



Actuarial Review of the Self-Insured Workers' Compensation Program

Outstanding Liabilities as of June 30, 2017

Presented to
Novato Fire Protection District

August 29, 2017



Tuesday, August 29, 2017

Mr. Dan Hom
Finance Director
Novato Fire Protection District
95 Rowland Way
Novato, California 94945

Re: Actuarial Review of the Self-Insured Workers' Compensation Program

Dear Mr. Hom:

As you requested, we have completed our review of Novato Fire Protection District's self-insured workers' compensation program. It is our understanding that, effective July 1, 2014, Novato Fire Protection District joined the Fire Agencies Self Insurance System. The report that follows is an estimate of the program's liability for outstanding claims with dates of loss prior to July 1, 2014. We estimate the program's liability for outstanding claims as of June 30, 2017 to be \$2,209,000, which includes allocated loss adjustment expenses (ALAE), unallocated loss adjustment expenses (ULAE) and a discount for anticipated investment income. ALAE is the direct cost associated with the defense of individual claims (e.g. legal fees, investigation fees, court charges). ULAE is the cost to administer all claims to final settlement, which may be years into the future (e.g. claims adjusters' salaries, taxes). The discount for investment income is calculated based on the likely payout pattern of the District's claims, assuming a 2.5% return on investments per year

The \$2,209,000 estimate is the minimum liability to be booked by the District at June 30, 2017 for its workers' compensation program, in accordance with Governmental Accounting Standards Board (GASB) Statement #10. GASB #10 requires the District to accrue a liability on its financial statements for the ultimate cost of claims and expenses associated with all reported and unreported claims, including ALAE and ULAE. GASB #10 does not prohibit the discounting of losses to recognize investment income.

Our conclusions regarding the District's liability for unpaid loss and loss adjustment expenses (LAE) at June 30, 2017 are summarized in the table below.

Novato Fire Protection District
 Self-Insured Workers' Compensation Program
 Estimated Liability for Unpaid Loss and LAE
 at June 30, 2017
 Claims with Dates of Loss Prior to July 1, 2014

	Expected	Marginally Acceptable 70% CL	Recommended Range			Conservative 90% CL
			Low 75% CL	Target 80% CL	High 85% CL	
Loss and ALAE	\$2,430,000					
ULAE	190,000					
Investment Income Offset	(411,000)					
Discounted Loss and LAE	\$2,209,000	\$2,543,000	\$2,697,000	\$2,876,000	\$3,099,000	\$3,397,000

GASB #10 does not address an actual asset requirement for the program, but only speaks to the liability to be recorded on the District's financial statements.

Because actuarial estimates of claims costs are subject to some uncertainty, we recommend that an amount in addition to the discounted expected loss costs be set aside as a risk margin for contingencies. Generally, the amount should be sufficient to fund assets to the 75% to 85% confidence level for primary programs. We consider funding assets to the 70% confidence level to be marginally acceptable and funding assets to the 90% confidence level to be conservative.

The loss projections in this report reflect the estimated impact of benefit legislation contained in AB749, AB227, SB228, SB899, SB863, and recent WCAB court decisions based upon information provided by the WCIRB.

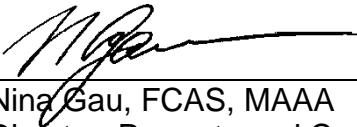
The ultimate impact on loss costs of legislated benefit adjustments are generally difficult to forecast in advance because the changes typically take place over a period of several years following enactment. Furthermore, actuarially derived benefit level evaluations often underestimate actual future cost levels. The shortfalls result from a variety of circumstances, including: increases in utilization levels, unanticipated changes in administrative procedures, and cost shifting among benefit categories. Thus, actual cost increases could differ, perhaps substantially, from the WCIRB's estimates.

The report that follows outlines the scope of our study, its background, and our conclusions, recommendations, and assumptions. Judgments regarding the appropriateness of our conclusions and recommendations should be made only after studying the report in its entirety, including the graphs, attachments, exhibits and appendices. Our report has been developed for the District's internal use. It is not intended for general circulation.

We appreciate the opportunity to be of service to Novato Fire Protection District in preparing this report. Please feel free to call Becky Richard at (916) 244-1183 or Nina Gau at (916) 244-1193 with any questions you may have concerning this report.

Sincerely,

Bickmore



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Director, Property and Casualty Actuarial Services, Bickmore
Fellow, Casualty Actuarial Society
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I. BACKGROUND

Novato Fire Protection District began its self-insured workers' compensation program on July 1, 1987. It is our understanding that, effective July 1, 2014, the District joined the Fire Agencies Self Insurance System and the self-insured workers' compensation program is now in run-off. Claims administration services are provided by Athens. Additional background on the program is given in Appendix K.

The purpose of this review is to provide a guide to the District to determine reasonable funding levels for its self-insurance program according to the funding policy the District has adopted and to comply with Governmental Accounting Standards Board Statements #10 and #30. The specific objectives of the study are to estimate the District's liability for outstanding claims as of June 30, 2017.

II. CONCLUSIONS AND RECOMMENDATIONS

A. LIABILITY FOR OUTSTANDING CLAIMS

Graph 1 on the following page summarizes our assessment of the District's funding position as of June 30, 2017. The dark-colored bars indicate our estimates of the program's liability for outstanding claims before recognition of the investment income that can be earned on the assets held before the claim payments come due.

Our best estimate of the full value of the District's liability for outstanding claims within its self-insured retention (SIR) for the losses with the occurrence date prior to July 1, 2014 is \$2,620,000 as of June 30, 2017. This amount includes losses, allocated loss adjustment expenses (ALAE), and unallocated loss adjustment expenses (ULAE). ALAE is the direct cost associated with the defense of individual claims (e.g. legal fees, investigation fees, court charges). ULAE is the cost to administer claims to final settlement, which may be years in the future (e.g. claims adjusters' salaries, taxes).

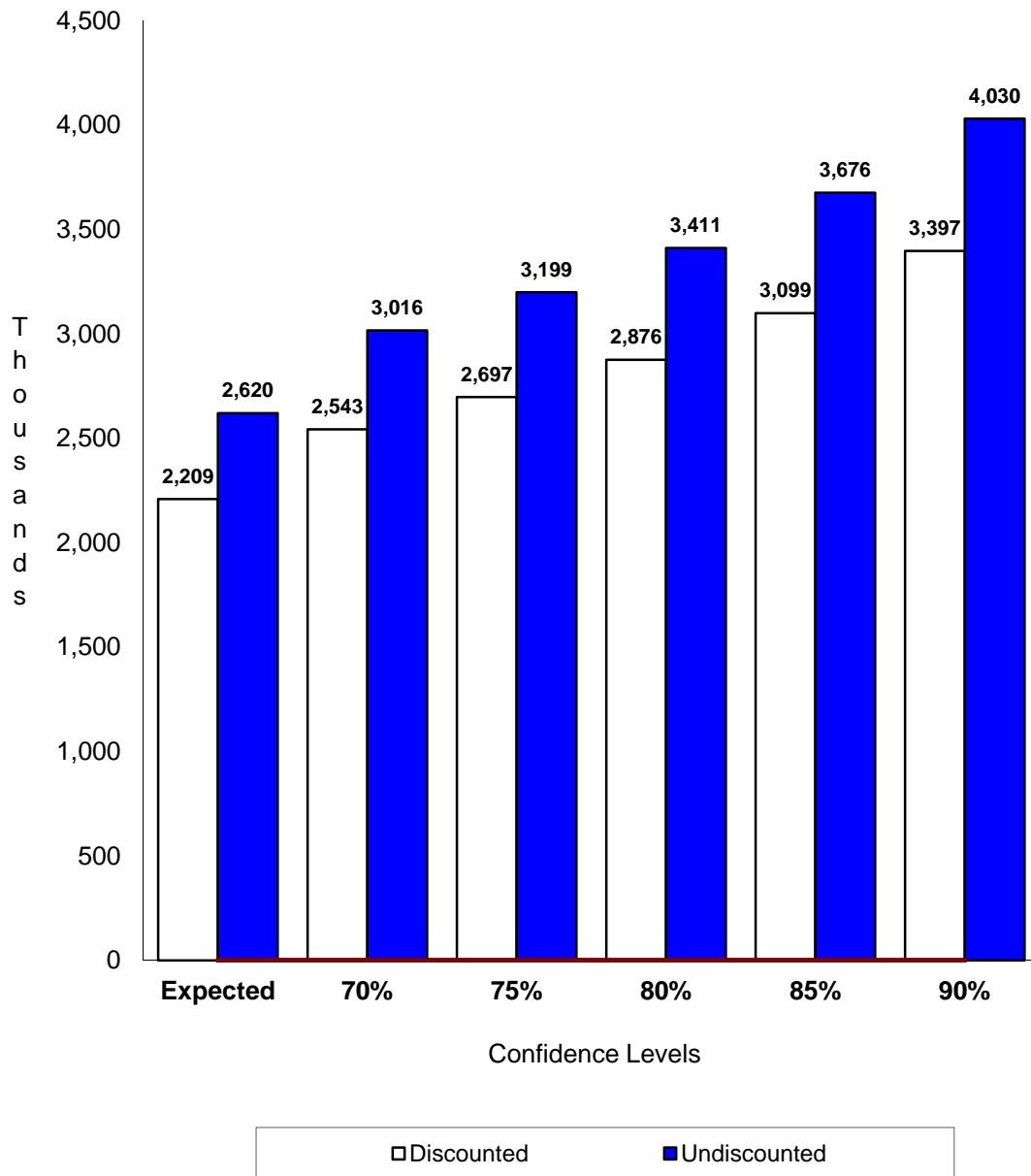
There is some measure of uncertainty associated with our best estimate because of the random nature of much of the process that determines ultimate claims costs. For this reason, we generally recommend that a program such as this include some funding margin for the possibility that actual loss costs will be greater than the best estimate. We generally measure the amount of this margin by thinking in terms of the probability distribution of actual possible results around our best estimate. As the margin grows, the probability that the corresponding funding amount will be sufficient to meet actual claim liabilities increases. We typically refer to this probability as the "confidence level" of funding. Graph 1 shows the liabilities for outstanding claims at several confidence levels that are typically of interest to risk managers in formulating funding policies for self-insurance programs.

The District can earn investment income on the assets it holds until claims payments come due. Assuming a long-term average annual return on investments of 2.5%, we estimate the impact of investment income earnings to be about 16% if the program is funded within the range indicated in the graphs, resulting in a discounted liability for outstanding claims of \$2,209,000 as of June 30, 2017.

Investment income earnings will be less than this when the program does not maintain sufficient funding, and more when there is excess funding. Thus, thinking in terms of liabilities discounted for investment income can actually mask funding deficiencies and redundancies that might otherwise be obvious. However, the discounted liabilities do represent legitimate funding targets. The light-colored bars on Graph 1 shows our estimates of the District's discounted liability for outstanding claims.

Graph 1

Novato Fire Protection District -
Workers' Compensation
Outstanding Liability (\$000's)
at June 30, 2017



The table below displays a breakdown of the program's outstanding loss and LAE liabilities into case reserves and incurred but not reported (IBNR) reserves at June 30, 2017, before recognition of investment income.

Novato Fire Protection District
 Self-Insured Workers' Compensation Program
 Estimated Liability for Unpaid Loss and LAE at June 30, 2017

Year	Case Reserves	IBNR Reserves	Total Outstanding
Prior	\$47,360	\$20,341	\$67,701
1997-98	12,639	4,136	16,775
1998-99	25,339	12,719	38,058
1999-00	26,466	7,705	34,171
2000-01	10,605	13,645	24,250
2001-02	31,535	34,786	66,321
2002-03	14,785	8,909	23,694
2003-04	95,316	13,591	108,907
2004-05	45,454	16,068	61,522
2005-06	9,912	24,467	34,379
2006-07	0	0	0
2007-08	0	0	0
2008-09	213,930	40,257	254,187
2009-10	60,548	173,479	234,027
2010-11	103,348	166,484	269,832
2011-12	75,488	248,632	324,120
2012-13	121,196	286,427	407,623
2013-14	72,330	392,007	464,337
Loss and ALAE	\$966,251	\$1,463,653	\$2,429,904
ULAE		190,323	190,323
Total	\$966,251	\$1,653,976	\$2,620,227

B. PROGRAM FUNDING: GOALS AND OBJECTIVES

As self-insurance programs have proliferated among public entities, it has become apparent that there is a large measure of inconsistency in the way in which these programs recognize and account for their claims costs. This is the result of the fact that there have been several different sources of guidance available, none of which has been completely relevant to public entity self-insurance programs.

According to the Governmental Accounting Standards Board (GASB), the most relevant source of guidance on the subject is Financial Accounting Standards Board Statement #60. A liability for unpaid claim costs, including all loss adjustment expenses, should be accrued at the time the self-insured events occur. This liability should include an allowance for incurred but not reported claims. It may be discounted for investment income at an appropriate rate of return, provided the discounting is disclosed. The regulations detailing the way in which this must be done are outlined in GASB's statements #10 and #30. These regulations are required to be applied by the District.

GASB #10 and #30 do not address asset requirements. They do, however, allow a range of amounts to be recognized for accounting purposes; specifically, GASB #10 and #30 allow recognition of a risk margin for unexpectedly adverse loss experience. Thus, for accounting purposes, it is possible to formulate a funding policy from a range of alternatives. The uncertainty in any estimate of the program's liability for outstanding claims should be taken into consideration in determining funding policy, but it may be offset by recognizing anticipated investment income earnings. This usually means developing a funding program based on discounted claims costs with some risk margin for unexpected adverse loss experience.

The amount of the risk margin should be a question of long-term funding policy. We recommend that the risk margin be determined by thinking in terms of the probability that a given level of assets will prove to be adequate. For example, a reasonable goal might be to maintain assets at the 85% confidence level.

A key factor to consider in determining funding policy is the degree to which stability is required in the level of contributions to the program from year to year. If you elect to maintain assets at a low confidence level, the chances are much greater that future events will prove that additional contributions should have been made for old claims. The additional contributions for old claims may be required at the same time that costs are increasing dramatically on new claims. The burden of funding for increases on past years as well as on current years, may well be prohibitive.

We generally recommend maintaining program assets at the 80% confidence level, after recognition of investment income, with a recommended range of the 75% to 85% confidence levels. We tend to think of the 70% confidence level as marginally acceptable and of the 90% confidence level as conservative. We recommend the 75% to 85% confidence level range because the probabilities are reasonably high that resulting assets will be sufficient to meet claim liabilities, yet the required risk margins are not so large that they will cause most self-insured entities to experience undue financial hardship. In addition, within this range, anticipated investment income generally offsets the required risk margin for the most part, which means that assets are likely sufficient on an undiscounted basis.

We also strongly believe, however, that the confidence level to which any future year is funded should be evaluated in light of the relative certainty of the assumptions underlying the actuarial analysis, the District's other budgetary constraints, and the relative level of risk it is believed appropriate to assume. This means formulating both short and long-term funding goals, which may be the same in some years, but different in others.

