



Actuarial Review of the Self-Insured Excess Liability Program

*Funding guidelines for program year 2019-20
Outstanding Liabilities as of June 30, 2019*

Presented to
Authority for California Cities Excess Liability

March 7, 2019



Thursday, March 7, 2019

Authority for California Cities Excess Liability
c/o Alliant Insurance Services
Attn: Mike Simmons, Pool Administrator
100 Pine Street, 11th Floor
San Francisco, California 94111

Re: Actuarial Review of the Funding Requirements for the Excess Liability Program

Dear Mr. Simmons:

As you requested, we have completed our actuarial review of the funding requirements for the Authority for California Cities Excess Liability's (ACCEL, the Authority) excess liability program. Our conclusions are documented in the text and exhibits that follow.

At the undiscounted expected level, we estimate the program's liability for outstanding loss and allocated loss adjustment expenses (ALAE) to be approximately \$31,868,000 as of June 30, 2019. We understand the Authority has chosen to record its liability with recognition of investment income at 2% per year. Discounted for anticipated investment income, we estimate the program's liability for outstanding loss and ALAE will be \$29,728,000 as of that date. Further, we recommend the Authority fund a risk margin for potential adverse experience. Including a margin for adverse experience at the 85% confidence level, the Authority's required funding as of June 30, 2019 is projected to be \$41,709,000.

Historically, ACCEL's outstanding liability has been comprised the liabilities of two separately funded pools:

- The first pool covered the layer from \$500,000 to \$1,000,000 per occurrence (the \$500K pool) and operated during program years 1986-87 to 1989-90. This pool was funded by those members with \$500,000 self-insured retentions during that period. All claims for this pool have been closed and there are no unpaid losses remaining.
- The second pool is for the layer above \$1,000,000 per occurrence (the \$1,000K pool) and is funded by all members.

The tables below shows our estimates of the program's claims liabilities as of December 31, 2018 and June 30, 2019, on both undiscounted and discounted bases for various confidence levels:

**Outstanding Liability as of December 31, 2018
at Various Confidence Levels
\$500K and \$1,000K Pools Combined**

Confidence Level	Undiscounted	Discounted
Expected	\$31,073,000	\$29,190,000
70%	35,920,000	33,743,000
75%	38,033,000	35,728,000
80%	40,519,000	38,063,000
85%	43,596,000	40,953,000
90%	47,635,000	44,748,000
95%	54,316,000	51,024,000

**Outstanding Liability as of June 30, 2019
at Various Confidence Levels
\$500K and \$1,000K pools combined**

Confidence Level	Undiscounted	Discounted
Expected	\$31,868,000	\$29,728,000
70%	36,839,000	34,366,000
75%	39,007,000	36,387,000
80%	41,556,000	38,766,000
85%	44,711,000	41,709,000
90%	48,854,000	45,573,000
95%	55,705,000	51,965,000

Our funding guidelines for the program's outstanding liabilities do not include any provision for reinsurance premiums, claims administration fees, and other administrative costs associated with the ACCEL program.

According to the accounting regulations of the Governmental Accounting Standards Board, unallocated loss adjustment expenses (ULAE) associated with the claims should be recognized as part of the program's claims liability. ULAE is the additional cost to administer all claims to final settlement, which may be years into the future (e.g. claims adjusters' salaries, taxes, etc.). Our undiscounted expected estimate of unpaid ULAE is \$834,000 as of June 30, 2019. This estimate is 3.5% of the sum of all IBNR reserves and half of case reserves as of June 30, 2019.

We present funding recommendations for claims incurred during program year 2019-20 at several confidence levels in the table below. Our recommendations are displayed as rates per \$100 of payroll for various layers. The recommended funding includes anticipated investment income at 2% per year.

Funding Guidelines for Discounted Claims Incurred in 2019-2020

Layer	Expected	75%	80%	85%	90%
\$1M-2M	\$0.251	\$0.315	\$0.338	\$0.367	\$0.404
\$1M-3M	0.396	0.497	0.533	0.579	0.638
\$1M-4M	0.461	0.579	0.621	0.674	0.743
\$1M-5M	0.499	0.627	0.672	0.729	0.804
\$2M-5M	0.249	0.313	0.335	0.364	0.401
\$5M-10M	0.163	0.205	0.220	0.238	0.263
\$6M-10M	0.128	0.161	0.172	0.187	0.206
\$7M-10M	0.093	0.117	0.125	0.136	0.150
\$8M-10M	0.061	0.077	0.082	0.089	0.098
\$9M-10M	0.029	0.036	0.039	0.042	0.047
\$10M-15M	0.139	0.175	0.187	0.203	0.224

The following table details the calculation of our funding guidelines in dollars at various confidence levels for the program’s 2019-20 claims by different layers:

Funding Amount Guidelines for Discounted Claims Incurred in 2019-2020

Layer	Expected	75%	80%	85%	90%
\$1M-2M	\$3,557,000	\$4,464,000	\$4,790,000	\$5,200,000	\$5,725,000
\$1M-3M	5,611,000	7,043,000	7,553,000	8,205,000	9,041,000
\$1M-4M	6,533,000	8,205,000	8,800,000	9,551,000	10,529,000
\$1M-5M	7,071,000	8,885,000	9,522,000	10,330,000	11,393,000
\$2M-5M	3,528,000	4,435,000	4,747,000	5,158,000	5,682,000
\$5M-10M	2,310,000	2,905,000	3,117,000	3,373,000	3,727,000
\$6M-10M	1,814,000	2,281,000	2,437,000	2,650,000	2,919,000
\$7M-10M	1,318,000	1,658,000	1,771,000	1,927,000	2,126,000
\$8M-10M	864,000	1,091,000	1,162,000	1,261,000	1,389,000
\$9M-10M	411,000	510,000	553,000	595,000	666,000
\$10M-15M	1,970,000	2,480,000	2,650,000	2,877,000	3,174,000

As with the program’s outstanding claims, the Authority should fund a margin for adverse experience in addition to the expected cost of claims. We would recommend funding excess liability programs at the 80% to 90% confidence level.

The analysis which made it possible for us to draw our conclusions is based on the data provided by the Authority's program manager Alliant Insurance Services (Alliant). We have accepted all of this information without audit.

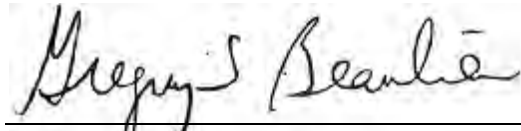
All actuarial estimates of liability claims costs are subject to uncertainty because of the complexity of the process that determines the costs. This is especially true of excess liability claims costs. For this reason, sound management practices suggest that actual funding should be in excess of expected claim activity. We generally recommend funding at the 80% to 90% confidence levels for excess liability programs, after recognition of investment income.

The first section of the attached report outlines the scope of our study, its background, and our conclusions, recommendations, detailed funding recommendations, assumptions, and approach to the project. The entire report has been developed for the internal use of the ACCEL, its auditors, and the representatives of its members. It is not intended for general circulation.

We appreciate the opportunity to be of service to ACCEL in preparing this report. Please feel free to call Greg Beaulieu at (916) 290-4632, Mike Harrington at (916) 244-1162 or David Kim at (916) 244-1166 with any questions you may have concerning this report.

Sincerely,

Bickmore



Greg Beaulieu, FCAS, MAAA
Senior Manager, Property and Casualty Actuarial Services, Bickmore



Mike Harrington, FCAS, MAAA
President, Actuarial Consulting, Bickmore



David Kim, MA
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I. BACKGROUND AND PURPOSE OF STUDY

The Authority for California Cities Excess Liability (ACCEL, the Authority) began operations on April 1, 1986. Its purpose is to provide excess liability coverage and to purchase commercial excess insurance on a group basis for California cities. The Authority provides coverage above each member's self-insured retention (SIR), subject to an upper pool limit. Currently the pool covers the layer from \$1,000,000 to \$5,000,000 for each of its members.

The program currently includes twelve members: Anaheim, Bakersfield, Burbank, Modesto, Monterey, Mountain View, Ontario, Palo Alto, Santa Barbara, Santa Cruz, Santa Monica, and Visalia.

ACCEL provided an optional coverage of \$500,000 excess of \$500,000 per occurrence (the \$500K pool) and operated during program years 1986-87 to 1989-90. This pool was funded by those members with \$500,000 self-insured retentions during that period. This coverage is no longer available.

Prior to July 1, 1990, the Authority pooled losses incurred by its members up to \$10,000,000. Effective July 1, 1990, ACCEL created a reinsurance pool within the \$9,000,000 excess of \$1,000,000 layer by purchasing \$5,000,000 excess of \$5,000,000 coverage. On July 1, 1997, ACCEL further reduced its exposure and purchased coverage of \$17,000,000 excess of \$3,000,000 coverage.

Due to favorable market conditions, ACCEL purchased coverage of \$19,000,000 excess of \$1,000,000 effective July 1, 1998. Six members with an SIR of \$500,000 purchased additional coverage of \$500,000 excess of \$500,000. On July 1, 2000, nine members purchased insurance of \$19,500,000 excess of \$500,000 and two members had coverage of \$19,000,000 excess of \$1,000,000. The ACCEL layer was fully insured with these limits through June 30, 2003.

