



Actuarial Review of the Self-Insured Workers' Compensation Program

Outstanding Liabilities as of June 30, 2018

Presented to
Novato Fire Protection District

July 24, 2018



Tuesday, July 24, 2018

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, 2018 to be \$1,574,000, 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 \$1,574,000 estimate is the minimum liability to be booked by the District at June 30, 2018 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, 2018 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, 2018
 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	\$1,727,000					
ULAE	136,000					
Investment Income Offset	(289,000)					
Discounted Loss and LAE	\$1,574,000	\$1,823,000	\$1,939,000	\$2,076,000	\$2,246,000	\$2,474,000

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 Dana Winkler at (503) 419-0455 with any questions you may have concerning this report.

Sincerely,

Bickmore



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Senior Manager, Property and Casualty Actuarial Services, Bickmore
Associate, 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, 2018.

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, 2018. 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.

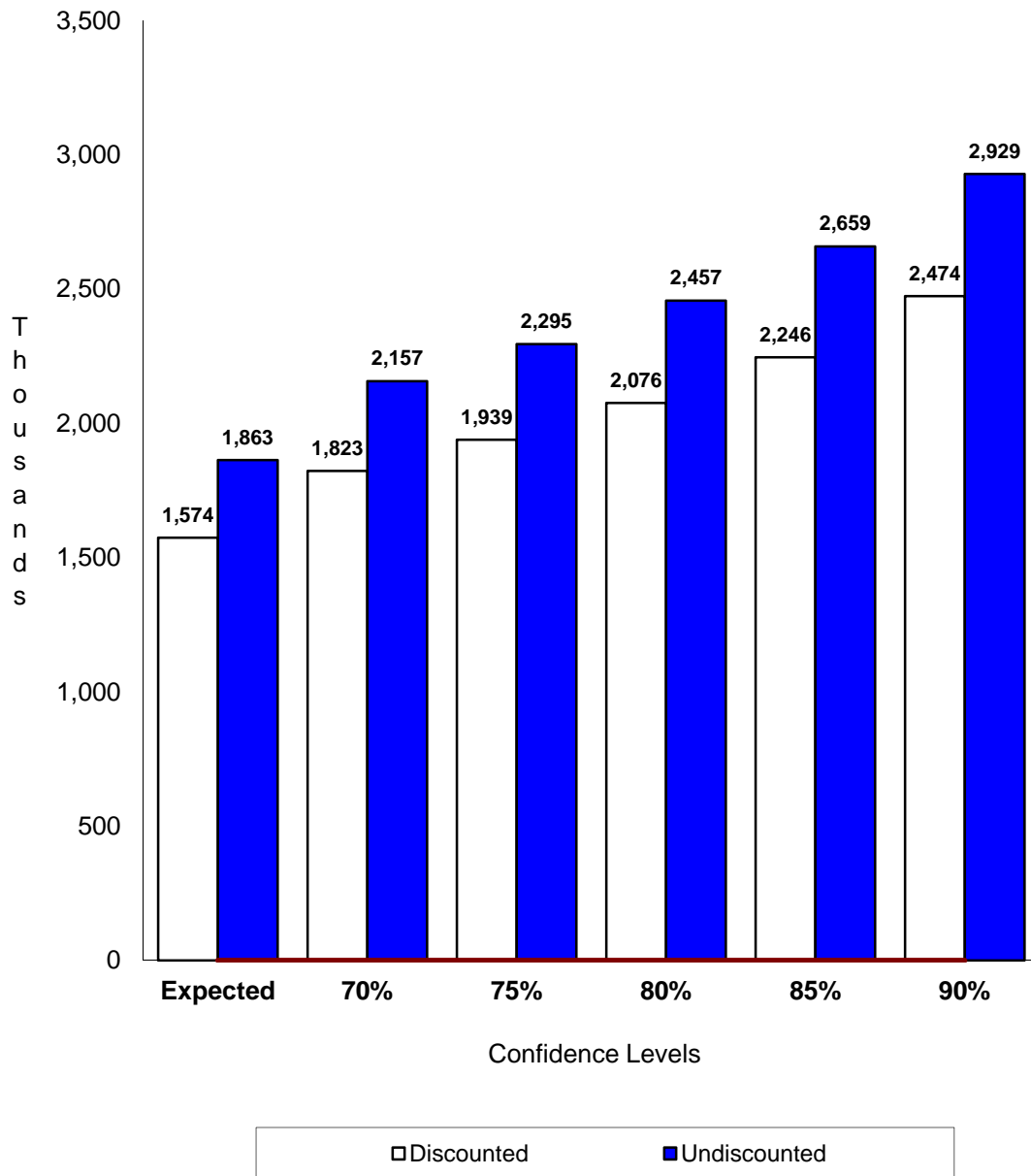
Our best estimate of the full value of the District's liability for outstanding claims within its self-insured retention (SIR) for the losses with the occurrence date prior to July 1, 2014 is \$1,863,000 as of June 30, 2018. This amount includes losses, allocated loss adjustment expenses (ALAE), and 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 \$1,574,000 as of June 30, 2018.

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.

Novato Fire Protection District -
Workers' Compensation
Outstanding Liability (\$000's)
at June 30, 2018



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, 2018, before recognition of investment income.

Novato Fire Protection District
Self-Insured Workers' Compensation Program
Estimated Liability for Unpaid Loss and LAE at June 30, 2018

Year	Case Reserves	IBNR Reserves	Total Outstanding
Prior	\$58,696	\$8,178	\$66,874
1998-99	15,096	2,719	17,815
1999-00	25,959	4,705	30,664
2000-01	8,979	2,119	11,098
2001-02	8,666	2,213	10,879
2002-03	14,767	4,909	19,676
2003-04	33,103	14,591	47,694
2004-05	44,076	23,068	67,144
2005-06	9,894	6,467	16,361
2006-07	0	0	0
2007-08	0	0	0
2008-09	139,690	87,118	226,808
2009-10	59,875	143,130	203,005
2010-11	68,066	137,994	206,060
2011-12	47,207	211,509	258,716
2012-13	68,597	123,130	191,727
2013-14	68,794	283,502	352,296
Loss and ALAE	\$671,465	\$1,055,352	\$1,726,817
ULAE		136,234	136,234
Total	\$671,465	\$1,191,586	\$1,863,051

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.

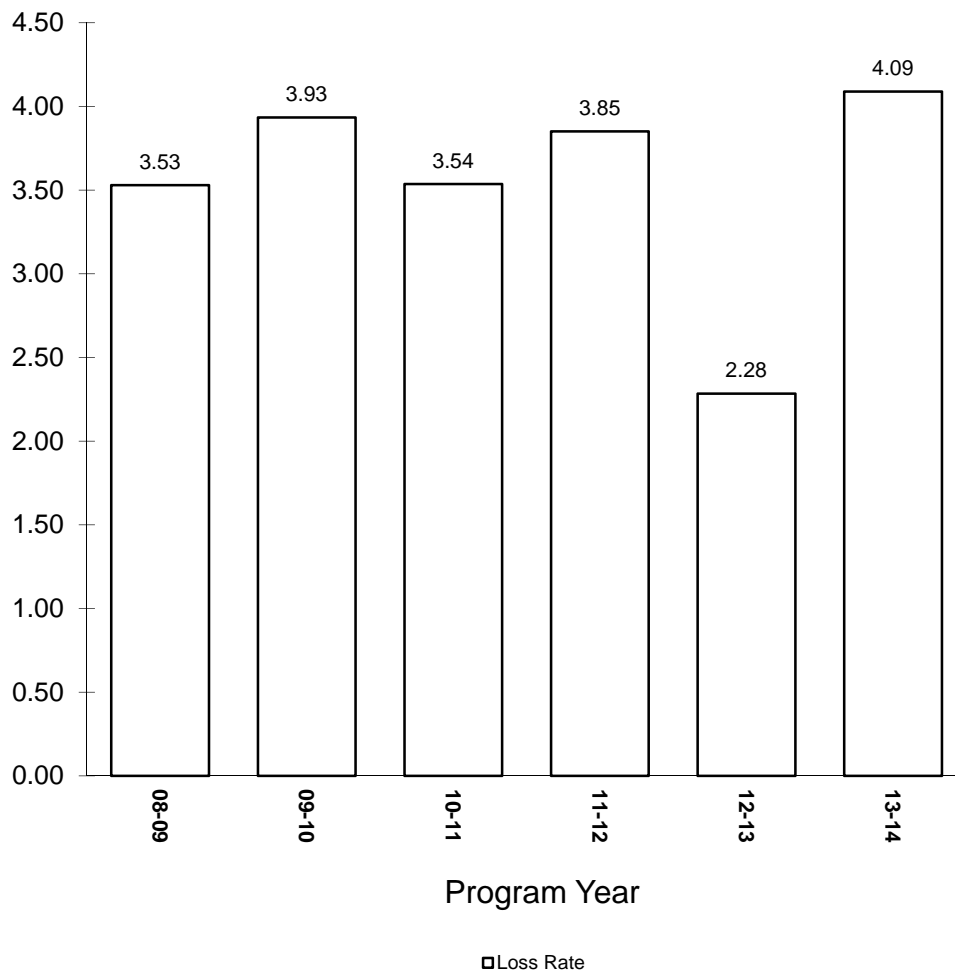
In general, we recommend that you fund each year's claims costs in that year. When surpluses or deficits have developed on outstanding liabilities and funding adjustments are necessary, they should be clearly identified as such so that the habit of funding each year's claims costs that year is maintained. 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 6/30/17 evaluation date of the prior report and the 6/30/18 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	\$5,000	\$0	(\$5,000)
1998-99	3,000	0	(3,000)
1999-00	2,000	0	(2,000)
2000-01	4,000	(3,000)	(7,000)
2001-02	8,000	(20,000)	(28,000)
2002-03	3,000	0	(3,000)
2003-04	3,000	0	(3,000)
2004-05	3,000	0	(3,000)
2005-06	4,000	0	(4,000)
2006-07	0	0	0
2007-08	0	0	0
2008-09	6,000	(71,000)	(77,000)
2009-10	26,000	5,000	(21,000)
2010-11	27,000	(33,000)	(60,000)
2011-12	37,000	(16,000)	(53,000)
2012-13	41,000	(9,000)	(50,000)
2013-14	76,000	6,000	(70,000)
Total	\$248,000	(\$141,000)	(\$389,000)

