

# **Monterey Bay Area Self Insurance Authority**

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

**BAY ACTUARIAL CONSULTANTS  
Moraga, California  
March 26, 2018**

# Bay Actuarial Consultants

March 26, 2018

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

## An Actuarial Review of the Workers' Compensation Program

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# **Monterey Bay Area Self Insurance Authority**

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

### **Introduction**

# Monterey Bay Area Self Insurance Authority

## An Actuarial Review of the Workers' Compensation Program

### 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 workers' compensation claims directly. Therefore the Authority has no liability for unpaid 4850/TD benefits. Because of this fact we supply two sets of 2018-19 funding rates. The first set includes a provision for 4850/TD benefits and might be useful in evaluating excess insurance options that cover all 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 2018-19 Loss Rate.** Projections of the losses expected to be incurred during 2018-19, 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, 2018 liability.
- 3) **Discounting.** We discounted the projected 2018-19 losses and the Authority's liabilities at 2.0% 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 broke 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.

Risk Management Services Company 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**

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

### **Management Summary**

# Monterey Bay Area Self Insurance Authority

## An Actuarial Review of the Workers' Compensation Program

### Management Summary

#### Projected 2018-19 Loss Rates

Table I shows the MBASIA's projected rates of loss for 2018-19 at various self-insured retentions ("SIR's) ranging between \$250,000 and \$1,000,000, plus unlimited. These rates are discounted at 2.0% 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 2018-19 \$250,000 SIR loss rate with and without 4850/TD will be less than **\$7.28** and **\$6.39**, respectively.

<b>Table I: Projected 2018-19 Discounted Loss Rates (2.0% interest rate – INCLUDES 4850/TD)</b>						
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
<b>Central Estimate</b>	<b>\$6.36</b>	<b>\$7.16</b>	<b>\$7.83</b>	<b>\$8.40</b>	<b>\$8.69</b>	<b>\$9.13</b>
60%	6.67	7.51	8.21	8.81	9.11	9.57
70%	<b>\$7.28</b>	8.26	9.10	9.81	10.18	10.73
80%	8.04	9.21	10.21	11.08	11.53	12.22
90%	9.18	10.63	11.89	13.00	13.59	14.48
<b>17-18 Central Estimate</b>	<b>\$6.08</b>	<b>\$6.83</b>	<b>\$7.47</b>	<b>\$8.01</b>	<b>\$8.29</b>	<b>\$8.71</b>
<b>Change in C.E.</b>	<b>+4.6%</b>	<b>+4.8%</b>	<b>+4.8%</b>	<b>+4.9%</b>	<b>+4.8%</b>	<b>+4.8%</b>

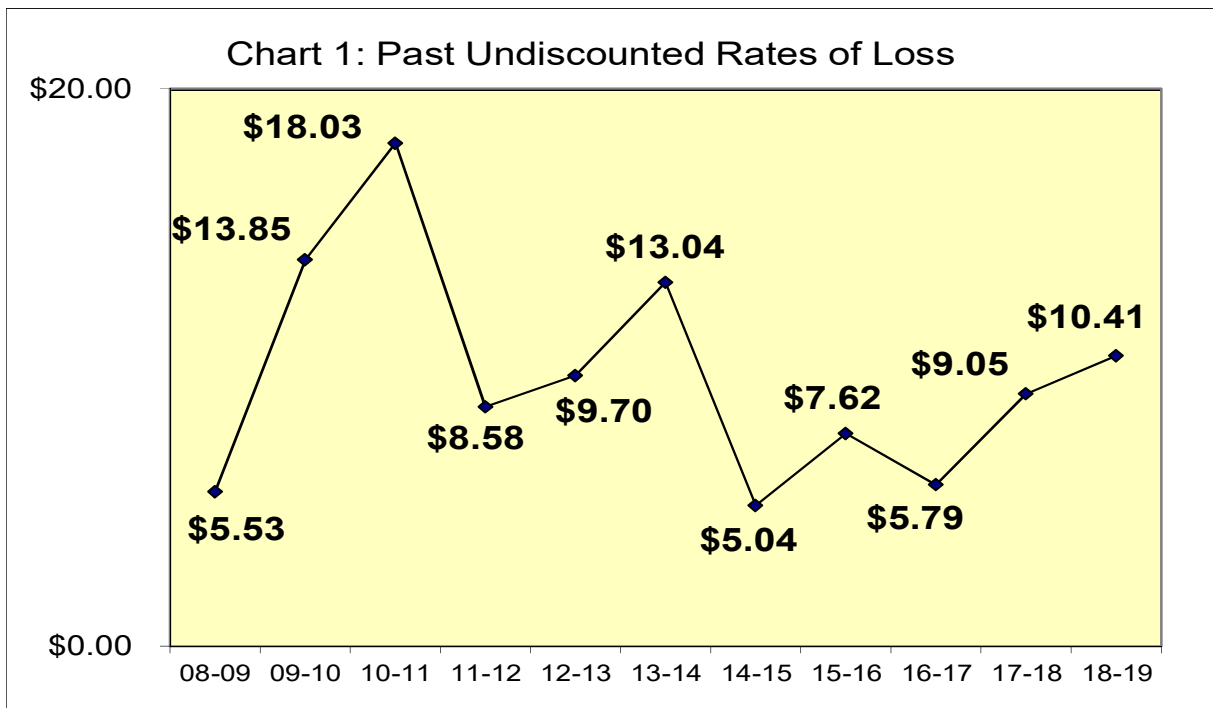
The next to last row in Table I shows last year's projected 2017-18 central value rates. The bottom row shows the percentage changes between last year's and this year's central value rates

<b>Table II: Projected 2018-19 Discounted Loss Rates (2.0% interest rate – EXCLUDES 4850/TD)</b>						
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
<b>Central Estimate</b>	<b>\$5.47</b>	<b>\$6.28</b>	<b>\$6.96</b>	<b>\$7.53</b>	<b>\$7.83</b>	<b>\$8.27</b>
60%	5.73	6.59	7.30	7.90	8.21	8.66
70%	<b>\$6.26</b>	7.25	8.09	8.80	9.17	9.72
80%	6.92	8.07	9.08	9.93	10.39	11.07
90%	7.90	9.32	10.57	11.66	12.24	13.12
<b>17-18 Central Estimate</b>	<b>\$5.20</b>	<b>\$5.96</b>	<b>\$6.60</b>	<b>\$7.14</b>	<b>\$7.43</b>	<b>\$7.84</b>
<b>Change in C.E.</b>	<b>+5.2%</b>	<b>+5.4%</b>	<b>+5.5%</b>	<b>+5.5%</b>	<b>+5.4%</b>	<b>+5.5%</b>

Last year we estimated that 4850/TD constituted 9.3% of the total unlimited losses. This year the data indicates 9.5%.

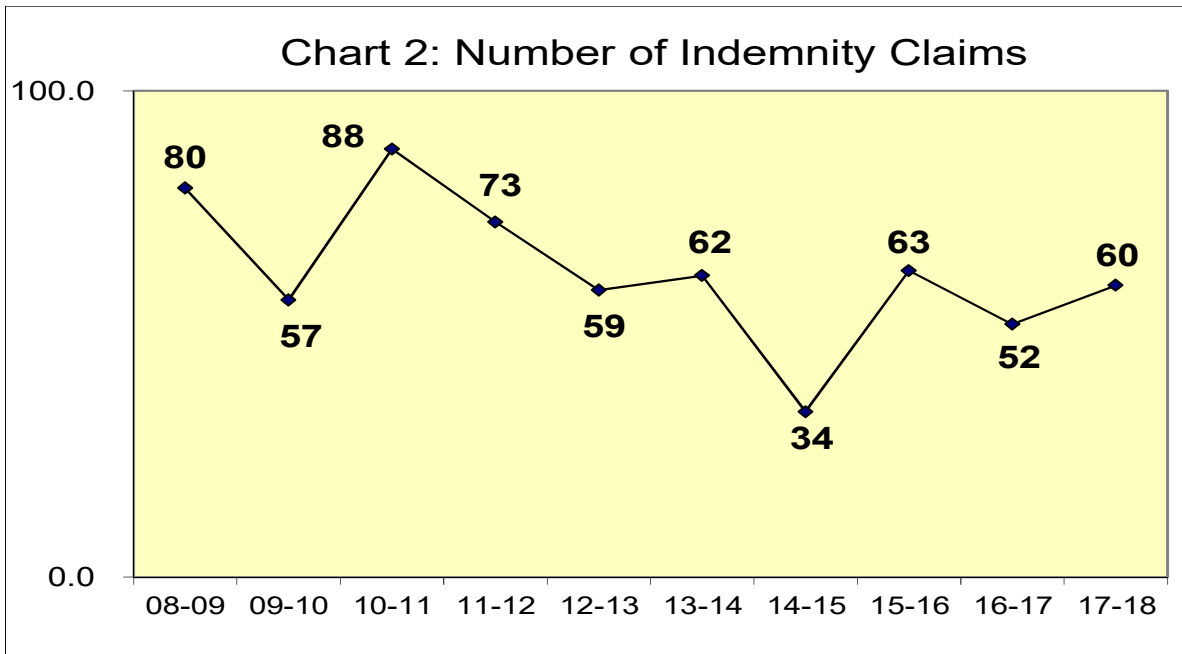
### The Authority's Past Rates of Loss

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. **\$10.41** is the undiscounted central estimate unlimited rate for 2018-19. The rates in Chart 1 include 4850/TD.



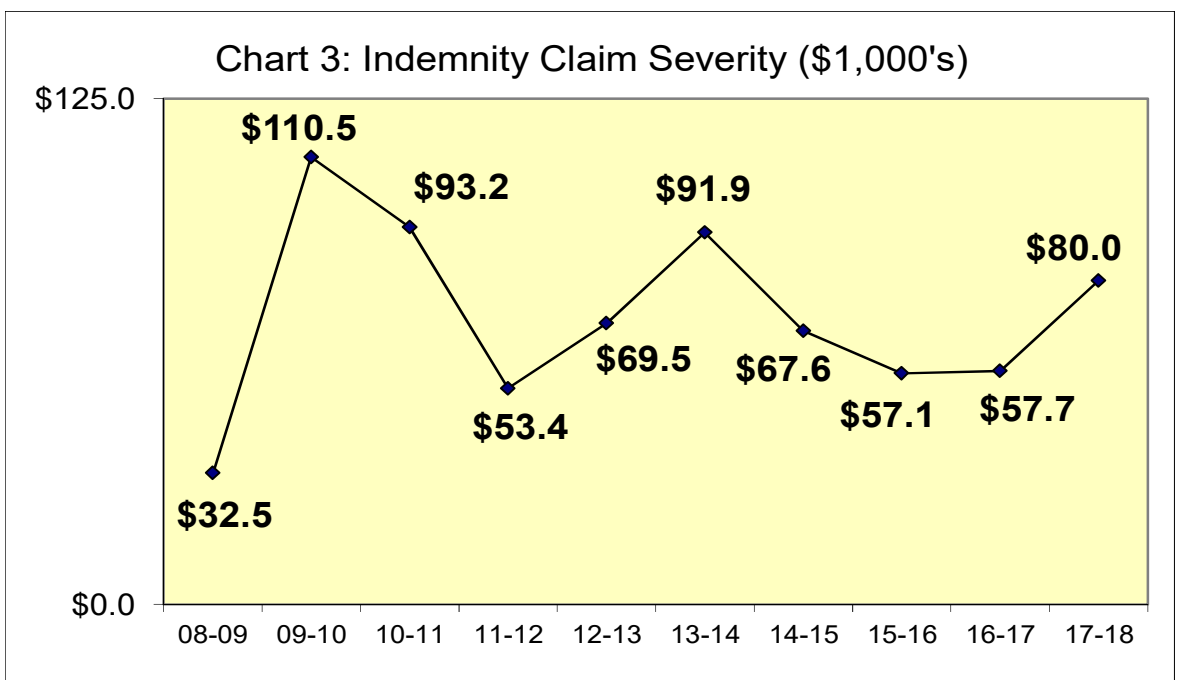
### Claim Frequency

Claim frequency is an important diagnostic statistic. Chart 2 shows the estimated number of indemnity claims incurred over the last ten years.



### 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.



## Liability for Unpaid Losses

We estimate that the liability for unpaid losses was **\$13,699,000** on December 31, 2017 and that it will be **\$13,870,000** on June 30, 2018. The discounted values are about 11% lower. Table III shows the estimated December 31, 17 values and Table IV shows the projected June 30, 2018 amounts. Both tables show central estimates and higher probability levels. TD/4850 liabilities are excluded.