Effective July 1, 2003, ACCEL purchased reinsurance covering \$20,000,000 excess of \$2,000,000 and pooled losses in the layer \$1,000,000 excess of \$1,000,000. All members had an SIR of \$1,000,000. Effective July 1, 2004, ACCEL pooled losses in the layer \$2,000,000 excess of \$1,000,000. ACCEL has pooled losses in the layer \$4,000,000 excess of \$1,000,000 for the period between 2005-06 and 2015-16 years. For the 2016-17 year, ACCEL pooled losses in the layer \$2,000,000 excess of \$1,000,000.

The purpose of this study is to provide a guide to ACCEL in evaluating the adequacy of its established funding for its outstanding claims liabilities as of June 30, 2019 and in determining its contribution level for the 2019-20 fiscal year.

II. CONCLUSIONS AND RECOMMENDATIONS

A. LIABILITY FOR OUTSTANDING CLAIMS

At the undiscounted expected level, we estimate the program's liability for outstanding loss and allocated loss adjustment expenses (ALAE) to be approximately \$31,868,000 as of June 30, 2019. We understand the Authority has chosen to record its liability with recognition of investment income at 2% per year. Discounted for anticipated investment income, we estimate the program's liability for outstanding loss and ALAE will be \$29,728,000 as of that date. Further, we recommend the Authority fund a risk margin for potential adverse experience. Including a margin for adverse experience at the 85% confidence level, the Authority's required funding as of June 30, 2019 is projected to be \$41,709,000.

Historically, ACCEL's outstanding liability has been comprised the liabilities of two separately funded pools:

- The first pool covered the layer from \$500,000 to \$1,000,000 per occurrence (the \$500K pool) and operated during program years 1986-87 to 1989-90. This pool was funded by those members with \$500,000 self-insured retentions during that period. All claims for this pool have been closed and there are no unpaid losses remaining.
- The second pool is for the layer above \$1,000,000 per occurrence (the \$1,000K pool) and is funded by all members.

Our estimates of the program's expected claims liabilities, on both undiscounted and discounted bases, by program year are displayed in the following tables as of December 31, 2018 and June 30, 2019:

**Outstanding Liability at the Expected Level
as of December 31, 2018 - \$1,000K pool**

Program Year	Undiscounted	Discounted
Prior	\$0	\$0
2007-2008	0	0
2008-2009	57,065	53,042
2009-2010	66,000	61,479
2010-2011	93,841	87,788
2011-2012	148,726	139,208
2012-2013	2,146,873	2,015,914
2013-2014	3,908,765	3,687,920
2014-2015	2,466,930	2,341,117
2015-2016	4,845,457	4,600,761
2016-2017	7,632,424	7,201,192
2017-2018	6,139,000	5,727,687
2018-2019	3,568,000	3,273,640
All Years	\$31,073,081	\$29,189,748

**Outstanding Liability at the Expected Level
as of June 30, 2019 - \$1,000K pool**

Program Year	Undiscounted	Discounted
Prior	\$0	\$0
2007-2008	0	0
2008-2009	52,728	48,879
2009-2010	61,644	57,699
2010-2011	82,392	77,037
2011-2012	131,771	123,470
2012-2013	1,876,367	1,765,661
2013-2014	3,365,446	3,183,712
2014-2015	2,094,424	1,993,891
2015-2016	4,244,620	4,019,655
2016-2017	6,945,506	6,528,776
2017-2018	5,905,718	5,468,695
2018-2019	7,107,456	6,460,678
All Years	\$31,868,073	\$29,728,153

Note that the \$1,000K pool has no outstanding liability associated with the 1998-99 through 2002-03 program years. Due to favorable market conditions, ACCEL purchased complete reinsurance for its members during that time.

The tables below shows our estimates of the program's claims liabilities as of December 31, 2018 and June 30, 2019, on both undiscounted and discounted bases for various confidence levels:

**Outstanding Liability as of December 31, 2018
at Various Confidence Levels
\$500K and \$1,000K Pools Combined**

Confidence Level	Undiscounted	Discounted
Expected	\$31,073,000	\$29,190,000
70%	35,920,000	33,743,000
75%	38,033,000	35,728,000
80%	40,519,000	38,063,000
85%	43,596,000	40,953,000
90%	47,635,000	44,748,000
95%	54,316,000	51,024,000

**Outstanding Liability as of June 30, 2019
at Various Confidence Levels
\$500K and \$1,000K Pools Combined**

Confidence Level	Undiscounted	Discounted
Expected	\$31,868,000	\$29,728,000
70%	36,839,000	34,366,000
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80%	41,556,000	38,766,000
85%	44,711,000	41,709,000
90%	48,854,000	45,573,000
95%	55,705,000	51,965,000

The estimated program outstanding liabilities shown above do not include any provision for claims administration fees associated with the ACCEL program.

According to the accounting regulations of the Governmental Accounting Standards Board, unallocated loss adjustment expenses (ULAE) associated with the claims should be recognized as part of the program's claims liability. ULAE is the additional cost to administer all claims to final settlement, which may be years into the future (e.g. claims adjusters' salaries, taxes, etc.). Our undiscounted expected estimate of unpaid ULAE is \$834,000 as of June 30, 2019. This estimate is 3.5% of the sum of all IBNR reserves and half of case reserves as of June 30, 2019.

B. FUNDING RATES FOR FUTURE CLAIMS

Our funding guidelines are displayed as rates per \$100 of payroll and dollars for various layers. The funding guidelines include anticipated investment income at 2% per year.

Funding Rate Guidelines for Discounted Claims Incurred in 2019-2020

Layer	Expected	75%	80%	85%	90%
\$1M-2M	\$0.251	\$0.315	\$0.338	\$0.367	\$0.404
\$1M-3M	0.396	0.497	0.533	0.579	0.638
\$1M-4M	0.461	0.579	0.621	0.674	0.743
\$1M-5M	0.499	0.627	0.672	0.729	0.804
\$2M-5M	0.249	0.313	0.335	0.364	0.401
\$5M-10M	0.163	0.205	0.220	0.238	0.263
\$6M-10M	0.128	0.161	0.172	0.187	0.206
\$7M-10M	0.093	0.117	0.125	0.136	0.150
\$8M-10M	0.061	0.077	0.082	0.089	0.098
\$9M-10M	0.029	0.036	0.039	0.042	0.047
\$10M-15M	0.139	0.175	0.187	0.203	0.224

Funding Amount Guidelines for Discounted Claims Incurred in 2019-2020

Layer	Expected	75%	80%	85%	90%
\$1M-2M	\$3,557,000	\$4,464,000	\$4,790,000	\$5,200,000	\$5,725,000
\$1M-3M	5,611,000	7,043,000	7,553,000	8,205,000	9,041,000
\$1M-4M	6,533,000	8,205,000	8,800,000	9,551,000	10,529,000
\$1M-5M	7,071,000	8,885,000	9,522,000	10,330,000	11,393,000
\$2M-5M	3,528,000	4,435,000	4,747,000	5,158,000	5,682,000
\$5M-10M	2,310,000	2,905,000	3,117,000	3,373,000	3,727,000
\$6M-10M	1,814,000	2,281,000	2,437,000	2,650,000	2,919,000
\$7M-10M	1,318,000	1,658,000	1,771,000	1,927,000	2,126,000
\$8M-10M	864,000	1,091,000	1,162,000	1,261,000	1,389,000
\$9M-10M	411,000	510,000	553,000	595,000	666,000
\$10M-15M	1,970,000	2,480,000	2,650,000	2,877,000	3,174,000

The estimated program costs shown above do not include any provision for reinsurance premiums, claims administration fees, and other administrative costs associated with the ACCEL program.

C. FUNDING GUIDELINES

We generally recommend funding of excess liability programs to the 85% confidence level, with a recommended range of the 80% to 90% confidence levels. We generally consider funding to the 75% confidence level to be marginally acceptable, and to the 95% confidence level to be conservative. However, these should only be considered general guidelines, as we also strongly believe that the confidence level to which any future year is funded should be evaluated in light of the relative certainty of the underlying assumptions, the other budgetary constraints of those contributing to the program, and the relative risk it is believed appropriate to assume at a particular point in time. This means formulating both short-term and long-term funding goals, which may be the same in some years and different in others.

In general, we recommend considerable conservatism in refunding excess contributions, especially in light of the hardship imposed upon the members when assessments are necessary. It is always possible to refund excess contributions later, but contributions that appear to be excess that are refunded too soon may prove to be very difficult to re-collect later. For years for which assessments have not yet been levied, we recommend a staggered schedule of returns that begins when a year reaches a certain level of maturity. For example, the Authority might develop a guideline returning excess contributions on a year five to six years old that is funded above the 90% confidence level, on a year seven to nine years old that is funded above the 85% confidence level, and on a year ten or more years old that is funded above the 80% confidence level. Refunds are made at the discretion of the Board.