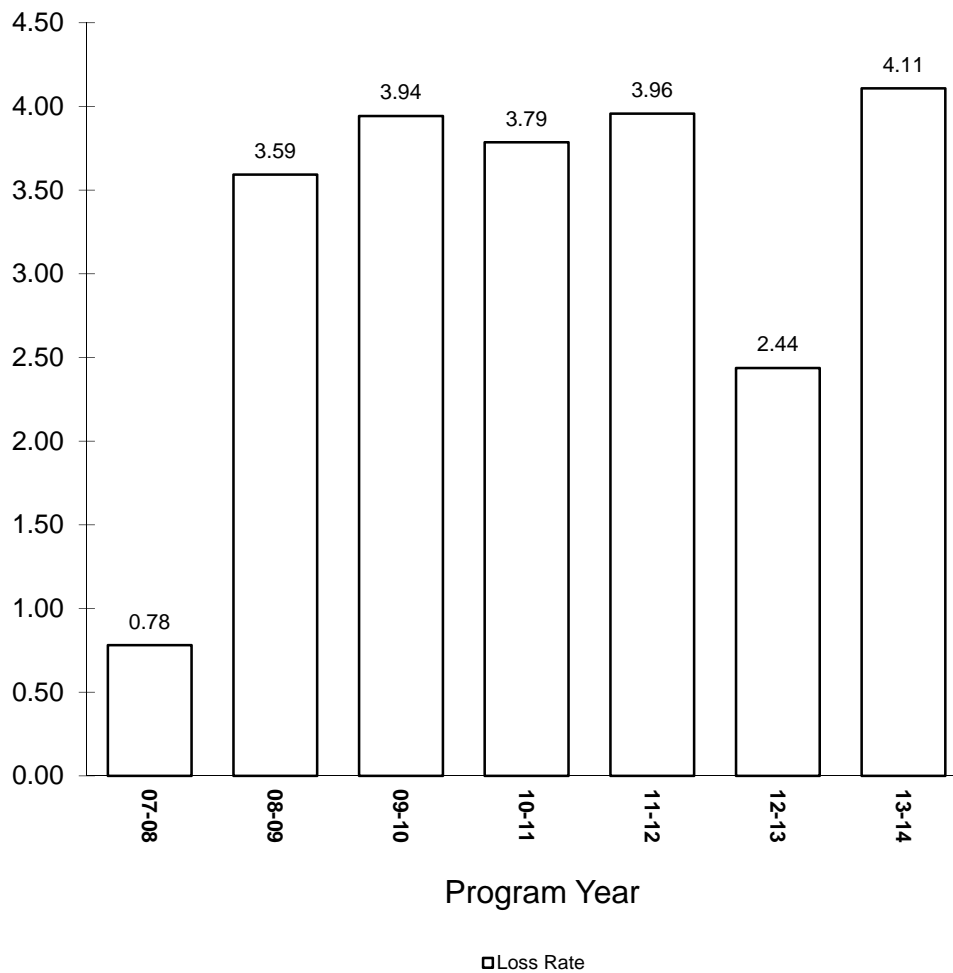
In general, we recommend that you fund each year's claims costs in that year. When surpluses or deficits have developed on outstanding liabilities and funding adjustments are necessary, they should be clearly identified as such so that the habit of funding each year's claims costs that year is maintained. We also recommend that you reduce a surplus more slowly than you would accumulate funding to reduce a deficit.

C. HISTORICAL TRENDS IN THE SELF-INSURANCE PROGRAM

The loss rate (based on losses limited to \$100,000 per occurrence) has remained stable during the 2008-09 through 2011-12 years, decreased in the 2012-13 year, and increased again in the 2013-14 year. See graph below.

Graph 2

Novato Fire Protection District -
Workers' Compensation
Dollars of Loss per
\$100 of Payroll



D. COMPARISON WITH PREVIOUS RESULTS

The prior report for Novato Fire Protection District was dated August 31, 2016. In the table below we display actual versus expected development of incurred losses and ALAE by accident year between the 6/30/16 evaluation date of the prior report and the 6/30/17 evaluation date of the current report.

Actual Versus Expected Incurred Loss and ALAE Development

Accident Year	Expected Incurred Development	Actual Incurred Development	Actual Minus Expected
Prior	\$4,000	(\$27,000)	(\$31,000)
1997-98	1,000	0	(1,000)
1998-99	4,000	58,000	54,000
1999-00	3,000	0	(3,000)
2000-01	4,000	0	(4,000)
2001-02	11,000	0	(11,000)
2002-03	3,000	0	(3,000)
2003-04	5,000	0	(5,000)
2004-05	3,000	0	(3,000)
2005-06	5,000	0	(5,000)
2006-07	0	0	0
2007-08	0	0	0
2008-09	17,000	1,000	(16,000)
2009-10	32,000	(58,000)	(90,000)
2010-11	32,000	0	(32,000)
2011-12	34,000	(55,000)	(89,000)
2012-13	60,000	5,000	(55,000)
2013-14	85,000	(66,000)	(151,000)
Total	\$303,000	(\$142,000)	(\$445,000)

As shown, actual incurred development was less than anticipated since the prior report. Based on the assumptions from the prior report, it was expected that incurred losses would increase by \$303,000 between the two evaluation dates. However, actual development was approximately (\$142,000); or about \$445,000 less than expected. The greater than expected development in 1998-99 was offset by the less than anticipated incurred development for all other program years.

In the table below we display actual versus expected development of paid losses and ALAE by accident year between the 6/30/16 evaluation date of the prior report and the 6/30/17 evaluation date of the current report.

Actual Versus Expected Paid Loss and ALAE Development

Accident Year	Expected Paid Development	Actual Paid Development	Actual Minus Expected
Prior	\$17,000	\$4,000	(\$13,000)
1997-98	3,000	2,000	(1,000)
1998-99	2,000	39,000	37,000
1999-00	4,000	1,000	(3,000)
2000-01	3,000	0	(3,000)
2001-02	10,000	3,000	(7,000)
2002-03	8,000	4,000	(4,000)
2003-04	17,000	61,000	44,000
2004-05	7,000	1,000	(6,000)
2005-06	5,000	1,000	(4,000)
2006-07	0	0	0
2007-08	0	0	0
2008-09	43,000	16,000	(27,000)
2009-10	53,000	4,000	(49,000)
2010-11	44,000	7,000	(37,000)
2011-12	48,000	20,000	(28,000)
2012-13	46,000	6,000	(40,000)
2013-14	74,000	74,000	0
Total	\$384,000	\$243,000	(\$141,000)

As shown, actual paid development was less than anticipated since the prior report. Based on the assumptions from the prior report, it was expected that paid losses would increase by \$384,000 between the two evaluation dates. However, actual development was approximately \$243,000; or about \$141,000 less than expected.

In the table below we display the change in our estimates of the program's ultimate losses and ALAE by accident year since our prior report.

Change in Ultimate Loss and ALAE

Accident Year	Prior Report	Current Report	Change In Ultimate
Prior	\$2,914,000	\$2,885,000	(\$29,000)
1997-98	458,000	456,000	(2,000)
1998-99	955,000	1,010,000	55,000
1999-00	446,000	443,000	(3,000)
2000-01	578,000	574,000	(4,000)
2001-02	1,129,000	1,118,000	(11,000)
2002-03	188,000	186,000	(2,000)
2003-04	2,007,000	1,996,000	(11,000)
2004-05	218,000	215,000	(3,000)
2005-06	288,000	282,000	(6,000)
2006-07	493,000	493,000	0
2007-08	92,000	92,000	0
2008-09	777,000	713,000	(64,000)
2009-10	903,000	813,000	(90,000)
2010-11	792,000	739,000	(53,000)
2011-12	866,000	824,000	(42,000)
2012-13	607,000	569,000	(38,000)
2013-14	973,000	866,000	(107,000)
Total	\$14,684,000	\$14,274,000	(\$410,000)

As shown, overall we have decreased our estimated ultimates by \$410,000 since our prior report. These changes track well with the changes in the tables above.

At the time of the prior report, we estimated the liability for outstanding claims as of June 30, 2016 to be \$2,735,000 at the discounted, expected level. Our current estimate as of June 30, 2017, is \$2,209,000, a decrease in our assessment of the District's outstanding liabilities, as shown below:

Outstanding Claim Liabilities for Loss and LAE

	Prior Report at June 30, 2016	Current Report at June 30, 2017	Change
(A) Case Reserves:	\$1,351,000	\$966,000	(\$385,000)
(B) IBNR Reserves:	1,732,000	1,464,000	(268,000)
(C) Claims Administration Reserves:	231,000	190,000	(41,000)
(D) Total Reserves:	\$3,314,000	\$2,620,000	(\$694,000)
(E) Offset for Investment Income:	(579,000)	(411,000)	168,000
(F) Total Outstanding Claim Liabilities:	\$2,735,000	\$2,209,000	(\$526,000)

As shown, our estimate of outstanding claims liabilities at the discounted, expected level has decreased between June 30, 2016 and June 30, 2017 as reflected in our prior and current reports respectively.

The decrease in claim reserves (case and IBNR) is driven primarily by the paying down of claims that are in runoff. Reserves for future claims administration expenses have decreased, resulting in a \$694,000 decrease in total claim reserves. This decrease in reserves leads to a smaller offset for investment income. The net change due to the above factors is an overall decrease of \$526,000 in our estimate of outstanding claim liabilities for loss and LAE.

E. DATA PROVIDED FOR THE ANALYSIS

Overall, the data utilized in preparing this report appears to be accurate.

Comments and issues regarding the data are as follows:

- We estimated ULAE at 7.5% of outstanding loss as of June 30, 2017.
- We received loss data evaluated as of 6/30/17 (See Appendix L). We also utilized the data from the District's most recent actuarial study for our assessment of loss development.

The data provided for the analysis appears to be reasonable for use in this actuarial valuation of liabilities and projection of loss costs.

III. ASSUMPTIONS AND LIMITATIONS

Any quantitative analysis is developed within a very specific framework of assumptions about conditions in the outside world, and actuarial analysis is no exception. We believe that it is important to review the assumptions we have made in developing the estimates presented in this report. By doing so, we hope you will gain additional perspective on the nature of the uncertainties involved in maintaining a self-insurance program. Our assumptions, and some observations about them, are as follows:

- Our analysis is based on loss experience, exposure data, and other general and specific information provided to us by the District. We have accepted all of this information without audit.
- We have also made use of loss statistics that have been developed from the information gathered and compiled from other public entities workers' compensation program.
- We have assumed that the future development of incurred and paid losses can be reasonably predicted on the basis of development of such losses in the recent past. We have also assumed that the historical development patterns for other California public entities workers' compensation program in the aggregate form a reasonable basis of comparison to the patterns from Novato Fire Protection District's data.
- We have made use of cost relationships for claims of various sizes derived from the most recent actuarial review of other California public entities workers' compensation program.
- We have assumed that there is a continuing relationship between past and future loss costs.
- It is not possible to predict future claim costs precisely. Most of the costs of workers' compensation claims arise from a small number of incidents involving serious injury. A relatively small number of such claims could generate enough loss dollars to significantly reduce, or even deplete, the self-insurance fund.
- We cannot predict and have not attempted to predict the impact of future law changes and court rulings on claims costs. This is one major reason why we believe our funding recommendations are reasonable now, but should not be extrapolated into the future.
- The changes in cost levels associated with benefit increases and administrative changes typically take place over a period of several years following their enactment, and these changes are very difficult to forecast in advance. We have based our benefit level factors on those produced by the Workers' Compensation Insurance Rating Bureau of California (WCIRB). See Appendix E for a display of the benefit level cost indices by fiscal year.

- We have assumed that the loss rate trend associated with claim costs increases at 4.0% per year. We have assumed that claim severity increases at 2.5% per year, and that claim frequency increases at 1.5% per year.
- We have assumed that payroll and other inflation-sensitive exposure measures increase 2.5% annually due to inflation.
- We have assumed that assets held for investment will generate an average annual return of 2.5% over the duration of payment of the loss liabilities. It should be noted that actual future investment returns may vary significantly from this assumption, depending upon the prevailing investment market conditions.
- The claims costs we have estimated include indemnity and medical payments, and all loss adjustment expenses. We have not included estimates for excess insurance contributions and other expenses associated with the program based upon information provided by the District.
- Our funding recommendations do not include provisions for catastrophic events not in the District's history, such as earthquakes, flooding, mass civil disorder, or mass occupational disease.
- Our estimates assume that all excess insurance is valid and collectible. Further, our funding recommendations do not include a provision for losses greater than the District's excess coverage.

IV. GLOSSARY OF ACTUARIAL TERMS

Accident Year - Year during which the accidents that generate a group of claims occurs, regardless of when the claims are reported, payments are made, or reserves are established.

Allocated Loss Adjustment Expenses (ALAE) - Expense incurred in settling claims that can be directly attributed to specific individual claims (e.g., legal fees, investigative fees, court charges, etc.)

Benefit Level Factor - Factor used to adjust historical losses to the current level of workers' compensation benefits.

Case Reserve - The amount left to be paid on a claim, as estimated by the claims administrator.

Claim Count Development Factor - A factor that is applied to the number of claims reported in a particular accident period in order to estimate the number of claims that will ultimately be reported.

Claim Frequency - Number of claims per \$1 million of payroll.

Confidence Level - An estimated probability that a given level of funding will be adequate to pay actual claims costs. For example, the 85% confidence level refers to an estimate for which there is an 85% chance that the amount will be sufficient to pay loss costs.

Discount Factor - A factor to adjust estimated loss costs to reflect anticipated investment income from assets held prior to actual claim payout.

Expected Losses - The best estimate of the full, ultimate value of loss costs.

Incurred but not Reported (IBNR) Losses - Losses for which the accident has occurred but the claim has not yet been reported. This is the ultimate value of losses, less any amount that has been set up as reported losses by the claims adjuster. It includes both amounts for claims incurred but not yet received by the administrator and loss development on already reported claims.

Loss Development Factor - A factor applied to losses for a particular accident period to reflect the fact that reported and paid losses do not reflect final values until all claims are settled (see Section IV).

Loss Rate - Ultimate losses per \$100 of payroll.

Non-Claims Related Expenses – Program expenses not directly associated with claims settlement and administration, such as excess insurance, safety program expenses, and general overhead. These exclude expenses associated with loss settlements (Indemnity/Medical, BI/PD), legal expenses associated with individual claims (ALAE), and claims administration (ULAE).

Outstanding Losses - Losses that have been incurred but not paid. This is the ultimate value of losses less any amount that has been paid.

Paid Losses - Losses actually paid on all reported claims.

Program Losses - Losses, including ALAE, limited to the SIR for each occurrence.

Reported Losses - The total expected value of losses as estimated by the claims administrator. This is the sum of paid losses and case reserves.

Self-Insured Retention (SIR) - The level at which an excess insurance policy is triggered to begin payments on a claim. Financially, this is similar to an insurance deductible.

Severity - Average claim cost.

Ultimate Losses - The value of claim costs at the time when all claims have been settled. This amount must be estimated until all claims are actually settled.

Unallocated Loss Adjustment Expenses (ULAE) – Claim settlement expenses that cannot be directly attributed to individual claims (e.g., claims adjusters' salaries, taxes, etc.)