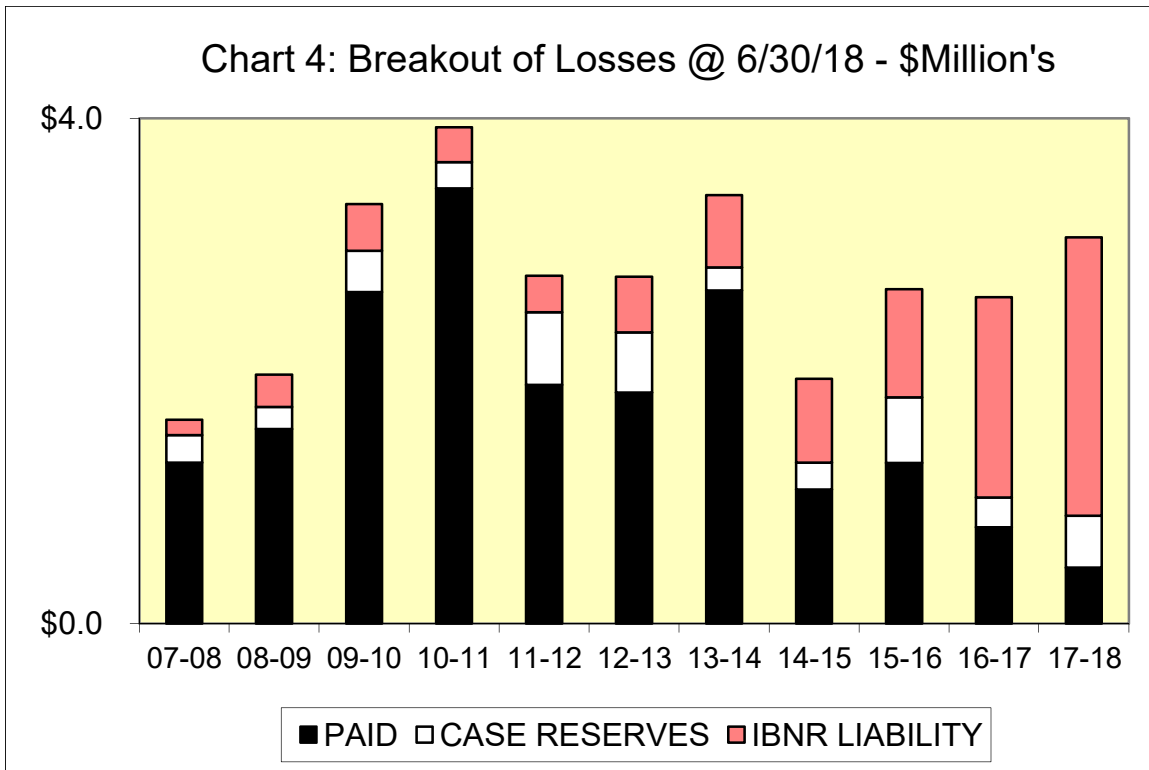
<b>Table III: Estimated Liability for Unpaid Losses as of December 31, 2017 - \$1,000's</b>		
Probability	Undiscounted	Discounted at 2.0%
<u>Level</u>	<u>Losses</u>	Interest <u>Losses</u>
<b>Central Estimate</b>	<b>\$13,699</b>	<b>\$12,208</b>
60%	14,110	12,574
70%	14,658	13,063
80%	15,206	13,551
90%	16,165	14,406

<b>Table IV: Projected Liability for Unpaid Losses as of June 30, 2018 - \$1,000's</b>		
Probability	Undiscounted	Discounted at 2.0%
<u>Level</u>	<u>Losses</u>	Interest <u>Losses</u>
<b>Central Estimate</b>	<b>\$13,870</b>	<b>\$12,361</b>
60%	15,812	14,091
70%	16,506	14,709
80%	17,338	15,451
90%	18,448	16,440

The 90% probability level is 18% higher than the central estimate at December 31 but 33% higher at June 30. This is because both estimates are based on December 31 data. The June 30 projections include six months of payment projections and six months of projected new loss occurrences so the uncertainty is currently much higher. If the liabilities were to re-estimated at June 30 using current data that 33% "probability loading" would then fall back toward the 18% level.

### Loss Breakout as of 6/30/18

We project that the Authority's liability of **\$13,870,000** will comprise **\$5,285,000** in case reserves for known claims and an IBNR liability of **\$8,698,000**. Chart 4 breaks out the estimated total program year losses for 2007-08 through 2017-18 into their components: losses paid, case reserves, and IBNR liability. There is **\$1.65** of IBNR liability for every **\$1.00** of case reserves. Last year this ratio was \$1.25. The cause of this increase was an increase in the loss development factors shown on page 42, which in turn derive from the development triangle shown on page 66.

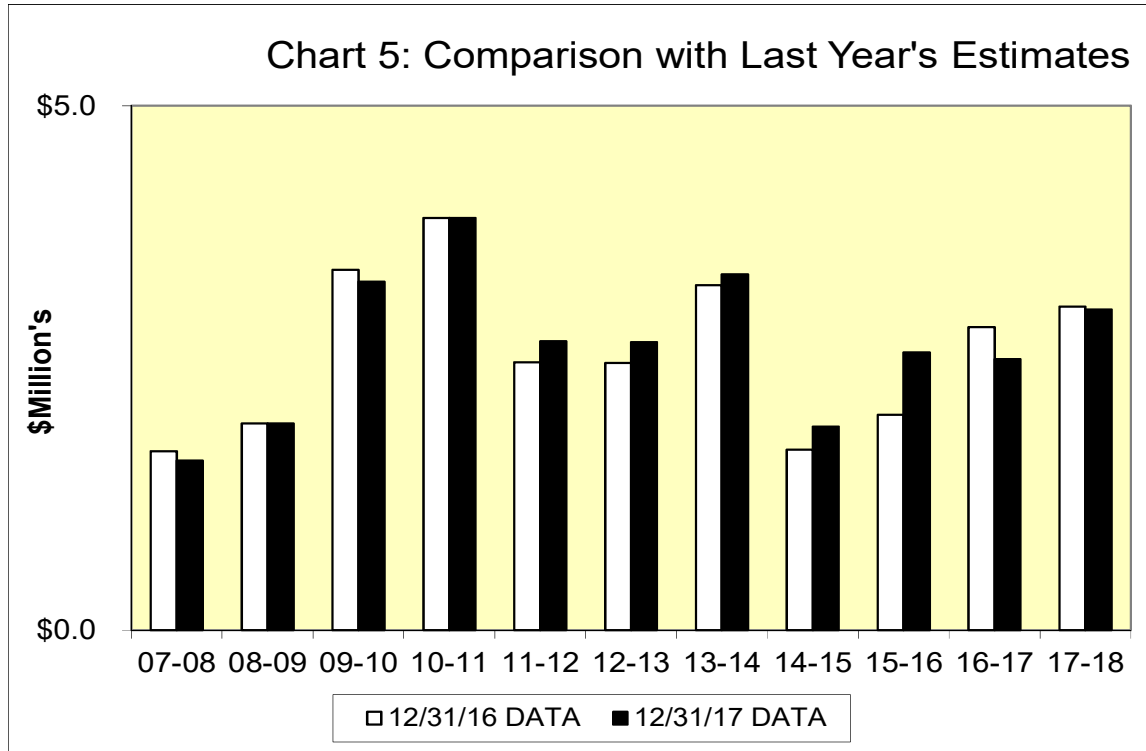


### Short-Term Liability

Short-term liabilities are those expected to be expended within twelve months. The limited 6/30/18 liability comprises **\$2,267,000** in short-term and **\$11,603,000** 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 2016-17 was an increase of \$1,212,000.



## Reconciling the 12/31/16 & 12/31/17 Liability Estimates

Last year we estimated that the liability for unpaid losses (including 4850/TD) was \$13,018,000 on December 31, 2016. Claims expenditures were \$3,102,000 during 2017. The change in the estimated losses incurred through 12/31/16 was an increase of \$959,000. We estimate that the total losses incurred during 2017 were \$2,950,000. Therefore starting with the December 31, 2016 liability, if we subtract the claims expenditures and add the change in the estimates and then add the total loss incurred during 2017 the indicated liability is \$13,825,000. This matches our direct calculation on page 32.

## Interest Rates

We discounted the rates and liabilities using a 2.0% interest rate. Here are the adjustments to make for different interest rate assumptions:

<b>Interest Rate</b>	<b>0.0%</b>	<b>1.0%</b>	<b>1.5%</b>	<b>2.0%</b>	<b>2.50%</b>	<b>2.54%</b>
<b>UNL Rate</b>	<b>+14.0%</b>	<b>+6.5%</b>	<b>+3.2%</b>	<b>0.0%</b>	<b>-2.9%</b>	<b>-3.1%</b>
<b>1M Rate</b>	<b>+13.6%</b>	<b>+6.3%</b>	<b>+3.0%</b>	<b>0.0%</b>	<b>-2.8%</b>	<b>-3.1%</b>
<b>750K Rate</b>	<b>+13.1%</b>	<b>+6.1%</b>	<b>+2.9%</b>	<b>0.0%</b>	<b>-2.8%</b>	<b>-3.0%</b>
<b>500K Rate</b>	<b>+12.6%</b>	<b>+5.9%</b>	<b>+2.8%</b>	<b>0.0%</b>	<b>-2.7%</b>	<b>-2.9%</b>
<b>350K Rate</b>	<b>+11.4%</b>	<b>+5.3%</b>	<b>+2.6%</b>	<b>0.0%</b>	<b>-2.4%</b>	<b>-2.7%</b>
<b>250K Rate</b>	<b>+10.3%</b>	<b>+4.9%</b>	<b>+2.3%</b>	<b>0.0%</b>	<b>-2.2%</b>	<b>-2.4%</b>
<b>Liabilities</b>	<b>+12.2%</b>	<b>+5.7%</b>	<b>+2.8%</b>	<b>0.0%</b>	<b>-2.6%</b>	<b>-2.8%</b>

We included columns labeled 2.50% and 2.54%. Those were the “risk-free buy-and-hold” interest rates appropriate for discounting the 2018-19 losses and the 6/30/18 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 2018-19 claims yielded an overall interest rate of 2.50%. The portfolio matching the expenditures on the 6/30/18 liabilities yielded an overall interest rate of 2.54%. These are benchmarks that rise and fall with interest rates in general.

# **Monterey Bay Area Self Insurance Authority**

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

### **Technical Approach**

# Monterey Bay Area Self Insurance Authority

## An Actuarial Review of the Workers' Compensation Program

### Technical Approach

This section describes the actuarial calculations.

#### Exhibits

##### ***Summary Exhibits***

These exhibits summarize the analysis and conclusions. Summary Exhibits 1 and 2 show the estimated liabilities for unpaid losses as of December 31, 2017 and the projection to June 30, 2018. Summary Exhibit 3 shows the projected rate for the 2018-19 program year, which runs from July 1, 2018 to June 30, 2019. These rates include 4850/TD benefits. Summary Exhibit 4 shows the estimated limited unpaid losses as of June 30, 2018 by program year on both discounted and non-discounted bases. The limited unpaid losses exclude 4850/TD. Summary Exhibit 5 shows the ULAE liability at 12/31/17 and 6/30/18.

##### ***Fiscal Year End Exhibits***

These exhibits show the estimated unpaid limited losses as of June 30, 2018. 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 2018-19, 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, 2017, 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

Estimated Unpaid Losses as of December 31, 2017  
**Limited Self-Insured Losses Excluding 4850/TD**

(1) Estimated Unpaid Losses:	\$13,699,263
(2) Discounted Value of Unpaid Losses: (Assuming 2.0% Interest Rate)	\$12,208,175

**Probability Levels**

Probability Level <u>(3)</u>	Probability Factor <u>(4)</u>	Discounted * Liability <u>(5)</u>
<b>Central Estimate</b>	<b>1.00</b>	<b>\$12,208,175</b>
60%	1.03	12,574,420
70%	1.07	13,062,747
80%	1.11	13,551,074
90%	1.18	14,405,647

\* Multiply by 1.122 to obtain undiscounted values.

Notes:

- (1) [Page 32, Column (6)]-[Page 28, Column (6)].
- (2) (1), discounted at 2.00% interest.
- (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 Unpaid Losses as of June 30, 2018  
**Limited Self-Insured Losses Excluding 4850/TD**

(1) Projected Unpaid Losses:	\$13,870,340
(2) Discounted Value of Unpaid Losses: (Assuming 2.0% Interest Rate)	\$12,360,632

**Probability Levels**

Probability Level <u>(3)</u>	Probability Factor <u>(4)</u>	Discounted * Liability <u>(5)</u>
<b>Central Estimate</b>	<b>1.00</b>	<b>\$12,360,632</b>
60%	1.14	14,091,120
70%	1.19	14,709,152
80%	1.25	15,450,790
90%	1.33	16,439,641

\* Multiply by 1.122 to obtain undiscounted values.