We understand the program's outstanding loss and loss adjustment expense liabilities are funded at the 85% discounted confidence level. This target applies to the outstanding liabilities in total, not on an individual program year basis. Funding in excess of the 90% discounted confidence level is available for dividends at the Board's discretion.

D. COMPARISON WITH PRIOR RESULTS

The following tables details the changes in our estimates of the Authority's ultimate losses by program year from those of the prior report based upon losses valued as of 12/31/17:

Comparison with Prior Undiscounted Estimated Ultimate Losses (Prior Based upon Losses Valued at December 31, 2017)

Program Year	Prior Report 12/31/17	Current Report	Change
2003-2004	\$3,526,000	\$3,526,000	\$0
2004-2005	9,967,000	9,968,000	1,000
2005-2006	4,458,000	4,458,000	0
2006-2007	621,000	621,000	0
2007-2008	7,351,000	4,851,000	(2,500,000)
2008-2009	3,248,000	3,245,000	(3,000)
2009-2010	81,000	66,000	(15,000)
2010-2011	494,000	469,000	(25,000)
2011-2012	189,000	151,000	(38,000)
2012-2013	7,084,000	4,713,000	(2,371,000)
2013-2014	12,315,000	12,693,000	378,000
2014-2015	8,644,000	9,468,000	824,000
2015-2016	5,444,000	5,348,000	(96,000)
2016-2017	5,750,000	9,694,000	3,944,000
2017-2018	5,652,000	6,139,000	487,000
2003-2018	\$74,824,000	\$75,410,000	\$586,000

As shown, overall we have increased our estimates of the program's ultimate losses by \$586,000 from those displayed in our prior actuarial report dated March 20, 2018. The increase is mainly due to adverse loss development in the 2014-15 and 2016-17 program years.

At the time of the prior report (based upon losses valued at 12/31/17), we estimated the liability for outstanding claims as of June 30, 2018 to be \$30,086,000 at the discounted, expected level. Our current estimate as of June 30, 2019, is \$29,728,000, a decrease in our assessment of the Authority's outstanding liabilities, as shown below:

**Comparison with Prior
\$500K and \$1,000 Pools Combined
Outstanding Claim Liabilities for Loss and ALAE
(Prior Based upon Losses Valued at December 31, 2017)**

	Prior Report at June 30, 2018	Current Report at June 30, 2019	Change
Case Reserves:	\$21,292,000	\$16,087,000	(\$5,205,000)
IBNR Reserves:	11,058,000	15,781,000	4,723,000
Total Reserves:	\$32,350,000	\$31,868,000	(\$482,000)
Offset for Investment Income:	(2,264,000)	(2,140,000)	124,000
Total Outstanding Claim Liabilities:	\$30,086,000	\$29,728,000	(\$358,000)

As shown, our estimate of outstanding claims liabilities at the discounted, expected level has decreased between June 30, 2018 and June 30, 2019 as reflected in our prior and current reports respectively.

Estimated case reserves have decreased by \$5,205,000 since the prior evaluation while our estimate of IBNR reserves have increased by \$4,723,000. The overall result is a decrease of \$482,000 in total claim reserves. This increase in reserves leads to a smaller offset for investment income. The net change due to the above factors is an overall decrease of \$358,000 in our estimate of outstanding claim liabilities for loss and ALAE.

The following tables details the changes in our estimates of the Authority's ultimate losses by program year from those of the prior report based upon losses valued as of 6/30/18:

**Comparison with Prior
Undiscounted Estimated Ultimate Losses
(Prior Based upon Losses Valued at June 30, 2018)**

Program Year	Prior Report 6/30/18	Current Report	Change
2003-2004	\$3,526,000	\$3,526,000	\$0
2004-2005	9,684,000	9,968,000	284,000
2005-2006	4,458,000	4,458,000	0
2006-2007	621,000	621,000	0
2007-2008	4,851,000	4,851,000	0
2008-2009	3,244,000	3,245,000	1,000
2009-2010	69,000	66,000	(3,000)
2010-2011	475,000	469,000	(6,000)
2011-2012	166,000	151,000	(15,000)
2012-2013	4,821,000	4,713,000	(108,000)
2013-2014	13,557,000	12,693,000	(864,000)
2014-2015	8,250,000	9,468,000	1,218,000
2015-2016	5,092,000	5,348,000	256,000
2016-2017	5,467,000	9,694,000	4,227,000
2017-2018	5,550,000	6,139,000	589,000
 2003-2018	 \$69,831,000	 \$75,410,000	 \$5,579,000

As shown, overall we have increased our estimates of the program's ultimate losses by \$5,579,000 from those displayed in our prior actuarial report dated June 8, 2018. The increase is mainly due to adverse loss development in the latest four program years.

At the time of the prior report (based upon losses valued at 6/30/18), we estimated the liability for outstanding claims as of June 30, 2018 to be \$27,310,000 at the discounted, expected level. Our current estimate as of June 30, 2019, is \$29,728,000, an increase in our assessment of the Authority's outstanding liabilities, as shown below:

**Comparison with Prior
\$500K and \$1,000 Pools Combined
Outstanding Claim Liabilities for Loss and ALAE
(Prior Based upon Losses Valued at June 30, 2018)**

	Prior Report at June 30, 2018	Current Report at June 30, 2019	Change
Case Reserves:	\$18,361,000	\$16,087,000	(\$2,274,000)
IBNR Reserves:	11,057,000	15,781,000	4,724,000
Total Reserves:	\$29,418,000	\$31,868,000	\$2,450,000
Offset for Investment Income:	(2,108,000)	(2,140,000)	(32,000)
Total Outstanding Claim Liabilities:	\$27,310,000	\$29,728,000	\$2,418,000

As shown, our estimate of outstanding claims liabilities at the discounted, expected level has increased between June 30, 2018 and June 30, 2019 as reflected in our prior and current reports respectively.

Estimated case reserves have decreased by \$2,274,000 while our estimate of IBNR reserves increased by \$4,724,000 due to adverse loss development. The overall result is an increase of \$2,450,000 in total claim reserves. This increase in reserves leads to a larger offset for investment income. The net change due to the above factors is an overall increase of \$2,418,000 in our estimate of outstanding claim liabilities for loss and ALAE.

The following table displays a comparison of the Authority's projected funding rates from current and prior reports valued at 12/31/17 by various layers.

**Comparison with Prior
Undiscounted Expected Funding Rates**

Layer	Prior Report 2018-19	Current Report 2019-20	Percent Change
\$1M-2M	\$0.239	\$0.273	14.2%
\$1M-3M	\$0.378	\$0.431	14.0%
\$1M-4M	\$0.440	\$0.502	14.1%
\$1M-5M	\$0.477	\$0.544	14.0%
\$5M-10M	\$0.156	\$0.178	14.1%

As you can see, our projected funding rates for the 2019-20 program year have increased for all layers.

E. 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 an excess pooling 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 you have provided to us. We have accepted all of this information without audit and relied on its accuracy in preparing our estimates for this report. As always, the accuracy and relevance of our conclusions and recommendations are highly dependent on the accuracy and relevance of the underlying data.
- In ACCEL's case, we were provided a list of claims with incurred losses greater than \$25,000 as of December 31, 2018 from individual member cities. This file included ground up losses and allocated loss adjustment expenses reported separately for each claimant. We were also provided with pool loss runs as of December 31, 2018.
- We were provided with payrolls by City for the 1986-87 through 2017-18 program years. The estimated payroll for 2018-19 and 2019-20 was calculated using a 1.5% trend per year.
- We have assumed that the future development of incurred and paid losses can be reasonably predicted on the basis of the development of such losses in the recent past. We have also assumed that the historical development patterns for a large group of California public entities with a self-insured excess liability program in the aggregate form a reasonable basis of comparison to the patterns from the Authority's data.
- We have assumed that there is a continuing relationship between past and future loss costs and between loss costs and payroll. These assumptions can be tenuous in a changing legal and social environment such as we face today.
- It is not possible to predict future claims costs precisely. Most of the cost of liability claims arises from a small number of incidents involving serious injury. Thus, changes in the circumstances surrounding these claims can have large effects on total costs. Therefore, the actual costs of the covered liability claims could differ significantly from our estimates.
- We cannot predict and have not attempted to predict the impact of future law changes and court rulings on liability claims costs. This is one major reason

why we believe our funding recommendations are reasonable now, but should not be extrapolated into the future.

- At your instruction, we have assumed that funds held for investment will generate an annual return of 2% in the long run.
- We estimate that the costs associated with liability claims in the \$100,000 to \$1,000,000 per occurrence layer are increasing at 4% per year after changes in exposure. 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 payments and allocated loss adjustment expenses. We have not provided estimates for claims adjustment expenses not allocated to particular cases, reinsurance premiums, and Authority administrative expenses.
- We have assumed that all reinsurance coverage purchased by the Authority will prove to be valid and fully collectible.
- Our funding recommendations do not include provision for catastrophic events not in the program's history, such as earthquakes, flooding, fire or mass civil disorder.