Novato Fire Protection District - Workers' Compensation

Funding Guidelines for Outstanding Liabilities at
June 30, 2017

(A) Estimated Ultimate Losses Incurred through 6/30/17: (From Appendix G)	\$14,274,000
(B) Estimated Paid Losses through 6/30/17: (From Appendix G)	11,844,000
(C) Estimated Liability for Claims Outstanding at 6/30/17: (From Appendix G)	<u>\$2,430,000</u>
(D) Estimated Liability for Outstanding Claims Administration Fees at 6/30/17: (From Appendix F)	190,000
(E) Total Outstanding Liability for Claims at 6/30/17: ((C) + (D))	<u>\$2,620,000</u>
(F) Reserve Discount Factor (Based on a Discount Rate of 2.5%.): (Appendix I, Page 1, (G))	0.843
(G) Discounted Outstanding Liability for Claims at 6/30/17: ((E) x (F))	<u>\$2,209,000</u>

	<u>Marginally Acceptable</u>	<u>75%</u>	<u>Recommended</u>	<u>85%</u>	<u>Conservative</u>
Confidence Level of Adequacy:	70%	75%	80%	85%	90%
(H) Confidence Level Factor: (From Appendix J)	1.151	1.221	1.302	1.403	1.538
(I) Margin for Adverse Experience: ((G) x [(H) - 1])	334,000	488,000	667,000	890,000	1,188,000
(J) Total Required Assets at 6/30/17: ((G) + (I))	<u>\$2,543,000</u>	<u>\$2,697,000</u>	<u>\$2,876,000</u>	<u>\$3,099,000</u>	<u>\$3,397,000</u>

Novato Fire Protection District - Workers' Compensation

IBNR as of 6/30/18 at Expected Claims Level

Accident Year	Estimated Ultimate (A)	Reported as of 6/30/17 (B)	Estimated IBNR as of 6/30/17 (C)	Estimated Percent of IBNR Reported Between 7/1/17 and 6/30/18 (D)	Estimated IBNR Reported (E)	Estimated IBNR as of 6/30/18 (F)
Prior	\$2,885,000	\$2,864,659	\$20,341	15.0%	\$3,000	\$17,341
1997-1998	456,000	451,864	4,136	29.8%	1,000	3,136
1998-1999	1,010,000	997,281	12,719	22.8%	3,000	9,719
1999-2000	443,000	435,295	7,705	23.2%	2,000	5,705
2000-2001	574,000	560,355	13,645	28.7%	4,000	9,645
2001-2002	1,118,000	1,083,214	34,786	24.4%	8,000	26,786
2002-2003	186,000	177,091	8,909	34.9%	3,000	5,909
2003-2004	1,996,000	1,982,409	13,591	19.7%	3,000	10,591
2004-2005	215,000	198,932	16,068	19.1%	3,000	13,068
2005-2006	282,000	257,533	24,467	15.6%	4,000	20,467
2006-2007	492,982	492,982	0	16.5%	0	0
2007-2008	92,328	92,328	0	16.9%	0	0
2008-2009	713,000	672,743	40,257	14.8%	6,000	34,257
2009-2010	813,000	639,521	173,479	15.1%	26,000	147,479
2010-2011	739,000	572,516	166,484	16.0%	27,000	139,484
2011-2012	824,000	575,368	248,632	14.9%	37,000	211,632
2012-2013	569,000	282,573	286,427	14.4%	41,000	245,427
2013-2014	866,000	473,993	392,007	19.5%	76,000	316,007
Totals	\$14,274,310	\$12,810,657	\$1,463,653		\$247,000	\$1,216,653

Notes:

- (A) From Exhibit 3, Page 1.
- (B) Provided by the District. These losses exclude amounts incurred above the District's SIR for each year.
- (C) (A) - (B).
- (D) Percentage of incurred but not reported (IBNR) expected to be reported between 7/1/17 and 6/30/18. The percentage is based on the development pattern selected in Appendix A.
- (E) ((A) - (B)) x (D).
- (F) (A) - (B) - (E).

This exhibit shows the calculation of the amount of incurred but not reported losses we expect as of 6/30/18. This amount is dependent on both the strength of the case reserves and the average frequency and severity of the losses incurred.

Novato Fire Protection District - Workers' Compensation

Estimated Ultimate Program Losses

Accident Year	Reported Loss Development Method (A)	Paid Loss Development Method (B)	Exposure Method Based on Reported Losses (C)	Exposure Method Based on Paid Losses (D)	Frequency-Severity Method (E)	Selected Estimate of Ultimate Losses (F)
Prior	\$2,884,712	\$2,980,702			\$3,150,840	\$2,885,000
1997-1998	456,383	472,167			491,842	456,000
1998-1999	1,010,246	1,055,529			913,725	1,010,000
1999-2000	442,695	448,485			430,063	443,000
2000-2001	573,804	609,673			462,982	574,000
2001-2002	1,117,877	1,185,242			858,552	1,118,000
2002-2003	185,946	192,657			295,500	186,000
2003-2004	2,107,301	2,277,721			721,742	1,996,000
2004-2005	214,648	189,238			345,600	215,000
2005-2006	281,999	312,498	297,189	342,432	455,787	282,000
2006-2007	550,168	640,384	541,979	601,341	471,040	492,982
2007-2008	105,531	123,627	112,760	133,683	163,458	92,328
2008-2009	788,455	637,291	793,197	688,250	819,398	713,000
2009-2010	773,181	852,827	782,716	844,671	827,736	813,000
2010-2011	720,798	757,706	724,083	749,493	735,718	739,000
2011-2012	758,910	888,787	762,919	839,332	775,010	824,000
2012-2013	393,907	321,463	495,454	535,988	748,213	569,000
2013-2014	730,423	920,210	761,413	863,500	1,014,217	866,000
Totals						\$14,274,310

Notes:

- (A) From Appendix A, Page 1, Column (G).
- (B) From Appendix B, Page 1, Column (G).
- (C) From Appendix C, Page 1, Column (G).
- (D) From Appendix C, Page 2, Column (G).
- (E) From Appendix D, Page 1, Column (C).
- (F) Selected averages of (A), (B), (C), (D), and (E).
- (G) From Not Included, Page 1, Line (K).
- (H) From Not Included, Page 1, Line (K).

This exhibit summarizes the results of the actuarial methods we have applied to estimate ultimate losses for each year. It is important to apply a number of estimation methods because each one relies on specific assumptions about the claims process that tend to hold generally true, but that may be violated in specific situations. Thus, the more estimation methods that can be applied, the better.

Novato Fire Protection District - Workers' Compensation

Estimated Ultimate Limited Losses Capped at \$100,000 per Claim

Accident Year	Reported Loss Development Method (A)	Paid Loss Development Method (B)	Exposure Method Based on Reported Losses (C)	Exposure Method Based on Paid Losses (D)	Frequency-Severity Method (E)	Selected Ultimate Limited Losses (F)
Prior	\$2,502,026	\$2,471,460			\$2,502,010	\$2,502,000
1997-1998	374,528	365,019			374,998	375,000
1998-1999	698,565	706,174			691,641	691,649
1999-2000	323,057	300,078			322,989	323,000
2000-2001	345,329	339,179			344,994	345,000
2001-2002	625,410	614,119			622,992	625,000
2002-2003	180,987	168,636			180,990	181,000
2003-2004	446,511	454,345			435,209	435,196
2004-2005	204,900	160,998			205,000	205,000
2005-2006	266,289	260,993	266,312	261,189	266,004	266,000
2006-2007	280,696	286,375	280,426	285,564	270,411	270,420
2007-2008	96,298	98,237	96,113	97,867	92,322	92,328
2008-2009	460,806	437,826	460,631	439,142	455,009	455,000
2009-2010	452,683	450,002	452,498	450,250	452,010	452,000
2010-2011	394,896	334,820	394,986	341,467	394,991	380,000
2011-2012	400,608	433,590	401,267	429,898	408,994	409,000
2012-2013	254,464	196,396	266,346	230,856	388,240	254,000
2013-2014	427,514	454,057	425,440	444,191	504,861	438,000
Totals						\$8,699,593

Notes:

- (A) From Appendix A, Page 1, Column (D).
- (B) From Appendix B, Page 1, Column (D).
- (C) Based on results in Appendix C, Page 1.
- (D) Based on results in Appendix C, Page 2.
- (E) Based on results in Appendix D, Page 1.
- (F) Selected averages of (A), (B), (C), (D), and (E).
- (G) From Not Included, Page 1, Line (K) / Line (G).
- (H) From Not Included, Page 1, Line (K) / Line (G).

This exhibit summarizes the results of the actuarial methods we have applied to estimate limited losses for each year. These results are used to select a limited loss rate for future years.

Novato Fire Protection District - Workers' Compensation

Reported Loss Development

Accident Year (A)	Limited Reported Losses as of 6/30/17 (B)	Reported Loss Development Factor (C)	Ultimate Limited Losses (D)	Program Reported Losses of 6/30/17 (E)	Reported Loss Development Factor (F)	Ultimate Program Losses (G)
Prior	\$2,487,103	1.006	\$2,502,026	\$2,864,659	1.007	\$2,884,712
1997-1998	371,556	1.008	374,528	451,864	1.010	456,383
1998-1999	691,649	1.010	698,565	997,281	1.013	1,010,246
1999-2000	319,226	1.012	323,057	435,295	1.017	442,695
2000-2001	340,226	1.015	345,329	560,355	1.024	573,804
2001-2002	614,352	1.018	625,410	1,083,214	1.032	1,117,877
2002-2003	177,091	1.022	180,987	177,091	1.050	185,946
2003-2004	435,196	1.026	446,511	1,982,409	1.063	2,107,301
2004-2005	198,932	1.030	204,900	198,932	1.079	214,648
2005-2006	257,533	1.034	266,289	257,533	1.095	281,999
2006-2007	270,420	1.038	280,696	492,982	1.116	550,168
2007-2008	92,328	1.043	96,298	92,328	1.143	105,531
2008-2009	439,700	1.048	460,806	672,743	1.172	788,455
2009-2010	429,898	1.053	452,683	639,521	1.209	773,181
2010-2011	370,099	1.067	394,896	572,516	1.259	720,798
2011-2012	370,590	1.081	400,608	575,368	1.319	758,910
2012-2013	232,387	1.095	254,464	282,573	1.394	393,907
2013-2014	385,495	1.109	427,514	473,993	1.541	730,423
Totals	\$8,483,781		\$8,735,567	\$12,810,657		\$14,096,984

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Provided by the District. These losses exclude amounts over \$100,000 per occurrence.
- (C) From Appendix A, Page 2.
- (D) (B) x (C). These estimated losses exclude amounts over \$100,000 per occurrence.
- (E) Losses capped at the District's SIR. Amounts are provided by the District.
- (F) Derived from factors on Appendix A, Page 3.
- (G) (E) x (F).

This method tends to understate ultimate losses for the most recent several years because the large losses for those years generally have not yet emerged at the time of our review.

This exhibit shows the calculation of estimated ultimate losses for each year based on paid losses and case reserves as reported by the claims administrator. These losses tend to "develop" or change from period to period as more information becomes available about the cases. This development tends to follow quantifiable patterns over time.

Novato Fire Protection District - Workers' Compensation
Reported Loss Development

Accident Year	Limited Losses Reported as of:									
	12 Months	24 Months	36 Months	48 Months	60 Months	72 Months	84 Months	96 Months	108 Months	120 Months
1996-1997										
1997-1998										
1998-1999										
1999-2000										
2000-2001										336,295
2001-2002									602,305	602,316
2002-2003								155,191	155,323	177,069
2003-2004							435,196	435,196	435,196	435,196
2004-2005						149,253	175,956	194,071	198,520	198,520
2005-2006					263,285	252,997	258,685	263,457	263,457	263,457
2006-2007				199,119	199,163	195,834	191,002	269,969	270,420	270,420
2007-2008			90,329	103,531	101,166	92,328	92,328	92,328	92,328	92,328
2008-2009		251,445	320,622	316,228	334,158	406,082	417,360	439,700	439,700	
2009-2010	232,664	366,450	405,916	439,557	439,557	461,122	476,705	429,898		
2010-2011	83,426	313,206	322,614	327,175	324,006	370,099	370,099			
2011-2012	394,274	400,745	461,963	447,387	447,387	370,590				
2012-2013	143,788	205,320	196,673	232,387	232,387					
2013-2014	192,931	301,220	387,667	385,495						
2014-2015										
2015-2016										
2016-2017										

Reported Loss Development Factors:

	12-24 Months	24-36 Months	36-48 Months	48-60 Months	60-72 Months	72-84 Months	84-96 Months	96-108 Months	108-120 Months	120-132 Months
1996-1997										
1997-1998										
1998-1999										
1999-2000										
2000-2001										0.972
2001-2002									1.000	1.000
2002-2003								1.001	1.140	1.000
2003-2004							1.000	1.000	1.000	1.000
2004-2005						1.179	1.103	1.023	1.000	1.000
2005-2006					0.961	1.022	1.018	1.000	1.000	0.978
2006-2007				1.000	0.983	0.975	1.413	1.002	1.000	1.000
2007-2008			1.146	0.977	0.913	1.000	1.000	1.000	1.000	
2008-2009		1.275	0.986	1.057	1.215	1.028	1.054	1.000		
2009-2010	1.575	1.108	1.083	1.000	1.049	1.034	0.902			
2010-2011	3.754	1.030	1.014	0.990	1.142	1.000				
2011-2012	1.016	1.153	0.968	1.000	0.828					
2012-2013	1.428	0.958	1.182	1.000						
2013-2014	1.561	1.287	0.994							
2014-2015										
2015-2016										

	12-24 Months	24-36 Months	36-48 Months	48-60 Months	60-72 Months	72-84 Months	84-96 Months	96-108 Months	108-120 Months	120-132 Months
Average Dollar-Weighted Averages	1.867	1.135	1.053	1.003	1.013	1.034	1.070	1.004	1.020	0.993
3-yr			1.018	0.997	0.992	1.022	0.975	1.001	1.000	0.992
4-yr			1.017	0.998	1.041	1.020	1.046	1.000	1.000	0.995
Comparative Factors	1.470	1.120	1.025	1.015	1.010	1.010	1.009	1.008	1.007	1.006
Prior	1.550	1.130	1.045	1.015	1.013	1.013	1.013	1.008	1.007	1.006
Selected	1.550	1.130	1.043	1.013	1.013	1.013	1.013	1.005	1.005	1.005
Cumulated	2.026	1.307	1.157	1.109	1.095	1.081	1.067	1.053	1.048	1.043

Novato Fire Protection District - Workers' Compensation

Paid Loss Development

Accident Year (A)	Limited Paid Losses as of 6/30/17 (B)	Paid Loss Development Factor (C)	Ultimate Limited Losses (D)	Program Paid Losses of 6/30/17 (E)	Paid Loss Development Factor (F)	Ultimate Program Losses (G)
Prior	\$2,439,743	1.013	\$2,471,460	\$2,817,299	1.058	\$2,980,702
1997-1998	358,917	1.017	365,019	439,225	1.075	472,167
1998-1999	691,649	1.021	706,174	971,942	1.086	1,055,529
1999-2000	292,759	1.025	300,078	408,829	1.097	448,485
2000-2001	329,620	1.029	339,179	549,750	1.109	609,673
2001-2002	593,926	1.034	614,119	1,051,679	1.127	1,185,242
2002-2003	162,306	1.039	168,636	162,306	1.187	192,657
2003-2004	435,196	1.044	454,345	1,887,093	1.207	2,277,721
2004-2005	153,478	1.049	160,998	153,478	1.233	189,238
2005-2006	247,621	1.054	260,993	247,621	1.262	312,498
2006-2007	270,420	1.059	286,375	492,982	1.299	640,384
2007-2008	92,328	1.064	98,237	92,328	1.339	123,627
2008-2009	409,566	1.069	437,826	458,813	1.389	637,291
2009-2010	415,898	1.082	450,002	578,973	1.473	852,827
2010-2011	297,618	1.125	334,820	469,168	1.615	757,706
2011-2012	370,590	1.170	433,590	499,880	1.778	888,787
2012-2013	161,377	1.217	196,396	161,377	1.992	321,463
2013-2014	356,963	1.272	454,057	401,663	2.291	920,210
Totals	\$8,079,975		\$8,532,304	\$11,844,406		\$14,866,207

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Provided by the District. These losses exclude amounts over \$100,000 per occurrence.
- (C) From Appendix B, Page 2.
- (D) (B) x (C). These estimated losses exclude amounts over \$100,000 per occurrence.
- (E) Losses capped at the District's SIR. Amounts are provided by the District.
- (F) Derived from factors on Appendix B, Page 3.
- (G) (E) x (F).

