
SELECTED	4.125	1.282	1.071	1.124	1.047	1.019	1.042	1.009	1.007	1.028	1.089
CUMULATIVE	8.046	1.951	1.522	1.421	1.265	1.208	1.185	1.137	1.127	1.119	1.089

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Cumulative Paid Losses (\$000's) as of December 31, 2016 - Unlimited

Program Year	<u>Months of Development</u>										
	<u>6</u>	<u>18</u>	<u>30</u>	<u>42</u>	<u>54</u>	<u>66</u>	<u>78</u>	<u>90</u>	<u>102</u>	<u>114</u>	<u>126</u>
1994										1,022	1,027
1995									738	743	747
1996								838	838	839	843
1997							1,345	1,420	1,467	1,505	1,522
1998						882	932	968	989	999	1,011
1999					988	1,102	1,188	1,232	1,338	1,361	1,382
2000				688	774	846	931	1,029	1,136	1,254	1,684
2001			863	1,708	2,057	2,279	2,518	2,758	2,905	3,162	3,385
2002		654	1,162	1,499	1,859	2,047	2,128	2,155	2,183	2,213	2,248
2003	238	991	1,485	1,906	2,111	2,271	2,276	2,279	2,282	2,379	2,381
2004	116	726	1,078	1,264	1,557	1,653	1,667	1,693	1,742	1,764	1,998
2005	229	1,059	1,332	1,459	1,532	1,585	1,714	1,819	1,842	1,866	1,894
2006	123	646	1,005	1,124	1,211	1,254	1,262	1,269	1,272	1,275	1,277
2007	224	1,357	2,048	2,507	2,751	3,107	3,160	3,248	3,329	3,355	3,375
2008	65	797	1,117	1,190	1,236	1,294	1,369	1,511	1,546	1,608	
2009	156	891	1,433	1,593	1,719	1,820	1,831	1,988	1,996		
2010	174	1,675	2,265	2,775	3,033	4,299	4,410	4,544			
2011	376	2,001	3,230	3,761	3,999	4,420	4,640				
2012	192	728	1,366	1,855	2,059	2,215					
2013	136	805	1,579	1,865	2,181						
2014	161	1,145	2,099	2,673							
2015	23	475	772								
2016	156	751									
2017	154										
	<u>6 - 18</u>	<u>18 - 30</u>	<u>30 - 42</u>	<u>42 - 54</u>	<u>54 - 66</u>	<u>66 - 78</u>	<u>78 - 90</u>	<u>90 - 102</u>	<u>102 - 114</u>	<u>114 - 126</u>	<u>126 - Ult.</u>
ALL YR VOL	5.924	1.575	1.232	1.115	1.123	1.040	1.044	1.027	1.030	1.044	
REFERENCE	3.815	1.674	1.339	1.226	1.118	1.069	1.055	1.040	1.020	1.009	1.318
SELECTED	8.395	1.637	1.233	1.114	1.113	1.040	1.048	1.024	1.024	1.036	1.318
CUMULATIVE	32.797	3.907	2.387	1.935	1.737	1.561	1.501	1.432	1.399	1.366	1.318

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Cumulative # of Indemnity Losses Reported as of December 31, 2016 - Unlimited

Program	Months of Development											
	<u>6</u>	<u>18</u>	<u>30</u>	<u>42</u>	<u>54</u>	<u>66</u>	<u>78</u>	<u>90</u>	<u>102</u>	<u>114</u>	<u>126</u>	<u>138</u>
2006		52	53	54	54	53	53	53	53	53	53	54
2007	32	69	74	74	74	74	75	75	75	75	75	
2008	22	56	58	59	59	60	60	60	60	60		
2009	30	78	79	78	78	79	79	80	80			
2010	25	53	55	56	56	56	57	57				
2011	44	86	87	86	87	88	88					
2012	25	66	68	69	71	73						
2013	19	53	56	58	59							
2014	26	57	58	61								
2015	9	29	33									
2016	21	57										
2017	15											
	<u>6 - 18</u>	<u>18 - 30</u>	<u>30 - 42</u>	<u>42 - 54</u>	<u>54 - 66</u>	<u>66 - 78</u>	<u>78 - 90</u>	<u>90 - 102</u>	<u>102 - 114</u>	<u>114 - 126</u>	<u>126 - 138</u>	<u>138 - Ult.</u>
ALL YR VOL	2.387	1.037	1.012	1.007	1.008	1.005	1.003	1.000	1.000	1.000	1.019	
SELECTED	2.387	1.037	1.012	1.007	1.008	1.005	1.000	1.000	1.000	1.000	1.019	1.000
CUMULATIVE	2.605	1.091	1.053	1.040	1.032	1.024	1.019	1.019	1.019	1.019	1.019	1.000

Monterey Bay Area Self Insurance Authority
Workers' Compensation Program

Program Information

Program Year	Self-Insured Retention (SIR) (1)	Payroll (\$00's) (2)	Payroll Trended to 2016-17 (\$00's) (3)
1985-86	\$150,000	\$0	\$0
1986-87	200,000	0	0
1987-88	250,000	0	0
1988-89	250,000	0	0
1989-90	250,000	0	0
1990-91	300,000	0	0
1991-92	250,000	0	0
1992-93	250,000	0	0
1993-94	275,000	0	0
1994-95	300,000	0	0
1995-96	300,000	0	0
1996-97	300,000	0	0
1997-98	300,000	204,799	355,031
1998-99	300,000	212,991	351,649
1999-00	300,000	267,420	420,488
2000-01	300,000	263,274	394,256
2001-02	350,000	297,462	424,241
2002-03	500,000	346,678	470,888
2003-04	NO XS	401,995	520,023
2004-05	500,000	401,860	509,656
2005-06	500,000	429,640	534,203
2006-07	500,000	428,182	521,951
2007-08	500,000	437,000	522,255
2008-09	500,000	470,000	550,680
2009-10	500,000	455,000	522,652
2010-11	250,000	454,739	512,110
2011-12	250,000	454,479	501,781
2012-13	250,000	422,491	457,318
2013-14	250,000	436,959	463,705
2014-15	250,000	455,957	474,378
2015-16	250,000	463,964	473,243
2016-17	250,000	519,170	519,170
2017-18	?	529,553	519,170

Notes:

- (1) Provided by MBASIA.
- (2) Provided by MBASIA. 2017-18 estimated by BAC.
- (3) Estimated by BAC.