F. OVERALL ANALYTICAL APPROACH

The approach we have taken in developing this analysis is firmly grounded in the Authority's loss and exposure data. Our approach to the problem of estimating the program's ultimate pooled loss costs is a multi-step process. We estimated the cost of the \$100,000 to \$1 million layer. We then constructed a mathematical equation for the distribution of the Authority's losses by size by trending and developing the Authority's individual claims from the 2007-08 through 2017-18 program years.

Next, using the loss distribution, the \$100,000 – \$1,000,000 ultimate loss rate, and our selected loss development patterns, we then estimated the ultimate losses of the excess layers for which the Authority is responsible.

The following actuarial techniques were applied to ACCEL's loss data to estimate the ultimate cost of claims in the \$100,000 - \$1,000,000 layer:

- ◆ Incurred Loss Development
- ◆ Paid Loss Development
- ◆ Bornhuetter-Ferguson Based on Incurred Losses
- ◆ Bornhuetter-Ferguson Based on Paid Losses
- ◆ Frequency Times Severity

Actuarial judgment was used to select among the ultimate losses indicated by the above methods.

The following actuarial techniques were applied to ACCEL's loss data to estimate the ultimate losses in the program's actual pooled layers:

- ◆ Incurred Loss Development
- ◆ Paid Loss Development
- ◆ Bornhuetter-Ferguson

Again, actuarial judgment was used to select among the ultimate losses indicated by the above methods, with heavy emphasis applied to the two methods based on incurred losses.

Authority for California Cities Excess Liability

Projected 2019-20 Funding Guidelines

Layer	Estimated 2019-20 Payroll (A)	Expected Ultimate Losses (B)	Discount Factor (C)	Discounted Expected Ultimate Losses (D)	70% Confidence Level (E)	75% Confidence Level (E)	80% Confidence Level (E)	85% Confidence Level (E)	90% Confidence Level (E)	95% Confidence Level (E)
\$1M-2M	\$14,170,290	\$3,868,489	91.8%	\$3,556,743	\$4,194,406	\$4,463,641	\$4,789,558	\$5,200,496	\$5,724,797	\$6,603,355
\$1M-3M	14,170,290	6,107,395	91.8%	5,611,435	6,603,355	7,042,634	7,552,765	8,204,598	9,040,645	10,429,333
\$1M-4M	14,170,290	7,113,486	91.8%	6,532,504	7,694,467	8,204,598	8,799,750	9,550,775	10,528,525	12,143,939
\$1M-5M	14,170,290	7,708,638	91.8%	7,070,975	8,332,131	8,884,772	9,522,435	10,330,141	11,392,913	13,135,859
\$2M-5M	14,170,290	3,840,149	91.8%	3,528,402	4,151,895	4,435,301	4,747,047	5,157,986	5,682,286	6,560,844
\$5M-10M	14,170,290	2,522,312	91.8%	2,309,757	2,720,696	2,904,909	3,117,464	3,372,529	3,726,786	4,293,598
\$6M-10M	14,170,290	1,969,670	91.8%	1,813,797	2,139,714	2,281,417	2,437,290	2,649,844	2,919,080	3,372,529
\$7M-10M	14,170,290	1,431,199	91.8%	1,317,837	1,558,732	1,657,924	1,771,286	1,927,159	2,125,544	2,451,460
\$8M-10M	14,170,290	935,239	91.8%	864,388	1,020,261	1,091,112	1,161,964	1,261,156	1,388,688	1,601,243
\$9M-10M	14,170,290	453,449	91.8%	410,938	481,790	510,130	552,641	595,152	666,004	765,196
\$10M-15M	14,170,290	2,139,714	91.8%	1,969,670	2,323,928	2,479,801	2,649,844	2,876,569	3,174,145	3,655,935

- (A) Provided by ACCEL.
- (B) (A) times funding rates from Exhibit 1, Page 2, (A).
- (C) From Exhibit 3.
- (D) (A) times funding rates from Exhibit 1, Page 2, (C).
- (E) (A) times funding rates from Exhibit 1, Page 2, (D).

Authority for California Cities Excess Liability

Projected 2019-20 Funding Guidelines
Loss Rates per \$100 of Payroll

Layer	Expected Loss Rate Per \$100 of Payroll (A)	Discount Factor (B)	Discounted Expected Loss Rate Per \$100 of Payroll (C)	70% Confidence Level (D)	75% Confidence Level (D)	80% Confidence Level (D)	85% Confidence Level (D)	90% Confidence Level (D)	95% Confidence Level (D)
\$1M-2M	\$0.273	91.8%	\$0.251	\$0.296	\$0.315	\$0.338	\$0.367	\$0.404	\$0.466
\$1M-3M	0.431	91.8%	0.396	0.466	0.497	0.533	0.579	0.638	0.736
\$1M-4M	0.502	91.8%	0.461	0.543	0.579	0.621	0.674	0.743	0.857
\$1M-5M	0.544	91.8%	0.499	0.588	0.627	0.672	0.729	0.804	0.927
\$2M-5M	0.271	91.8%	0.249	0.293	0.313	0.335	0.364	0.401	0.463
\$5M-10M	0.178	91.8%	0.163	0.192	0.205	0.220	0.238	0.263	0.303
\$6M-10M	0.139	91.8%	0.128	0.151	0.161	0.172	0.187	0.206	0.238
\$7M-10M	0.101	91.8%	0.093	0.110	0.117	0.125	0.136	0.150	0.173
\$8M-10M	0.066	91.8%	0.061	0.072	0.077	0.082	0.089	0.098	0.113
\$9M-10M	0.032	91.8%	0.029	0.034	0.036	0.039	0.042	0.047	0.054
\$10M-15M	0.151	91.8%	0.139	0.164	0.175	0.187	0.203	0.224	0.258

Notes:

- (A) From Exhibit 1, Page 3 and members' loss distribution.
- (B) From Exhibit 3.
- (C) (A) * (B)
- (D) (C) times Confidence Level Factor from Exhibit 4.

Authority for California Cities Excess Liability
ACCEL Pooled Layer

Selected Base Loss Rate (\$100K - \$1M Layer)

(A) Estimated based on \$1M Ultimate Less \$100K Ultimate	N/A
(B) Estimated based on \$100K - \$1M Analysis:	\$1.175
(C) Selected Base Loss Rate (\$100K - \$1M Layer):	\$1.175

Authority for California Cities Excess Liability
ACCEL Pooled Layer

Funding Guidelines for Outstanding Losses
as of December 31, 2018 and June 30, 2019

	<u>December 31, 2018</u>	<u>June 30, 2019</u>
(A) Estimated Ultimate Losses Incurred as of:	\$100,943,000	\$104,511,000
(B) Estimated Paid Losses as of:	69,870,000	72,643,000
(C) Estimated Liability for Claims Outstanding as of:	\$31,073,000	\$31,868,000
(D) Outstanding Liability Discount Factor:	93.9%	93.3%
(E) Discounted Outstanding Liability for Claims as of:	\$29,190,000	\$29,728,000
(F) Risk Margin at 85% Confidence Level:	11,764,000	11,980,000
(G) Required Funding at the 85% confidence Level:	\$40,954,000	\$41,708,000

Notes:

- (A) From Appendix A, Page 1, Column (A).
- (B) Provided by ACCEL
- (C) (A) - (B)
- (D) From Exhibit 3
- (E) (C) * (D)
- (F) (E) * Confidence Level Factor from Exhibit 4
- (G) (E) + (F)

Authority for California Cities Excess Liability
ACCEL Pooled Layer

Discount Factors

	Accident Year	Paid Loss	Payment	Full	2.0%	Discounted
	Age	Developmen	Pattern	Value	Discounted	Discounted
		Factor		Reserve	Reserve	Factor
1987-1988	32.0	1.000	0.0%	0.0%	0.0%	100.0%
1988-1989	31.0	1.000	0.0%	0.0%	0.0%	100.0%
1989-1990	30.0	1.000	0.0%	0.0%	0.0%	100.0%
1990-1991	29.0	1.000	0.0%	0.0%	0.0%	100.0%
1991-1992	28.0	1.000	0.0%	0.0%	0.0%	100.0%
1992-1993	27.0	1.000	0.0%	0.0%	0.0%	77.2%
1993-1994	26.0	1.000	0.0%	0.0%	0.0%	92.6%
1994-1995	25.0	1.000	0.0%	0.0%	0.0%	83.4%
1995-1996	24.0	1.000	0.0%	0.1%	0.1%	83.4%
1996-1997	23.0	1.001	0.0%	0.1%	0.1%	90.1%
1997-1998	22.0	1.001	0.1%	0.2%	0.2%	95.2%
1998-1999	21.0	1.002	0.1%	0.3%	0.3%	93.6%
1999-2000	20.0	1.003	0.1%	0.4%	0.4%	92.9%
2000-2001	19.0	1.004	0.2%	0.6%	0.6%	93.9%
2001-2002	18.0	1.006	0.3%	0.9%	0.8%	94.2%
2002-2003	17.0	1.009	0.4%	1.3%	1.2%	94.3%
2003-2004	16.0	1.013	0.5%	1.8%	1.7%	94.0%
2004-2005	15.0	1.018	0.2%	2.0%	1.8%	92.8%
2005-2006	14.0	1.020	1.0%	2.9%	2.7%	93.7%
2006-2007	13.0	1.030	0.9%	3.8%	3.6%	93.6%
2007-2008	12.0	1.040	0.9%	4.8%	4.4%	93.2%
2008-2009	11.0	1.050	1.0%	5.7%	5.3%	92.7%
2009-2010	10.0	1.061	2.8%	8.5%	8.0%	93.6%
2010-2011	9.0	1.093	2.7%	11.2%	10.5%	93.5%
2011-2012	8.0	1.126	4.2%	15.4%	14.4%	93.7%
2012-2013	7.0	1.182	7.0%	22.4%	21.0%	94.1%
2013-2014	6.0	1.288	12.4%	34.8%	32.9%	94.6%
2014-2015	5.0	1.533	21.8%	56.5%	53.8%	95.2%
2015-2016	4.0	2.300	18.6%	75.2%	71.2%	94.7%
2016-2017	3.0	4.025	16.6%	91.7%	86.2%	94.0%
2017-2018	2.0	12.075	7.5%	99.2%	91.9%	92.6%
2018-2019	1.0	120.750	0.8%	100.0%	90.9%	90.9%