This method tends to understate ultimate losses for the most recent several years because the large losses for those years generally have not yet emerged at the time of our review.

This exhibit shows the calculation of estimated ultimate losses for each year based on paid losses as reported by the claims administrator. These losses tend to "develop" or change from period to period as more information becomes available about the cases. This development tends to follow quantifiable patterns over time.

Novato Fire Protection District - Workers' Compensation
Paid Loss Development

Accident Year	Limited Losses Paid as of:									
	12 Months	24 Months	36 Months	48 Months	60 Months	72 Months	84 Months	96 Months	108 Months	120 Months
1996-1997										
1997-1998										
1998-1999										
1999-2000										
2000-2001										326,958
2001-2002									593,110	593,121
2002-2003								150,202	150,369	156,650
2003-2004							435,196	435,196	435,196	435,196
2004-2005						147,433	148,858	149,769	150,458	151,422
2005-2006					235,294	238,984	239,531	244,930	245,226	245,304
2006-2007				168,817	169,486	170,008	177,620	269,969	270,420	270,420
2007-2008			83,481	89,548	92,317	92,328	92,328	92,328	92,328	92,328
2008-2009		210,080	256,345	290,708	300,987	369,391	393,070	408,858	409,566	
2009-2010	124,420	310,072	383,196	384,354	385,613	396,044	415,883	415,898		
2010-2011	69,290	250,949	273,840	283,239	296,222	297,090	297,618			
2011-2012	204,347	308,818	317,510	365,887	369,577	370,590				
2012-2013	53,919	78,803	149,232	155,054	161,377					
2013-2014	132,066	238,979	321,932	356,963						
2014-2015										
2015-2016										
2016-2017										

Paid Loss Development Factors:

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132
	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months
1996-1997										
1997-1998										
1998-1999										
1999-2000										
2000-2001										1.000
2001-2002									1.000	1.000
2002-2003								1.001	1.042	1.002
2003-2004							1.000	1.000	1.000	1.000
2004-2005						1.010	1.006	1.005	1.006	1.001
2005-2006					1.016	1.002	1.023	1.001	1.000	1.004
2006-2007				1.004	1.003	1.045	1.520	1.002	1.000	1.000
2007-2008			1.073	1.031	1.000	1.000	1.000	1.000	1.000	
2008-2009		1.220	1.134	1.035	1.227	1.064	1.040	1.002		
2009-2010	2.492	1.236	1.003	1.003	1.027	1.050	1.000			
2010-2011	3.622	1.091	1.034	1.046	1.003	1.002				
2011-2012	1.511	1.028	1.152	1.010	1.003					
2012-2013	1.462	1.894	1.039	1.041						
2013-2014	1.810	1.347	1.109							
2014-2015										
2015-2016										

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132
	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months
Average Dollar-Weighted Averages	2.179	1.303	1.078	1.024	1.040	1.025	1.084	1.002	1.007	1.001
3-yr			1.113	1.029	1.012	1.041	1.018	1.002	1.000	1.002
4-yr			1.093	1.020	1.060	1.038	1.100	1.001	1.001	1.001
Comparative Factors										
Prior	2.500	1.400	1.170	1.090	1.050	1.033	1.020	1.015	1.012	1.010
Selected	2.150	1.300	1.100	1.050	1.050	1.050	1.050	1.015	1.010	1.010
Cumulated	2.150	1.300	1.100	1.045	1.040	1.040	1.040	1.012	1.005	1.005
	3.911	1.819	1.399	1.272	1.217	1.170	1.125	1.082	1.069	1.064

Novato Fire Protection District - Workers' Compensation

Exposure and Development Method
Based on Reported Losses

Accident Year	Trended Payroll (\$00) (A)	Reported Losses as of 6/30/17 (B)	Loss Development Factor (C)	Percentage of Losses Yet to Be Reported (D)	Program Rate (E)	Incurred but not Reported (IBNR) (F)	Ultimate Program Losses (G)
2005-2006	117,510	257,533	1.095	0.087	3.879	39,656	297,189
2006-2007	128,407	492,982	1.116	0.104	3.669	48,997	541,979
2007-2008	151,350	92,328	1.143	0.125	1.080	20,432	112,760
2008-2009	158,158	672,743	1.172	0.147	5.181	120,454	793,197
2009-2010	139,723	639,521	1.209	0.173	5.924	143,195	782,716
2010-2011	119,345	572,516	1.259	0.206	6.165	151,567	724,083
2011-2012	119,877	575,368	1.319	0.242	6.465	187,551	762,919
2012-2013	117,960	282,573	1.394	0.283	6.377	212,881	495,454
2013-2014	117,703	473,993	1.541	0.351	6.957	287,420	761,413
Totals	1,170,033	\$4,059,557				\$1,212,153	\$5,271,710

Notes:

- (A) From Appendix M, Column (C).
- (B) Provided by the District. These losses exclude amounts incurred above the District's SIR for each year.
- (C) From Appendix A, Page 1, Column (F).
- (D) $1 - 1/(C)$.
- (E) From Appendix C, Page 3, Column (H).
- (F) $(A) \times (D) \times (E)$.
- (G) $(B) + (F)$.

This exhibit shows the calculation of ultimate losses based on the assumption that there is an underlying relationship between losses and exposure that changes in regular ways over time. The method relies on the premise that the losses that are currently unreported will cost what this relationship would suggest.

Novato Fire Protection District - Workers' Compensation

Exposure and Development Method
Based on Paid Losses

Accident Year	Trended Payroll (\$00) (A)	Paid Losses as of 6/30/17 (B)	Loss Development Factor (C)	Percentage of Losses Yet to Be Paid (D)	Program Rate (E)	Incurred but not Paid (F)	Ultimate Program Losses (G)
2005-2006	117,510	247,621	1.262	0.208	3.879	94,811	342,432
2006-2007	128,407	492,982	1.299	0.230	3.669	108,359	601,341
2007-2008	151,350	92,328	1.339	0.253	1.080	41,355	133,683
2008-2009	158,158	458,813	1.389	0.280	5.181	229,437	688,250
2009-2010	139,723	578,973	1.473	0.321	5.924	265,698	844,671
2010-2011	119,345	469,168	1.615	0.381	6.165	280,325	749,493
2011-2012	119,877	499,880	1.778	0.438	6.465	339,452	839,332
2012-2013	117,960	161,377	1.992	0.498	6.377	374,611	535,988
2013-2014	117,703	401,663	2.291	0.564	6.957	461,837	863,500
Totals	1,170,033	\$3,402,805				\$2,195,885	\$5,598,690

Notes:

- (A) From Appendix M, Column (C).
- (B) Provided by the District. These losses exclude amounts paid above the District's SIR for each year.
- (C) From Appendix B, Page 1, Column (F).
- (D) $1 - 1/(C)$.
- (E) From Appendix C, Page 3, Column (H).
- (F) $(A) \times (D) \times (E)$.
- (G) $(B) + (F)$.

This exhibit shows the calculation of ultimate losses based on the assumption that there is an underlying relationship between losses and exposure that changes in regular ways over time. The method relies on the premise that the losses that are currently unpaid will cost what this relationship would suggest.

Novato Fire Protection District - Workers' Compensation

Exposure and Development Method

Accident Year	Trended Payroll (\$00) (A)	Ultimate Limited Losses (B)	Trend Factor (C)	Trended Limited Losses (D)	Trended Limited Loss Rate (E)	Limited Loss Rate (F)	Factor to SIR (G)	Program Loss Rate (H)
2005-2006	117,510	266,000	2.453	652,498	5.553	2.264	1.713	3.879
2006-2007	128,407	270,420	2.227	602,225	4.690	2.106	1.742	3.669
2007-2008	151,350	92,328	1.982	182,994	1.209	0.610	1.770	1.080
2008-2009	158,158	455,000	1.773	806,715	5.101	2.877	1.801	5.181
2009-2010	139,723	452,000	1.555	702,860	5.030	3.235	1.831	5.924
2010-2011	119,345	395,000	1.443	569,985	4.776	3.310	1.863	6.165
2011-2012	119,877	409,000	1.395	570,555	4.760	3.412	1.895	6.465
2012-2013	117,960	254,000	1.345	341,630	2.896	3.309	1.927	6.377
2013-2014	117,703	441,000	1.285	566,685	4.815	3.463	2.009	6.957
Total/Avg	1,170,033	\$3,034,748		\$4,996,147	\$4.270			
09/10-13/14	614,608	1,951,000		2,751,715	4.477			
10/11-13/14	474,885	1,499,000		2,048,855	4.314			
				Selected Limited Rate:	\$4.450			
				Prior:	\$4.500			

Notes:

- (A) From Appendix M, Column (C).
- (B) Selected average of results from Appendices A and B.
- (C) From Appendix E, Page 1, Column (B).
- (D) (B) x (C).
- (E) (D) / (A).
- (F) Selected Limited Rate / (C). For 2011-2012 and prior (B) / (A).
- (G) Based on a Weibull distribution, a mathematical model of claim sizes.
- (H) (F) x (G).

This exhibit shows the calculation of the underlying historical relationship between losses and exposure that is needed to apply the estimation methods shown on pages 1 and 2 of this Appendix.

Novato Fire Protection District - Workers' Compensation

Frequency and Severity Method

Accident Year	Ultimate Program Severity (A)	Adjusted Ultimate Claims (B)	Ultimate Program Losses (C)
Prior	\$10,164	310	\$3,150,840
1997-1998	18,917	26	491,842
1998-1999	29,475	31	913,725
1999-2000	13,873	31	430,063
2000-2001	17,807	26	462,982
2001-2002	35,773	24	858,552
2002-2003	9,850	30	295,500
2003-2004	23,282	31	721,742
2004-2005	17,280	20	345,600
2005-2006	16,881	27	455,787
2006-2007	20,480	23	471,040
2007-2008	9,081	18	163,458
2008-2009	35,626	23	819,398
2009-2010	31,836	26	827,736
2010-2011	38,722	19	735,718
2011-2012	40,790	19	775,010
2012-2013	32,531	23	748,213
2013-2014	34,973	29	1,014,217
Total		736	\$13,681,423

Notes:

- (A) From Appendix D, Page 2, Column (H).
- (B) From Appendix D, Page 2, Column (B).
- (C) (A) x (B).

This exhibit shows the calculation of the estimated ultimate losses for each year based on the observed average frequency and severity of claims.

Novato Fire Protection District - Workers' Compensation

Frequency and Severity Method

Accident Year	Ultimate Limited Losses (A)	Adjusted Ultimate Claims (B)	Ultimate Limited Severity (C)	Trend Factor (D)	Trended Limited Severity (E)	Limited Severity (F)	Factor to SIR (G)	Program Severity (H)
Prior	\$2,502,000	310	\$8,071	2.485	\$20,056	\$8,071	1.259	\$10,164
1997-1998	375,000	26	14,423	1.825	26,322	14,423	1.312	18,917
1998-1999	691,649	31	22,311	1.590	35,474	22,311	1.321	29,475
1999-2000	323,000	31	10,419	1.391	14,493	10,419	1.332	13,873
2000-2001	345,000	26	13,269	1.276	16,931	13,269	1.342	17,807
2001-2002	623,000	24	25,958	1.249	32,422	25,958	1.378	35,773
2002-2003	181,000	30	6,033	1.284	7,746	6,033	1.633	9,850
2003-2004	435,196	31	14,039	1.552	21,789	14,039	1.658	23,282
2004-2005	205,000	20	10,250	1.948	19,967	10,250	1.686	17,280
2005-2006	266,000	27	9,852	2.057	20,266	9,852	1.713	16,881
2006-2007	270,420	23	11,757	1.896	22,291	11,757	1.742	20,480
2007-2008	92,328	18	5,129	1.713	8,786	5,129	1.770	9,081
2008-2009	455,000	23	19,783	1.554	30,743	19,783	1.801	35,626
2009-2010	452,000	26	17,385	1.383	24,043	17,385	1.831	31,836
2010-2011	395,000	19	20,789	1.301	27,046	20,789	1.863	38,722
2011-2012	409,000	19	21,526	1.278	27,510	21,526	1.895	40,790
2012-2013	260,000	23	11,304	1.250	14,130	16,880	1.927	32,531
2013-2014	438,000	29	15,103	1.212	18,305	17,409	2.009	34,973

Average Limited Severity: \$21,573
Average 09/10-13/14 Limited Severity: 22,207
Average 11/12-13/14 Limited Severity: 19,982

Selected Limited Severity: \$21,100
Prior: \$21,600

Notes:

- (A) Selected average of results from Appendices A, B, and C.
- (B) Appendix D, Page 3, Column (C).
- (C) (A) / (B).
- (D) From Appendix E, Page 1, Column (J).
- (E) (C) x (D).
- (F) Selected Limited Severity / (D).
- (G) Based on a Weibull distribution, a mathematical model of claim sizes.
- (H) (F) x (G).

This exhibit shows the calculation of the historical average cost per claim, or severity. The observed average severity is used in the method shown on page 1 of this Appendix.