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 \$248,000 between the two evaluation dates. However, actual development was approximately (\$141,000); or about \$389,000 less than expected. All years developed less than expected.

In the table below we display actual versus expected development of paid losses and ALAE by accident year between the 6/30/17 evaluation date of the prior report and the 6/30/18 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	\$19,000	\$2,000	(\$17,000)
1998-99	5,000	10,000	5,000
1999-00	4,000	1,000	(3,000)
2000-01	2,000	(2,000)	(4,000)
2001-02	8,000	2,000	(6,000)
2002-03	7,000	0	(7,000)
2003-04	9,000	62,000	53,000
2004-05	6,000	1,000	(5,000)
2005-06	3,000	0	(3,000)
2006-07	0	0	0
2007-08	0	0	0
2008-09	24,000	3,000	(21,000)
2009-10	30,000	6,000	(24,000)
2010-11	42,000	3,000	(39,000)
2011-12	42,000	12,000	(30,000)
2012-13	49,000	44,000	(5,000)
2013-14	54,000	9,000	(45,000)
Total	\$304,000	\$153,000	(\$151,000)

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 \$304,000 between the two evaluation dates. However, actual development was approximately \$153,000; or about \$151,000 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	\$3,341,000	\$3,325,000	(\$16,000)
1998-99	1,010,000	1,000,000	(10,000)
1999-00	443,000	440,000	(3,000)
2000-01	574,000	559,000	(15,000)
2001-02	1,118,000	1,065,000	(53,000)
2002-03	186,000	182,000	(4,000)
2003-04	1,996,000	1,997,000	1,000
2004-05	215,000	222,000	7,000
2005-06	282,000	264,000	(18,000)
2006-07	493,000	493,000	0
2007-08	92,000	92,000	0
2008-09	713,000	689,000	(24,000)
2009-10	813,000	788,000	(25,000)
2010-11	739,000	678,000	(61,000)
2011-12	824,000	771,000	(53,000)
2012-13	569,000	397,000	(172,000)
2013-14	866,000	763,000	(103,000)
Total	\$14,274,000	\$13,725,000	(\$549,000)

As shown, overall we have decreased our estimated ultimates by \$549,000 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, 2017 to be \$2,209,000 at the discounted, expected level. Our current estimate as of June 30, 2018, is \$1,574,000, 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, 2017	Current Report at June 30, 2018	Change
(A) Case Reserves:	\$966,000	\$672,000	(\$294,000)
(B) IBNR Reserves:	1,464,000	1,055,000	(409,000)
(C) Claims Administration Reserves:	190,000	136,000	(54,000)
(D) Total Reserves:	\$2,620,000	\$1,863,000	(\$757,000)
(E) Offset for Investment Income:	(411,000)	(289,000)	122,000
(F) Total Outstanding Claim Liabilities:	\$2,209,000	\$1,574,000	(\$635,000)

As shown, our estimate of outstanding claims liabilities at the discounted, expected level has decreased between June 30, 2017 and June 30, 2018 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 \$757,000 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 \$635,000 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, 2018.
- We received loss data evaluated as of 6/30/18 (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 4.6% per year. We have assumed that claim severity increases at 2.5% per year, and that claim frequency increases at 2.0% 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, 2018

(A) Estimated Ultimate Losses Incurred through 6/30/18: (From Appendix G)	\$13,725,000
(B) Estimated Paid Losses through 6/30/18: (From Appendix G)	11,998,000
(C) Estimated Liability for Claims Outstanding at 6/30/18: (From Appendix G)	<u>\$1,727,000</u>
(D) Estimated Liability for Outstanding Claims Administration Fees at 6/30/18: (From Appendix F)	136,000
(E) Total Outstanding Liability for Claims at 6/30/18: ((C) + (D))	<u>\$1,863,000</u>
(F) Reserve Discount Factor (Based on a Discount Rate of 2.5%.): (Appendix I, Page 1, (G))	0.845
(G) Discounted Outstanding Liability for Claims at 6/30/18: ((E) x (F))	<u>\$1,574,000</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)	1.158	1.232	1.319	1.427	1.572
(I) Margin for Adverse Experience: ((G) x [(H) - 1])	249,000	365,000	502,000	672,000	900,000
(J) Total Required Assets at 6/30/18: ((G) + (I))	<u>\$1,823,000</u>	<u>\$1,939,000</u>	<u>\$2,076,000</u>	<u>\$2,246,000</u>	<u>\$2,474,000</u>

Novato Fire Protection District - Workers' Compensation

IBNR as of 6/30/19 at Expected Claims Level

Accident Year	Estimated Ultimate (A)	Reported as of 6/30/18 (B)	Estimated IBNR as of 6/30/18 (C)	Estimated Percent of IBNR Reported Between 7/1/18 and 6/30/19 (D)	Estimated IBNR Reported (E)	Estimated IBNR as of 6/30/19 (F)
Prior	\$3,325,000	\$3,316,822	\$8,178	15.0%	\$1,000	\$7,178
1998-1999	1,000,000	997,281	2,719	29.8%	1,000	1,719
1999-2000	440,000	435,295	4,705	22.8%	1,000	3,705
2000-2001	559,000	556,881	2,119	27.4%	1,000	1,119
2001-2002	1,065,000	1,062,787	2,213	24.6%	1,000	1,213
2002-2003	182,000	177,091	4,909	36.0%	2,000	2,909
2003-2004	1,997,000	1,982,409	14,591	24.6%	4,000	10,591
2004-2005	222,000	198,932	23,068	19.3%	4,000	19,068
2005-2006	264,000	257,533	6,467	18.8%	1,000	5,467
2006-2007	492,982	492,982	0	16.2%	0	0
2007-2008	92,328	92,328	0	16.2%	0	0
2008-2009	689,000	601,882	87,118	16.7%	15,000	72,118
2009-2010	788,000	644,870	143,130	15.0%	21,000	122,130
2010-2011	678,000	540,006	137,994	15.2%	21,000	116,994
2011-2012	771,000	559,491	211,509	15.7%	33,000	178,509
2012-2013	397,000	273,870	123,130	14.9%	18,000	105,130
2013-2014	763,000	479,498	283,502	16.0%	45,000	238,502
Totals	\$13,725,310	\$12,669,958	\$1,055,352		\$169,000	\$886,352