Discount Factor for Future Funding: 0.918

Authority for California Cities Excess Liability
ACCEL Pooled Layer

Discount Factors

Accident Year	Accident Year Paid Loss Development Factor	Full Value Reserve	2.0% Discounted Reserve	12/31/18 Outstanding Loss	Discounted Factor	12/31/18 Discounted Outstanding Loss	6/30/19 Outstanding Loss	Discounted Factor	6/30/19 Discounted Outstanding Loss
1986-1987	1.000	0.00%	0.00%	0	100.0%	0	0	100.0%	0
1987-1988	1.000	0.00%	0.00%	0	88.6%	0	0	77.2%	0
1988-1989	1.000	0.00%	0.00%	0	84.9%	0	0	92.6%	0
1989-1990	1.000	0.00%	0.00%	0	88.0%	0	0	83.4%	0
1986-1987	1.000	0.00%	0.00%	0	100.0%	0	0	100.0%	0
1987-1988	1.000	0.00%	0.00%	0	88.6%	0	0	77.2%	0
1988-1989	1.000	0.01%	0.01%	0	84.9%	0	0	92.6%	0
1989-1990	1.000	0.01%	0.01%	0	88.0%	0	0	83.4%	0
1990-1991	1.000	0.02%	0.02%	0	83.4%	0	0	83.4%	0
1991-1992	1.000	0.04%	0.04%	0	86.8%	0	0	90.1%	0
1992-1993	1.001	0.06%	0.06%	0	92.7%	0	0	95.2%	0
1993-1994	1.001	0.10%	0.10%	0	94.4%	0	0	93.6%	0
1994-1995	1.002	0.20%	0.19%	0	93.3%	0	0	92.9%	0
1995-1996	1.003	0.30%	0.29%	0	93.4%	0	0	93.9%	0
1996-1997	1.004	0.40%	0.38%	0	94.1%	0	0	94.2%	0
1997-1998	1.006	0.60%	0.57%	0	94.3%	0	0	94.3%	0
2003-2004	1.009	0.89%	0.85%	0	94.2%	0	0	94.0%	0
2004-2005	1.013	1.28%	1.22%	0	93.4%	0	0	92.8%	0
2005-2006	1.018	1.77%	1.67%	0	93.3%	0	0	93.7%	0
2006-2007	1.020	1.96%	1.83%	0	93.7%	0	0	93.6%	0
2007-2008	1.030	2.91%	2.74%	0	93.4%	0	0	93.2%	0
2008-2009	1.040	3.85%	3.61%	57,065	93.0%	53,042	52,728	92.7%	48,879
2009-2010	1.050	4.76%	4.45%	66,000	93.2%	61,479	61,644	93.6%	57,699
2010-2011	1.093	8.51%	8.07%	93,841	93.6%	87,788	82,392	93.5%	77,037
2011-2012	1.126	11.19%	10.57%	148,726	93.6%	139,208	131,771	93.7%	123,470
2012-2013	1.182	15.40%	14.53%	2,146,873	93.9%	2,015,914	1,876,367	94.1%	1,765,661
2013-2014	1.288	22.36%	21.13%	3,908,765	94.4%	3,687,920	3,365,446	94.6%	3,183,712
2014-2015	1.533	34.77%	33.00%	2,466,930	94.9%	2,341,117	2,094,424	95.2%	1,993,891
2015-2016	2.300	56.52%	53.90%	4,845,457	95.0%	4,600,761	4,244,620	94.7%	4,019,655
2016-2017	4.025	75.16%	71.29%	7,632,424	94.4%	7,201,192	6,945,506	94.0%	6,528,776
2017-2018	12.075	91.72%	86.29%	6,139,000	93.3%	5,727,687	5,905,718	92.6%	5,468,695
2018-2019	120.750	99.17%	91.98%	3,568,000	91.8%	3,273,640	7,107,456	90.9%	6,460,678
			Total	31,073,081		29,189,748	31,868,073		29,728,153
			Discount Factor for Outstanding:	93.9%			93.3%		

Authority for California Cities Excess Liability
ACCEL Pooled Layer

Confidence Level Factors

Probability	Projected Funding Factor	Outstanding Liability Factor
95	1.858	1.748
90	1.611	1.533
85	1.461	1.403
80	1.347	1.304
75	1.256	1.224
70	1.178	1.156
65	1.108	1.095
60	1.045	1.040
55	0.987	0.990
50	0.932	0.941
45	0.879	0.895
40	0.827	0.850
35	0.775	0.805
30	0.723	0.759
25	0.668	0.711

Authority for California Cities Excess Liability
ACCEL Layer

Outstanding Liability at December 31, 2018

Accident Year	Ultimate Losses (A)	12/31/18 Reported Loss (B)	12/31/18 IBNR (C)	12/31/18 Paid Loss (D)	12/31/18 Case Reserves (E)	12/31/18 Outstanding Loss (F)
1986-1987	0	0	0	0	0	0
1987-1988	500,000	500,000	0	500,000	0	0
1988-1989	0	0	0	0	0	0
1989-1990	0	0	0	0	0	0
Totals	\$500,000	\$500,000	\$0	\$500,000	\$0	\$0
1986-1987	0	0	0	0	0	0
1987-1988	724,542	724,542	0	724,542	0	0
1988-1989	0	0	0	0	0	0
1989-1990	0	0	0	0	0	0
1990-1991	0	0	0	0	0	0
1991-1992	2,501,191	2,501,191	0	2,501,191	0	0
1992-1993	10,538,558	10,538,558	0	10,538,558	0	0
1993-1994	877,168	877,168	0	877,168	0	0
1994-1995	1,439,192	1,439,192	0	1,439,192	0	0
1995-1996	912,141	912,141	0	912,141	0	0
1996-1997	2,388,970	2,388,970	0	2,388,970	0	0
1997-1998	2,083,463	2,083,463	0	2,083,463	0	0
2003-2004	3,526,085	3,526,085	0	3,526,085	0	0
2004-2005	9,967,624	9,967,624	0	9,967,624	0	0
2005-2006	4,457,753	4,457,753	0	4,457,753	0	0
2006-2007	621,098	621,098	0	621,098	0	0
2007-2008	4,851,132	4,851,132	0	4,851,132	0	0
2008-2009	3,245,000	3,187,935	57,065	3,187,935	0	57,065
2009-2010	66,000	0	66,000	0	0	66,000
2010-2011	469,000	375,159	93,841	375,159	0	93,841
2011-2012	151,000	2,274	148,726	2,274	0	148,726
2012-2013	4,713,000	4,423,614	289,386	2,566,127	1,857,487	2,146,873
2013-2014	12,693,000	11,407,142	1,285,858	8,784,235	2,622,907	3,908,765
2014-2015	9,468,000	9,291,070	176,930	7,001,070	2,290,000	2,466,930
2015-2016	5,348,000	2,502,543	2,845,457	502,543	2,000,000	4,845,457
2016-2017	9,694,000	10,011,576	(317,576)	2,061,576	7,950,000	7,632,424
2017-2018	6,139,000	0	6,139,000	0	0	6,139,000
2018-2019	3,568,000	0	3,568,000	0	0	3,568,000
Totals	\$100,442,917	\$86,090,229	\$14,352,687	\$69,369,835	\$16,720,394	\$31,073,081
Grand Totals	\$100,942,917	\$86,590,229	\$14,352,687	\$69,869,835	\$16,720,394	\$31,073,081

Notes:

- (A) From Appendix A, Page 3, Column (E).
- (B) Provided by ACCEL
- (C) (A) - (B)
- (D) Provided by ACCEL
- (F) (B) - (D)
- (F) (D) - (A)