Novato Fire Protection District - Workers' Compensation

Frequency and Severity Method
Projection of Ultimate Claims

Accident Year	Reported Claim Development (A)	Closed Claim Development (B)	Selected Ultimate Claims (C)	Trended Payroll (\$000,000) (D)	Claim Frequency (E)	Trend Factor (F)	Trended Claim Frequency (G)
Prior	310	309	310	0.0		1.367	
1997-1998	26	25	26	0.0		1.346	
1998-1999	31	30	31	0.0		1.326	
1999-2000	31	29	31	0.0		1.307	
2000-2001	26	25	26	0.0		1.288	
2001-2002	24	22	24	0.0		1.269	
2002-2003	30	29	30	0.0		1.250	
2003-2004	31	30	31	0.0		1.232	
2004-2005	20	19	20	0.0		1.213	
2005-2006	27	26	27	11.8	2.298	1.195	2.746
2006-2007	23	23	23	12.8	1.791	1.178	2.110
2007-2008	18	18	18	15.1	1.189	1.161	1.380
2008-2009	23	21	23	15.8	1.454	1.144	1.663
2009-2010	26	25	26	14.0	1.861	1.126	2.095
2010-2011	19	17	19	11.9	1.592	1.110	1.767
2011-2012	19	18	19	12.0	1.585	1.094	1.734
2012-2013	23	23	23	11.8	1.950	1.078	2.102
2013-2014	29	30	29	11.8	2.464	1.061	2.614
Total	736	719	736	117.0			1.994
10/11-13/14	90	88	90	47.5			2.052
						(H) Selected Frequency:	2.100
						Prior:	2.000

Notes:

- (A) From Appendix D, Page 4, (C).
- (B) From Appendix D, Page 5, (C).
- (C) Selected from (A) and (B).
- (D) From Appendix M, Column (C) / 10,000.
- (E) (C) / (D).
- (F) From Appendix E, Page 1, Column (H).
- (G) (E) x (F).
- (H) The selected frequency of 2.100 is based on (G).
- (I) From Appendix E, Page 1, Column (H).
- (J) (H) x (I).
- (K) From Appendix M, Column (C) / 10,000.
- (L) (J) x (K).

This exhibit summarizes the estimated numbers of claims and shows the estimated frequencies per \$1,000,000 of trended payroll.

Novato Fire Protection District - Workers' Compensation

Frequency and Severity Method
Reported Claim Count Development

Accident Year	Claims Reported as of 6/30/2017 (A)	Reported Claim Development Factor (B)	Ultimate Claims (C)	Trended Claim Frequency (D)
Prior	310	1.000	310	
1997-1998	26	1.000	26	
1998-1999	31	1.000	31	
1999-2000	31	1.000	31	
2000-2001	26	1.000	26	
2001-2002	24	1.000	24	
2002-2003	30	1.000	30	
2003-2004	31	1.000	31	
2004-2005	20	1.000	20	
2005-2006	27	1.000	27	2.746
2006-2007	23	1.000	23	2.110
2007-2008	18	1.000	18	1.381
2008-2009	23	1.000	23	1.664
2009-2010	26	1.000	26	2.095
2010-2011	19	1.001	19	1.767
2011-2012	19	1.002	19	1.734
2012-2013	23	1.004	23	2.102
2013-2014	29	1.007	29	2.614
Total	736		736	1.994

Notes:

- (A) Provided by the District.
- (B) From Appendix D, Page 6.
- (C) (A) x (B).
- (D) (C) / [Appendix D, Page 3, (D)] x [Appendix D, Page 3, (F)].

This exhibit shows the calculation of estimated ultimate claims for each year based on reported claims as provided by the District. These numbers of claims tend to "develop" or change from period to period as more claims are filed. This development tends to follow quantifiable patterns over time.

Novato Fire Protection District - Workers' Compensation

Frequency and Severity Method
Closed Claim Count Development

Accident Year	Claims Closed as of 6/30/2017 (A)	Closed Claim Development Factor (B)	Ultimate Claims (C)	Trended Claim Frequency (D)
Prior	307	1.005	309	
1997-1998	25	1.006	25	
1998-1999	30	1.007	30	
1999-2000	29	1.008	29	
2000-2001	25	1.009	25	
2001-2002	22	1.010	22	
2002-2003	29	1.011	29	
2003-2004	30	1.012	30	
2004-2005	19	1.013	19	
2005-2006	26	1.015	26	2.644
2006-2007	23	1.018	23	2.110
2007-2008	18	1.022	18	1.381
2008-2009	20	1.027	21	1.519
2009-2010	24	1.035	25	2.015
2010-2011	16	1.045	17	1.581
2011-2012	17	1.061	18	1.643
2012-2013	21	1.088	23	2.102
2013-2014	27	1.121	30	2.704
Total	708		719	1.935

Notes:

- (A) Provided by the District.
- (B) From Appendix D, Page 7.
- (C) (A) x (B).
- (D) (C) / [Appendix D, Page 3, (D)] x [Appendix D, Page 3, (F)].

This exhibit shows the calculation of estimated ultimate claims for each year based on closed claims as provided by the District. These numbers of closed claims tend to "develop" or change from period to period as more claims are closed. This development tends to follow quantifiable patterns over time.

Novato Fire Protection District - Workers' Compensation
Reported Claim Count Development

Accident Year	Claims Reported as of:												
	12 Months	24 Months	36 Months	48 Months	60 Months	72 Months	84 Months	96 Months	108 Months	120 Months	132 Months	144 Months	156 Months
1996-1997													
1997-1998													28
1998-1999												34	34
1999-2000											31	31	31
2000-2001										28	28	28	28
2001-2002									25	25	25	25	24
2002-2003								30	30	30	30	30	30
2003-2004							35	35	35	35	31	31	31
2004-2005						25	25	25	25	20	20	20	20
2005-2006					29	29	29	29	27	27	27	27	
2006-2007				24	24	25	25	23	23	23	23		
2007-2008			20	20	20	20	18	18	18	18			
2008-2009		22	22	23	23	23	23	23	23				
2009-2010	24	26	26	27	26	26	26	26					
2010-2011	24	25	25	19	19	19	19						
2011-2012	23	24	19	19	19	19							
2012-2013	21	23	23	23	23								
2013-2014	28	28	29	29									
2014-2015													
2015-2016													
2016-2017													

Reported Claim Count Development Factors:

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168
	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months
1996-1997													
1997-1998													1.000
1998-1999												1.000	1.000
1999-2000											1.000	1.000	1.000
2000-2001										1.000	1.000	1.000	0.929
2001-2002									1.000	1.000	1.000	0.960	1.000
2002-2003								1.000	1.000	1.000	1.000	1.000	1.000
2003-2004							1.000	1.000	1.000	0.886	1.000	1.000	1.000
2004-2005						1.000	1.000	1.000	0.800	1.000	1.000	1.000	
2005-2006					1.000	1.000	1.000	0.931	1.000	1.000	1.000		
2006-2007				1.000	1.042	1.000	0.920	1.000	1.000	1.000			
2007-2008			1.000	1.000	1.000	0.900	1.000	1.000	1.000				
2008-2009		1.000	1.045	1.000	1.000	1.000	1.000	1.000					
2009-2010	1.083	1.000	1.038	0.963	1.000	1.000	1.000						
2010-2011	1.042	1.000	0.760	1.000	1.000	1.000							
2011-2012	1.043	0.792	1.000	1.000	1.000								
2012-2013	1.095	1.000	1.000	1.000									
2013-2014	1.000	1.036	1.000										
2014-2015													
2015-2016													

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168
	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months
Average Claim-Weighted Averages	1.053	0.971	0.978	0.995	1.006	0.986	0.989	0.990	0.971	0.984	1.000	0.994	0.990
3-yr			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4-yr			0.938	0.989	1.000	0.977	0.978	0.978	0.946	0.962	1.000	0.991	0.982
Comparative Factors													
Prior	1.100	1.007	1.004	1.003	1.002	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000
Selected	1.080	1.007	1.004	1.003	1.002	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000
Cumulated	1.099	1.018	1.011	1.007	1.004	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000

Novato Fire Protection District - Workers' Compensation
Closed Claim Development

Accident Year	Claims Closed as of:												
	12 Months	24 Months	36 Months	48 Months	60 Months	72 Months	84 Months	96 Months	108 Months	120 Months	132 Months	144 Months	156 Months
1996-1997													
1997-1998													26
1998-1999												33	33
1999-2000											31	31	31
2000-2001										27	28	28	28
2001-2002									22	23	23	23	22
2002-2003								29	29	29	29	29	29
2003-2004							32	32	32	32	30	30	30
2004-2005						24	24	24	24	19	19	19	19
2005-2006					27	27	27	28	26	26	26	26	
2006-2007				21	21	23	24	22	23	23	23		
2007-2008			18	18	19	20	18	18	18	18			
2008-2009		19	19	20	20	21	20	20	20				
2009-2010	17	21	22	24	23	23	23	24					
2010-2011	19	20	21	15	16	16	16						
2011-2012	11	19	13	14	14	17							
2012-2013	15	19	21	21	21								
2013-2014	23	23	24	27									
2014-2015													
2015-2016													
2016-2017													

Closed Claim Count Development Factors:

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168
	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months	Months
1996-1997													
1997-1998													1.000
1998-1999												1.000	1.000
1999-2000											1.000	1.000	0.968
2000-2001										1.037	1.000	1.000	0.893
2001-2002									1.045	1.000	1.000	0.957	1.000
2002-2003								1.000	1.000	1.000	1.000	1.000	1.000
2003-2004							1.000	1.000	1.000	0.938	1.000	1.000	1.000
2004-2005					1.000	1.000	1.000	1.000	0.792	1.000	1.000	1.000	
2005-2006					1.000	1.000	1.037	0.929	1.000	1.000	1.000		
2006-2007				1.000	1.095	1.043	0.917	1.045	1.000	1.000			
2007-2008			1.000	1.056	1.053	0.900	1.000	1.000	1.000				
2008-2009		1.000	1.053	1.000	1.050	0.952	1.000	1.000					
2009-2010	1.235	1.048	1.091	0.958	1.000	1.000	1.043						
2010-2011	1.053	1.050	0.714	1.067	1.000	1.000							
2011-2012	1.727	0.684	1.077	1.000	1.214								
2012-2013	1.267	1.105	1.000	1.000									
2013-2014	1.000	1.043	1.125										
2014-2015													
2015-2016													
Average Claim-Weighted Averages	1.256	0.988	1.009	1.012	1.059	0.985	1.000	0.996	0.977	0.996	1.000	0.994	0.980
3-yr			1.069	1.020	1.057	0.983	1.016	1.017	1.000	1.000	1.000	1.000	1.000
4-yr			0.975	1.000	1.055	0.963	0.988	0.989	0.945	0.980	1.000	0.990	0.972
Comparative Factors	1.600	1.080	1.050	1.030	1.025	1.015	1.010	1.008	1.005	1.004	1.003	1.002	1.001
Prior	1.550	1.080	1.050	1.030	1.025	1.015	1.010	1.008	1.005	1.004	1.003	1.002	1.001
Selected	1.550	1.080	1.050	1.030	1.025	1.015	1.010	1.008	1.005	1.004	1.003	1.002	1.001
Cumulated	1.970	1.271	1.177	1.121	1.088	1.061	1.045	1.035	1.027	1.022	1.018	1.015	1.013

Novato Fire Protection District - Workers' Compensation

Loss Trend Factors

Accident Year	Benefit Level Factor (A)	Factor to 2017-2018 Loss Rate Level (B)	Factor to 2018-2019 Loss Rate Level (C)	Factor to 2019-2020 Loss Rate Level (D)	Factor to 2020-2021 Loss Rate Level (E)	Factor to 2017-2018 Frequency Level (F)	Factor to 2018-2019 Frequency Level (G)	Factor to 2019-2020 Frequency Level (H)	Factor to 2020-2021 Frequency Level (I)	Factor to 2017-2018 Severity Level (J)
Prior	1.480	3.377	3.511	3.653	3.799	1.367	1.386	1.407	1.428	2.485
1997-1998	1.114	2.444	2.541	2.644	2.749	1.346	1.366	1.386	1.407	1.825
1998-1999	0.995	2.097	2.181	2.269	2.360	1.326	1.346	1.366	1.386	1.590
1999-2000	0.892	1.809	1.881	1.957	2.035	1.307	1.326	1.346	1.366	1.391
2000-2001	0.839	1.635	1.700	1.768	1.839	1.288	1.307	1.326	1.346	1.276
2001-2002	0.841	1.578	1.640	1.706	1.775	1.269	1.287	1.306	1.326	1.249
2002-2003	0.887	1.599	1.663	1.730	1.799	1.250	1.268	1.287	1.306	1.284
2003-2004	1.099	1.904	1.980	2.060	2.142	1.232	1.250	1.268	1.287	1.552
2004-2005	1.414	2.357	2.450	2.549	2.651	1.213	1.231	1.249	1.268	1.948
2005-2006	1.530	2.453	2.550	2.653	2.759	1.195	1.213	1.231	1.249	2.057
2006-2007	1.445	2.227	2.316	2.409	2.506	1.178	1.195	1.213	1.231	1.896
2007-2008	1.338	1.982	2.061	2.144	2.230	1.161	1.178	1.195	1.213	1.713
2008-2009	1.244	1.773	1.843	1.918	1.994	1.144	1.160	1.177	1.195	1.554
2009-2010	1.135	1.555	1.617	1.682	1.750	1.126	1.143	1.160	1.177	1.383
2010-2011	1.095	1.443	1.500	1.560	1.623	1.110	1.126	1.143	1.160	1.301
2011-2012	1.102	1.395	1.451	1.510	1.570	1.094	1.110	1.126	1.143	1.278
2012-2013	1.104	1.345	1.398	1.455	1.513	1.078	1.093	1.109	1.126	1.250
2013-2014	1.098	1.285	1.336	1.390	1.446	1.061	1.077	1.093	1.109	1.212
2014-2015	1.064	1.197	1.245	1.295	1.347	1.046	1.061	1.077	1.093	1.146
2015-2016	1.023	1.107	1.151	1.198	1.245	1.031	1.046	1.061	1.077	1.076
2016-2017	1.003	1.043	1.084	1.128	1.173	1.015	1.030	1.045	1.061	1.028
2017-2018	1.000	1.000	1.040	1.082	1.125	1.000	1.015	1.030	1.045	1.000
2018-2019	1.000	--	1.000	1.040	1.082	--	1.000	1.015	1.030	--
2019-2020	1.000	--	--	1.000	1.040	--	--	1.000	1.015	--
2020-2021	1.000	--	--	--	1.000	--	--	--	1.000	--

Notes:

- (A) Based on WCIRB.
- (B) - (E) (A) adjusted for a 4.0% annual loss rate trend.
- (F) - (I) (A) adjusted for a 1.5% annual frequency trend.
- (J) (A) adjusted for a 2.5% annual severity trend.

This exhibit shows the calculation of the ways in which we expect claims costs to have changed over the past twenty years due to changes in statutory workers' compensation benefit levels and changes in actual claims costs in excess of changes in payroll. Changes in the ways in which claims are filed as a result of greater awareness of workers' compensation benefits are not generally reflected in the statutory benefit level factors shown above, but may be part of the reason for changes in actual claims costs in excess of payroll changes.