Notes:

- (1) Page 20, Column (1).
- (2) Page 20, 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 2018-19

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

(1) Discounted Loss Rate: (as of July 1, 2018, 2.0% 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;">\$6.36</td> </tr> </table>	Loss Rates	\$6.36
Loss Rates			
\$6.36			

<b>Probability Levels</b>		
Probability Level <u>(2)</u>	Probability Factor <u>(3)</u>	Discounted * Rate <u>(4)</u>
0.20	0.71	\$4.52
0.30	0.80	5.09
0.40	0.88	5.60
0.50	0.96	6.11
<b>Central Estimate</b>	<b>1.00</b>	<b>\$6.36</b>
0.60	1.05	6.68
0.70	1.14	7.25
0.80	1.26	8.01
0.90	1.44	9.16

\* Multiply by 1.103 to obtain undiscounted values.

Notes:

- (1) [Page 56, Column (5)] x [Page 64, 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, 2018 Summary

**Limited Self-Insured Losses Excluding 4850/TD**

Program Year	Undiscounted Claims Liabilities as of 6/30/18 (1)	Discounted (2.0% Interest) Claims Liabilities as of 6/30/18 (2)	Estimated Ultimate Losses (3)
1986-87	\$2,728	\$2,571	\$758,000
1987-88	2,884	2,691	134,000
1988-89	30,412	28,096	740,000
1989-90	400	365	739,000
1990-91	31,217	28,282	1,280,000
1991-92	121,824	109,307	1,410,000
1992-93	47,634	42,518	1,472,639
1993-94	52,097	46,401	1,168,561
1994-95	168,068	149,103	879,693
1995-96	7,102	6,248	864,518
1996-97	170,869	148,850	1,508,181
1997-98	159,222	137,721	1,172,837
1998-99	273,915	235,416	1,681,420
1999-00	70,668	60,443	1,452,757
2000-01	188,937	161,394	2,633,152
2001-02	142,246	127,154	2,091,203
2002-03	155,082	142,477	2,122,846
2003-04	222,166	203,991	1,973,776
2004-05	355,860	324,508	1,920,688
2005-06	135,433	123,014	1,145,790
2006-07	367,206	332,002	2,987,898
2007-08	339,499	305,533	1,615,596
2008-09	428,898	385,184	1,970,026
2009-10	697,130	623,560	3,320,428
2010-11	486,073	430,649	3,930,059
2011-12	861,618	754,246	2,752,083
2012-13	915,024	792,623	2,745,202
2013-14	753,850	659,641	3,390,113
2014-15	876,441	778,516	1,939,280
2015-16	1,373,898	1,221,148	2,647,782
2016-17	1,818,833	1,627,136	2,583,435
2017-18	2,613,107	2,369,844	3,056,832
Total	\$13,870,340	\$12,360,632	\$60,087,797

## Notes:

- (1) Page 59, Column (1).
- (2) Page 59, Column (3).
- (3) Page 23, 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 12/31/17:	\$25,356,477	\$1,606,943	\$26,963,420
(4) Estimated Unpaid ULAE as of 12/31/17:	\$1,521,389	\$192,833	\$1,714,222
(5) Discounted Unpaid ULAE as of 12/31/17: ( 2.0% interest rate)			\$1,527,372

We project that the ULAE liability will not change between 12/31/17 & 06/30/18.

Notes:

- (1) Estimated by BAC.
- (2) "50-50 Rule."
- (3) From gross ultimates on Page 41 and gross claims data, assuming 90% of IBNR is development on known claims.
- (4) (2) x (3).
- (5) (4) x [Page 59, 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, 2018  
**Limited Self-Insured Losses Excluding 4850/TD**

Program Year	Estimated Ultimate Losses (1)	Limited Paid Losses less 4850/TD Paid 6/30/18 (2)	Limited Case Reserves less 4850/TD Case 6/30/18 (3)	Lim Reported less 4850/TD Reported 6/30/18 (4)	Limited IBNR less 4850/TD IBNR 6/30/18 (5)	Projected Unpaid Losses excluding 4850/TD 6/30/18 (6)
1986-87	\$758,000	\$755,272	\$740	\$756,012	\$1,988	\$2,728
1987-88	134,000	131,116	699	131,815	2,185	2,884
1988-89	740,000	709,588	23,360	732,948	7,052	30,412
1989-90	739,000	738,600	-1	738,599	401	400
1990-91	1,280,000	1,248,783	22,563	1,271,346	8,654	31,217
1991-92	1,410,000	1,288,176	98,007	1,386,182	23,818	121,824
1992-93	1,472,639	1,425,005	25,951	1,450,956	21,683	47,634
1993-94	1,168,561	1,116,464	31,899	1,148,363	20,198	52,097
1994-95	879,693	711,625	155,691	867,316	12,377	168,068
1995-96	864,518	857,416	551	857,967	6,551	7,102
1996-97	1,508,181	1,337,312	142,641	1,479,954	28,228	170,869
1997-98	1,172,837	1,013,615	128,694	1,142,309	30,528	159,222
1998-99	1,681,420	1,407,506	203,764	1,611,270	70,151	273,915
1999-00	1,452,757	1,382,088	37,321	1,419,409	33,348	70,668
2000-01	2,633,152	2,444,215	113,620	2,557,835	75,317	188,937
2001-02	2,091,203	1,948,957	82,873	2,031,830	59,373	142,246
2002-03	2,122,846	1,967,764	63,796	2,031,560	91,286	155,082
2003-04	1,973,776	1,751,610	69,206	1,820,816	152,960	222,166
2004-05	1,920,688	1,564,829	271,551	1,836,379	84,309	355,860
2005-06	1,145,790	1,010,357	62,437	1,072,795	72,996	135,433
2006-07	2,987,898	2,620,693	151,757	2,772,450	215,449	367,206
2007-08	1,615,596	1,276,098	217,294	1,493,392	122,205	339,499
2008-09	1,970,026	1,541,128	173,840	1,714,968	255,058	428,898
2009-10	3,320,428	2,623,298	327,374	2,950,672	369,756	697,130
2010-11	3,930,059	3,443,986	208,703	3,652,689	277,370	486,073
2011-12	2,752,083	1,890,465	572,940	2,463,404	288,678	861,618
2012-13	2,745,202	1,830,178	475,362	2,305,540	439,662	915,024
2013-14	3,390,113	2,636,263	182,729	2,818,992	571,121	753,850
2014-15	1,939,280	1,062,839	213,401	1,276,240	663,040	876,441
2015-16	2,647,782	1,273,884	517,140	1,791,023	856,758	1,373,898
2016-17	2,583,435	764,603	235,244	999,846	1,583,589	1,818,833
2017-18	3,056,832	443,725	411,574	855,299	2,201,533	2,613,107
<b>Total</b>	<b>\$60,087,797</b>	<b>\$46,217,456</b>	<b>\$5,222,719</b>	<b>\$51,440,175</b>	<b>\$8,647,622</b>	<b>\$13,870,340</b>

## Notes:

(1) - (6) Page 30 entries - Page 26 entries.

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Calculation of 4850/TD IBNR

Program Year	Total Case Reserves 12/31/17 (1)	4850/TD Case Reserves 12/31/17 (2)	4850/TD Case Reserves Percentage (3)	Total IBNR as of 12/31/17 (4)	4850/TD IBNR as of 12/31/17 (5)	IBNR Net of 4850/TD as of 12/31/17 (6)
1986-87	\$0	\$0	0.0%	\$2,940	\$0	\$2,940
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	23,461	0	0.0%	9,255	0	9,255
1991-92	101,812	0	0.0%	25,356	0	25,356
1992-93	28,705	0	0.0%	22,628	0	22,628
1993-94	34,527	0	0.0%	21,076	0	21,076
1994-95	163,486	0	0.0%	14,560	0	14,560
1995-96	0	0	0.0%	7,298	0	7,298
1996-97	148,224	0	0.0%	29,832	0	29,832
1997-98	134,620	0	0.0%	31,172	0	31,172
1998-99	214,623	0	0.0%	70,952	0	70,952
1999-00	39,368	0	0.0%	34,635	0	34,635
2000-01	120,866	0	0.0%	79,680	0	79,680
2001-02	120,609	0	0.0%	69,929	0	69,929
2002-03	74,445	0	0.0%	105,751	0	105,751
2003-04	68,803	0	0.0%	168,050	0	168,050
2004-05	293,442	0	0.0%	88,791	0	88,791
2005-06	72,145	0	0.0%	75,141	0	75,141
2006-07	166,841	0	0.0%	223,358	0	223,358
2007-08	237,831	0	0.0%	128,218	0	128,218
2008-09	160,098	0	0.0%	303,889	0	303,889
2009-10	352,642	0	0.0%	384,751	0	384,751
2010-11	201,838	0	0.0%	297,507	0	297,507
2011-12	582,311	1,628	0.3%	306,577	0	306,577
2012-13	472,545	0	0.0%	472,377	0	472,377
2013-14	263,530	28,413	10.8%	641,245	0	641,245
2014-15	232,851	4,173	1.8%	741,529	0	741,529
2015-16	495,922	17,565	3.5%	975,002	1,727	973,275
2016-17	199,005	9,626	4.8%	1,924,588	13,964	1,910,624
2017-18	90,124	7,000	7.8%	1,438,713	33,523	1,405,190
<b>Total</b>	<b>\$5,118,904</b>	<b>\$68,404</b>	<b>\$0</b>	<b>\$8,706,288</b>	<b>\$49,214</b>	<b>\$8,657,074</b>

## Notes:

- (1) Page 32, Column (3).
- (2) Provided by RMS.
- (3) (2) / (1).
- (4) Page 32, Column (5).
- (5) (2) x 'IBNR to case reserves' ratio.  
Ratio is [(4) / (1)], reduced 70% in 2017-18, 85% in 2016-17, & 95% in 2015-16.  
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 (1)	Estimated Ultimate Gross Loss (2)	4850/TD Percentage (3)
2006-07	\$562,102	\$4,200,000	13.4%
2007-08	394,404	2,100,000	18.8%
2008-09	529,974	2,600,000	20.4%
2009-10	679,572	6,300,000	10.8%
2010-11	669,941	8,200,000	8.2%
2011-12	447,917	3,900,000	11.5%
2012-13	354,798	4,100,000	8.7%
2013-14	709,887	5,700,000	12.5%
2014-15	160,720	2,300,000	7.0%
2015-16	152,218	3,600,000	4.2%
2016-17	116,565	3,000,000	3.9%
Total	\$4,778,098	\$46,000,000	10.4%
09-10 to 14-15	\$3,022,835	\$30,500,000	9.9%
Last Year:			9.3%

**Selected Percentages**

Gross Loss:	9.5%
\$1M Limit:	10.0%
\$750K Limit:	10.4%
\$500K Limit:	11.2%
\$350K Limit:	12.3%
\$250K Limit:	14.0%
\$150K Limit:	17.9%

- (1) Page 29, Column (4).  
(2) Page 41, Column (6).  
(3) (1) / (2).

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Projected Unpaid Losses as of June 30, 2018

**4850/TD Only**

Program Year	Estimated Ultimate 4850/TD (1)	Projected 4850/TD Paid as of 6/30/18 (2)	Projected 4850/TD Case Reserves as of 6/30/18 (3)	Projected 4850/TD Reported as of 6/30/18 (4)	Projected 4850/TD IBNR as of 6/30/18 (5)	Projected Unpaid Losses excluding 4850/TD 6/30/18 (6)
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	679,572	679,572	0	679,572	0	0
2010-11	669,941	669,941	0	669,941	0	0
2011-12	447,917	447,104	813	447,917	0	813
2012-13	354,798	354,798	0	354,798	0	0
2013-14	709,887	688,595	21,292	709,887	0	21,292
2014-15	160,720	157,027	3,693	160,720	0	3,693
2015-16	152,218	141,612	10,606	152,218	0	10,606
2016-17	116,565	108,059	8,506	116,565	0	8,506
2017-18	143,168	75,555	17,144	92,699	50,468	67,612
<b>Total</b>	<b>\$8,348,203</b>	<b>\$8,235,680</b>	<b>\$62,055</b>	<b>\$8,297,735</b>	<b>\$50,468</b>	<b>\$112,523</b>

## Notes:

- (1) Page 29, Column (4).
- (2) Page 27, Column (3).
- (3) (4) - (2).
- (4) Page 27, Column (6).
- (5) (1) - (4).
- (6) (1) - (2).

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Projected Paid and Reported Losses between 1/1/18 and 6/30/18  
4850/TD Only

Program Year	Losses Paid as of 12/31/17 (1)	Projected Losses Paid 1/1/18 - 6/30/18 (2)	Projected Losses Paid as of 6/30/18 (3)	Losses Reported as of 12/31/17 (4)	Projected Losses Reported 1/1/18 - 6/30/18 (5)	Projected Losses Reported as of 6/30/18 (6)
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	679,572	0	679,572	679,572	0	679,572
2010-11	669,941	0	669,941	669,941	0	669,941
2011-12	446,289	815	447,104	447,917	0	447,917
2012-13	354,798	0	354,798	354,798	0	354,798
2013-14	681,474	7,121	688,595	709,887	0	709,887
2014-15	156,547	480	157,027	160,720	0	160,720
2015-16	134,654	6,958	141,612	152,218	0	152,218
2016-17	106,939	1,120	108,059	116,565	0	116,565
2017-18	7,060	68,496	75,555	14,059	78,640	92,699
<b>Total</b>	<b>\$8,150,691</b>	<b>\$84,990</b>	<b>\$8,235,680</b>	<b>\$8,219,095</b>	<b>\$78,640</b>	<b>\$8,297,735</b>

## Notes:

- (1) Page 29, Column (1).
- (2) Projected by BAC.
- (3) (1) + (2).
- (4) Provided by RMS.
- (5) Projected by BAC.
- (6) (4) + (5).