Authority for California Cities Excess Liability
ACCEL Layer

Outstanding Liability at June 30, 2019

Accident Year	Ultimate Losses (A)	6/30/2019 Reported Loss (B)	6/30/2019 IBNR (C)	6/30/2019 Paid Loss (D)	6/30/2019 Case Reserves (E)	6/30/2019 Outstanding Loss (F)
1986-1987	0	0	0	0	0	0
1987-1988	500,000	500,000	0	500,000	0	0
1988-1989	0	0	0	0	0	0
1989-1990	0	0	0	0	0	0
Totals	\$500,000	\$500,000	\$0	\$500,000	\$0	\$0
1986-1987	0	0	0	0	0	0
1987-1988	724,542	724,542	0	724,542	0	0
1988-1989	0	0	0	0	0	0
1989-1990	0	0	0	0	0	0
1990-1991	0	0	0	0	0	0
1991-1992	2,501,191	2,501,191	0	2,501,191	0	0
1992-1993	10,538,558	10,538,558	0	10,538,558	0	0
1993-1994	877,168	877,168	0	877,168	0	0
1994-1995	1,439,192	1,439,192	0	1,439,192	0	0
1995-1996	912,141	912,141	0	912,141	0	0
1996-1997	2,388,970	2,388,970	0	2,388,970	0	0
1997-1998	2,083,463	2,083,463	0	2,083,463	0	0
2003-2004	3,526,085	3,526,085	0	3,526,085	0	0
2004-2005	9,967,624	9,967,624	0	9,967,624	0	0
2005-2006	4,457,753	4,457,753	0	4,457,753	0	0
2006-2007	621,098	621,098	0	621,098	0	0
2007-2008	4,851,132	4,851,132	0	4,851,132	0	0
2008-2009	3,245,000	3,192,272	52,728	3,192,272	0	52,728
2009-2010	66,000	4,356	61,644	4,356	0	61,644
2010-2011	469,000	388,954	80,046	386,608	2,346	82,392
2011-2012	151,000	26,516	124,484	19,229	7,288	131,771
2012-2013	4,713,000	4,458,630	254,370	2,836,633	1,621,997	1,876,367
2013-2014	12,693,000	11,762,039	930,961	9,327,554	2,434,485	3,365,446
2014-2015	9,468,000	9,339,903	128,097	7,373,576	1,966,326	2,094,424
2015-2016	5,348,000	3,344,798	2,003,202	1,103,380	2,241,419	4,244,620
2016-2017	9,694,000	9,952,507	(258,507)	2,748,494	7,204,013	6,945,506
2017-2018	6,139,000	742,819	5,396,181	233,282	509,537	5,905,718
2018-2019	7,136,000	128,448	7,007,552	28,544	99,904	7,107,456
Totals	\$104,010,917	\$88,230,158	\$15,780,759	\$72,142,843	\$16,087,314	\$31,868,073
Grand Totals	\$104,510,917	\$88,730,158	\$15,780,759	\$72,642,843	\$16,087,314	\$31,868,073

Notes:

- (A) From Appendix A, Page 3, Column (E).
- (B) Projected based on Appendix A, Page 4, Column (B).
- (C) (A) - (B)
- (D) Projected based on Appendix A, Page 5, Column (B).
- (F) (B) - (D)
- (F) (D) - (A)

Authority for California Cities Excess Liability
ACCEL Layer

Estimated Ultimate Losses

Accident Year	Reported Loss Development Method (A)	Paid Loss Development Method (B)	Expected Loss Method (C)	Prior Estimate of Ultimate Losses (D)	Selected Estimate of Ultimate Losses (E)
1986-1987	0	0		0	0
1987-1988	500,000	500,000		500,000	500,000
1988-1989	0	0		0	0
1989-1990	0	0		0	0
Totals	\$500,000	\$500,000		\$500,000	\$500,000
1986-1987	0	0		0	0
1987-1988	724,542	724,542		724,542	724,542
1988-1989	0	0		0	0
1989-1990	0	0		0	0
1990-1991	0	0		0	0
1991-1992	2,501,191	2,503,692		2,501,191	2,501,191
1992-1993	10,538,558	10,549,097		10,538,558	10,538,558
1993-1994	877,168	878,045		877,168	877,168
1994-1995	1,439,192	1,440,631		1,439,192	1,439,192
1995-1996	912,141	913,053		912,141	912,141
1996-1997	2,388,970	2,391,359		2,388,970	2,388,970
1997-1998	2,083,463	2,087,630		2,083,463	2,083,463
2003-2004	3,554,633	3,589,492	3,536,000	3,526,085	3,526,085
2004-2005	10,057,332	10,166,976	9,988,000	9,967,318	9,967,624
2005-2006	4,502,331	4,591,486	4,490,000	4,457,753	4,457,753
2006-2007	627,930	645,942	659,000	621,098	621,098
2007-2008	4,909,346	5,093,689	4,896,000	7,351,132	4,851,132
2008-2009	3,229,378	3,382,399	3,241,000	3,248,000	3,245,000
2009-2010	0	0	63,000	81,000	66,000
2010-2011	382,662	422,429	462,000	494,000	469,000
2011-2012	2,342	2,688	136,000	189,000	151,000
2012-2013	4,600,558	3,305,172	4,605,000	7,084,000	4,713,000
2013-2014	12,456,599	13,466,233	11,828,000	12,315,000	12,693,000
2014-2015	11,418,725	16,102,461	10,292,000	8,644,000	9,468,000
2015-2016	4,614,689	2,022,736	5,156,000	5,444,000	5,348,000
2016-2017	36,922,691	24,893,525	13,691,000	5,750,000	9,694,000
2017-2018	0	0	6,626,000	5,652,000	6,139,000
2018-2019	0	0	7,136,000		7,136,000
Totals	\$118,744,441	\$109,173,277	\$86,805,000	\$96,289,611	\$104,010,917
Grand Totals	\$119,244,441	\$109,673,277		\$96,789,611	\$104,510,917

Notes:

- (A) From Appendix A, Page 4, Column (C).
- (B) From Appendix A, Page 5, Column (C).
- (C) From Appendix A, Page 6, Column (K).
- (D) From prior actuarial study.
- (E) Selected based on (A) through (D).

Authority for California Cities Excess Liability
ACCEL Layer

Reported Loss Development

Accident Year	Reported Losses as of 12/31/18 (A)	Reported Loss Development Factor (B)	Estimated Ultimate Losses (C)
1986-1987	0	1.000	0
1987-1988	500,000	1.000	500,000
1988-1989	0	1.000	0
1989-1990	0	1.000	0
Totals	\$500,000		\$500,000
1986-1987	0	1.000	0
1987-1988	724,542	1.000	724,542
1988-1989	0	1.000	0
1989-1990	0	1.000	0
1990-1991	0	1.000	0
1991-1992	2,501,191	1.000	2,501,191
1992-1993	10,538,558	1.000	10,538,558
1993-1994	877,168	1.000	877,168
1994-1995	1,439,192	1.000	1,439,192
1995-1996	912,141	1.000	912,141
1996-1997	2,388,970	1.000	2,388,970
1997-1998	2,083,463	1.000	2,083,463
2003-2004	3,526,085	1.008	3,554,633
2004-2005	9,967,624	1.009	10,057,332
2005-2006	4,457,753	1.010	4,502,331
2006-2007	621,098	1.011	627,930
2007-2008	4,851,132	1.012	4,909,346
2008-2009	3,187,935	1.013	3,229,378
2009-2010	0	1.015	0
2010-2011	375,159	1.020	382,662
2011-2012	2,274	1.030	2,342
2012-2013	4,423,614	1.040	4,600,558
2013-2014	11,407,142	1.092	12,456,599
2014-2015	9,291,070	1.229	11,418,725
2015-2016	2,502,543	1.844	4,614,689
2016-2017	10,011,576	3.688	36,922,691
2017-2018	0	25.816	0
2018-2019	0	516.320	0
Totals	\$86,090,229		\$118,744,441
Grand Totals	\$86,590,229		\$119,244,441

Notes:

- (A) Provided by ACCEL
- (B) (C) from Appendix B, Page 3.
- (C) (A) x (B).