Novato Fire Protection District - Workers' Compensation

Residual Trend Factors

Accident Year	Initial Estimate of Ultimate Limited Losses (A)	Ultimate Reported Claims (B)	BLF (C)	Adjusted Limited Severity (D)	Trended Payroll (\$00) (E)	Ultimate Frequency (F)
Prior	\$2,502,000	310	1.480	11,948		
1997-1998	375,000	26	1.114	16,074		
1998-1999	691,649	31	0.995	22,195		
1999-2000	323,000	31	0.892	9,296		
2000-2001	345,000	26	0.839	11,128		
2001-2002	623,000	24	0.841	21,844		
2002-2003	181,000	30	0.887	5,353		
2003-2004	435,196	31	1.099	15,423		
2004-2005	205,000	20	1.414	14,493		
2005-2006	266,000	27	1.530	15,077	117,510	2.298
2006-2007	270,420	23	1.445	16,990	128,407	1.791
2007-2008	92,328	18	1.338	6,862	151,350	1.189
2008-2009	455,000	23	1.244	24,613	158,158	1.454
2009-2010	452,000	26	1.135	19,738	139,723	1.861
2010-2011	395,000	19	1.095	22,766	119,345	1.592
2011-2012	409,000	19	1.102	23,715	119,877	1.585
2012-2013	254,000	23	1.104	12,195	117,960	1.950
2013-2014	441,000	29	1.098	16,697	117,703	2.464
2014-2015		0	1.064			
2015-2016		0	1.023			
2016-2017		0	1.003			

	<u>Severity Trend Factors</u>	<u>Frequency Trend Factors</u>
Latest 9	1.031	1.020
Latest 5	0.909	1.079
Prior	1.030	1.010
Default	1.025	0.980

Selected Residual Trend 1.025 1.015

Notes:

- (A) Selected average of results from Appendix A and Appendix B.
- (B) Appendix D, Page 3, Column (C).
- (C) Appendix E, Page 1, (A).
- (D) $(A) \times (C) / (B)$.
- (E) From Appendix M, Column (C).
- (F) $(B) / (E) \times 10,000$.

Novato Fire Protection District - Workers' Compensation

Outstanding Liability for
Unallocated Loss Adjustment Expenses
as of 6/30/17

Fiscal Year (A)	Number of Claims Active During Fiscal Year (B)	Average ULAE Charge per Active Claim (C)	Inflation Trend Factor (D)	Trended ULAE Charge per Active Claim (E)	ULAE Paid During Year (F)
2017-2018	24.0	\$1,635	1.000	\$1,635	\$39,240
2018-2019	17.2	1,635	1.050	1,717	29,532
2019-2020	13.4	1,635	1.103	1,803	24,160
2020-2021	9.8	1,635	1.158	1,893	18,551
2021-2022	7.5	1,635	1.216	1,988	14,910
2022-2023	6.0	1,635	1.277	2,088	12,528
2023-2024	4.8	1,635	1.341	2,193	10,526
2024-2025	3.8	1,635	1.408	2,302	8,748
2025-2026	3.5	1,635	1.478	2,417	8,460
2026-2027	3.3	1,635	1.552	2,538	8,375
2027-2028	2.0	1,635	1.630	2,665	5,330
2028-2029	1.5	1,635	1.712	2,799	4,199
2029-2030	1.0	1,635	1.798	2,940	2,940
2030-2031	0.6	1,635	1.888	3,087	1,852
2031-2032	0.3	1,635	1.982	3,241	972
2032-2033	0.0	1,635	2.081	3,402	0
2033-2034	0.0	1,635	2.185	3,572	0
2034-2035	0.0	1,635	2.294	3,751	0

(G) Total ULAE Outstanding as of 6/30/17: \$190,323

Notes:

- (A) We assume fiscal years will be 7/1 to 6/30.
- (B) Based on an estimated claim closing pattern.
- (C) Based on claims administration payment information provided by the District.
- (D) We assume ULAE costs will increase at 5.0% per year.
- (E) (C) x (D).
- (F) (B) x (E).
- (G) Total of Column (F).

This exhibit shows the calculation of the outstanding ULAE based on the expected pattern of claims closings and assumptions about future claims administration costs per open claim.

Novato Fire Protection District - Workers' Compensation

Outstanding Liability for
Unallocated Loss Adjustment Expenses
as of 6/30/18

Fiscal Year (A)	Number of Claims Active During Fiscal Year (B)	Average ULAE Charge per Active Claim (C)	Inflation Trend Factor (D)	Trended ULAE Charge per Active Claim (E)	ULAE Paid During Year (F)
2018-2019	17.2	\$1,635	1.050	\$1,717	\$29,532
2019-2020	13.4	1,635	1.103	1,803	24,160
2020-2021	9.8	1,635	1.158	1,893	18,551
2021-2022	7.5	1,635	1.216	1,988	14,910
2022-2023	6.0	1,635	1.277	2,088	12,528
2023-2024	4.8	1,635	1.341	2,193	10,526
2024-2025	3.8	1,635	1.408	2,302	8,748
2025-2026	3.5	1,635	1.478	2,417	8,460
2026-2027	3.3	1,635	1.552	2,538	8,375
2027-2028	2.0	1,635	1.630	2,665	5,330
2028-2029	1.5	1,635	1.712	2,799	4,199
2029-2030	1.0	1,635	1.798	2,940	2,940
2030-2031	0.6	1,635	1.888	3,087	1,852
2031-2032	0.3	1,635	1.982	3,241	972
2032-2033	0.0	1,635	2.081	3,402	0
2033-2034	0.0	1,635	2.185	3,572	0
2034-2035	0.0	1,635	2.294	3,751	0
2035-2036	0.0	1,635	2.409	3,939	0
(G) Total ULAE Outstanding as of 6/30/18:					\$151,083

Notes:

- (A) We assume fiscal years will be 7/1 to 6/30.
- (B) Based on an estimated claim closing pattern.
- (C) Based on claims administration payment information provided by the District.
- (D) We assume ULAE costs will increase at 5.0% per year.
- (E) (C) x (D).
- (F) (B) x (E).
- (G) Total of Column (F).

This exhibit shows the calculation of the outstanding ULAE based on the expected pattern of claims closings and assumptions about future claims administration costs per open claim.

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

<u>Accident Year</u>	<u>As of</u> <u>6/30/2017</u>	<u>Calendar Period</u>	
		<u>7/1/2017</u> <u>to</u> <u>6/30/2018</u>	<u>7/1/2018</u> <u>to</u> <u>6/30/2019</u>
Prior			
Ultimate Loss	\$5,368,000	\$5,368,000	\$5,368,000
Paid in Calendar Period	-	23,982	23,512
Paid to Date	5,187,045	5,211,027	5,234,539
Outstanding Liability	180,955	156,973	133,461
2001-2002			
Ultimate Loss	\$1,118,000	\$1,118,000	\$1,118,000
Paid in Calendar Period	-	8,489	5,783
Paid to Date	1,051,679	1,060,168	1,065,951
Outstanding Liability	66,321	57,832	52,049
2002-2003			
Ultimate Loss	\$186,000	\$186,000	\$186,000
Paid in Calendar Period	-	6,753	2,168
Paid to Date	162,306	169,059	171,227
Outstanding Liability	23,694	16,941	14,773
2003-2004			
Ultimate Loss	\$1,996,000	\$1,996,000	\$1,996,000
Paid in Calendar Period	-	8,821	28,525
Paid to Date	1,887,093	1,895,914	1,924,439
Outstanding Liability	108,907	100,086	71,561
2004-2005			
Ultimate Loss	\$215,000	\$215,000	\$215,000
Paid in Calendar Period	-	5,660	4,525
Paid to Date	153,478	159,138	163,663
Outstanding Liability	61,522	55,862	51,337
2005-2006			
Ultimate Loss	\$282,000	\$282,000	\$282,000
Paid in Calendar Period	-	3,094	2,878
Paid to Date	247,621	250,715	253,593
Outstanding Liability	34,379	31,285	28,407
2006-2007			
Ultimate Loss	\$492,982	\$492,982	\$492,982
Paid in Calendar Period	-	-	-
Paid to Date	492,982	492,982	492,982
Outstanding Liability	-	-	-
2007-2008			
Ultimate Loss	\$92,328	\$92,328	\$92,328
Paid in Calendar Period	-	-	-
Paid to Date	92,328	92,328	92,328
Outstanding Liability	-	-	-

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

<u>Accident Year</u>	<u>As of</u> <u>6/30/2017</u>	<u>Calendar Period</u>	
		<u>7/1/2017</u> <u>to</u> <u>6/30/2018</u>	<u>7/1/2018</u> <u>to</u> <u>6/30/2019</u>
2008-2009			
Ultimate Loss	\$713,000	\$713,000	\$713,000
Paid in Calendar Period	-	24,402	20,910
Paid to Date	458,813	483,215	504,125
Outstanding Liability	254,187	229,785	208,875
2009-2010			
Ultimate Loss	\$813,000	\$813,000	\$813,000
Paid in Calendar Period	-	29,955	19,591
Paid to Date	578,973	608,928	628,519
Outstanding Liability	234,027	204,072	184,481
2010-2011			
Ultimate Loss	\$739,000	\$739,000	\$739,000
Paid in Calendar Period	-	42,364	29,116
Paid to Date	469,168	511,532	540,648
Outstanding Liability	269,832	227,468	198,352
2011-2012			
Ultimate Loss	\$824,000	\$824,000	\$824,000
Paid in Calendar Period	-	42,136	44,271
Paid to Date	499,880	542,016	586,287
Outstanding Liability	324,120	281,984	237,713
2012-2013			
Ultimate Loss	\$569,000	\$569,000	\$569,000
Paid in Calendar Period	-	49,322	46,579
Paid to Date	161,377	210,699	257,278
Outstanding Liability	407,623	358,301	311,722
2013-2014			
Ultimate Loss	\$866,000	\$866,000	\$866,000
Paid in Calendar Period	-	53,863	49,667
Paid to Date	401,663	455,526	505,193
Outstanding Liability	464,337	410,474	360,807

Novato Fire Protection District - Workers' Compensation
Payment and Reserve Forecast

<u>Accident Year</u>	<u>As of</u> <u>6/30/2017</u>	<u>Calendar Period</u>	
		<u>7/1/2017</u> <u>to</u> <u>6/30/2018</u>	<u>7/1/2018</u> <u>to</u> <u>6/30/2019</u>
Totals			
Ultimate Loss	\$14,274,310	\$14,274,310	\$14,274,310
Paid in Calendar Period	-	298,841	277,525
Paid to Date	11,844,406	12,143,247	12,420,772
Outstanding Liability	2,429,904	2,131,063	1,853,538
Total Outstanding ULAE	190,323	151,083	121,551
Outstanding Liability plus ULAE	2,620,227	2,282,146	1,975,089

Notes appear on the next page.

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

Notes to previous page:

- Accident Year is associated with date of loss. Calendar Period is associated with date of transaction. For example, for the losses which occurred during 2015-2016, \$0 is expected to be paid between 7/1/17 and 6/30/18, \$0 will have been paid by 6/30/18, and the reserve for remaining payments on these claims should be \$0.
- Ultimate Losses for each accident year are from Exhibit 3, Page 1.
- Paid in Calendar Period is a proportion of the Outstanding Liability from the previous calendar period. These proportions are derived from the paid loss development pattern selected in Appendix B. For example, $\$0 = \$0 \times 10.8\%$.
- Paid to Date is Paid in Calendar Period plus Paid to Date from previous calendar period. For example, $\$0 = \$0 + \$0$.
- Outstanding Liability is Ultimate Loss minus Paid to Date. For example, $\$0 = \$0 - \$0$.

This exhibit shows the calculation of the liability for outstanding claims as of the date of evaluation, the end of the current fiscal year, and the end of the coming fiscal year. It also shows the expected claims payout during the remainder of the current fiscal year and the coming fiscal year. Refer to the Totals at the end of the exhibit for the balance sheet information. The top parts of the exhibit show information for each program year.

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

Accident Year	Calendar Period										
	As of 6/30/2017	7/1/2017 to 6/30/2018	7/1/2018 to 6/30/2019	7/1/2019 to 6/30/2020	7/1/2020 to 6/30/2021	7/1/2021 to 6/30/2022	7/1/2022 to 6/30/2023	7/1/2023 to 6/30/2024	7/1/2024 to 6/30/2025	7/1/2025 to 6/30/2026	7/1/2026 to 6/30/2027
Prior											
Ultimate Loss	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000	\$5,368,000
Paid in Calendar Period	-	23,982	23,512	18,654	16,645	14,460	12,358	10,574	9,020	7,691	6,558
Paid to Date	5,187,045	5,211,027	5,234,539	5,253,193	5,269,838	5,284,298	5,296,656	5,307,230	5,316,250	5,323,941	5,330,499
Undiscounted Outstanding Liability	180,955	156,973	133,461	114,807	98,162	83,702	71,344	60,770	51,750	44,059	37,501
2001-2002											
Ultimate Loss	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000	\$1,118,000
Paid in Calendar Period	-	8,489	5,783	5,413	5,550	5,444	5,204	4,474	3,817	3,278	2,793
Paid to Date	1,051,679	1,060,168	1,065,951	1,071,364	1,076,914	1,082,358	1,087,562	1,092,036	1,095,853	1,099,131	1,101,924
Undiscounted Outstanding Liability	66,321	57,832	52,049	46,636	41,086	35,642	30,438	25,964	22,147	18,869	16,076
2002-2003											
Ultimate Loss	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000
Paid in Calendar Period	-	6,753	2,168	1,714	1,358	1,392	1,366	1,306	1,123	958	822
Paid to Date	162,306	169,059	171,227	172,941	174,299	175,691	177,057	178,363	179,486	180,444	181,266
Undiscounted Outstanding Liability	23,694	16,941	14,773	13,059	11,701	10,309	8,943	7,637	6,514	5,556	4,734
2003-2004											
Ultimate Loss	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000	\$1,996,000
Paid in Calendar Period	-	8,821	28,525	9,160	7,239	5,737	5,882	5,769	5,515	4,742	4,045
Paid to Date	1,887,093	1,895,914	1,924,439	1,933,599	1,940,838	1,946,575	1,952,457	1,958,226	1,963,741	1,968,483	1,972,528
Undiscounted Outstanding Liability	108,907	100,086	71,561	62,401	55,162	49,425	43,543	37,774	32,259	27,517	23,472
2004-2005											
Ultimate Loss	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000
Paid in Calendar Period	-	5,660	4,525	14,631	4,698	3,713	2,943	3,017	2,959	2,829	2,432
Paid to Date	153,478	159,138	163,663	178,294	182,992	186,705	189,648	192,665	195,624	198,453	200,885
Undiscounted Outstanding Liability	61,522	55,862	51,337	36,706	32,008	28,295	25,352	22,335	19,376	16,547	14,115
2005-2006											
Ultimate Loss	\$282,000	\$282,000	\$282,000	\$282,000	\$282,000	\$282,000	\$282,000	\$282,000	\$282,000	\$282,000	\$282,000
Paid in Calendar Period	-	3,094	2,878	2,301	7,440	2,389	1,888	1,496	1,534	1,505	1,439
Paid to Date	247,621	250,715	253,593	255,894	263,334	265,723	267,611	269,107	270,641	272,146	273,585
Undiscounted Outstanding Liability	34,379	31,285	28,407	26,106	18,666	16,277	14,389	12,893	11,359	9,854	8,415