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 7/1/18 and 6/30/19. 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 6/30/19. 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	\$3,340,040	\$3,447,097			\$3,325,333	\$3,325,000
1998-1999	1,007,254	1,056,831			999,742	1,000,000
1999-2000	440,954	444,948			440,253	440,000
2000-2001	566,905	602,144			559,072	559,000
2001-2002	1,088,294	1,176,399			1,065,309	1,065,000
2002-2003	183,820	189,919			182,067	182,000
2003-2004	2,083,512	2,321,623			1,996,776	1,997,000
2004-2005	211,664	187,685			222,028	222,000
2005-2006	278,136	306,577	291,145	334,847	263,737	264,000
2006-2007	540,801	625,101	534,429	592,362	492,982	492,982
2007-2008	103,223	120,488	109,644	130,553	92,328	92,328
2008-2009	689,155	622,573	704,126	669,900	736,962	689,000
2009-2010	757,722	817,823	767,908	820,336	710,553	788,000
2010-2011	655,027	700,359	656,358	687,455	619,371	678,000
2011-2012	706,637	834,511	716,365	803,405	614,770	771,000
2012-2013	362,604	368,465	386,259	408,491	358,587	397,000
2013-2014	676,572	841,532	703,635	805,062	570,306	763,000
Totals						\$13,725,310

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	\$2,875,811	\$2,836,363			\$2,876,160	\$2,876,000
1998-1999	697,182	703,407			691,641	691,649
1999-2000	322,418	299,425			321,997	322,000
2000-2001	340,792	335,966			341,000	341,000
2001-2002	602,835	611,150			593,928	603,000
2002-2003	180,279	167,843			180,000	180,000
2003-2004	444,770	452,169			435,209	435,196
2004-2005	204,104	161,670			204,000	204,000
2005-2006	265,259	259,773	265,220	260,097	265,005	265,000
2006-2007	279,614	285,023	279,343	284,209	270,411	270,420
2007-2008	95,836	97,775	95,743	97,497	92,322	92,328
2008-2009	447,278	437,257	447,166	437,778	447,005	447,000
2009-2010	450,533	444,595	450,642	445,210	450,996	451,000
2010-2011	355,481	322,044	355,337	324,615	354,996	355,000
2011-2012	398,006	419,641	398,087	417,191	397,993	398,000
2012-2013	238,150	219,873	238,156	222,437	238,004	238,000
2013-2014	427,080	444,221	423,385	433,263	496,410	436,000
Totals						\$8,605,593

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 6/30/18 (B)	Reported Loss Development Factor (C)	Ultimate Limited Losses (D)	Program Reported Losses of 6/30/18 (E)	Reported Loss Development Factor (F)	Ultimate Program Losses (G)
Prior	\$2,858,659	1.006	\$2,875,811	\$3,316,822	1.007	\$3,340,040
1998-1999	691,649	1.008	697,182	997,281	1.010	1,007,254
1999-2000	319,226	1.010	322,418	435,295	1.013	440,954
2000-2001	336,751	1.012	340,792	556,881	1.018	566,905
2001-2002	593,926	1.015	602,835	1,062,787	1.024	1,088,294
2002-2003	177,091	1.018	180,279	177,091	1.038	183,820
2003-2004	435,196	1.022	444,770	1,982,409	1.051	2,083,512
2004-2005	198,932	1.026	204,104	198,932	1.064	211,664
2005-2006	257,533	1.030	265,259	257,533	1.080	278,136
2006-2007	270,420	1.034	279,614	492,982	1.097	540,801
2007-2008	92,328	1.038	95,836	92,328	1.118	103,223
2008-2009	428,838	1.043	447,278	601,882	1.145	689,155
2009-2010	429,898	1.048	450,533	644,870	1.175	757,722
2010-2011	337,589	1.053	355,481	540,006	1.213	655,027
2011-2012	373,014	1.067	398,006	559,491	1.263	706,637
2012-2013	220,305	1.081	238,150	273,870	1.324	362,604
2013-2014	390,027	1.095	427,080	479,498	1.411	676,572
Totals	\$8,411,382		\$8,625,428	\$12,669,958		\$13,692,320

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

Limited Losses Reported as of:

Accident Year	12 Months	24 Months	36 Months	48 Months	60 Months	72 Months	84 Months	96 Months	108 Months	120 Months
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	428,838
2009-2010	232,664	366,450	405,916	439,557	439,557	461,122	476,705	429,898	429,898	
2010-2011	83,426	313,206	322,614	327,175	324,006	370,099	370,099	337,589		
2011-2012	394,274	400,745	461,963	447,387	447,387	370,590	373,014			
2012-2013	143,788	205,320	196,673	232,387	232,387	220,305				
2013-2014	192,931	301,220	387,667	385,495	390,027					
2014-2015										
2015-2016										
2016-2017										
2017-2018										

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
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	1.000
2008-2009		1.275	0.986	1.057	1.215	1.028	1.054	1.000	0.975	
2009-2010	1.575	1.108	1.083	1.000	1.049	1.034	0.902	1.000		
2010-2011	3.754	1.030	1.014	0.990	1.142	1.000	0.912			
2011-2012	1.016	1.153	0.968	1.000	0.828	1.007				
2012-2013	1.428	0.958	1.182	1.000	0.948					
2013-2014	1.561	1.287	0.994	1.012						
2014-2015										
2015-2016										
2016-2017										

	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	1.005	1.005	1.031	1.050	1.003	1.014	0.994
3-yr				1.004	0.957	1.015	0.955	1.000	0.986	0.991
4-yr				1.001	0.985	1.018	0.958	1.000	0.990	0.993
Comparative Factors										
Prior	1.470	1.120	1.025	1.015	1.010	1.010	1.009	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	1.550	1.130	1.043	1.013	1.013	1.013	1.013	1.005	1.005	1.005
	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 6/30/18 (B)	Paid Loss Development Factor (C)	Ultimate Limited Losses (D)	Program Paid Losses of 6/30/18 (E)	Paid Loss Development Factor (F)	Ultimate Program Losses (G)
Prior	\$2,799,963	1.013	\$2,836,363	\$3,258,126	1.058	\$3,447,097
1998-1999	691,649	1.017	703,407	982,185	1.076	1,056,831
1999-2000	293,266	1.021	299,425	409,336	1.087	444,948
2000-2001	327,772	1.025	335,966	547,902	1.099	602,144
2001-2002	593,926	1.029	611,150	1,054,121	1.116	1,176,399
2002-2003	162,324	1.034	167,843	162,324	1.170	189,919
2003-2004	435,196	1.039	452,169	1,949,306	1.191	2,321,623
2004-2005	154,856	1.044	161,670	154,856	1.212	187,685
2005-2006	247,639	1.049	259,773	247,639	1.238	306,577
2006-2007	270,420	1.054	285,023	492,982	1.268	625,101
2007-2008	92,328	1.059	97,775	92,328	1.305	120,488
2008-2009	410,956	1.064	437,257	462,192	1.347	622,573
2009-2010	415,898	1.069	444,595	584,995	1.398	817,823
2010-2011	297,638	1.082	322,044	471,940	1.484	700,359
2011-2012	373,014	1.125	419,641	512,284	1.629	834,511
2012-2013	187,926	1.170	219,873	205,273	1.795	368,465
2013-2014	365,013	1.217	444,221	410,704	2.049	841,532
Totals	\$8,119,784		\$8,498,195	\$11,998,493		\$14,664,075

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
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	410,956
2009-2010	124,420	310,072	383,196	384,354	385,613	396,044	415,883	415,898	415,898	
2010-2011	69,290	250,949	273,840	283,239	296,222	297,090	297,618	297,638		
2011-2012	204,347	308,818	317,510	365,887	369,577	370,590	373,014			
2012-2013	53,919	78,803	149,232	155,054	161,377	187,926				
2013-2014	132,066	238,979	321,932	356,963	365,013					
2014-2015										
2015-2016										
2016-2017										
2017-2018										

Paid Loss Development Factors:

Accident Year	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
	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	1.000
2008-2009		1.220	1.134	1.035	1.227	1.064	1.040	1.002	1.003	
2009-2010	2.492	1.236	1.003	1.003	1.027	1.050	1.000	1.000		
2010-2011	3.622	1.091	1.034	1.046	1.003	1.002	1.000			
2011-2012	1.511	1.028	1.152	1.010	1.003	1.007				
2012-2013	1.462	1.894	1.039	1.041	1.165					
2013-2014	1.810	1.347	1.109	1.023						
2014-2015										
2015-2016										
2016-2017										