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Estimated Unpaid Losses as of December 31, 2017

4850/TD Only

Program Year	Estimated Ultimate 4850/TD (1)	4850/TD Paid as of 12/31/17 (2)	4850/TD Case Reserves as of 12/31/17 (3)	4850/TD Reported as of 12/31/17 (4)	4850/TD IBNR as of 12/31/17 (5)	Estimated Unpaid Losses excluding 4850/TD 12/31/17 (6)
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	679,572	679,572	0	679,572	0	0
2010-11	669,941	669,941	0	669,941	0	0
2011-12	447,917	446,289	1,628	447,917	0	1,628
2012-13	354,798	354,798	0	354,798	0	0
2013-14	709,887	681,474	28,413	709,887	0	28,413
2014-15	160,720	156,547	4,173	160,720	0	4,173
2015-16	152,218	134,654	17,565	152,218	0	17,565
2016-17	116,565	106,939	9,626	116,565	0	9,626
2017-18	71,584	7,060	7,000	14,059	57,524	64,524
Total	\$8,276,620	\$8,150,691	\$68,404	\$8,219,095	\$57,524	\$125,929

## Notes:

- (1) Page 29, Column (4). 2017-18 adjusted for incomplete program year.
- (2) Page 27, Column (1).
- (3) (4) - (2).
- (4) Page 27, Column (4).
- (5) (1) - (4).
- (6) (1) - (2).

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Paid Loss Development  
4850/TD

Program Year	Cumulative Paid Losses as of 12/31/17 (1)	Paid Development Factor as of 12/31/17 (2)	Projected Ultimate Losses (3)	Selected Ultimate Losses (4)
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	679,572	1.000	679,572	679,572
2010-11	669,941	1.000	669,941	669,941
2011-12	446,289	1.025	457,335	447,917
2012-13	354,798	1.025	363,580	354,798
2013-14	681,474	1.030	701,873	709,887
2014-15	156,547	1.019	159,577	160,720
2015-16	134,654	1.008	135,769	152,218
2016-17	106,939	1.101	117,789	116,565
2017-18	7,060	3.499	24,702	143,168
Total	\$8,150,691		\$8,223,556	\$8,348,203

## Notes:

- (1) Provided by RMS.
- (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, 2018

**Limited Self-Insured Losses Including 4850/TD**

Program Year	Estimated Ultimate Losses (1)	Projected Paid Losses as of 6/30/18 (2)	Projected Case Reserves 6/30/18 (3)	Projected Reported Losses as of 6/30/18 (4)	Projected IBNR as of 6/30/18 (5)	Projected Unpaid Losses as of 6/30/18 (6)
1986-87	\$758,000	\$755,272	\$740	\$756,012	\$1,988	\$2,728
1987-88	134,000	131,116	699	131,815	2,185	2,884
1988-89	740,000	709,588	23,360	732,948	7,052	30,412
1989-90	739,000	738,600	-1	738,599	401	400
1990-91	1,280,000	1,248,783	22,563	1,271,346	8,654	31,217
1991-92	1,410,000	1,288,176	98,007	1,386,182	23,818	121,824
1992-93	1,500,000	1,452,366	25,951	1,478,317	21,683	47,634
1993-94	1,220,000	1,167,903	31,899	1,199,802	20,198	52,097
1994-95	1,030,000	861,932	155,691	1,017,623	12,377	168,068
1995-96	1,085,000	1,077,898	551	1,078,449	6,551	7,102
1996-97	1,690,000	1,519,131	142,641	1,661,772	28,228	170,869
1997-98	1,370,000	1,210,778	128,694	1,339,472	30,528	159,222
1998-99	1,800,000	1,526,085	203,764	1,729,849	70,151	273,915
1999-00	1,590,000	1,519,332	37,321	1,556,652	33,348	70,668
2000-01	2,950,000	2,761,063	113,620	2,874,683	75,317	188,937
2001-02	2,540,000	2,397,754	82,873	2,480,627	59,373	142,246
2002-03	2,610,000	2,454,918	63,796	2,518,714	91,286	155,082
2003-04	2,300,000	2,077,834	69,206	2,147,040	152,960	222,166
2004-05	2,390,000	2,034,140	271,551	2,305,691	84,309	355,860
2005-06	1,440,000	1,304,567	62,437	1,367,004	72,996	135,433
2006-07	3,550,000	3,182,794	151,757	3,334,551	215,449	367,206
2007-08	2,010,000	1,670,501	217,294	1,887,795	122,205	339,499
2008-09	2,500,000	2,071,102	173,840	2,244,942	255,058	428,898
2009-10	4,000,000	3,302,870	327,374	3,630,244	369,756	697,130
2010-11	4,600,000	4,113,927	208,703	4,322,630	277,370	486,073
2011-12	3,200,000	2,337,568	573,753	2,911,322	288,678	862,432
2012-13	3,100,000	2,184,976	475,362	2,660,338	439,662	915,024
2013-14	4,100,000	3,324,858	204,021	3,528,879	571,121	775,142
2014-15	2,100,000	1,219,866	217,094	1,436,960	663,040	880,134
2015-16	2,800,000	1,415,496	527,746	1,943,242	856,758	1,384,504
2016-17	2,700,000	872,661	243,750	1,116,411	1,583,589	1,827,339
2017-18	3,200,000	519,280	428,718	947,999	2,252,001	2,680,720
<b>Total</b>	<b>\$68,436,000</b>	<b>\$54,453,137</b>	<b>\$5,284,774</b>	<b>\$59,737,910</b>	<b>\$8,698,090</b>	<b>\$13,982,863</b>

## Notes:

- (1) Page 34, Column (6).
- (2) Page 31, Column (3).
- (3) (4) - (2).
- (4) Page 31, Column (6).
- (5) (1) - (4).
- (6) (1) - (2).

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Projected Paid and Reported Losses between 1/1/18 and 6/30/18

**Limited Self-Insured Losses Including 4850/TD**

Program Year	Losses Paid as of 12/31/17 (1)	Projected Losses Paid 1/1/18 - 6/30/18 (2)	Projected Losses Paid as of 6/30/18 (3)	Losses Reported as of 12/31/17 (4)	Projected Losses Reported 1/1/18 - 6/30/18 (5)	Projected Losses Reported as of 6/30/18 (6)
1986-87	\$755,060	\$212	\$755,272	\$755,060	\$952	\$756,012
1987-88	130,922	194	131,116	130,922	893	131,815
1988-89	707,783	1,805	709,588	732,012	936	732,948
1989-90	738,579	21	738,600	738,579	20	738,599
1990-91	1,247,283	1,500	1,248,783	1,270,745	601	1,271,346
1991-92	1,282,832	5,344	1,288,176	1,384,644	1,538	1,386,182
1992-93	1,448,667	3,699	1,452,366	1,477,372	945	1,478,317
1993-94	1,164,398	3,505	1,167,903	1,198,924	877	1,199,802
1994-95	851,955	9,978	861,932	1,015,440	2,183	1,017,623
1995-96	1,077,702	196	1,077,898	1,077,702	747	1,078,449
1996-97	1,511,943	7,188	1,519,131	1,660,168	1,605	1,661,772
1997-98	1,204,208	6,570	1,210,778	1,338,828	644	1,339,472
1998-99	1,514,425	11,660	1,526,085	1,729,048	802	1,729,849
1999-00	1,515,996	3,335	1,519,332	1,555,365	1,288	1,556,652
2000-01	2,749,454	11,609	2,761,063	2,870,320	4,363	2,874,683
2001-02	2,349,462	48,293	2,397,754	2,470,071	10,556	2,480,627
2002-03	2,429,804	25,114	2,454,918	2,504,249	14,465	2,518,714
2003-04	2,063,146	14,688	2,077,834	2,131,950	15,090	2,147,040
2004-05	2,007,767	26,373	2,034,140	2,301,209	4,482	2,305,691
2005-06	1,292,714	11,853	1,304,567	1,364,859	2,146	1,367,004
2006-07	3,159,800	22,994	3,182,794	3,326,642	7,909	3,334,551
2007-08	1,643,950	26,551	1,670,501	1,881,782	6,013	1,887,795
2008-09	2,036,013	35,089	2,071,102	2,196,111	48,831	2,244,942
2009-10	3,262,608	40,262	3,302,870	3,615,249	14,994	3,630,244
2010-11	4,100,656	13,271	4,113,927	4,302,493	20,137	4,322,630
2011-12	2,311,112	26,457	2,337,568	2,893,423	17,899	2,911,322
2012-13	2,155,078	29,899	2,184,976	2,627,623	32,715	2,660,338
2013-14	3,195,225	129,633	3,324,858	3,458,755	70,124	3,528,879
2014-15	1,125,620	94,246	1,219,866	1,358,471	78,489	1,436,960
2015-16	1,329,076	86,419	1,415,496	1,824,998	118,243	1,943,242
2016-17	576,407	296,254	872,661	775,412	340,999	1,116,411
2017-18	71,164	448,117	519,280	161,287	786,711	947,999
<b>Total</b>	<b>\$53,010,808</b>	<b>\$1,442,328</b>	<b>\$54,453,137</b>	<b>\$58,129,712</b>	<b>\$1,608,198</b>	<b>\$59,737,910</b>

## Notes:

- (1) Page 36, Column (1).
- (2) Projected by BAC.
- (3) (1) + (2).
- (4) Page 35, 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, 2017  
Limited Self-Insured Losses Including 4850/TD

Program Year	Estimated Ultimate Losses (1)	Paid Losses as of 12/31/17 (2)	Case Reserves 12/31/17 (3)	Reported Losses as of 12/31/17 (4)	Estimated IBNR as of 12/31/17 (5)	Estimated Unpaid Losses as of 12/31/17 (6)
1986-87	\$758,000	\$755,060	\$0	\$755,060	\$2,940	\$2,940
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	1,247,283	23,461	1,270,745	9,255	32,717
1991-92	1,410,000	1,282,832	101,812	1,384,644	25,356	127,168
1992-93	1,500,000	1,448,667	28,705	1,477,372	22,628	51,333
1993-94	1,220,000	1,164,398	34,527	1,198,924	21,076	55,602
1994-95	1,030,000	851,955	163,486	1,015,440	14,560	178,045
1995-96	1,085,000	1,077,702	0	1,077,702	7,298	7,298
1996-97	1,690,000	1,511,943	148,224	1,660,168	29,832	178,057
1997-98	1,370,000	1,204,208	134,620	1,338,828	31,172	165,792
1998-99	1,800,000	1,514,425	214,623	1,729,048	70,952	285,575
1999-00	1,590,000	1,515,996	39,368	1,555,365	34,635	74,004
2000-01	2,950,000	2,749,454	120,866	2,870,320	79,680	200,546
2001-02	2,540,000	2,349,462	120,609	2,470,071	69,929	190,538
2002-03	2,610,000	2,429,804	74,445	2,504,249	105,751	180,196
2003-04	2,300,000	2,063,146	68,803	2,131,950	168,050	236,854
2004-05	2,390,000	2,007,767	293,442	2,301,209	88,791	382,233
2005-06	1,440,000	1,292,714	72,145	1,364,859	75,141	147,286
2006-07	3,550,000	3,159,800	166,841	3,326,642	223,358	390,200
2007-08	2,010,000	1,643,950	237,831	1,881,782	128,218	366,050
2008-09	2,500,000	2,036,013	160,098	2,196,111	303,889	463,988
2009-10	4,000,000	3,262,608	352,642	3,615,249	384,751	737,392
2010-11	4,600,000	4,100,656	201,838	4,302,493	297,507	499,344
2011-12	3,200,000	2,311,112	582,311	2,893,423	306,577	888,888
2012-13	3,100,000	2,155,078	472,545	2,627,623	472,377	944,922
2013-14	4,100,000	3,195,225	263,530	3,458,755	641,245	904,775
2014-15	2,100,000	1,125,620	232,851	1,358,471	741,529	974,380
2015-16	2,800,000	1,329,076	495,922	1,824,998	975,002	1,470,924
2016-17	2,700,000	576,407	199,005	775,412	1,924,588	2,123,593
2017-18	1,600,000	71,164	90,124	161,287	1,438,713	1,528,836
<b>Total</b>	<b>\$66,836,000</b>	<b>\$53,010,808</b>	<b>\$5,118,904</b>	<b>\$58,129,712</b>	<b>\$8,706,288</b>	<b>\$13,825,192</b>