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

Accident Year	Calendar Period										
	As of 6/30/2017	7/1/2017 to 6/30/2018	7/1/2018 to 6/30/2019	7/1/2019 to 6/30/2020	7/1/2020 to 6/30/2021	7/1/2021 to 6/30/2022	7/1/2022 to 6/30/2023	7/1/2023 to 6/30/2024	7/1/2024 to 6/30/2025	7/1/2025 to 6/30/2026	7/1/2026 to 6/30/2027
2006-2007											
Ultimate Loss	\$492,982	\$492,982	\$492,982	\$492,982	\$492,982	\$492,982	\$492,982	\$492,982	\$492,982	\$492,982	\$492,982
Paid in Calendar Period	-										
Paid to Date	492,982	492,982	492,982	492,982	492,982	492,982	492,982	492,982	492,982	492,982	492,982
Undiscounted Outstanding Liability											
2007-2008											
Ultimate Loss	\$92,328	\$92,328	\$92,328	\$92,328	\$92,328	\$92,328	\$92,328	\$92,328	\$92,328	\$92,328	\$92,328
Paid in Calendar Period	-										
Paid to Date	92,328	92,328	92,328	92,328	92,328	92,328	92,328	92,328	92,328	92,328	92,328
Undiscounted Outstanding Liability											
2008-2009											
Ultimate Loss	\$713,000	\$713,000	\$713,000	\$713,000	\$713,000	\$713,000	\$713,000	\$713,000	\$713,000	\$713,000	\$713,000
Paid in Calendar Period	-	24,402	20,910	20,470	17,898	15,687	12,540	40,550	13,021	10,290	8,156
Paid to Date	458,813	483,215	504,125	524,595	542,493	558,180	570,720	611,270	624,291	634,581	642,737
Undiscounted Outstanding Liability	254,187	229,785	208,875	188,405	170,507	154,820	142,280	101,730	88,709	78,419	70,263
2009-2010											
Ultimate Loss	\$813,000	\$813,000	\$813,000	\$813,000	\$813,000	\$813,000	\$813,000	\$813,000	\$813,000	\$813,000	\$813,000
Paid in Calendar Period	-	29,955	19,591	16,788	16,434	14,370	12,594	10,068	32,555	10,454	8,261
Paid to Date	578,973	608,928	628,519	645,307	661,741	676,111	688,705	698,773	731,328	741,782	750,043
Undiscounted Outstanding Liability	234,027	204,072	184,481	167,693	151,259	136,889	124,295	114,227	81,672	71,218	62,957
2010-2011											
Ultimate Loss	\$739,000	\$739,000	\$739,000	\$739,000	\$739,000	\$739,000	\$739,000	\$739,000	\$739,000	\$739,000	\$739,000
Paid in Calendar Period	-	42,364	29,116	19,042	16,317	15,973	13,967	12,241	9,786	31,642	10,161
Paid to Date	469,168	511,532	540,648	559,690	576,007	591,980	605,947	618,188	627,974	659,616	669,777
Undiscounted Outstanding Liability	269,832	227,468	198,352	179,310	162,993	147,020	133,053	120,812	111,026	79,384	69,223
2011-2012											
Ultimate Loss	\$824,000	\$824,000	\$824,000	\$824,000	\$824,000	\$824,000	\$824,000	\$824,000	\$824,000	\$824,000	\$824,000
Paid in Calendar Period	-	42,136	44,271	30,427	19,899	17,052	16,693	14,596	12,792	10,227	33,068
Paid to Date	499,880	542,016	586,287	616,714	636,613	653,665	670,358	684,954	697,746	707,973	741,041
Undiscounted Outstanding Liability	324,120	281,984	237,713	207,286	187,387	170,335	153,642	139,046	126,254	116,027	82,959

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

Accident Year	Calendar Period										
	As of 6/30/2017	7/1/2017 to 6/30/2018	7/1/2018 to 6/30/2019	7/1/2019 to 6/30/2020	7/1/2020 to 6/30/2021	7/1/2021 to 6/30/2022	7/1/2022 to 6/30/2023	7/1/2023 to 6/30/2024	7/1/2024 to 6/30/2025	7/1/2025 to 6/30/2026	7/1/2026 to 6/30/2027
2012-2013											
Ultimate Loss	\$569,000	\$569,000	\$569,000	\$569,000	\$569,000	\$569,000	\$569,000	\$569,000	\$569,000	\$569,000	\$569,000
Paid in Calendar Period	-	49,322	46,579	48,940	33,636	21,998	18,850	18,453	16,135	14,141	11,305
Paid to Date	161,377	210,699	257,278	306,218	339,854	361,852	380,702	399,155	415,290	429,431	440,736
Undiscounted Outstanding Liability	407,623	358,301	311,722	262,782	229,146	207,148	188,298	169,845	153,710	139,569	128,264
2013-2014											
Ultimate Loss	\$866,000	\$866,000	\$866,000	\$866,000	\$866,000	\$866,000	\$866,000	\$866,000	\$866,000	\$866,000	\$866,000
Paid in Calendar Period	-	53,863	49,667	46,905	49,283	33,871	22,152	18,982	18,582	16,248	14,240
Paid to Date	401,663	455,526	505,193	552,098	601,381	635,252	657,404	676,386	694,968	711,216	725,456
Undiscounted Outstanding Liability	464,337	410,474	360,807	313,902	264,619	230,748	208,596	189,614	171,032	154,784	140,544
Ultimate Loss	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310	\$14,274,310
Ultimate Loss at 80%	15,008,000	15,008,000	15,008,000	15,008,000	15,008,000	15,008,000	15,008,000	15,008,000	15,008,000	15,008,000	15,008,000
Paid at Expected in Calendar Period	-	298,841	277,525	234,445	196,397	152,086	126,437	141,526	126,839	114,005	103,280
Paid at 80% in Calendar Period		388,950	361,338	305,247	255,709	198,016	164,621	184,267	165,144	148,435	134,471
Total Paid to Date at Expected	11,844,406	12,143,247	12,420,772	12,655,217	12,851,614	13,003,700	13,130,137	13,271,663	13,398,502	13,512,507	13,615,787
Total Paid to Date at 80%		12,233,356	12,594,694	12,899,941	13,155,650	13,353,666	13,518,287	13,702,554	13,867,698	14,016,132	14,150,603
Undiscounted Outstanding Liability at Expected	2,429,904	2,131,063	1,853,538	1,619,093	1,422,696	1,270,610	1,144,173	1,002,647	875,808	761,803	658,523
Undiscounted Outstanding Liability at 80%	3,163,735	2,774,644	2,413,306	2,108,059	1,852,350	1,654,334	1,489,713	1,305,446	1,140,302	991,868	857,397
Total Undiscounted Outstanding ULAE at Expected	190,323	151,083	121,551	97,391	78,840	63,823	51,666	41,824	33,858	27,409	22,188
Total Undiscounted Outstanding ULAE at 80%	247,801	196,710	158,259	126,803	102,650	83,097	67,269	54,455	44,083	35,686	28,888
Total Undiscounted Outstanding Liability at Expected	2,620,227	2,282,146	1,975,089	1,716,484	1,501,536	1,334,433	1,195,839	1,044,471	909,666	789,212	680,711
Total Undiscounted Outstanding Liability at 80%	3,411,536	2,971,354	2,571,566	2,234,862	1,955,000	1,737,431	1,556,982	1,359,902	1,184,385	1,027,553	886,285

Novato Fire Protection District - Workers' Compensation

Short- and Long-Term Liabilities

<u>Liabilities as of 6/30/17:</u>		<u>Expected</u>	<u>Discounted</u>
<u>Current (Short Term)</u>	Loss and ALAE:	\$298,841	\$295,174
	ULAE:	39,240	38,759
	Short-Term Loss and LAE:	<u>\$338,081</u>	<u>\$333,933</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$2,131,063	\$1,753,959
	ULAE:	151,083	121,740
	Long-Term Loss and LAE:	<u>\$2,282,146</u>	<u>\$1,875,699</u>
<u>Total Liability</u>	Loss and ALAE:	\$2,429,904	\$2,049,133
	ULAE:	190,323	160,499
	Total Loss and LAE:	<u>\$2,620,227</u>	<u>\$2,209,632</u>
<u>Liabilities as of 6/30/18:</u>			
<u>Current (Short Term)</u>	Loss and ALAE:	\$277,525	\$274,120
	ULAE:	29,532	29,170
	Short-Term Loss and LAE:	<u>\$307,057</u>	<u>\$303,290</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$1,853,538	\$1,531,424
	ULAE:	121,551	98,835
	Long-Term Loss and LAE:	<u>\$1,975,089</u>	<u>\$1,630,259</u>
<u>Total Liability</u>	Loss and ALAE:	\$2,131,063	\$1,805,544
	ULAE:	151,083	128,005
	Total Loss and LAE:	<u>\$2,282,146</u>	<u>\$1,933,549</u>

		<u>Discounted with a Margin for Contingencies</u>				
		<u>70%</u>	<u>75%</u>	<u>80%</u>	<u>85%</u>	<u>90%</u>
		<u>Confidence</u>	<u>Confidence</u>	<u>Confidence</u>	<u>Confidence</u>	<u>Confidence</u>
<u>Liabilities as of 6/30/17:</u>						
<u>Current (Short Term)</u>	Loss and ALAE:	\$339,745	\$360,407	\$384,317	\$414,129	\$453,978
	ULAE:	44,612	47,325	50,464	54,379	59,611
	Short-Term Loss and LAE:	<u>\$384,357</u>	<u>\$407,732</u>	<u>\$434,781</u>	<u>\$468,508</u>	<u>\$513,589</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$2,018,807	\$2,141,584	\$2,283,654	\$2,460,805	\$2,697,589
	ULAE:	140,122	148,645	158,506	170,801	187,236
	Long-Term Loss and LAE:	<u>\$2,158,929</u>	<u>\$2,290,229</u>	<u>\$2,442,160</u>	<u>\$2,631,606</u>	<u>\$2,884,825</u>
<u>Total Liability</u>	Loss and ALAE:	\$2,358,552	\$2,501,991	\$2,667,971	\$2,874,934	\$3,151,567
	ULAE:	184,734	195,970	208,970	225,180	246,847
	Total Loss and LAE:	<u>\$2,543,286</u>	<u>\$2,697,961</u>	<u>\$2,876,941</u>	<u>\$3,100,114</u>	<u>\$3,398,414</u>
<u>Liabilities as of 6/30/18:</u>						
<u>Current (Short Term)</u>	Loss and ALAE:	\$315,512	\$334,701	\$356,904	\$384,590	\$421,597
	ULAE:	33,575	35,617	37,979	40,926	44,863
	Short-Term Loss and LAE:	<u>\$349,087</u>	<u>\$370,318</u>	<u>\$394,883</u>	<u>\$425,516</u>	<u>\$466,460</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$1,762,669	\$1,869,868	\$1,993,914	\$2,148,588	\$2,355,330
	ULAE:	113,759	120,677	128,684	138,665	152,008
	Long-Term Loss and LAE:	<u>\$1,876,428</u>	<u>\$1,990,545</u>	<u>\$2,122,598</u>	<u>\$2,287,253</u>	<u>\$2,507,338</u>
<u>Total Liability</u>	Loss and ALAE:	\$2,078,181	\$2,204,569	\$2,350,818	\$2,533,178	\$2,776,927
	ULAE:	147,334	156,294	166,663	179,591	196,871
	Total Loss and LAE:	<u>\$2,225,515</u>	<u>\$2,360,863</u>	<u>\$2,517,481</u>	<u>\$2,712,769</u>	<u>\$2,973,798</u>

Note: Current (short term) liabilities are the portion of the total estimated liability shown on Appendix G that is expected to be paid out within the coming year. Totals may vary from Exhibit 1, due to rounding.

Novato Fire Protection District - Workers' Compensation

Discount Factors to be Applied to Overall Reserves

Accident Year	Full Value of Reserve at 6/30/17 (A)	Discount Factor (B)	Discounted Reserve at 6/30/17 (C)	Full Value of Reserve at 6/30/18 (D)	Discount Factor (E)	Discounted Reserve at 6/30/18 (F)
Prior	\$67,701	0.988	\$66,870	\$57,817	1.000	\$57,817
1997-1998	16,775	0.966	16,207	13,185	0.988	13,023
1998-1999	38,058	0.947	36,030	33,529	0.966	32,394
1999-2000	34,171	0.929	31,739	30,617	0.947	28,986
2000-2001	24,250	0.912	22,120	21,825	0.929	20,272
2001-2002	66,321	0.897	59,469	57,832	0.912	52,751
2002-2003	23,694	0.883	20,919	16,941	0.897	15,191
2003-2004	108,907	0.870	94,695	100,086	0.883	88,365
2004-2005	61,522	0.858	52,791	55,862	0.870	48,572
2005-2006	34,379	0.848	29,170	31,285	0.858	26,845
2006-2007	0	0.841	0	0	0.848	0
2007-2008	0	0.833	0	0	0.841	0
2008-2009	254,187	0.827	210,291	229,785	0.833	191,471
2009-2010	234,027	0.827	193,635	204,072	0.827	168,830
2010-2011	269,832	0.832	224,369	227,468	0.827	188,208
2011-2012	324,120	0.831	269,356	281,984	0.832	234,474
2012-2013	407,623	0.830	338,217	358,301	0.831	297,762
2013-2014	464,337	0.825	383,255	410,474	0.830	340,583
2014-2015	0	0.822	0	0	0.825	0
2015-2016	0	0.824	0	0	0.822	0
2016-2017	0	0.833	0	0	0.824	0
2017-2018	0	-	-	0	0.833	0
Totals	\$2,429,904		\$2,049,133	\$2,131,063		\$1,805,544

(G) Discount Factor at 6/30/17 for Overall Reserve: 0.843
(H) Discount Factor at 6/30/18 for Overall Reserve: 0.847

Notes:

- (A) From Appendix G, Outstanding Liability at 6/30/17.
- (B) Based on Appendix I, Page 2, Column (E).
- (C) (A) x (B).
- (D) From Appendix G, Outstanding Liability at 6/30/18.
- (E) Based on Appendix I, Page 2, Column (E).
- (F) (D) x (E).
- (G) Total of (C) / Total of (A).
- (H) Total of (F) / Total of (D).

This exhibit shows the expected impact of anticipated investment income on the liability for outstanding claims at the date of evaluation and the end of the current fiscal year. For example, if the discount factor in item (G) is 0.843, the discounted liability for outstanding claims is 84.3% of the full value.