	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	2.179	1.303	1.078	1.024	1.056	1.023	1.074	1.001	1.006	1.001
3-yr				1.021	1.034	1.021	1.014	1.001	1.002	1.002
4-yr				1.027	1.032	1.032	1.013	1.001	1.001	1.002
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	1.045	1.040	1.040	1.040	1.012	1.005	1.005
Cumulated	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 6/30/18 (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	120,480	257,533	1.080	0.074	3.770	33,612	291,145
2006-2007	131,636	492,982	1.097	0.088	3.578	41,447	534,429
2007-2008	155,134	92,328	1.118	0.106	1.053	17,316	109,644
2008-2009	162,084	601,882	1.145	0.127	4.967	102,244	704,126
2009-2010	143,162	644,870	1.175	0.149	5.768	123,038	767,908
2010-2011	122,356	540,006	1.213	0.176	5.403	116,352	656,358
2011-2012	122,874	559,491	1.263	0.208	6.138	156,874	716,365
2012-2013	120,878	273,870	1.324	0.245	3.795	112,389	386,259
2013-2014	120,688	479,498	1.411	0.291	6.382	224,137	703,635
Totals	1,199,292	\$3,942,460				\$927,409	\$4,869,869

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 6/30/18 (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	120,480	247,639	1.238	0.192	3.770	87,208	334,847
2006-2007	131,636	492,982	1.268	0.211	3.578	99,380	592,362
2007-2008	155,134	92,328	1.305	0.234	1.053	38,225	130,553
2008-2009	162,084	462,192	1.347	0.258	4.967	207,708	669,900
2009-2010	143,162	584,995	1.398	0.285	5.768	235,341	820,336
2010-2011	122,356	471,940	1.484	0.326	5.403	215,515	687,455
2011-2012	122,874	512,284	1.629	0.386	6.138	291,121	803,405
2012-2013	120,878	205,273	1.795	0.443	3.795	203,218	408,491
2013-2014	120,688	410,704	2.049	0.512	6.382	394,358	805,062
Totals	1,199,292	\$3,480,337				\$1,772,074	\$5,252,411

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	120,480	265,000	2.700	715,500	5.939	2.200	1.713	3.770
2006-2007	131,636	270,420	2.445	661,177	5.023	2.054	1.742	3.578
2007-2008	155,134	92,328	2.171	200,444	1.292	0.595	1.770	1.053
2008-2009	162,084	447,000	1.937	865,839	5.342	2.758	1.801	4.967
2009-2010	143,162	451,000	1.698	765,798	5.349	3.150	1.831	5.768
2010-2011	122,356	355,000	1.567	556,285	4.546	2.901	1.863	5.403
2011-2012	122,874	398,000	1.514	602,572	4.904	3.239	1.895	6.138
2012-2013	120,878	238,000	1.459	347,242	2.873	1.969	1.927	3.795
2013-2014	120,688	436,000	1.385	603,860	5.003	3.177	2.009	6.382
Total/Avg	1,199,292	\$2,952,748		\$5,318,717	\$4.435			
09/10-13/14	629,958	1,878,000		2,875,757	4.565			
10/11-13/14	486,796	1,427,000		2,109,959	4.334			
				Selected Limited Rate:	\$4.400			
				Prior:	\$4.450			

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 2012-2013 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	\$10,821	336	\$3,635,856
1998-1999	29,475	31	913,725
1999-2000	13,831	31	428,761
2000-2001	18,305	25	457,625
2001-2002	34,104	24	818,496
2002-2003	9,796	30	293,880
2003-2004	23,282	31	721,742
2004-2005	17,196	20	343,920
2005-2006	16,818	27	454,086
2006-2007	20,480	23	471,040
2007-2008	9,081	18	163,458
2008-2009	35,000	23	805,000
2009-2010	31,765	26	825,890
2010-2011	34,801	19	661,219
2011-2012	39,692	19	754,148
2012-2013	19,943	23	458,689
2013-2014	33,241	30	997,230
Total		736	\$13,204,765

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	\$2,876,000	336	\$8,560	1.808	\$15,476	\$8,560	1.264	\$10,821
1998-1999	691,649	31	22,311	1.581	35,274	22,311	1.321	29,475
1999-2000	322,000	31	10,387	1.392	14,459	10,387	1.332	13,831
2000-2001	341,000	25	13,640	1.277	17,418	13,640	1.342	18,305
2001-2002	593,926	24	24,747	1.252	30,983	24,747	1.378	34,104
2002-2003	180,000	30	6,000	1.287	7,722	6,000	1.633	9,796
2003-2004	435,196	31	14,039	1.555	21,831	14,039	1.658	23,282
2004-2005	204,000	20	10,200	1.958	19,972	10,200	1.686	17,196
2005-2006	265,000	27	9,815	2.073	20,346	9,815	1.713	16,818
2006-2007	270,420	23	11,757	1.915	22,515	11,757	1.742	20,480
2007-2008	92,328	18	5,129	1.736	8,904	5,129	1.770	9,081
2008-2009	447,000	23	19,435	1.581	30,727	19,435	1.801	35,000
2009-2010	451,000	26	17,346	1.414	24,527	17,346	1.831	31,765
2010-2011	355,000	19	18,684	1.332	24,887	18,684	1.863	34,801
2011-2012	398,000	19	20,947	1.313	27,503	20,947	1.895	39,692
2012-2013	238,000	23	10,348	1.291	13,359	10,348	1.927	19,943
2013-2014	436,000	30	14,533	1.251	18,181	16,547	2.009	33,241

Average Limited Severity: \$20,828
Average 09/10-13/14 Limited Severity: 21,691
Average 11/12-13/14 Limited Severity: 19,681

Selected Limited Severity: \$20,700
Prior: \$21,100

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	336	334	336	0.0		1.516	
1998-1999	31	30	31	0.0		1.485	
1999-2000	31	29	31	0.0		1.456	
2000-2001	25	24	25	0.0		1.428	
2001-2002	24	23	24	0.0		1.400	
2002-2003	30	29	30	0.0		1.372	
2003-2004	31	30	31	0.0		1.345	
2004-2005	20	19	20	0.0		1.319	
2005-2006	27	26	27	12.0	2.241	1.293	2.898
2006-2007	23	23	23	13.2	1.747	1.268	2.215
2007-2008	18	18	18	15.5	1.160	1.243	1.442
2008-2009	23	21	23	16.2	1.419	1.219	1.730
2009-2010	26	25	26	14.3	1.816	1.195	2.170
2010-2011	19	18	19	12.2	1.553	1.172	1.820
2011-2012	19	19	19	12.3	1.546	1.149	1.776
2012-2013	23	22	23	12.1	1.903	1.126	2.143
2013-2014	30	30	30	12.1	2.486	1.105	2.747
Total	736	720	736	119.9			2.074
10/11-13/14	91	89	91	48.7			2.119
					(H) Selected Frequency:		2.100
					Prior:		2.100

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 6/30/2018 (A)	Reported Claim Development Factor (B)	Ultimate Claims (C)	Trended Claim Frequency (D)
Prior	336	1.000	336	
1998-1999	31	1.000	31	
1999-2000	31	1.000	31	
2000-2001	25	1.000	25	
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	2.898
2006-2007	23	1.000	23	2.216
2007-2008	18	1.000	18	1.442
2008-2009	23	1.000	23	1.730
2009-2010	26	1.000	26	2.170
2010-2011	19	1.000	19	1.820
2011-2012	19	1.001	19	1.777
2012-2013	23	1.002	23	2.142
2013-2014	30	1.004	30	2.747
Total	736		736	2.074

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 6/30/2018 (A)	Closed Claim Development Factor (B)	Ultimate Claims (C)	Trended Claim Frequency (D)
Prior	332	1.005	334	
1998-1999	30	1.006	30	
1999-2000	29	1.007	29	
2000-2001	24	1.008	24	
2001-2002	23	1.009	23	
2002-2003	29	1.010	29	
2003-2004	30	1.011	30	
2004-2005	19	1.012	19	
2005-2006	26	1.013	26	2.790
2006-2007	23	1.015	23	2.216
2007-2008	18	1.018	18	1.442
2008-2009	21	1.022	21	1.579
2009-2010	24	1.027	25	2.087
2010-2011	17	1.035	18	1.724
2011-2012	18	1.045	19	1.777
2012-2013	21	1.061	22	2.049
2013-2014	28	1.088	30	2.747
Total	712		720	2.014

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

Claims Reported as of:

Accident Year	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
1997-1998													28
1998-1999													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	27
2006-2007				24	24	25	25	23	23	23	23	23	
2007-2008			20	20	20	20	18	18	18	18	18		
2008-2009		22	22	23	23	23	23	23	23	23			
2009-2010	24	26	26	27	26	26	26	26	26				
2010-2011	24	25	25	19	19	19	19	19					
2011-2012	23	24	19	19	19	19	19						
2012-2013	21	23	23	23	23	23							
2013-2014	28	28	29	29	30								
2014-2015													
2015-2016													
2016-2017													
2017-2018													

Reported Claim Count 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	132-144 Months	144-156 Months	156-168 Months
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	1.000
2005-2006					1.000	1.000	1.000	0.931	1.000	1.000	1.000	1.000	
2006-2007				1.000	1.042	1.000	0.920	1.000	1.000	1.000	1.000		
2007-2008			1.000	1.000	1.000	0.900	1.000	1.000	1.000	1.000			
2008-2009		1.000	1.045	1.000	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	1.000					
2010-2011	1.042	1.000	0.760	1.000	1.000	1.000	1.000						
2011-2012	1.043	0.792	1.000	1.000	1.000	1.000							
2012-2013	1.095	1.000	1.000	1.000	1.000								
2013-2014	1.000	1.036	1.000	1.034									
2014-2015													
2015-2016													
2016-2017													

	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	132-144 Months	144-156 Months	156-168 Months
Average Claim-Weighted Averages	1.053	0.971	0.978	1.000	1.005	0.988	0.990	0.991	0.975	0.986	1.000	0.995	0.991
3-yr				1.014	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4-yr				1.011	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Comparative Factors	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
Prior	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
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
1997-1998													26
1998-1999													33
1999-2000												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	26
2006-2007				21	21	23	24	22	23	23	23	23	
2007-2008			18	18	19	20	18	18	18	18	18		
2008-2009		19	19	20	20	21	20	20	20	21			
2009-2010	17	21	22	24	23	23	23	24	24				
2010-2011	19	20	21	15	16	16	16	17					
2011-2012	11	19	13	14	14	17	18						
2012-2013	15	19	21	21	21	21							
2013-2014	23	23	24	27	28								
2014-2015													
2015-2016													
2016-2017													
2017-2018													

Closed Claim Count 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	132-144 Months	144-156 Months	156-168 Months
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	0.792	1.000	1.000	1.000	1.000
2005-2006					1.000	1.000	1.037	0.929	1.000	1.000	1.000	1.000	
2006-2007				1.000	1.095	1.043	0.917	1.045	1.000	1.000	1.000		
2007-2008			1.000	1.056	1.053	0.900	1.000	1.000	1.000	1.000			
2008-2009		1.000	1.053	1.000	1.050	0.952	1.000	1.000	1.050				
2009-2010	1.235	1.048	1.091	0.958	1.000	1.000	1.043	1.000					
2010-2011	1.053	1.050	0.714	1.067	1.000	1.000	1.063						
2011-2012	1.727	0.684	1.077	1.000	1.214	1.059							
2012-2013	1.267	1.105	1.000	1.000	1.000								
2013-2014	1.000	1.043	1.125	1.037									
2014-2015													
2015-2016													
2016-2017													
Average Claim-Weighted Averages	1.256	0.988	1.009	1.015	1.052	0.994	1.008	0.997	0.986	0.997	1.000	0.995	0.983
3-yr				1.016	1.059	1.018	1.034	1.000	1.016	1.000	1.000	1.000	1.000
4-yr				1.026	1.041	1.000	1.026	1.012	1.011	1.000	1.000	1.000	1.000
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 2018-2019 Loss Rate Level (B)	Factor to 2019-2020 Loss Rate Level (C)	Factor to 2020-2021 Loss Rate Level (D)	Factor to 2021-2022 Loss Rate Level (E)	Factor to 2018-2019 Frequency Level (F)	Factor to 2019-2020 Frequency Level (G)	Factor to 2020-2021 Frequency Level (H)	Factor to 2021-2022 Frequency Level (I)	Factor to 2018-2019 Severity Level (J)
Prior	1.077	2.769	2.896	3.029	3.168	1.516	1.546	1.576	1.608	1.808
1998-1999	0.965	2.373	2.481	2.595	2.714	1.485	1.515	1.545	1.576	1.581
1999-2000	0.871	2.047	2.141	2.239	2.342	1.456	1.486	1.515	1.545	1.392
2000-2001	0.819	1.841	1.925	2.013	2.106	1.428	1.457	1.485	1.515	1.277
2001-2002	0.823	1.768	1.848	1.933	2.022	1.400	1.428	1.456	1.485	1.252
2002-2003	0.868	1.782	1.863	1.949	2.038	1.372	1.400	1.427	1.456	1.287
2003-2004	1.074	2.109	2.205	2.306	2.413	1.345	1.372	1.399	1.427	1.555
2004-2005	1.387	2.602	2.721	2.846	2.977	1.319	1.345	1.372	1.399	1.958
2005-2006	1.505	2.700	2.824	2.953	3.089	1.293	1.319	1.345	1.372	2.073
2006-2007	1.425	2.445	2.556	2.674	2.797	1.268	1.293	1.319	1.345	1.915
2007-2008	1.323	2.171	2.270	2.374	2.484	1.243	1.268	1.293	1.319	1.736
2008-2009	1.235	1.937	2.025	2.118	2.216	1.219	1.243	1.268	1.293	1.581
2009-2010	1.132	1.698	1.775	1.857	1.942	1.195	1.219	1.243	1.268	1.414
2010-2011	1.093	1.567	1.639	1.714	1.793	1.172	1.195	1.219	1.243	1.332
2011-2012	1.104	1.514	1.583	1.655	1.732	1.149	1.172	1.195	1.219	1.313
2012-2013	1.113	1.459	1.525	1.595	1.669	1.126	1.149	1.172	1.195	1.291
2013-2014	1.106	1.385	1.448	1.515	1.584	1.105	1.127	1.149	1.172	1.251
2014-2015	1.072	1.284	1.342	1.404	1.468	1.083	1.105	1.126	1.149	1.183
2015-2016	1.055	1.209	1.264	1.322	1.383	1.061	1.083	1.104	1.126	1.137
2016-2017	1.030	1.128	1.179	1.233	1.290	1.041	1.062	1.082	1.104	1.083
2017-2018	1.000	1.046	1.094	1.144	1.197	1.020	1.040	1.061	1.082	1.025
2018-2019	1.000	1.000	1.046	1.094	1.144	1.000	1.020	1.040	1.061	1.000
2019-2020	1.000	--	1.000	1.046	1.094	--	1.000	1.020	1.040	--
2020-2021	1.000	--	--	1.000	1.046	--	--	1.000	1.020	--
2021-2022	1.000	--	--	--	1.000	--	--	--	1.000	--

Notes:

- (A) Based on WCIRB.
- (B) - (E) (A) adjusted for a 4.6% annual loss rate trend.
- (F) - (I) (A) adjusted for a 2.0% 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	\$2,876,000	336	1.077	9,220		
1998-1999	691,649	31	0.965	21,537		
1999-2000	322,000	31	0.871	9,050		
2000-2001	341,000	25	0.819	11,176		
2001-2002	593,926	24	0.823	20,367		
2002-2003	180,000	30	0.868	5,206		
2003-2004	435,196	31	1.074	15,080		
2004-2005	204,000	20	1.387	14,144		
2005-2006	265,000	27	1.505	14,767	120,480	2.241
2006-2007	270,420	23	1.425	16,750	131,636	1.747
2007-2008	92,328	18	1.323	6,787	155,134	1.160
2008-2009	447,000	23	1.235	24,003	162,084	1.419
2009-2010	451,000	26	1.132	19,642	143,162	1.816
2010-2011	355,000	19	1.093	20,423	122,356	1.553
2011-2012	398,000	19	1.104	23,133	122,874	1.546
2012-2013	238,000	23	1.113	11,520	120,878	1.903
2013-2014	436,000	30	1.106	16,069	120,688	2.486