## Notes:

- (1) Page 34, Column (6).  
2017-18 value adjusted for 6 month exposure through 12/31/17.
- (2) Page 36, Column (1).
- (3) (4) - (2).
- (4) Page 35, 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)
1986-87	\$756,117	\$762,278	\$755,060	\$756,073	\$764,180	\$758,000
1987-88	131,354	132,541	130,922	131,305	132,455	134,000
1988-89	735,162	718,191	742,188	734,870	717,784	740,000
1989-90	742,087	751,268	738,579	742,166	750,774	739,000
1990-91	1,277,677	1,271,815	1,279,918	1,277,872	1,274,365	1,280,000
1991-92	1,393,238	1,309,981	1,427,812	1,392,958	1,311,931	1,410,000
1992-93	1,487,374	1,464,896	1,521,721	1,489,464	1,467,669	1,500,000
1993-94	1,207,777	1,180,804	1,237,490	1,207,010	1,180,570	1,220,000
1994-95	1,026,142	866,850	1,267,862	1,026,045	869,984	1,030,000
1995-96	1,091,990	1,098,591	1,077,702	1,093,727	1,101,123	1,085,000
1996-97	1,684,846	1,543,853	2,020,798	1,686,217	1,548,412	1,690,000
1997-98	1,359,593	1,231,840	1,626,106	1,367,861	1,246,789	1,370,000
1998-99	1,756,490	1,552,312	2,110,862	1,756,410	1,555,468	1,800,000
1999-00	1,582,049	1,557,747	1,622,213	1,589,582	1,570,341	1,590,000
2000-01	2,925,677	2,835,293	3,071,682	2,958,897	2,889,312	2,950,000
2001-02	2,538,575	2,500,584	2,567,403	2,539,533	2,503,821	2,540,000
2002-03	2,606,414	2,650,736	2,570,356	2,599,555	2,632,635	2,610,000
2003-04	2,286,498	2,397,965	2,196,487	2,284,270	2,376,746	2,300,000
2004-05	2,399,070	2,239,494	2,492,240	2,404,162	2,266,405	2,390,000
2005-06	1,431,842	1,487,194	1,405,044	1,430,983	1,477,017	1,440,000
2006-07	3,512,783	3,708,670	3,419,740	3,533,963	3,738,735	3,550,000
2007-08	2,007,957	1,987,111	2,017,822	2,004,048	1,979,698	2,010,000
2008-09	2,418,442	2,554,296	2,328,673	2,485,334	2,674,190	2,500,000
2009-10	4,015,239	4,222,820	3,890,309	3,934,262	3,986,768	4,000,000
2010-11	4,566,210	4,971,338	4,401,797	4,461,394	4,580,098	4,600,000
2011-12	3,223,588	2,928,645	3,443,707	3,174,251	2,892,041	3,200,000
2012-13	3,093,442	2,960,276	3,213,579	3,044,922	2,906,769	3,100,000
2013-14	4,279,371	5,122,556	3,732,563	4,013,363	4,281,333	4,100,000
2014-15	1,792,027	2,097,113	1,612,977	2,087,299	2,520,030	2,100,000
2015-16	2,671,056	2,788,379	2,585,246	2,825,225	2,979,293	2,800,000
2016-17	1,486,702	1,997,866	1,183,969	2,359,116	2,932,083	2,700,000
2017-18	1,544,854	2,425,923	1,236,461	3,219,920	3,385,821	3,200,000
<b>Total</b>	<b>\$65,031,643</b>	<b>\$67,319,226</b>	<b>\$64,929,287</b>	<b>\$67,612,056</b>	<b>\$68,494,639</b>	<b>\$68,436,000</b>

- (1) Page 35, Column (3).
- (2) Page 36, Column (3).
- (3) Page 37, Column (6).
- (4) Page 38, Column (6).
- (5) Page 39, 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 12/31/17 (1)	Reported Development Factor as of 12/31/17 (2)	Projected Ultimate Losses (3)
1986-87	\$755,060	1.001	\$756,117
1987-88	130,922	1.003	131,354
1988-89	732,012	1.004	735,162
1989-90	738,579	1.005	742,087
1990-91	1,270,745	1.005	1,277,677
1991-92	1,384,644	1.006	1,393,238
1992-93	1,477,372	1.007	1,487,374
1993-94	1,198,924	1.007	1,207,777
1994-95	1,015,440	1.011	1,026,142
1995-96	1,077,702	1.013	1,091,990
1996-97	1,660,168	1.015	1,684,846
1997-98	1,338,828	1.016	1,359,593
1998-99	1,729,048	1.016	1,756,490
1999-00	1,555,365	1.017	1,582,049
2000-01	2,870,320	1.019	2,925,677
2001-02	2,470,071	1.028	2,538,575
2002-03	2,504,249	1.041	2,606,414
2003-04	2,131,950	1.072	2,286,498
2004-05	2,301,209	1.043	2,399,070
2005-06	1,364,859	1.049	1,431,842
2006-07	3,326,642	1.056	3,512,783
2007-08	1,881,782	1.067	2,007,957
2008-09	2,196,111	1.101	2,418,442
2009-10	3,615,249	1.111	4,015,239
2010-11	4,302,493	1.061	4,566,210
2011-12	2,893,423	1.114	3,223,588
2012-13	2,627,623	1.177	3,093,442
2013-14	3,458,755	1.237	4,279,371
2014-15	1,358,471	1.319	1,792,027
2015-16	1,824,998	1.464	2,671,056
2016-17	775,412	1.917	1,486,702
2017-18	161,287	9.578	1,544,854
Total	\$58,129,712		\$65,031,643

Notes:

- (1) Provided by RMS.
- (2) Page 42, 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 Development	Projected Ultimate Losses
	Paid Losses as of 12/31/17 (1)	Factor as of 12/31/17 (2)	
1986-87	\$755,060	1.010	\$762,278
1987-88	130,922	1.012	132,541
1988-89	707,783	1.015	718,191
1989-90	738,579	1.017	751,268
1990-91	1,247,283	1.020	1,271,815
1991-92	1,282,832	1.021	1,309,981
1992-93	1,448,667	1.011	1,464,896
1993-94	1,164,398	1.014	1,180,804
1994-95	851,955	1.017	866,850
1995-96	1,077,702	1.019	1,098,591
1996-97	1,511,943	1.021	1,543,853
1997-98	1,204,208	1.023	1,231,840
1998-99	1,514,425	1.025	1,552,312
1999-00	1,515,996	1.028	1,557,747
2000-01	2,749,454	1.031	2,835,293
2001-02	2,349,462	1.064	2,500,584
2002-03	2,429,804	1.091	2,650,736
2003-04	2,063,146	1.162	2,397,965
2004-05	2,007,767	1.115	2,239,494
2005-06	1,292,714	1.150	1,487,194
2006-07	3,159,800	1.174	3,708,670
2007-08	1,643,950	1.209	1,987,111
2008-09	2,036,013	1.255	2,554,296
2009-10	3,262,608	1.294	4,222,820
2010-11	4,100,656	1.212	4,971,338
2011-12	2,311,112	1.267	2,928,645
2012-13	2,155,078	1.374	2,960,276
2013-14	3,195,225	1.603	5,122,556
2014-15	1,125,620	1.863	2,097,113
2015-16	1,329,076	2.098	2,788,379
2016-17	576,407	3.466	1,997,866
2017-18	71,164	34.089	2,425,923
Total	\$53,010,808		\$67,319,226

Notes:

- (1) Provided by RMS.
- (2) Page 43, 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)
1986-87	1.001	1.010	0.173	\$0	\$0	\$755,060
1987-88	1.003	1.012	0.368	0	0	130,922
1988-89	1.004	1.015	0.420	24,229	10,176	742,188
1989-90	1.005	1.017	0.389	0	0	738,579
1990-91	1.005	1.020	0.391	23,461	9,173	1,279,918
1991-92	1.006	1.021	0.424	101,812	43,168	1,427,812
1992-93	1.007	1.011	1.545	28,705	44,349	1,521,721
1993-94	1.007	1.014	1.117	34,527	38,566	1,237,490
1994-95	1.011	1.017	1.544	163,486	252,422	1,267,862
1995-96	1.013	1.019	2.207	0	0	1,077,702
1996-97	1.015	1.021	2.433	148,224	360,630	2,020,798
1997-98	1.016	1.023	2.134	134,620	287,278	1,626,106
1998-99	1.016	1.025	1.779	214,623	381,814	2,110,862
1999-00	1.017	1.028	1.698	39,368	66,848	1,622,213
2000-01	1.019	1.031	1.666	120,866	201,362	3,071,682
2001-02	1.028	1.064	0.807	120,609	97,332	2,567,403
2002-03	1.041	1.091	0.888	74,445	66,107	2,570,356
2003-04	1.072	1.162	0.938	68,803	64,537	2,196,487
2004-05	1.043	1.115	0.651	293,442	191,031	2,492,240
2005-06	1.049	1.150	0.557	72,145	40,185	1,405,044
2006-07	1.056	1.174	0.558	166,841	93,098	3,419,740
2007-08	1.067	1.209	0.572	237,831	136,040	2,017,822
2008-09	1.101	1.255	0.828	160,098	132,562	2,328,673
2009-10	1.111	1.294	0.780	352,642	275,060	3,890,309
2010-11	1.061	1.212	0.492	201,838	99,304	4,401,797
2011-12	1.114	1.267	0.945	582,311	550,284	3,443,707
2012-13	1.177	1.374	1.240	472,545	585,956	3,213,579
2013-14	1.237	1.603	1.039	263,530	273,808	3,732,563
2014-15	1.319	1.863	1.093	232,851	254,506	1,612,977
2015-16	1.464	2.098	1.533	495,922	760,248	2,585,246
2016-17	1.917	3.466	2.053	199,005	408,557	1,183,969
2017-18	9.578	34.089	11.930	90,124	1,075,174	1,236,461
Total				\$5,118,904	\$6,799,575	\$64,929,287

Notes:

- (1) Page 35, Column (2).
- (2) Page 36, Column (2).
- (3)  $[(1) - 1.000] \times (2) / [(2) - (1)]$ .
- (4)  $[\text{Page 35, Column (1)}] - [\text{Page 36, Column (1)}]$ .
- (5) (3) x (4), rounded.
- (6) (5) + Page 35, 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	<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 12/31/17 (5)	Estimated Ultimate Losses (6)
1986-87	\$1,013,293	1.001	0.1%	\$1,013	\$755,060	\$756,073
1987-88	127,789	1.003	0.3%	383	130,922	131,305
1988-89	714,380	1.004	0.4%	2,858	732,012	734,870
1989-90	717,334	1.005	0.5%	3,587	738,579	742,166
1990-91	1,425,344	1.005	0.5%	7,127	1,270,745	1,277,872
1991-92	1,385,651	1.006	0.6%	8,314	1,384,644	1,392,958
1992-93	1,727,474	1.007	0.7%	12,092	1,477,372	1,489,464
1993-94	1,155,166	1.007	0.7%	8,086	1,198,924	1,207,010
1994-95	1,060,526	1.011	1.0%	10,605	1,015,440	1,026,045
1995-96	1,232,701	1.013	1.3%	16,025	1,077,702	1,093,727
1996-97	1,736,596	1.015	1.5%	26,049	1,660,168	1,686,217
1997-98	1,935,519	1.016	1.5%	29,033	1,338,828	1,367,861
1998-99	1,710,107	1.016	1.6%	27,362	1,729,048	1,756,410
1999-00	2,012,766	1.017	1.7%	34,217	1,555,365	1,589,582
2000-01	4,661,936	1.019	1.9%	88,577	2,870,320	2,958,897
2001-02	2,572,657	1.028	2.7%	69,462	2,470,071	2,539,533
2002-03	2,443,746	1.041	3.9%	95,306	2,504,249	2,599,555
2003-04	2,240,000	1.072	6.8%	152,320	2,131,950	2,284,270
2004-05	2,511,051	1.043	4.1%	102,953	2,301,209	2,404,162
2005-06	1,406,894	1.049	4.7%	66,124	1,364,859	1,430,983
2006-07	3,911,721	1.056	5.3%	207,321	3,326,642	3,533,963
2007-08	1,940,738	1.067	6.3%	122,266	1,881,782	2,004,048
2008-09	3,143,728	1.101	9.2%	289,223	2,196,111	2,485,334
2009-10	3,190,133	1.111	10.0%	319,013	3,615,249	3,934,262
2010-11	2,739,670	1.061	5.8%	158,901	4,302,493	4,461,394
2011-12	2,753,217	1.114	10.2%	280,828	2,893,423	3,174,251
2012-13	2,763,568	1.177	15.1%	417,299	2,627,623	3,044,922
2013-14	2,888,585	1.237	19.2%	554,608	3,458,755	4,013,363
2014-15	3,011,685	1.319	24.2%	728,828	1,358,471	2,087,299
2015-16	3,155,290	1.464	31.7%	1,000,227	1,824,998	2,825,225
2016-17	3,313,187	1.917	47.8%	1,583,704	775,412	2,359,116
2017-18	3,413,653	9.578	89.6%	3,058,633	161,287	3,219,920
Total	\$70,016,105			\$9,482,344	\$58,129,712	\$67,612,056