Novato Fire Protection District - Workers' Compensation

Calculation of Discount Factors

Payment Year (A)	Payment Pattern (B)	Return on Investment (C)	Discounted Reserves (D)	Undiscounted Reserves (E)	Discount Factor (F)
22	12.4%	2.5%	0.122	0.124	0.988
21	1.4%	2.5%	0.133	0.138	0.966
20	1.4%	2.5%	0.144	0.152	0.947
19	1.3%	2.5%	0.154	0.165	0.929
18	1.3%	2.5%	0.163	0.178	0.912
17	1.3%	2.5%	0.172	0.192	0.897
16	1.5%	2.5%	0.182	0.206	0.883
15	1.4%	2.5%	0.192	0.221	0.870
14	1.7%	2.5%	0.204	0.237	0.858
13	1.9%	2.5%	0.218	0.257	0.848
12	2.3%	2.5%	0.235	0.279	0.841
11	2.4%	2.5%	0.252	0.303	0.833
10	2.7%	2.5%	0.273	0.330	0.827
9	4.2%	2.5%	0.307	0.371	0.827
8	5.8%	2.5%	0.357	0.429	0.832
7	5.4%	2.5%	0.402	0.483	0.831
6	5.8%	2.5%	0.449	0.541	0.830
5	5.3%	2.5%	0.491	0.594	0.825
4	6.1%	2.5%	0.539	0.655	0.822
3	8.9%	2.5%	0.613	0.744	0.824
2	13.8%	2.5%	0.735	0.882	0.833
1	11.8%	2.5%	0.833	1.000	0.833
(G) Discount Factor for Future Funding:				2017-2018	0.844
				2018-2019	0.844

Notes:

- (A) This is the year of payment relative to the accident year. For example, year 7 refers to payments made in the seventh year after the inception of the accident year. We assume that payments are made at midyear.
- (B) Percent of ultimate loss paid this year. This payment pattern is based on the paid loss development pattern selected in Appendix B, Page 2.
- (C) Assumed Investment Income Rates.
- (D) Discounted Reserves at the beginning of this year is next year's Discounted Reserves discounted one year plus this year's payments discounted six months. For example, in year 2, $73.5\% = [61.3\% / 1.025] + [13.8\% / (1.012)]$.
- (E) Summation of future (B) values. This is the percent of ultimate loss unpaid at the beginning of the year.
- (F) (D) / (E).
- (G) (F) at year 1, with interest accumulated for six months. We assume that the required funding is deposited at the middle of the first year.

This exhibit shows the calculation of the effect of anticipated investment income on future claims costs. Thus, if the discount factor in item (F) is 0.84, on a discounted basis, \$0.84 must be budgeted for every \$1 that will actually be paid on claims that will be incurred in the next fiscal year.

Novato Fire Protection District - Workers' Compensation

Confidence Level Table

Probability	Projected Losses	Outstanding Losses
95%	3.341	1.762
90%	2.339	1.538
85%	1.828	1.403
80%	1.495	1.302
75%	1.253	1.221
70%	1.065	1.151
65%	0.912	1.090
60%	0.785	1.035
55%	0.675	0.984
50%	0.580	0.935
45%	0.496	0.890
40%	0.421	0.844
35%	0.353	0.800
30%	0.291	0.754
25%	0.234	0.707

To read table: For the above retention, there is a 90% chance that final loss settlements will be less than 2.339 times the average expected amount of losses.

This exhibit shows the loads that must be applied to bring estimated losses at the expected level to the various indicated confidence levels.

Novato Fire Protection District - Workers' Compensation

Program History

Policy Year Start Date	Policy Year End Date	Policy Year	Self-Insured Retention	
			Per Occurrence	Aggregate
7/1/1987	6/30/1997	Prior	\$275,000	(none)
7/1/1997	6/30/1998	1997-1998	275,000	(none)
7/1/1998	6/30/1999	1998-1999	275,000	(none)
7/1/1999	6/30/2000	1999-2000	275,000	(none)
7/1/2000	6/30/2001	2000-2001	275,000	(none)
7/1/2001	6/30/2002	2001-2002	300,000	(none)
7/1/2002	6/30/2003	2002-2003	1,000,000	(none)
7/1/2003	6/30/2004	2003-2004	1,000,000	(none)
7/1/2004	6/30/2005	2004-2005	1,000,000	(none)
7/1/2005	6/30/2006	2005-2006	1,000,000	(none)
7/1/2006	6/30/2007	2006-2007	1,000,000	(none)
7/1/2007	6/30/2008	2007-2008	1,000,000	(none)
7/1/2008	6/30/2009	2008-2009	1,000,000	(none)
7/1/2009	6/30/2010	2009-2010	1,000,000	(none)
7/1/2010	6/30/2011	2010-2011	1,000,000	(none)
7/1/2011	6/30/2012	2011-2012	1,000,000	(none)
7/1/2012	6/30/2013	2012-2013	1,000,000	(none)
7/1/2013	6/30/2014	2013-2014	1,250,000	(none)

Third Party Claims Administrator	Begin Date	End Date
Athens	7/1/1987	Current

This exhibit summarizes some of the key facts about the history of the program.

Novato Fire Protection District - Workers' Compensation

Incurred Losses as of 6/30/17

Accident Year (A)	Unlimited Incurred (B)	Additions to Losses (C)	Subtractions from Losses (D)	Adjusted Incurred (E)	Incurred Over SIR (F)	Incurred Over \$100,000 (G)	Incurred Capped at \$100,000 (H)	Incurred \$100,000 to SIR Layer (I)	Incurred Capped at SIR (J)	Incurred Capped at SIR & Aggregate (K)
Prior	\$2,885,021	\$0	\$20,361	\$2,864,659	\$0	\$377,556	\$2,487,103	\$377,556	\$2,864,659	\$2,864,659
1997-1998	451,864	0	0	451,864	0	80,309	371,556	80,309	451,864	451,864
1998-1999	997,281	0	0	997,281	0	305,632	691,649	305,632	997,281	997,281
1999-2000	435,295	0	0	435,295	0	116,070	319,226	116,070	435,295	435,295
2000-2001	566,023	0	0	566,023	5,667	225,797	340,226	220,129	560,355	560,355
2001-2002	1,083,908	0	694	1,083,214	0	468,862	614,352	468,862	1,083,214	1,083,214
2002-2003	177,091	0	0	177,091	0	0	177,091	0	177,091	177,091
2003-2004	1,982,409	0	0	1,982,409	0	1,547,214	435,196	1,547,214	1,982,409	1,982,409
2004-2005	198,932	0	0	198,932	0	0	198,932	0	198,932	198,932
2005-2006	257,533	0	0	257,533	0	0	257,533	0	257,533	257,533
2006-2007	492,982	0	0	492,982	0	222,562	270,420	222,562	492,982	492,982
2007-2008	92,328	0	0	92,328	0	0	92,328	0	92,328	92,328
2008-2009	672,743	0	0	672,743	0	233,043	439,700	233,043	672,743	672,743
2009-2010	639,521	0	0	639,521	0	209,623	429,898	209,623	639,521	639,521
2010-2011	572,516	0	0	572,516	0	202,417	370,099	202,417	572,516	572,516
2011-2012	575,368	0	0	575,368	0	204,778	370,590	204,778	575,368	575,368
2012-2013	282,573	0	0	282,573	0	50,186	232,387	50,186	282,573	282,573
2013-2014	473,993	0	0	473,993	0	88,498	385,495	88,498	473,993	473,993
Total	\$12,837,381	\$0	\$21,055	\$12,816,325	\$5,667	\$4,332,546	\$8,483,780	\$4,326,878	\$12,810,658	\$12,810,658

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Provided by the District.
- (C)
- (D) Recoveries.
- (E) (B) + (C) - (D).
- (F) Sum of incurred losses in excess of SIR.
- (G) Sum of incurred losses in excess of \$100,000.
- (H) (E) - (G).
- (I) (G) - (F).
- (J) (E) - (F).
- (K) Minimum of (J) and the aggregate stop loss. See Appendix K.

Novato Fire Protection District - Workers' Compensation

Paid Losses as of 6/30/17

Accident Year (A)	Unlimited Paid (B)	Additions to Losses (C)	Subtractions from Losses (D)	Adjusted Paid (E)	Paid Over SIR (F)	Paid Over \$100,000 (G)	Paid Capped at \$100,000 (H)	Paid \$100,000 to SIR Layer (I)	Paid Capped at SIR (J)	Paid Capped at SIR & Aggregate (K)
Prior	\$2,837,661	\$0	\$20,361	\$2,817,299	\$0	\$377,556	\$2,439,743	\$377,556	\$2,817,299	\$2,817,299
1997-1998	439,225	0	0	439,225	0	80,309	358,917	80,309	439,225	439,225
1998-1999	971,942	0	0	971,942	0	280,293	691,649	280,293	971,942	971,942
1999-2000	408,829	0	0	408,829	0	116,070	292,759	116,070	408,829	408,829
2000-2001	555,417	0	0	555,417	5,667	225,797	329,620	220,129	549,750	549,750
2001-2002	1,052,373	0	694	1,051,679	0	457,753	593,926	457,753	1,051,679	1,051,679
2002-2003	162,306	0	0	162,306	0	0	162,306	0	162,306	162,306
2003-2004	1,887,093	0	0	1,887,093	0	1,451,897	435,196	1,451,897	1,887,093	1,887,093
2004-2005	153,478	0	0	153,478	0	0	153,478	0	153,478	153,478
2005-2006	247,621	0	0	247,621	0	0	247,621	0	247,621	247,621
2006-2007	492,982	0	0	492,982	0	222,562	270,420	222,562	492,982	492,982
2007-2008	92,328	0	0	92,328	0	0	92,328	0	92,328	92,328
2008-2009	458,813	0	0	458,813	0	49,247	409,566	49,247	458,813	458,813
2009-2010	578,973	0	0	578,973	0	163,075	415,898	163,075	578,973	578,973
2010-2011	469,168	0	0	469,168	0	171,551	297,618	171,551	469,168	469,168
2011-2012	499,880	0	0	499,880	0	129,291	370,590	129,291	499,880	499,880
2012-2013	161,377	0	0	161,377	0	0	161,377	0	161,377	161,377
2013-2014	401,663	0	0	401,663	0	44,700	356,963	44,700	401,663	401,663
Total	\$11,871,130	\$0	\$21,055	\$11,850,075	\$5,667	\$3,770,100	\$8,079,975	\$3,764,432	\$11,844,407	\$11,844,407

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Provided by the District.
- (C)
- (D) Recoveries.
- (E) (B) + (C) - (D).
- (F) Sum of paid losses in excess of SIR.
- (G) Sum of paid losses in excess of \$100,000.
- (H) (E) - (G).
- (I) (G) - (F).
- (J) (E) - (F).
- (K) Minimum of (J) and the aggregate stop loss. See Appendix K.

Novato Fire Protection District - Workers' Compensation

Case Reserves as of 6/30/17

Accident Year (A)	Unlimited Reserves (B)	Additions to Losses (C)	Subtractions from Losses (D)	Adjusted Reserves (E)	Reserves Over SIR (F)	Reserves Over \$100,000 (G)	Reserves Capped at \$100,000 (H)	Reserves \$100,000 to SIR Layer (I)	Reserves Capped at SIR (J)	Reserves Capped at SIR & Aggregate (K)
Prior	\$47,360	\$0	\$0	\$47,360	\$0	\$0	\$47,360	\$0	\$47,360	\$47,360
1997-1998	12,639	0	0	12,639	0	0	12,639	0	12,639	12,639
1998-1999	25,339	0	0	25,339	0	25,339	0	25,339	25,339	25,339
1999-2000	26,467	0	0	26,467	0	0	26,467	0	26,467	26,467
2000-2001	10,605	0	0	10,605	0	0	10,605	0	10,605	10,605
2001-2002	31,535	0	0	31,535	0	11,108	20,427	11,108	31,535	31,535
2002-2003	14,785	0	0	14,785	0	0	14,785	0	14,785	14,785
2003-2004	95,317	0	0	95,317	0	95,317	0	95,317	95,317	95,317
2004-2005	45,454	0	0	45,454	0	0	45,454	0	45,454	45,454
2005-2006	9,912	0	0	9,912	0	0	9,912	0	9,912	9,912
2006-2007	0	0	0	0	0	0	0	0	0	0
2007-2008	0	0	0	0	0	0	0	0	0	0
2008-2009	213,929	0	0	213,929	0	183,796	30,134	183,796	213,929	213,929
2009-2010	60,548	0	0	60,548	0	46,548	14,000	46,548	60,548	60,548
2010-2011	103,348	0	0	103,348	0	30,866	72,482	30,866	103,348	103,348
2011-2012	75,488	0	0	75,488	0	75,488	0	75,488	75,488	75,488
2012-2013	121,195	0	0	121,195	0	50,186	71,009	50,186	121,195	121,195
2013-2014	72,330	0	0	72,330	0	43,798	28,532	43,798	72,330	72,330
Total	\$966,250	\$0	\$0	\$966,250	\$0	\$562,446	\$403,805	\$562,446	\$966,250	\$966,250

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Appendix L, Page 1, Column (B) - Appendix L, Page 2, Column (B).
- (C) Appendix L, Page 1, Column (C) - Appendix L, Page 2, Column (C).
- (D) Appendix L, Page 1, Column (D) - Appendix L, Page 2, Column (D).
- (E) (B) + (C) - (D).
- (F) Sum of case reserves in excess of SIR.
- (G) Sum of case reserves in excess of \$100,000.
- (H) (E) - (G).
- (I) (G) - (F).
- (J) (E) - (F).
- (K) Minimum of (J) and the aggregate stop loss. See Appendix K.

Novato Fire Protection District - Workers' Compensation

Claim Counts as of 6/30/17

Accident Year (A)	Reported Claims (B)	Additions to Reported Claims (C)	Subtractions from Reported Claims (D)	Adjusted Reported Claims (E)	Closed Claims (F)	Additions to Closed Claims (G)	Subtractions from Closed Claims (H)	Adjusted Closed Claims (I)	Open Claims (J)	Adjusted Open Claims (K)
Prior	338	0	28	310	335	0	28	307	3	3
1997-1998	28	0	2	26	27	0	2	25	1	1
1998-1999	34	0	3	31	33	0	3	30	1	1
1999-2000	31	0	0	31	29	0	0	29	2	2
2000-2001	28	0	2	26	27	0	2	25	1	1
2001-2002	25	0	1	24	23	0	1	22	2	2
2002-2003	30	0	0	30	29	0	0	29	1	1
2003-2004	35	0	4	31	34	0	4	30	1	1
2004-2005	25	0	5	20	24	0	5	19	1	1
2005-2006	29	0	2	27	28	0	2	26	1	1
2006-2007	25	0	2	23	25	0	2	23	0	0
2007-2008	20	0	2	18	20	0	2	18	0	0
2008-2009	24	0	1	23	21	0	1	20	3	3
2009-2010	27	0	1	26	25	0	1	24	2	2
2010-2011	25	0	6	19	22	0	6	16	3	3
2011-2012	24	0	5	19	22	0	5	17	2	2
2012-2013	24	0	1	23	22	0	1	21	2	2
2013-2014	33	0	4	29	31	0	4	27	2	2
Total	805	0	69	736	777	0	69	708	28	28

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Provided by the District.
- (C)
- (D) Closed claims with no payment
- (E) (B) + (C) - (D).
- (F) Provided by the District.
- (G)
- (H) Closed claims with no payment
- (I) (F) + (G) - (H).
- (J) (B) - (F).
- (K) (E) - (I).

Novato Fire Protection District - Workers' Compensation

Exposure Measures

Accident Year	Total Payroll (\$00) (A)	Inflation Trend Factor (B)	Trended Payroll (\$00) (C)
2005-2006	87,368	1.345	117,510
2006-2007	97,871	1.312	128,407
2007-2008	118,242	1.280	151,350
2008-2009	126,628	1.249	158,158
2009-2010	114,621	1.219	139,723
2010-2011	100,374	1.189	119,345
2011-2012	103,342	1.160	119,877
2012-2013	104,205	1.132	117,960
2013-2014	106,615	1.104	117,703

Notes:

- (A) Provided by the District.
- (B) Based on WCIRB.
- (C) (A) x (B).