Severity Trend Factors

Frequency Trend Factors

Latest 9	1.025	1.022
Latest 5	0.907	1.087
Prior	1.025	1.015
Default	1.025	0.980

Selected Residual Trend 1.025 1.020

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 6/30/18

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	19.0	\$1,566	1.000	\$1,566	\$29,754
2019-2020	13.0	1,566	1.050	1,644	21,372
2020-2021	9.9	1,566	1.103	1,727	17,097
2021-2022	7.6	1,566	1.158	1,813	13,779
2022-2023	5.8	1,566	1.216	1,904	11,043
2023-2024	4.5	1,566	1.277	2,000	9,000
2024-2025	3.5	1,566	1.341	2,100	7,350
2025-2026	3.0	1,566	1.408	2,205	6,615
2026-2027	2.7	1,566	1.478	2,315	6,251
2027-2028	2.0	1,566	1.552	2,430	4,860
2028-2029	1.4	1,566	1.630	2,553	3,574
2029-2030	1.0	1,566	1.712	2,681	2,681
2030-2031	0.7	1,566	1.798	2,816	1,971
2031-2032	0.3	1,566	1.888	2,957	887
2032-2033	0.0	1,566	1.982	3,104	0
2033-2034	0.0	1,566	2.081	3,259	0
2034-2035	0.0	1,566	2.185	3,422	0
2035-2036	0.0	1,566	2.294	3,592	0

(G) Total ULAE Outstanding as of 6/30/18: \$136,234

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 6/30/19

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)
2019-2020	13.0	\$1,566	1.050	\$1,644	\$21,372
2020-2021	9.9	1,566	1.103	1,727	17,097
2021-2022	7.6	1,566	1.158	1,813	13,779
2022-2023	5.8	1,566	1.216	1,904	11,043
2023-2024	4.5	1,566	1.277	2,000	9,000
2024-2025	3.5	1,566	1.341	2,100	7,350
2025-2026	3.0	1,566	1.408	2,205	6,615
2026-2027	2.7	1,566	1.478	2,315	6,251
2027-2028	2.0	1,566	1.552	2,430	4,860
2028-2029	1.4	1,566	1.630	2,553	3,574
2029-2030	1.0	1,566	1.712	2,681	2,681
2030-2031	0.7	1,566	1.798	2,816	1,971
2031-2032	0.3	1,566	1.888	2,957	887
2032-2033	0.0	1,566	1.982	3,104	0
2033-2034	0.0	1,566	2.081	3,259	0
2034-2035	0.0	1,566	2.185	3,422	0
2035-2036	0.0	1,566	2.294	3,592	0
2036-2037	0.0	1,566	2.409	3,772	0
(G) Total ULAE Outstanding as of 6/30/19:					\$106,480

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

Accident Year	Calendar Period										
	As of 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	7/1/2027 to 6/30/2028
Prior											
Ultimate Loss	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000	\$6,389,000
Paid in Calendar Period	-	20,063	18,690	14,095	12,342	10,641	9,090	7,778	6,633	5,655	4,816
Paid to Date	6,251,670	6,271,733	6,290,423	6,304,518	6,316,860	6,327,501	6,336,591	6,344,369	6,351,002	6,356,657	6,361,473
Undiscounted Outstanding Liability	137,330	117,267	98,577	84,482	72,140	61,499	52,409	44,631	37,998	32,343	27,527
2002-2003											
Ultimate Loss	\$182,000	\$182,000	\$182,000	\$182,000	\$182,000	\$182,000	\$182,000	\$182,000	\$182,000	\$182,000	\$182,000
Paid in Calendar Period	-	5,608	1,871	1,366	1,278	1,261	1,211	1,041	888	762	650
Paid to Date	162,324	167,932	169,803	171,169	172,447	173,708	174,919	175,960	176,848	177,610	178,260
Undiscounted Outstanding Liability	19,676	14,068	12,197	10,831	9,553	8,292	7,081	6,040	5,152	4,390	3,740
2003-2004											
Ultimate Loss	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000	\$1,997,000
Paid in Calendar Period	-	4,483	12,315	6,133	2,773	2,595	2,560	2,458	2,113	1,803	1,548
Paid to Date	1,949,306	1,953,789	1,966,104	1,972,237	1,975,010	1,977,605	1,980,165	1,982,623	1,984,736	1,986,539	1,988,087
Undiscounted Outstanding Liability	47,694	43,211	30,896	24,763	21,990	19,395	16,835	14,377	12,264	10,461	8,913
2004-2005											
Ultimate Loss	\$222,000	\$222,000	\$222,000	\$222,000	\$222,000	\$222,000	\$222,000	\$222,000	\$222,000	\$222,000	\$222,000
Paid in Calendar Period	-	5,573	5,788	15,898	7,917	3,580	3,350	3,305	3,173	2,728	2,327
Paid to Date	154,856	160,429	166,217	182,115	190,032	193,612	196,962	200,267	203,440	206,168	208,495
Undiscounted Outstanding Liability	67,144	61,571	55,783	39,885	31,968	28,388	25,038	21,733	18,560	15,832	13,505
2005-2006											
Ultimate Loss	\$264,000	\$264,000	\$264,000	\$264,000	\$264,000	\$264,000	\$264,000	\$264,000	\$264,000	\$264,000	\$264,000
Paid in Calendar Period	-	1,472	1,236	1,283	3,525	1,756	794	743	733	704	605
Paid to Date	247,639	249,111	250,347	251,630	255,155	256,911	257,705	258,448	259,181	259,885	260,490
Undiscounted Outstanding Liability	16,361	14,889	13,653	12,370	8,845	7,089	6,295	5,552	4,819	4,115	3,510
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	-	-	-	-	-	-	-	-	-	-	-

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

Accident Year	As of 6/30/2018	Calendar Period									
		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	7/1/2027 to 6/30/2028
2008-2009											
Ultimate Loss	\$689,000	\$689,000	\$689,000	\$689,000	\$689,000	\$689,000	\$689,000	\$689,000	\$689,000	\$689,000	\$689,000
Paid in Calendar Period	-	21,093	19,749	17,295	15,180	12,740	13,231	36,343	18,099	8,185	7,657
Paid to Date	462,192	483,285	503,034	520,329	535,509	548,249	561,480	597,823	615,922	624,107	631,764
Undiscounted Outstanding Liability	226,808	205,715	185,966	168,671	153,491	140,751	127,520	91,177	73,078	64,893	57,236
2009-2010											
Ultimate Loss	\$788,000	\$788,000	\$788,000	\$788,000	\$788,000	\$788,000	\$788,000	\$788,000	\$788,000	\$788,000	\$788,000
Paid in Calendar Period	-	19,285	17,086	15,997	14,009	12,297	10,319	10,717	29,439	14,660	6,630
Paid to Date	584,995	604,280	621,366	637,363	651,372	663,669	673,988	684,705	714,144	728,804	735,434
Undiscounted Outstanding Liability	203,005	183,720	166,634	150,637	136,628	124,331	114,012	103,295	73,856	59,196	52,566
2010-2011											
Ultimate Loss	\$678,000	\$678,000	\$678,000	\$678,000	\$678,000	\$678,000	\$678,000	\$678,000	\$678,000	\$678,000	\$678,000
Paid in Calendar Period	-	26,170	17,090	15,140	14,175	12,414	10,896	9,145	9,497	26,087	12,991
Paid to Date	471,940	498,110	515,200	530,340	544,515	556,929	567,825	576,970	586,467	612,554	625,545
Undiscounted Outstanding Liability	206,060	179,890	162,800	147,660	133,485	121,071	110,175	101,030	91,533	65,446	52,455
2011-2012											
Ultimate Loss	\$771,000	\$771,000	\$771,000	\$771,000	\$771,000	\$771,000	\$771,000	\$771,000	\$771,000	\$771,000	\$771,000
Paid in Calendar Period	-	40,101	27,764	18,131	16,063	15,039	13,170	11,560	9,702	10,075	27,677
Paid to Date	512,284	552,385	580,149	598,280	614,343	629,382	642,552	654,112	663,814	673,889	701,566
Undiscounted Outstanding Liability	258,716	218,615	190,851	172,720	156,657	141,618	128,448	116,888	107,186	97,111	69,434
2012-2013											
Ultimate Loss	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000
Paid in Calendar Period	-	24,541	25,914	17,942	11,716	10,380	9,718	8,511	7,470	6,269	6,511
Paid to Date	205,273	229,814	255,728	273,670	285,386	295,766	305,484	313,995	321,465	327,734	334,245
Undiscounted Outstanding Liability	191,727	167,186	141,272	123,330	111,614	101,234	91,516	83,005	75,535	69,266	62,755
2013-2014											
Ultimate Loss	\$763,000	\$763,000	\$763,000	\$763,000	\$763,000	\$763,000	\$763,000	\$763,000	\$763,000	\$763,000	\$763,000
Paid in Calendar Period	-	47,560	39,006	41,188	28,517	18,622	16,498	15,447	13,528	11,874	9,965
Paid to Date	410,704	458,264	497,270	538,458	566,975	585,597	602,095	617,542	631,070	642,944	652,909
Undiscounted Outstanding Liability	352,296	304,736	265,730	224,542	196,025	177,403	160,905	145,458	131,930	120,056	110,091