Authority for California Cities Excess Liability
ACCEL Layer

Paid Loss Development

Accident Year	Paid Losses as of 12/31/18 (A)	Paid Loss Development Factor (B)	Estimated Ultimate Losses (C)
1986-1987	0	1.000	0
1987-1988	500,000	1.000	500,000
1988-1989	0	1.000	0
1989-1990	0	1.000	0
Totals	\$500,000		\$500,000
1986-1987	0	1.000	0
1987-1988	724,542	1.000	724,542
1988-1989	0	1.000	0
1989-1990	0	1.000	0
1990-1991	0	1.000	0
1991-1992	2,501,191	1.001	2,503,692
1992-1993	10,538,558	1.001	10,549,097
1993-1994	877,168	1.001	878,045
1994-1995	1,439,192	1.001	1,440,631
1995-1996	912,141	1.001	913,053
1996-1997	2,388,970	1.001	2,391,359
1997-1998	2,083,463	1.002	2,087,630
2003-2004	3,526,085	1.018	3,589,492
2004-2005	9,967,624	1.020	10,166,976
2005-2006	4,457,753	1.030	4,591,486
2006-2007	621,098	1.040	645,942
2007-2008	4,851,132	1.050	5,093,689
2008-2009	3,187,935	1.061	3,382,399
2009-2010	0	1.093	0
2010-2011	375,159	1.126	422,429
2011-2012	2,274	1.182	2,688
2012-2013	2,566,127	1.288	3,305,172
2013-2014	8,784,235	1.533	13,466,233
2014-2015	7,001,070	2.300	16,102,461
2015-2016	502,543	4.025	2,022,736
2016-2017	2,061,576	12.075	24,893,525
2017-2018	0	120.750	0
2018-2019	0	2,415.000	0
Totals	\$69,369,835		\$109,173,277
Grand Totals	\$69,869,835		\$109,673,277

Notes:

- (A) Provided by ACCEL
- (B) (C) from Appendix B, Page 4.
- (C) (A) x (B).

Authority for California Cities Excess Liability
ACCEL Layer

Expected Loss Methods

Program Year	Program Year 2019-2020 \$100K-\$1M Base Rate (A)	Trend Factor Program Year (B)	Program Year \$100K-\$1M Base Rate (C)	Factor to Self-Insured Layer (D)	Program Year Self-Insured Expected Rate (E)	Program Year Payroll (F)	Program Year Preliminary Ultimate Losses (G)	Percent of Ultimate Losses Not Reported (H)	Estimated Program Year IBNR at 12/31/18 (I)	Program Year Reported Losses at 12/31/18 (J)	Program Year Estimated Ultimate Losses (K)
2003-2004	\$1.175	0.555	0.652	0.232	0.151	\$8,308,977	\$1,258,000	0.8%	\$10,103	\$3,526,085	\$3,536,000
2004-2005	1.175	0.577	0.679	0.367	0.249	9,374,402	2,334,000	0.9%	20,819	9,967,624	9,988,000
2005-2006	1.175	0.601	0.706	0.463	0.327	9,850,045	3,218,000	1.0%	31,861	4,457,753	4,490,000
2006-2007	1.175	0.625	0.734	0.463	0.340	10,305,894	3,502,000	1.1%	38,103	621,098	659,000
2007-2008	1.175	0.650	0.763	0.463	0.353	10,609,082	3,749,000	1.2%	44,455	4,851,132	4,896,000
2008-2009	1.175	0.676	0.794	0.463	0.368	11,307,152	4,156,000	1.3%	53,335	3,187,935	3,241,000
2009-2010	1.175	0.703	0.826	0.463	0.382	11,075,957	4,234,000	1.5%	62,571	0	63,000
2010-2011	1.175	0.731	0.859	0.463	0.398	11,097,108	4,411,000	2.0%	86,490	375,159	462,000
2011-2012	1.175	0.760	0.893	0.463	0.413	11,095,468	4,587,000	2.9%	133,602	2,274	136,000
2012-2013	1.175	0.790	0.929	0.463	0.430	10,966,401	4,715,000	3.8%	181,346	4,423,614	4,605,000
2013-2014	1.175	0.822	0.966	0.463	0.447	11,164,240	4,992,000	8.4%	420,571	11,407,142	11,828,000
2014-2015	1.175	0.855	1.004	0.463	0.465	11,556,443	5,374,000	18.6%	1,001,339	9,291,070	10,292,000
2015-2016	1.175	0.889	1.045	0.463	0.484	11,986,752	5,797,000	45.8%	2,653,291	2,502,543	5,156,000
2016-2017	1.175	0.925	1.086	0.367	0.399	12,662,643	5,048,000	72.9%	3,679,236	10,011,576	13,691,000
2017-2018	1.175	0.962	1.130	0.463	0.523	13,177,894	6,893,000	96.1%	6,625,995	0	6,626,000
2018-2019	1.175	0.962	1.130	0.463	0.523	13,668,220	7,150,000	99.8%	7,136,152	0	7,136,000

Authority for California Cities Excess Liability
ACCEL Layer

Expected Loss Rates

Accident Year	Exposure	Ultimate Loss	On-Level Losses	Loss Rate	Loss Rate Trend	Trended Loss Rate
1986-1987	1,008,086	0	0	0.000	2.279	0.000
1987-1988	998,109	500,000	500,000	0.501	2.191	1.098
1988-1989	1,146,083	0	0	0.000	2.107	0.000
1989-1990	1,208,157	0	0	0.000	2.026	0.000
Totals	\$4,360,436	\$500,000	\$500,000	0.115		0.275
1986-1987	3,105,940	0	0	0.000	3.950	0.000
1987-1988	3,670,691	724,542	724,542	0.197	3.798	0.748
1988-1989	4,030,134	0	0	0.000	3.652	0.000
1989-1990	4,399,059	0	0	0.000	3.512	0.000
1990-1991	4,875,491	0	0	0.000	3.377	0.000
1991-1992	5,277,443	2,501,191	2,501,191	0.474	3.247	1.539
1992-1993	5,310,299	10,538,558	10,538,558	1.985	3.122	6.197
1993-1994	5,635,666	877,168	877,168	0.156	3.002	0.468
1994-1995	6,004,411	1,439,192	1,439,192	0.240	2.887	0.693
1995-1996	6,102,690	912,141	912,141	0.149	2.776	0.414
1996-1997	6,502,472	2,388,970	2,388,970	0.367	2.669	0.980
1997-1998	6,972,985	2,083,463	2,083,463	0.299	2.566	0.767
2003-2004	9,103,267	3,526,085	3,526,085	0.387	1.803	0.698
2004-2005	9,374,402	9,967,624	9,967,624	1.063	1.734	1.843
2005-2006	9,850,045	4,457,753	4,457,753	0.453	1.667	0.755
2006-2007	10,305,894	621,098	621,098	0.060	1.603	0.096
2007-2008	10,609,082	4,851,132	4,851,132	0.457	1.541	0.704
2008-2009	11,307,152	3,245,000	3,245,000	0.287	1.482	0.425
2009-2010	11,075,957	66,000	66,000	0.006	1.425	0.009
2010-2011	11,097,108	469,000	469,000	0.042	1.370	0.058
2011-2012	11,095,468	151,000	151,000	0.014	1.317	0.018
2012-2013	10,966,401	4,713,000	4,713,000	0.430	1.266	0.544
2013-2014	11,164,240	12,693,000	12,693,000	1.137	1.217	1.384
2014-2015	11,556,443	9,468,000	9,468,000	0.819	1.170	0.958
2015-2016	11,986,752	5,348,000	5,348,000	0.446	1.125	0.502
2016-2017	12,662,643	9,694,000	9,694,000	0.766	1.082	0.829
2017-2018	13,177,894	6,139,000	6,139,000	0.466	1.040	0.485
2018-2019	13,668,220	7,136,000	7,136,000	0.522	1.040	0.543
Totals	\$240,888,249	\$104,010,917	\$104,010,917	0.432		0.773
86/87-97/98	61,887,280	21,465,225	21,465,225	0.347		0.984

Selected Trend: 1.040

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Estimated Loss Rates for the \$100,000 - \$1,000,000 Layer

Accident Year	Estimated Ultimate \$100K - \$1M Losses (C)	Payroll (\$00's) (D)	Loss Trend Factor (E)	Loss Rate at 2018-2019 Level (F)
2009-2010	6,081,000	13,833,870	1.423	0.626
2010-2011	3,899,000	13,527,375	1.369	0.395
2011-2012	7,613,000	13,192,511	1.316	0.759
2012-2013	9,994,000	12,721,025	1.265	0.994
2013-2014	15,328,000	12,637,920	1.217	1.476
2014-2015	15,541,000	12,758,313	1.170	1.425
2015-2016	15,142,000	12,909,732	1.125	1.320
2016-2017	21,150,000	13,308,438	1.082	1.720
2017-2018	13,777,000	13,507,341	1.040	1.061
Average 2009-10 - 2017-18:				1.086
Average 2010-11 - 2016-17:				1.155
Average 2011-12 - 2017-18:				1.251
Prior 2017-2018 Rate :				0.990
Selected 2018-2019 Rate :				1.130
Trend Factor to 2019-2020 :				1.040
Selected 2019-2020 Rate :				\$1.175

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Estimated Ultimate Losses for the \$100,000 to \$1,000,000 Layer

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)
2009-2010	6,081,024	5,384,056	6,082,461	5,422,407	6,081,012	6,081,000
2010-2011	3,898,879	4,131,032	3,900,348	4,114,417	3,899,000	3,899,000
2011-2012	7,612,929	7,928,383	7,611,943	7,893,746	7,612,996	7,613,000
2012-2013	9,753,446	10,234,441	9,758,265	10,193,095	9,993,996	9,994,000
2013-2014	15,519,786	18,662,182	15,136,899	16,524,899	13,540,576	15,328,000
2014-2015	15,986,735	20,760,058	15,157,901	16,307,191	13,950,160	15,541,000
2015-2016	15,709,426	20,849,184	14,612,521	15,142,263	11,538,450	15,142,000
2016-2017	32,694,068	32,781,086	23,508,997	16,431,488	18,754,721	21,150,000
2017-2018	20,717,022	14,398,564	15,307,050	13,777,391	13,592,250	13,777,000
Totals						\$108,525,000

Notes:

- (A) From Appendix B, Page 3, Column (D).
- (B) From Appendix B, Page 4, Column (D).
- (C) Based on results in Appendix B, Page 5.
- (D) Based on results in Appendix B, Page 6.
- (E) Based on results in Appendix B, Page 8.
- (F) Selected averages of (A), (B), (C), (D), and (E).