Notes:

- (1) Page 46, Column (4), or Page 41, Column (6), adjusted for SIR.
- (2) Page 35, Column (2).
- (3)  $100\% - [1.000 / (2)]$ .
- (4)  $(1) \times (3)$ .
- (5) Page 35, 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	A Priori Ultimate Losses (1)	Cumulative Paid Loss Development Factors (2)	Percentage of Losses Not Yet Paid (3)	Expected Unpaid Losses (4)	Losses Paid as of 12/31/17 (5)	Estimated Ultimate Losses (6)
1986-87	\$1,013,293	1.010	0.9%	\$9,120	\$755,060	\$764,180
1987-88	127,789	1.012	1.2%	1,533	130,922	132,455
1988-89	714,380	1.015	1.4%	10,001	707,783	717,784
1989-90	717,334	1.017	1.7%	12,195	738,579	750,774
1990-91	1,425,344	1.020	1.9%	27,082	1,247,283	1,274,365
1991-92	1,385,651	1.021	2.1%	29,099	1,282,832	1,311,931
1992-93	1,727,474	1.011	1.1%	19,002	1,448,667	1,467,669
1993-94	1,155,166	1.014	1.4%	16,172	1,164,398	1,180,570
1994-95	1,060,526	1.017	1.7%	18,029	851,955	869,984
1995-96	1,232,701	1.019	1.9%	23,421	1,077,702	1,101,123
1996-97	1,736,596	1.021	2.1%	36,469	1,511,943	1,548,412
1997-98	1,935,519	1.023	2.2%	42,581	1,204,208	1,246,789
1998-99	1,710,107	1.025	2.4%	41,043	1,514,425	1,555,468
1999-00	2,012,766	1.028	2.7%	54,345	1,515,996	1,570,341
2000-01	4,661,936	1.031	3.0%	139,858	2,749,454	2,889,312
2001-02	2,572,657	1.064	6.0%	154,359	2,349,462	2,503,821
2002-03	2,443,746	1.091	8.3%	202,831	2,429,804	2,632,635
2003-04	2,240,000	1.162	14.0%	313,600	2,063,146	2,376,746
2004-05	2,511,051	1.115	10.3%	258,638	2,007,767	2,266,405
2005-06	1,406,894	1.150	13.1%	184,303	1,292,714	1,477,017
2006-07	3,911,721	1.174	14.8%	578,935	3,159,800	3,738,735
2007-08	1,940,738	1.209	17.3%	335,748	1,643,950	1,979,698
2008-09	3,143,728	1.255	20.3%	638,177	2,036,013	2,674,190
2009-10	3,190,133	1.294	22.7%	724,160	3,262,608	3,986,768
2010-11	2,739,670	1.212	17.5%	479,442	4,100,656	4,580,098
2011-12	2,753,217	1.267	21.1%	580,929	2,311,112	2,892,041
2012-13	2,763,568	1.374	27.2%	751,691	2,155,078	2,906,769
2013-14	2,888,585	1.603	37.6%	1,086,108	3,195,225	4,281,333
2014-15	3,011,685	1.863	46.3%	1,394,410	1,125,620	2,520,030
2015-16	3,155,290	2.098	52.3%	1,650,217	1,329,076	2,979,293
2016-17	3,313,187	3.466	71.1%	2,355,676	576,407	2,932,083
2017-18	3,413,653	34.089	97.1%	3,314,657	71,164	3,385,821
Total	\$70,016,105			\$15,483,831	\$53,010,808	\$68,494,639

Notes:

- (1) Page 38, Column (1).
- (2) Page 36, Column (2).
- (3)  $100\% - [1.000 / (2)]$ .
- (4)  $(1) \times (3)$ .
- (5) Page 36, 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)
1986-87	\$1,092,281	\$1,070,456	\$1,104,323			1,090,000
1987-88	132,650	134,521	130,922			134,000
1988-89	744,613	730,911	759,875			750,000
1989-90	765,307	779,711	751,039			754,000
1990-91	1,466,211	1,406,579	1,525,696			1,500,000
1991-92	1,419,018	1,343,162	1,503,866			1,460,000
1992-93	1,837,133	1,817,312	1,859,661			1,840,000
1993-94	1,233,986	1,232,055	1,235,937			1,230,000
1994-95	1,051,112	908,165	1,213,911			1,130,000
1995-96	1,317,277	1,244,708	1,428,028			1,330,000
1996-97	1,873,489	1,767,172	2,048,582			1,900,000
1997-98	2,143,375	1,500,039	3,096,593			2,150,000
1998-99	1,830,089	1,667,340	2,037,533			1,930,000
1999-00	2,314,196	2,375,188	2,242,252			2,310,000
2000-01	5,165,789	4,647,682	5,726,057			5,450,000
2001-02	2,968,748	2,682,094	3,245,752			2,970,000
2002-03	2,674,524	2,780,490	2,580,108			2,630,000
2003-04	2,286,498	2,397,965	2,196,487			2,240,000
2004-05	2,692,950	2,375,588	2,925,417			2,660,000
2005-06	1,477,448	1,563,784	1,421,493			1,500,000
2006-07	4,157,033	4,241,148	4,105,364			4,200,000
2007-08	2,069,898	2,101,497	2,052,069			2,100,000
2008-09	2,513,726	2,712,157	2,360,692	\$2,628,206	\$4,281,325	2,600,000
2009-10	6,511,398	6,651,563	6,409,182	6,111,026	3,218,219	6,300,000
2010-11	8,196,127	6,942,929	8,878,074	7,584,128	5,241,744	8,200,000
2011-12	3,966,587	3,552,078	4,393,136	3,907,701	4,587,420	3,900,000
2012-13	4,105,784	3,827,538	4,431,248	4,025,143	3,911,561	4,100,000
2013-14	5,874,525	6,040,052	5,751,835	5,390,266	4,336,529	5,700,000
2014-15	1,930,561	2,286,933	1,692,286	2,593,807	2,508,892	2,300,000
2015-16	2,867,638	2,987,375	2,772,760	3,467,378	4,904,514	3,600,000
2016-17	1,589,557	2,141,725	1,241,481	3,256,546	4,230,338	3,000,000
2017-18	1,711,535	2,614,550	1,379,307	4,751,709	5,052,000	4,800,000
Total	\$81,981,063	\$80,524,467	\$84,500,965			\$87,758,000
08/09-17/18	\$39,267,438	\$39,756,900	\$39,310,001	\$43,715,910	\$42,272,542	\$44,500,000

(1) Page 42, Column (3).

(2) Page 43, Column (3).

(3) Page 44, Column (6).

(4) Page 45, Column (6).

(5) Page 49, 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 12/31/17 (1)	Reported Development Factor as of 12/31/17 (2)	Projected Ultimate Losses (3)
1986-87	\$1,083,619	1.008	\$1,092,281
1987-88	130,922	1.013	132,650
1988-89	732,012	1.017	744,613
1989-90	751,039	1.019	765,307
1990-91	1,434,898	1.022	1,466,211
1991-92	1,384,644	1.025	1,419,018
1992-93	1,788,693	1.027	1,837,133
1993-94	1,198,924	1.029	1,233,986
1994-95	1,015,440	1.035	1,051,112
1995-96	1,261,523	1.044	1,317,277
1996-97	1,785,039	1.050	1,873,489
1997-98	2,038,009	1.052	2,143,375
1998-99	1,738,134	1.053	1,830,089
1999-00	2,190,955	1.056	2,314,196
2000-01	4,867,759	1.061	5,165,789
2001-02	2,788,875	1.064	2,968,748
2002-03	2,504,249	1.068	2,674,524
2003-04	2,131,950	1.072	2,286,498
2004-05	2,499,277	1.077	2,692,950
2005-06	1,364,859	1.082	1,477,448
2006-07	3,813,909	1.090	4,157,033
2007-08	1,881,782	1.100	2,069,898
2008-09	2,196,111	1.145	2,513,726
2009-10	5,640,752	1.154	6,511,398
2010-11	7,107,075	1.153	8,196,127
2011-12	3,169,794	1.251	3,966,587
2012-13	3,164,845	1.297	4,105,784
2013-14	4,356,599	1.348	5,874,525
2014-15	1,382,361	1.397	1,930,561
2015-16	1,847,827	1.552	2,867,638
2016-17	775,412	2.050	1,589,557
2017-18	161,287	10.612	1,711,535
Total	\$70,188,573		\$81,981,063

## Notes:

- (1) Provided by RMS.
- (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 12/31/17 <u>(1)</u>	Paid Development Factor as of 12/31/17 <u>(2)</u>	Projected Ultimate Losses <u>(3)</u>
1986-87	\$1,046,910	1.022	\$1,070,456
1987-88	130,922	1.027	134,521
1988-89	707,783	1.033	730,911
1989-90	751,039	1.038	779,711
1990-91	1,347,676	1.044	1,406,579
1991-92	1,282,832	1.047	1,343,162
1992-93	1,729,256	1.051	1,817,312
1993-94	1,164,398	1.058	1,232,055
1994-95	851,955	1.066	908,165
1995-96	1,159,872	1.073	1,244,708
1996-97	1,636,814	1.080	1,767,172
1997-98	1,380,504	1.087	1,500,039
1998-99	1,523,511	1.094	1,667,340
1999-00	2,151,586	1.104	2,375,188
2000-01	4,157,836	1.118	4,647,682
2001-02	2,370,871	1.131	2,682,094
2002-03	2,429,804	1.144	2,780,490
2003-04	2,063,146	1.162	2,397,965
2004-05	2,007,767	1.183	2,375,588
2005-06	1,292,714	1.210	1,563,784
2006-07	3,430,920	1.236	4,241,148
2007-08	1,643,950	1.278	2,101,497
2008-09	2,036,013	1.332	2,712,157
2009-10	4,869,236	1.366	6,651,563
2010-11	4,839,471	1.435	6,942,929
2011-12	2,374,900	1.496	3,552,078
2012-13	2,466,718	1.552	3,827,538
2013-14	3,320,020	1.819	6,040,052
2014-15	1,149,510	1.989	2,286,933
2015-16	1,329,076	2.248	2,987,375
2016-17	576,407	3.716	2,141,725
2017-18	71,164	36.740	2,614,550
Total	\$59,294,580		\$80,524,467

## Notes:

- (1) Provided by RMS.
- (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 12/31/17 (1)	Paid Development Factor as of 12/31/17 (2)	IBNR to Case Reserves Ratio (3)	Case Reserves 12/31/17 (4)	Estimated IBNR Losses as of 12/31/17 (5)	Estimated Ultimate Losses (6)
1986-87	1.008	1.022	0.564	\$36,709	\$20,704	\$1,104,323
1987-88	1.013	1.027	0.949	0	0	130,922
1988-89	1.017	1.033	1.150	24,229	27,863	759,875
1989-90	1.019	1.038	1.028	0	0	751,039
1990-91	1.022	1.044	1.041	87,222	90,798	1,525,696
1991-92	1.025	1.047	1.171	101,812	119,222	1,503,866
1992-93	1.027	1.051	1.194	59,437	70,968	1,859,661
1993-94	1.029	1.058	1.072	34,527	37,013	1,235,937
1994-95	1.035	1.066	1.214	163,486	198,471	1,213,911
1995-96	1.044	1.073	1.638	101,652	166,505	1,428,028
1996-97	1.050	1.080	1.778	148,224	263,543	2,048,582
1997-98	1.052	1.087	1.610	657,505	1,058,584	3,096,593
1998-99	1.053	1.094	1.395	214,623	299,399	2,037,533
1999-00	1.056	1.104	1.303	39,368	51,297	2,242,252
2000-01	1.061	1.118	1.209	709,924	858,298	5,726,057
2001-02	1.064	1.131	1.093	418,003	456,877	3,245,752
2002-03	1.068	1.144	1.019	74,445	75,859	2,580,108
2003-04	1.072	1.162	0.938	68,803	64,537	2,196,487
2004-05	1.077	1.183	0.867	491,511	426,140	2,925,417
2005-06	1.082	1.210	0.785	72,145	56,634	1,421,493
2006-07	1.090	1.236	0.761	382,989	291,455	4,105,364
2007-08	1.100	1.278	0.716	237,831	170,287	2,052,069
2008-09	1.145	1.332	1.028	160,098	164,581	2,360,692
2009-10	1.154	1.366	0.996	771,516	768,430	6,409,182
2010-11	1.153	1.435	0.781	2,267,604	1,770,999	8,878,074
2011-12	1.251	1.496	1.539	794,894	1,223,342	4,393,136
2012-13	1.297	1.552	1.814	698,127	1,266,403	4,431,248
2013-14	1.348	1.819	1.346	1,036,579	1,395,236	5,751,835
2014-15	1.397	1.989	1.331	232,851	309,925	1,692,286
2015-16	1.552	2.248	1.783	518,751	924,933	2,772,760
2016-17	2.050	3.716	2.342	199,005	466,069	1,241,481
2017-18	10.612	36.740	13.515	90,124	1,218,020	1,379,307
Total				\$10,893,993	\$14,312,392	\$84,500,965