Novato Fire Protection District - Workers' Compensation

Payment and Reserve Forecast

Accident Year	As of 6/30/2018	Calendar Period									
		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	7/1/2027 to 6/30/2028
Ultimate Loss	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310	\$13,725,310
Ultimate Loss at 80%	14,276,000	14,276,000	14,276,000	14,276,000	14,276,000	14,276,000	14,276,000	14,276,000	14,276,000	14,276,000	14,276,000
Paid at Expected in Calendar Period	-	215,949	186,509	164,468	127,495	101,325	90,837	107,048	101,275	88,802	81,377
Paid at 80% in Calendar Period		284,672	246,005	216,933	168,166	133,648	119,814	141,196	133,582	117,130	107,336
Total Paid to Date at Expected	11,998,493	12,214,442	12,400,951	12,565,419	12,692,914	12,794,239	12,885,076	12,992,124	13,093,399	13,182,201	13,263,578
Total Paid to Date at 80%		12,283,165	12,529,170	12,746,104	12,914,270	13,047,917	13,167,731	13,308,928	13,442,509	13,559,639	13,666,975
Undiscounted Outstanding Liability at Expected	1,726,817	1,510,868	1,324,359	1,159,891	1,032,396	931,071	840,234	733,186	631,911	543,109	461,732
Undiscounted Outstanding Liability at 80%	2,277,672	1,992,835	1,746,830	1,529,896	1,361,730	1,228,083	1,108,269	967,072	833,491	716,361	609,025
Total Undiscounted Outstanding ULAE at Expected	136,234	106,480	85,108	68,011	54,232	43,245	34,483	27,497	21,926	17,484	13,942
Total Undiscounted Outstanding ULAE at 80%	179,693	140,447	112,257	89,707	71,532	57,040	45,483	36,269	28,921	23,061	18,389
Total Undiscounted Outstanding Liability at Expected	1,863,051	1,617,348	1,409,467	1,227,902	1,086,628	974,316	874,717	760,683	653,837	560,593	475,674
Total Undiscounted Outstanding Liability at 80%	2,457,364	2,133,282	1,859,087	1,619,603	1,433,262	1,285,122	1,153,752	1,003,341	862,411	739,422	627,414

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 2016-2017, \$0 is expected to be paid between 7/1/18 and 6/30/19, \$0 will have been paid by 6/30/19, 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 Undiscounted Outstanding Liability from the previous calendar period. These proportions are derived from the paid loss development pattern selected in Appendix B. For example, $\$0 = \$0 \times 10.7\%$.
- 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

Short- and Long-Term Liabilities

<u>Liabilities as of 6/30/18:</u>		<u>Expected</u>	<u>Discounted</u>
<u>Current (Short Term)</u>	Loss and ALAE:	\$215,949	\$213,299
	ULAE:	29,754	29,389
	Short-Term Loss and LAE:	<u>\$245,703</u>	<u>\$242,688</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$1,510,868	\$1,245,284
	ULAE:	106,480	85,683
	Long-Term Loss and LAE:	<u>\$1,617,348</u>	<u>\$1,330,967</u>
<u>Total Liability</u>	Loss and ALAE:	\$1,726,817	\$1,458,583
	ULAE:	136,234	115,072
	Total Loss and LAE:	<u>\$1,863,051</u>	<u>\$1,573,655</u>

<u>Liabilities as of 6/30/19:</u>			
<u>Current (Short Term)</u>	Loss and ALAE:	\$186,509	\$184,220
	ULAE:	21,372	21,110
	Short-Term Loss and LAE:	<u>\$207,881</u>	<u>\$205,330</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$1,324,359	\$1,097,422
	ULAE:	85,108	69,215
	Long-Term Loss and LAE:	<u>\$1,409,467</u>	<u>\$1,166,637</u>
<u>Total Liability</u>	Loss and ALAE:	\$1,510,868	\$1,281,642
	ULAE:	106,480	90,325
	Total Loss and LAE:	<u>\$1,617,348</u>	<u>\$1,371,967</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 6/30/18:</u>						
<u>Current (Short Term)</u>	Loss and ALAE:	\$247,000	\$262,784	\$281,341	\$304,378	\$335,306
	ULAE:	34,032	36,207	38,764	41,938	46,200
	Short-Term Loss and LAE:	<u>\$281,032</u>	<u>\$298,991</u>	<u>\$320,105</u>	<u>\$346,316</u>	<u>\$381,506</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$1,442,039	\$1,534,190	\$1,642,530	\$1,777,020	\$1,957,586
	ULAE:	99,221	105,562	113,016	122,270	134,694
	Long-Term Loss and LAE:	<u>\$1,541,260</u>	<u>\$1,639,752</u>	<u>\$1,755,546</u>	<u>\$1,899,290</u>	<u>\$2,092,280</u>
<u>Total Liability</u>	Loss and ALAE:	\$1,689,039	\$1,796,974	\$1,923,871	\$2,081,398	\$2,292,892
	ULAE:	133,253	141,769	151,780	164,208	180,894
	Total Loss and LAE:	<u>\$1,822,292</u>	<u>\$1,938,743</u>	<u>\$2,075,651</u>	<u>\$2,245,606</u>	<u>\$2,473,786</u>
<u>Liabilities as of 6/30/19:</u>						
<u>Current (Short Term)</u>	Loss and ALAE:	\$213,327	\$226,959	\$242,986	\$262,882	\$289,594
	ULAE:	24,445	26,008	27,844	30,124	33,185
	Short-Term Loss and LAE:	<u>\$237,772</u>	<u>\$252,967</u>	<u>\$270,830</u>	<u>\$293,006</u>	<u>\$322,779</u>
<u>Non-Current (Long Term)</u>	Loss and ALAE:	\$1,270,814	\$1,352,024	\$1,447,500	\$1,566,021	\$1,725,147
	ULAE:	80,152	85,272	91,294	98,770	108,806
	Long-Term Loss and LAE:	<u>\$1,350,966</u>	<u>\$1,437,296</u>	<u>\$1,538,794</u>	<u>\$1,664,791</u>	<u>\$1,833,953</u>
<u>Total Liability</u>	Loss and ALAE:	\$1,484,141	\$1,578,983	\$1,690,486	\$1,828,903	\$2,014,741
	ULAE:	104,597	111,280	119,138	128,894	141,991
	Total Loss and LAE:	<u>\$1,588,738</u>	<u>\$1,690,263</u>	<u>\$1,809,624</u>	<u>\$1,957,797</u>	<u>\$2,156,732</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 6/30/18 (A)	Discount Factor (B)	Discounted Reserve at 6/30/18 (C)	Full Value of Reserve at 6/30/19 (D)	Discount Factor (E)	Discounted Reserve at 6/30/19 (F)
Prior	\$66,874	0.988	\$66,053	\$57,110	1.000	\$57,110
1998-1999	17,815	0.966	17,211	13,824	0.988	13,654
1999-2000	30,664	0.947	29,033	27,046	0.966	26,129
2000-2001	11,098	0.929	10,308	9,855	0.947	9,331
2001-2002	10,879	0.912	9,925	9,432	0.929	8,761
2002-2003	19,676	0.897	17,644	14,068	0.912	12,835
2003-2004	47,694	0.883	42,103	43,211	0.897	38,748
2004-2005	67,144	0.870	58,387	61,571	0.883	54,353
2005-2006	16,361	0.858	14,042	14,889	0.870	12,947
2006-2007	0	0.848	0	0	0.858	0
2007-2008	0	0.841	0	0	0.848	0
2008-2009	226,808	0.833	188,973	205,715	0.841	172,931
2009-2010	203,005	0.827	167,915	183,720	0.833	153,073
2010-2011	206,060	0.827	170,448	179,890	0.827	148,795
2011-2012	258,716	0.831	215,063	218,615	0.827	180,833
2012-2013	191,727	0.831	159,281	167,186	0.831	138,977
2013-2014	352,296	0.829	292,197	304,736	0.831	253,165
2014-2015	0	0.825	0	0	0.829	0
2015-2016	0	0.822	0	0	0.825	0
2016-2017	0	0.823	0	0	0.822	0
2017-2018	0	0.832	0	0	0.823	0
2018-2019	0	-	-	0	0.832	0
Totals	\$1,726,817		\$1,458,583	\$1,510,868		\$1,281,642