## Notes:

- (1) Page 42, Column (2).
- (2) Page 43, Column (2).
- (3)  $[(1) - 1.000] \times (2) / [(2) - (1)]$ .
- (4) Page 42, Column (1) - Page 43, Column (1).
- (5) (3) x (4), rounded.
- (6) (5) + Page 42, 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 12/31/17 (5)	Estimated Ultimate Losses (6)
2008-09	\$3,429,327	1.145	12.6%	\$432,095	\$2,196,111	\$2,628,206
2009-10	3,509,506	1.154	13.4%	470,274	5,640,752	6,111,026
2010-11	3,586,862	1.153	13.3%	477,053	7,107,075	7,584,128
2011-12	3,671,181	1.251	20.1%	737,907	3,169,794	3,907,701
2012-13	3,756,760	1.297	22.9%	860,298	3,164,845	4,025,143
2013-14	4,006,463	1.348	25.8%	1,033,667	4,356,599	5,390,266
2014-15	4,265,654	1.397	28.4%	1,211,446	1,382,361	2,593,807
2015-16	4,549,300	1.552	35.6%	1,619,551	1,847,827	3,467,378
2016-17	4,845,964	2.050	51.2%	2,481,134	775,412	3,256,546
2017-18	5,066,691	10.612	90.6%	4,590,422	161,287	4,751,709
	\$40,687,708			\$13,913,847	\$29,802,063	\$43,715,910

## Notes:

- (1) Page 46, Column (4).
- (2) Page 42, Column (2).
- (3)  $100\% - [1.000 / (2)]$ .
- (4)  $(1) \times (3)$ .
- (5) Page 42, 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)
2008-09	\$9.55	0.636	\$564,610	\$3,429,327
2009-10	9.55	0.671	547,672	3,509,506
2010-11	9.55	0.707	531,241	3,586,862
2011-12	9.55	0.746	515,304	3,671,181
2012-13	9.55	0.787	499,845	3,756,760
2013-14	9.55	0.831	504,843	4,006,463
2014-15	9.55	0.876	509,892	4,265,654
2015-16	9.55	0.925	514,991	4,549,300
2016-17	9.55	0.966	525,291	4,845,964
2017-18	9.55	1.000	530,544	5,066,691
Total			\$5,244,232	\$40,687,708

## Notes:

- (1) Page 47, Item (5).
- (2) Estimated by BAC.
- (3) Page 69, 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)
2003-04	\$2,339,992	1.632	\$537,207	\$7.11
2004-05	2,541,689	1.737	542,579	8.14
2005-06	1,518,221	1.847	548,005	5.12
2006-07	4,196,447	1.751	553,485	13.28
2007-08	2,084,513	1.660	559,020	6.19
2008-09	2,605,432	1.573	564,610	7.26
2009-10	6,575,594	1.491	547,672	17.91
2010-11	7,637,666	1.414	531,241	20.32
2011-12	3,777,764	1.340	515,304	9.82
2012-13	3,979,082	1.270	499,845	10.11
2013-14	5,944,986	1.204	504,843	14.18
2014-15	2,077,545	1.141	509,892	4.65
2015-16	2,916,543	1.082	514,991	6.13
2016-17	1,785,880	1.035	525,291	3.52
2017-18	1,913,905	1.000	530,544	3.61
Total	\$51,895,259		\$7,984,527	\$9.16
03/04-16/17	\$37,300,492		\$4,713,689	\$9.55
			(5) Selected A Priori 2017-18 Loss Rate:	\$9.55

## Notes:

- (1) Page 48, Column (3).
- (2) Estimated by BAC.
- (3) Page 69, 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 <u>(1)</u>	Paid Loss Projection <u>(2)</u>	<i>A Priori</i> Selection <u>(3)</u>
1986-87	\$1,092,281	\$1,070,456	\$1,083,619
1987-88	132,650	134,521	133,579
1988-89	744,613	730,911	737,814
1989-90	765,307	779,711	772,442
1990-91	1,466,211	1,406,579	1,436,711
1991-92	1,419,018	1,343,162	1,384,644
1992-93	1,837,133	1,817,312	1,827,337
1993-94	1,233,986	1,232,055	1,233,034
1994-95	1,051,112	908,165	1,015,440
1995-96	1,317,277	1,244,708	1,281,488
1996-97	1,873,489	1,767,172	1,821,082
1997-98	2,143,375	1,500,039	2,038,009
1998-99	1,830,089	1,667,340	1,750,288
1999-00	2,314,196	2,375,188	2,344,019
2000-01	5,165,789	4,647,682	4,913,463
2001-02	2,968,748	2,682,094	2,829,780
2002-03	2,674,524	2,780,490	2,725,679
2003-04	2,286,498	2,397,965	2,339,992
2004-05	2,692,950	2,375,588	2,541,689
2005-06	1,477,448	1,563,784	1,518,221
2006-07	4,157,033	4,241,148	4,196,447
2007-08	2,069,898	2,101,497	2,084,513
2008-09	2,513,726	2,712,157	2,605,432
2009-10	6,511,398	6,651,563	6,575,594
2010-11	8,196,127	6,942,929	7,637,666
2011-12	3,966,587	3,552,078	3,777,764
2012-13	4,105,784	3,827,538	3,979,082
2013-14	5,874,525	6,040,052	5,944,986
2014-15	1,930,561	2,286,933	2,077,545
2015-16	2,867,638	2,987,375	2,916,543
2016-17	1,589,557	2,141,725	1,785,880
2017-18	1,711,535	2,614,550	1,913,905
Total	\$81,981,063	\$80,524,467	\$81,223,687

## Notes:

- (1) Page 42, Column (3).
- (2) Page 43, 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)
2008-09	\$84,200	0.636	80	\$4,281,325
2009-10	84,200	0.671	57	3,218,219
2010-11	84,200	0.707	88	5,241,744
2011-12	84,200	0.746	73	4,587,420
2012-13	84,200	0.787	59	3,911,561
2013-14	84,200	0.831	62	4,336,529
2014-15	84,200	0.876	34	2,508,892
2015-16	84,200	0.925	63	4,904,514
2016-17	84,200	0.966	52	4,230,338
2017-18	84,200	1.000	60	5,052,000
Total				\$42,272,542

## Notes:

- (1) Page 50, Item (5).
- (2) Estimated by BAC.
- (3) Page 51, 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)
2006-07	\$4,196,447	1.751	76	\$96,693
2007-08	2,084,513	1.660	60	57,667
2008-09	2,605,432	1.573	80	51,241
2009-10	6,575,594	1.491	57	172,041
2010-11	7,637,666	1.414	88	122,687
2011-12	3,777,764	1.340	73	69,339
2012-13	3,979,082	1.270	59	85,653
2013-14	5,944,986	1.204	62	115,431
2014-15	2,077,545	1.141	34	69,724
2015-16	2,916,543	1.082	63	50,071
2016-17	1,785,880	1.035	52	35,546
2017-18	1,913,905	1.000	60	31,898
Total	\$45,495,357		764	\$79,833
06/07-16/17	\$43,581,452		704	\$84,200
			(5) Selected Severity:	\$84,200

## Notes:

- (1) Page 48, Column (3).
- (2) Estimated by BAC.
- (3) Page 51, Column (3).
- (4) (1) x (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>
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	75		75
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	62		62
2014-15	34		34
2015-16	63		63
2016-17	52		52
2017-18	50	60	60
Total	1,733		1,743

## Notes:

- (1) Page 52, Column (3).
- (2) Page 53, 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 12/31/17 (1)	Development Factors as of 12/31/17 (2)	Projected Ultimate Indemnity Claims (3)
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	75	1.000	75
2003-04	73	1.000	73
2004-05	68	1.000	68
2005-06	54	1.000	54
2006-07	76	1.000	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	1.002	73
2012-13	59	1.006	59
2013-14	61	1.012	62
2014-15	33	1.018	34
2015-16	60	1.045	63
2016-17	48	1.087	52
2017-18	16	3.118	50
Total	1,690		1,733

## Notes:

- (1) Provided by RMS.
- (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 12/31/17 (5)	Projected Ultimate Claims (6)
2017-18	65	3.118	67.9%	44	16	60

## Notes:

- (1) Page 54, Item (6).
- (2) Page 52, Column (2).
- (3)  $100\% - [1.000 / (2)]$ .
- (4)  $(1) \times (3)$ .
- (5) Page 52, 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>
2008-09	80	\$56.5	1.42
2009-10	57	54.8	1.04
2010-11	88	53.1	1.66
2011-12	73	51.5	1.42
2011-12	73	51.5	1.42
2012-13	59	50.0	1.18
2013-14	62	50.5	1.23
2014-15	34	51.0	0.67
2015-16	63	51.5	1.22
2016-17	52	52.5	0.99
2017-18	50	53.1	0.94
Total	691	\$576.0	1.20
08/09-16/17	641	\$522.9	1.22
	(4) Selected Claim Frequency:		1.22
	(5) 2017-18 Trended Payroll (\$Millions):		\$53.1
	(6) 2017-18 A Priori Claim Count:		65

## Notes:

- (1) Page 52, Column (3).
- (2) Page 69, Column (3) / 10,000.
- (3) (1) / (2).
- (4) Selected on the basis of (3).
- (5) Page 69, 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 2018-19  
**Unlimited Losses Including 4850/TD**

Program Year	2017-18 Level Loss Rate (1)	Expected Increase for 2018-19 (2)	Trended Payroll (\$00's) (3)	Projected Ultimate Losses (4)	Projected 2018-19 Unlimited Loss Rate (5)
2018-19	\$10.30	1.035	\$535,849	<b>5,712,418</b>	\$10.41
				(6) 4850 percentage:	9.5%
				(7) Gross Rate ex 4850 :	\$9.43
				(8) 1M Limit Rate ex 4850 :	\$8.89
				(9) 750K Limit Rate ex 4850 :	\$8.52
				(10) 500K Limit Rate ex 4850 :	\$7.83
				(11) 350K Limit Rate ex 4850 :	\$6.99
				(12) 250K Limit Rate ex 4850 :	\$6.03
				(13) 150K Limit Rate ex 4850 :	\$4.51

Notes:

- (1) Page 57, Item (11).
- (2) 3.5% Expected Increase Estimated by BAC.
- (3) Page 69, Column (2).
- (4) (1) x (2) x (3), rounded.
- (5) (4) / [Page 69, Column (2)], rounded.
- (6) Page 25, Column (3).
- (7) [ 1.00 - (6)] x Unlimited Loss Rate.
- (8) - (13) Unlimited Loss Rate adjusted for Stated Limit & Percentages on Page 25.

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)
2005-06	\$1,500,000	1.847	\$548,005	\$5.06
2006-07	4,200,000	1.751	553,485	13.29
2007-08	2,100,000	1.660	559,020	6.24
2008-09	2,600,000	1.573	564,610	7.25
2009-10	6,300,000	1.491	547,672	17.16
2010-11	8,200,000	1.414	531,241	21.82
2011-12	3,900,000	1.340	515,304	10.14
2012-13	4,100,000	1.270	499,845	10.42
2013-14	5,700,000	1.204	504,843	13.59
2014-15	2,300,000	1.141	509,892	5.15
2015-16	3,600,000	1.082	514,991	7.56
2016-17	3,000,000	1.035	525,291	5.91
Total	\$41,800,000		\$5,272,708	\$10.30

(5) Selected Loss Rate: \$10.30

Program Year	Largest Claim (6)	Severity Trend (7)	LDF (8)	Trended Developed Max Claim (9)
2005-06	\$296,285	1.751	1.082	\$561,647
2006-07	822,795	1.660	1.090	1,488,610
2007-08	257,862	1.573	1.100	446,262
2008-09	430,181	1.491	1.145	734,321
2009-10	2,525,503	1.414	1.154	4,121,013
2010-11	2,343,276	1.340	1.153	3,620,827
2011-12	388,219	1.270	1.251	616,987
2012-13	656,345	1.204	1.297	1,025,031
2013-14	559,204	1.141	1.348	860,409
2014-15	273,890	1.082	1.397	413,709

(10) Factor for Unlimited Retention: 1.000

(11) Unlimited 2017-18 Rate: **\$10.30**

Notes:

- (1) Page 41, Column (6).
- (2) Page 47, Column (2).
- (3) Page 69, Column (3).
- (4) (1) x (2) / (3).
- (5) Based on Column (4).
- (6) Provided by RMS.
- (7) Page 50, Column (2). Indexed to 2017-18.
- (8) Page 42, 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, 2018  
Assuming a 2.0% Interest Rate

**Limited Self-Insured Losses Excluding 4850/TD**

Program Year	Projected Unpaid Losses (1)	Discount Factor (2)	Discounted Unpaid Losses (3)
1986-87	\$2,728	0.942	\$2,571
1987-88	2,884	0.933	2,691
1988-89	30,412	0.924	28,096
1989-90	400	0.915	365
1990-91	31,217	0.906	28,282
1991-92	121,824	0.897	109,307
1992-93	47,634	0.893	42,518
1993-94	52,097	0.891	46,401
1994-95	168,068	0.887	149,103
1995-96	7,102	0.880	6,248
1996-97	170,869	0.871	148,850
1997-98	159,222	0.865	137,721
1998-99	273,915	0.859	235,416
1999-00	70,668	0.855	60,443
2000-01	188,937	0.854	161,394
2001-02	142,246	0.894	127,154
2002-03	155,082	0.919	142,477
2003-04	222,166	0.918	203,991
2004-05	355,860	0.912	324,508
2005-06	135,433	0.908	123,014
2006-07	367,206	0.904	332,002
2007-08	339,499	0.900	305,533
2008-09	428,898	0.898	385,184
2009-10	697,130	0.894	623,560
2010-11	486,073	0.886	430,649
2011-12	861,618	0.875	754,246
2012-13	915,024	0.866	792,623
2013-14	753,850	0.875	659,641
2014-15	876,441	0.888	778,516
2015-16	1,373,898	0.889	1,221,148
2016-17	1,818,833	0.895	1,627,136
2017-18	2,613,107	0.907	2,369,844
<b>Total</b>	<b>\$13,870,340</b>		<b>\$12,360,632</b>

(4) Indicated Discount Factor: 0.891

Notes:

- (1) Page 23, Column (6).
- (2) (3) / (1).
- (3) Based upon a 2.0% interest rate.
- (4) [ Sum of Column (3) ] / [ Sum of Column (1) ].

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Discounted Value of 2018-19 Losses as of July 1, 2018  
Assuming a 2.0% Interest rate

Unlimited Losses Including 4850/TD

Fiscal Year	Projected Loss Payments (1)	Discount Factor (2)	Discounted Value of Payments (3)
2018-19	\$683,177	0.990	\$676,446
2019-20	963,348	0.971	935,154
2020-21	649,034	0.952	617,685
2021-22	489,648	0.933	456,860
2022-23	385,085	0.915	352,254
2023-24	342,587	0.897	307,235
2024-25	248,215	0.879	218,236
2025-26	239,713	0.862	206,628
2026-27	207,826	0.845	175,630
2027-28	146,881	0.829	121,693
2028-29	128,733	0.812	104,565
2029-30	119,961	0.796	95,529
2030-31	114,248	0.781	89,197
2031-32	102,824	0.765	78,703
2032-33	102,824	0.750	77,160
2033-34	104,207	0.736	76,665
2034-35	84,303	0.721	60,805
2035-36	45,699	0.707	32,315
2036-37	41,180	0.693	28,549
2037-38	40,243	0.680	27,352
2038-39	34,887	0.666	23,247
2039-40	32,772	0.653	21,409
2040-41	31,312	0.640	20,054
2041-42	40,216	0.628	25,252
2042-43	30,735	0.616	18,920
43-44 to 52-53	302,758	0.542	164,085
Total	\$5,712,418		\$5,011,628

(4) Indicated Discount Factor: 0.877

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 2.0% 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 2018-19 Losses as of July 1, 2018  
Assuming a 2.0% 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)
2018-19	\$648,629	0.990	\$642,239
2019-20	918,471	0.971	891,590
2020-21	619,337	0.952	589,422
2021-22	469,948	0.933	438,479
2022-23	392,484	0.915	359,022
2023-24	323,317	0.897	289,953
2024-25	233,518	0.879	205,315
2025-26	224,937	0.862	193,891
2026-27	194,554	0.845	164,414
2027-28	137,243	0.829	113,707
2028-29	205,172	0.812	166,654
2029-30	105,270	0.796	83,831
2030-31	99,754	0.781	77,880
2031-32	89,361	0.765	68,398
2032-33	88,969	0.750	66,763
2033-34	40,570	0.736	29,847
2034-35	43,362	0.721	31,276
2035-36	43,362	0.707	30,663
2036-37	37,942	0.693	26,304
2037-38	32,522	0.680	22,104
2038-39	37,942	0.666	25,282
2039-40	70,464	0.653	46,032
2040-41	32,522	0.640	20,829
2041-42	32,522	0.628	20,421
2042-43	27,101	0.616	16,684
43-44 to 52-53	271,014	0.544	147,510
Total	\$5,420,286		\$4,768,510

(4) Indicated Discount Factor: 0.880

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 2.0% 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 2018-19 Losses as of July 1, 2018  
Assuming a 2.0% 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)
2018-19	\$583,677	0.990	\$577,927
2019-20	833,203	0.971	808,817
2020-21	563,281	0.952	536,074
2021-22	428,364	0.933	399,680
2022-23	375,942	0.915	343,891
2023-24	310,476	0.897	278,437
2024-25	250,826	0.879	220,532
2025-26	211,122	0.862	181,983
2026-27	183,343	0.845	154,940
2027-28	130,642	0.829	108,238
2028-29	143,176	0.812	116,297
2029-30	137,462	0.796	109,466
2030-31	101,610	0.781	79,330
2031-32	80,804	0.765	61,848
2032-33	61,364	0.750	46,048
2033-34	27,183	0.736	19,999
2034-35	33,870	0.721	24,429
2035-36	24,193	0.707	17,107
2036-37	24,193	0.693	16,772
2037-38	24,193	0.680	16,443
2038-39	24,193	0.666	16,121
2039-40	24,193	0.653	15,805
2040-41	19,354	0.640	12,396
2041-42	19,354	0.628	12,153
2042-43	19,354	0.616	11,914
43-44 to 52-53	203,221	0.538	109,350
Total	\$4,838,595		\$4,295,997

(4) Indicated Discount Factor: 0.888

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 2.0% 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 2018-19 Losses as of July 1, 2018  
Assuming a 2.0% 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)
2018-19	\$539,812	0.990	\$534,494
2019-20	765,447	0.971	743,045
2020-21	507,942	0.952	483,408
2021-22	380,670	0.933	355,180
2022-23	428,414	0.915	391,889
2023-24	296,946	0.897	266,303
2024-25	321,585	0.879	282,744
2025-26	173,288	0.862	149,371
2026-27	139,049	0.845	117,508
2027-28	141,727	0.829	117,423
2028-29	92,299	0.812	74,971
2029-30	78,876	0.796	62,812
2030-31	63,652	0.781	49,695
2031-32	83,925	0.765	64,238
2032-33	45,119	0.750	33,858
2033-34	44,826	0.736	32,978
2034-35	35,619	0.721	25,691
2035-36	36,667	0.707	25,928
2036-37	13,131	0.693	9,104
2037-38	13,131	0.680	8,925
2038-39	13,131	0.666	8,750
2039-40	13,131	0.653	8,578
2040-41	8,754	0.640	5,607
2041-42	8,754	0.628	5,497
2042-43	8,754	0.616	5,389
43-44 to 52-53	122,490	0.532	65,169
<b>Total</b>	<b>\$4,377,143</b>		<b>\$3,928,555</b>

(4) Indicated Discount Factor: 0.898

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 2.0% 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 2018-19 Losses as of July 1, 2018  
Assuming a 2.0% 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)
2018-19	\$492,440	0.990	\$487,588
2019-20	694,542	0.971	674,215
2020-21	479,235	0.952	456,087
2021-22	341,752	0.933	318,868
2022-23	412,050	0.915	376,920
2023-24	282,613	0.897	253,449
2024-25	304,929	0.879	268,101
2025-26	175,844	0.862	151,575
2026-27	122,016	0.845	103,114
2027-28	73,226	0.829	60,669
2028-29	64,343	0.812	52,264
2029-30	49,884	0.796	39,725
2030-31	55,063	0.781	42,989
2031-32	50,619	0.765	38,744
2032-33	42,336	0.750	31,769
2033-34	34,638	0.736	25,483
2034-35	26,941	0.721	19,432
2035-36	19,244	0.707	13,608
2036-37	15,395	0.693	10,673
2037-38	15,395	0.680	10,463
2038-39	11,546	0.666	7,694
2039-40	7,697	0.653	5,029
2040-41	7,697	0.640	4,930
2041-42	7,697	0.628	4,833
2042-43	3,849	0.616	2,369
43-44 to 52-53	57,715	0.527	30,436
<b>Total</b>	<b>\$3,848,708</b>		<b>\$3,491,027</b>

(4) Indicated Discount Factor: 0.907

Notes:

- (1) Based upon the observed payment pattern.
- (2) Based upon a 2.0% 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, 2017 - 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										1,070	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	1,882
2009	488	1,618	2,060	1,916	1,940	2,331	2,207	2,334	2,203	2,196	
2010	657	2,758	3,500	3,588	5,609	5,938	6,019	6,056	5,641		
2011	1,155	4,758	4,564	4,256	5,135	5,490	5,466	7,107			
2012	586	1,659	2,086	2,501	2,742	2,972	3,170				
2013	266	1,347	2,301	2,538	2,916	3,165					
2014	400	1,704	2,849	3,714	4,357						
2015	79	822	1,038	1,382							
2016	464	1,118	1,848								
2017	278	775									
2018	161										
	<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	3.555	1.242	1.047	1.123	1.037	1.027	1.073	0.989	1.010	1.029	
REFERENCE	2.817	1.277	1.114	1.057	1.038	1.024	1.012	1.017	1.013	1.008	1.100
SELECTED	5.177	1.321	1.111	1.036	1.039	1.037	1.085	0.999	1.008	1.041	1.100
CUMULATIVE	10.612	2.050	1.552	1.397	1.348	1.297	1.251	1.153	1.154	1.145	1.100

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Cumulative Paid Losses (\$000's) as of December 31, 2017 - 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										1,022	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	1,644
2009	156	891	1,433	1,593	1,719	1,820	1,831	1,988	1,996	2,036	
2010	174	1,675	2,265	2,775	3,033	4,299	4,410	4,544	4,869		
2011	376	2,001	3,230	3,761	3,999	4,420	4,640	4,839			
2012	192	728	1,366	1,855	2,059	2,215	2,375				
2013	136	805	1,579	1,865	2,181	2,467					
2014	161	1,145	2,099	2,673	3,320						
2015	23	475	772	1,150							
2016	156	751	1,329								
2017	154	576									
2018	71										
	<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	5.791	1.585	1.241	1.127	1.124	1.043	1.044	1.034	1.029	1.042	
REFERENCE	3.576	1.671	1.286	1.171	1.122	1.088	1.067	1.058	1.043	1.043	1.278
SELECTED	9.888	1.653	1.130	1.094	1.172	1.037	1.043	1.050	1.025	1.042	1.278
CUMULATIVE	36.740	3.716	2.248	1.989	1.819	1.552	1.496	1.435	1.366	1.332	1.278

Monterey Bay Area Self Insurance Authority  
Workers' Compensation Program

Cumulative # of Indemnity Losses Reported as of December 31, 2017 - Unlimited

Program	<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>	<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	76
2008	22	56	58	59	59	60	60	60	60	60	60	
2009	30	78	79	78	78	79	79	80	80	80		
2010	25	53	55	56	56	56	57	57	57			
2011	44	86	87	86	87	88	88	88				
2012	25	66	68	69	71	73	73					
2013	19	53	56	58	59	59						
2014	26	57	58	61	61							
2015	9	29	33	33								
2016	21	57	60									
2017	15	48										
2018	16											
	<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	2.433	1.038	1.011	1.007	1.007	1.004	1.002	1.000	1.000	1.000	1.016	
SELECTED	2.868	1.040	1.026	1.006	1.006	1.004	1.002	1.000	1.000	1.000	1.000	1.000
CUMULATIVE	3.118	1.087	1.045	1.018	1.012	1.006	1.002	1.000	1.000	1.000	1.000	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 2017-18 (\$00's) (3)
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	506,073
1998-99	300,000	212,991	511,134
1999-00	300,000	267,420	516,245
2000-01	300,000	263,274	521,408
2001-02	350,000	297,462	526,622
2002-03	500,000	346,678	531,888
2003-04	NO XS	401,995	537,207
2004-05	500,000	401,860	542,579
2005-06	500,000	429,640	548,005
2006-07	500,000	428,182	553,485
2007-08	500,000	437,000	559,020
2008-09	500,000	470,000	564,610
2009-10	500,000	455,000	547,672
2010-11	250,000	454,739	531,241
2011-12	250,000	454,479	515,304
2012-13	250,000	422,491	499,845
2013-14	250,000	436,959	504,843
2014-15	250,000	455,957	509,892
2015-16	250,000	472,388	514,991
2016-17	250,000	518,291	525,291
2017-18	250,000	530,544	530,544
2018-19	?	548,768	535,849

## Notes:

- (1) Provided by MBASIA.
- (2) Provided by MBASIA. 2018-19 estimated by BAC.
- (3) Estimated by BAC.