(G) Discount Factor at 6/30/18 for Overall Reserve: 0.845
(H) Discount Factor at 6/30/19 for Overall Reserve: 0.848

Notes:

- (A) From Appendix G, Outstanding Liability at 6/30/18.
- (B) Based on Appendix I, Page 2, Column (E).
- (C) (A) x (B).
- (D) From Appendix G, Outstanding Liability at 6/30/19.
- (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 0.845, the discounted liability for outstanding claims is 84.5% 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	12.5%	2.5%	0.124	0.125	0.988
21	1.4%	2.5%	0.135	0.139	0.966
20	1.5%	2.5%	0.146	0.154	0.947
19	1.3%	2.5%	0.155	0.167	0.929
18	1.4%	2.5%	0.165	0.181	0.912
17	1.3%	2.5%	0.174	0.194	0.897
16	1.5%	2.5%	0.184	0.209	0.883
15	1.5%	2.5%	0.194	0.224	0.870
14	1.7%	2.5%	0.207	0.241	0.858
13	1.9%	2.5%	0.220	0.260	0.848
12	2.3%	2.5%	0.238	0.283	0.841
11	2.4%	2.5%	0.255	0.307	0.833
10	2.7%	2.5%	0.276	0.334	0.827
9	4.2%	2.5%	0.311	0.376	0.827
8	5.8%	2.5%	0.361	0.434	0.831
7	5.5%	2.5%	0.406	0.489	0.831
6	5.8%	2.5%	0.454	0.547	0.829
5	5.3%	2.5%	0.495	0.600	0.825
4	6.1%	2.5%	0.543	0.661	0.822
3	8.8%	2.5%	0.616	0.749	0.823
2	13.6%	2.5%	0.736	0.885	0.832
1	11.5%	2.5%	0.832	1.000	0.832
(G) Discount Factor for Future Funding:				2018-2019	0.842
				2019-2020	0.842

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, 73.6% = $[61.6\% / 1.025] + [13.6\% / (1.012)]$.
- (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	1.812
90%	2.339	1.572
85%	1.828	1.427
80%	1.495	1.319
75%	1.253	1.232
70%	1.065	1.158
65%	0.912	1.093
60%	0.785	1.034
55%	0.675	0.980
50%	0.580	0.929
45%	0.496	0.880
40%	0.421	0.833
35%	0.353	0.785
30%	0.291	0.738
25%	0.234	0.689

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	6/30/1998	Prior	\$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 6/30/18

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	\$3,337,183	\$0	\$20,361	\$3,316,822	\$0	\$458,163	\$2,858,659	\$458,163	\$3,316,822	\$3,316,822
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	562,548	0	0	562,548	5,667	225,797	336,751	220,129	556,881	556,881
2001-2002	1,063,482	0	694	1,062,787	0	468,862	593,926	468,862	1,062,787	1,062,787
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	601,882	0	0	601,882	0	173,043	428,838	173,043	601,882	601,882
2009-2010	644,870	0	0	644,870	0	214,972	429,898	214,972	644,870	644,870
2010-2011	540,006	0	0	540,006	0	202,417	337,589	202,417	540,006	540,006
2011-2012	559,491	0	0	559,491	0	186,477	373,014	186,477	559,491	559,491
2012-2013	273,870	0	0	273,870	0	53,564	220,305	53,564	273,870	273,870
2013-2014	479,498	0	0	479,498	0	89,472	390,027	89,472	479,498	479,498
Total	\$12,696,682	\$0	\$21,055	\$12,675,626	\$5,667	\$4,264,245	\$8,411,381	\$4,258,578	\$12,669,959	\$12,669,959

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 6/30/18

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 to SIR Layer (I)	Paid Capped at SIR (J)	Paid Capped at SIR & Aggregate (K)
Prior	\$3,278,488	\$0	\$20,361	\$3,258,126	\$0	\$458,163	\$2,799,963	\$458,163	\$3,258,126	\$3,258,126
1998-1999	982,185	0	0	982,185	0	290,536	691,649	290,536	982,185	982,185
1999-2000	409,336	0	0	409,336	0	116,070	293,266	116,070	409,336	409,336
2000-2001	553,569	0	0	553,569	5,667	225,797	327,772	220,129	547,902	547,902
2001-2002	1,054,815	0	694	1,054,121	0	460,195	593,926	460,195	1,054,121	1,054,121
2002-2003	162,324	0	0	162,324	0	0	162,324	0	162,324	162,324
2003-2004	1,949,306	0	0	1,949,306	0	1,514,111	435,196	1,514,111	1,949,306	1,949,306
2004-2005	154,856	0	0	154,856	0	0	154,856	0	154,856	154,856
2005-2006	247,639	0	0	247,639	0	0	247,639	0	247,639	247,639
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	462,192	0	0	462,192	0	51,237	410,956	51,237	462,192	462,192
2009-2010	584,995	0	0	584,995	0	169,097	415,898	169,097	584,995	584,995
2010-2011	471,940	0	0	471,940	0	174,303	297,638	174,303	471,940	471,940
2011-2012	512,284	0	0	512,284	0	139,270	373,014	139,270	512,284	512,284
2012-2013	205,273	0	0	205,273	0	17,347	187,926	17,347	205,273	205,273
2013-2014	410,704	0	0	410,704	0	45,692	365,013	45,692	410,704	410,704
Total	\$12,025,215	\$0	\$21,055	\$12,004,160	\$5,667	\$3,884,378	\$8,119,782	\$3,878,711	\$11,998,492	\$11,998,492

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 6/30/18

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	\$58,696	\$0	\$0	\$58,696	\$0	\$0	\$58,696	\$0	\$58,696	\$58,696
1998-1999	15,096	0	0	15,096	0	15,096	0	15,096	15,096	15,096
1999-2000	25,960	0	0	25,960	0	0	25,960	0	25,960	25,960
2000-2001	8,979	0	0	8,979	0	0	8,979	0	8,979	8,979
2001-2002	8,667	0	0	8,667	0	8,667	0	8,667	8,667	8,667
2002-2003	14,767	0	0	14,767	0	0	14,767	0	14,767	14,767
2003-2004	33,103	0	0	33,103	0	33,103	0	33,103	33,103	33,103
2004-2005	44,076	0	0	44,076	0	0	44,076	0	44,076	44,076
2005-2006	9,894	0	0	9,894	0	0	9,894	0	9,894	9,894
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	139,690	0	0	139,690	0	121,807	17,883	121,807	139,690	139,690
2009-2010	59,875	0	0	59,875	0	45,875	14,000	45,875	59,875	59,875
2010-2011	68,066	0	0	68,066	0	28,114	39,951	28,114	68,066	68,066
2011-2012	47,207	0	0	47,207	0	47,207	0	47,207	47,207	47,207
2012-2013	68,597	0	0	68,597	0	36,218	32,379	36,218	68,597	68,597
2013-2014	68,794	0	0	68,794	0	43,780	25,014	43,780	68,794	68,794
Total	\$671,467	\$0	\$0	\$671,467	\$0	\$379,868	\$291,599	\$379,868	\$671,467	\$671,467

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 6/30/18

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	366	0	30	336	362	0	30	332	4	4
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	27	0	2	25	26	0	2	24	1	1
2001-2002	25	0	1	24	24	0	1	23	1	1
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	22	0	1	21	2	2
2009-2010	27	0	1	26	25	0	1	24	2	2
2010-2011	25	0	6	19	23	0	6	17	2	2
2011-2012	24	0	5	19	23	0	5	18	1	1
2012-2013	24	0	1	23	22	0	1	21	2	2
2013-2014	34	0	4	30	32	0	4	28	2	2
Total	805	0	69	736	781	0	69	712	24	24

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	1.379	120,480
2006-2007	97,871	1.345	131,636
2007-2008	118,242	1.312	155,134
2008-2009	126,628	1.280	162,084
2009-2010	114,621	1.249	143,162
2010-2011	100,374	1.219	122,356
2011-2012	103,342	1.189	122,874
2012-2013	104,205	1.160	120,878
2013-2014	106,615	1.132	120,688

Notes:

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