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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Reported Loss Development

Accident Year (A)	\$100K - \$1M Reported Losses as of 12/31/18 (B)	Reported Loss Development Factor (C)	Ultimate \$100K - \$1M Losses (D)	\$100K - \$1M Reported Losses of 12/31/18 (E)	Reported Loss Development Factor (F)	Ultimate \$100K - \$1M Losses (G)
2009-2010	5,991,157	1.015	6,081,024	5,991,157	1.015	6,081,024
2010-2011	3,822,430	1.020	3,898,879	3,822,430	1.020	3,898,879
2011-2012	7,391,193	1.030	7,612,929	7,391,193	1.030	7,612,929
2012-2013	9,378,313	1.040	9,753,446	9,378,313	1.040	9,753,446
2013-2014	14,212,258	1.092	15,519,786	14,212,258	1.092	15,519,786
2014-2015	13,007,921	1.229	15,986,735	13,007,921	1.229	15,986,735
2015-2016	10,879,104	1.444	15,709,426	10,879,104	1.444	15,709,426
2016-2017	17,418,257	1.877	32,694,068	17,418,257	1.877	32,694,068
2017-2018	4,598,673	4.505	20,717,022	4,598,673	4.505	20,717,022
Totals	\$86,699,306		\$127,973,315	\$86,699,306		\$127,973,315

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Provided by the Authority. These losses exclude amount over the SIR.
- (C) Based upon Industry Loss Development Factors.
- (D) (B) x (C). These estimated losses exclude amount over the SIR.
- (E) Losses capped at the Authority's SIR. Amounts are provided by the Authority.
- (F) Based upon Industry Loss Development Factors.
- (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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Paid Loss Development

Accident Year (A)	\$100K - \$1M Paid Losses as of 12/31/18 (B)	Paid Loss Development Factor (C)	Ultimate \$100K - \$1M Losses (D)	\$100K - \$1M Paid Losses of 12/31/18 (E)	Paid Loss Development Factor (F)	Ultimate \$100K - \$1M Losses (G)
2009-2010	5,093,714	1.057	5,384,056	5,093,714	1.057	5,384,056
2010-2011	3,814,434	1.083	4,131,032	3,814,434	1.083	4,131,032
2011-2012	7,041,193	1.126	7,928,383	7,041,193	1.126	7,928,383
2012-2013	8,493,312	1.205	10,234,441	8,493,312	1.205	10,234,441
2013-2014	13,464,778	1.386	18,662,182	13,464,778	1.386	18,662,182
2014-2015	10,701,061	1.940	20,760,058	10,701,061	1.940	20,760,058
2015-2016	7,164,668	2.910	20,849,184	7,164,668	2.910	20,849,184
2016-2017	5,632,489	5.820	32,781,086	5,632,489	5.820	32,781,086
2017-2018	247,398	58.200	14,398,564	247,398	58.200	14,398,564
Totals	\$61,653,047		\$135,128,986	\$61,653,047		\$135,128,986

Notes:

- (A) Years are 7/1 to 6/30.
- (B) Provided by the Authority. These losses exclude amount over the SIR.
- (C) Based upon Industry Loss Development Factors.
- (D) (B) x (C). These estimated losses exclude amount over the SIR.
- (E) Losses capped at the Authority's SIR. Amounts are provided by the Authority.
- (F) Based upon Industry Loss Development Factors.
- (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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Exposure and Development Method
Based on Reported Losses

Accident Year	Composite Exposure (A)	Reported Losses as of 12/31/18 (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)
2009-2010	13,833,870	5,991,157	1.015	0.015	0.440	91,304	6,082,461
2010-2011	13,527,375	3,822,430	1.020	0.020	0.288	77,918	3,900,348
2011-2012	13,192,511	7,391,193	1.030	0.029	0.577	220,750	7,611,943
2012-2013	12,721,025	9,378,313	1.040	0.038	0.786	379,952	9,758,265
2013-2014	12,637,920	14,212,258	1.092	0.084	0.871	924,641	15,136,899
2014-2015	12,758,313	13,007,921	1.229	0.186	0.906	2,149,980	15,157,901
2015-2016	12,909,732	10,879,104	1.444	0.307	0.942	3,733,417	14,612,521
2016-2017	13,308,438	17,418,257	1.877	0.467	0.980	6,090,740	23,508,997
2017-2018	13,507,341	4,598,673	4.505	0.778	1.019	10,708,377	15,307,050
Totals	\$118,396,525	\$86,699,306				\$24,377,079	\$111,076,385

Notes:

- (A) Provided by the Authority.
- (B) Provided by the Authority. These losses exclude amounts incurred above the Authority's SIR for each year.
- (C) From Appendix B, Page 3, Column (F).
- (D) $1 - 1/(C)$.
- (E) From Appendix B, Page 7, 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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Exposure and Development Method
Based on Paid Losses

Accident Year	Composite Exposure (A)	Paid Losses as of 12/31/18 (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)
2008-2009	14,473,155		1.036	0.035	0.716	362,697	
2009-2010	13,833,870	5,093,714	1.057	0.054	0.440	328,693	5,422,407
2010-2011	13,527,375	3,814,434	1.083	0.077	0.288	299,983	4,114,417
2011-2012	13,192,511	7,041,193	1.126	0.112	0.577	852,553	7,893,746
2012-2013	12,721,025	8,493,312	1.205	0.170	0.786	1,699,783	10,193,095
2013-2014	12,637,920	13,464,778	1.386	0.278	0.871	3,060,121	16,524,899
2014-2015	12,758,313	10,701,061	1.940	0.485	0.906	5,606,130	16,307,191
2015-2016	12,909,732	7,164,668	2.910	0.656	0.942	7,977,595	15,142,263
2016-2017	13,308,438	5,632,489	5.820	0.828	0.980	10,798,999	16,431,488
2017-2018	13,507,341	247,398	58.200	0.983	1.019	13,529,993	13,777,391
Totals	\$132,869,680	\$61,653,047				\$44,516,547	\$105,806,897

Notes:

- (A) Provided by the Authority.
- (B) Provided by the Authority. These losses exclude amounts paid above the Authority's SIR for each year.
- (C) From Appendix B, Page 4, Column (F).
- (D) $1 - 1/(C)$.
- (E) From Appendix B, Page 7, 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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Exposure and Development Method

Accident Year	Composite Exposure (A)	Ultimate \$100K - \$1M Losses (B)	Trend Factor (C)	Trended \$100K - \$1M Losses (D)	Trended \$100K - \$1M:100K - \$1M Loss Rate (E)	Trended 100K - \$1M Loss Rate (F)	Factor to SIR (G)	Program Loss Rate (H)
2008-2009	14,473,155		1.480			0.716	1.000	0.716
2009-2010	13,833,870	6,081,000	1.423	8,653,263	0.626	0.440	1.000	0.440
2010-2011	13,527,375	3,899,000	1.369	5,337,731	0.395	0.288	1.000	0.288
2011-2012	13,192,511	7,613,000	1.316	10,018,708	0.759	0.577	1.000	0.577
2012-2013	12,721,025	9,994,000	1.265	12,642,410	0.994	0.786	1.000	0.786
2013-2014	12,637,920	15,520,000	1.217	18,887,840	1.495	0.871	1.000	0.871
2014-2015	12,758,313	15,987,000	1.170	18,704,790	1.466	0.906	1.000	0.906
2015-2016	12,909,732	19,564,000	1.125	22,009,500	1.705	0.942	1.000	0.942
2016-2017	13,308,438	30,120,000	1.082	32,589,840	2.449	0.980	1.000	0.980
2017-2018	13,507,341	30,120,000	1.040	31,324,800	2.319	1.019	1.000	1.019
Total/Avg	\$132,869,680	\$138,898,000		\$160,168,882	\$1.353			
09/10-15/16	91,580,746	78,658,000		96,254,242	\$1.051			

Selected \$100K - \$1M Rate: \$1.060
Prior: \$0.975

Notes:

- (A) Provided by the Authority.
- (B) Selected average of results from Appendices B and B.
- (C) From Appendix E, Column (B).
- (D) (B) x (C).
- (E) (D) / (A).
- (F) Selected \$100K - \$1M Rate / (C). For 2012-2013 and prior (B) / (A).
- (G) Based on a Burr 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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M An:

Frequency and Severity Method

Accident Year	Ultimate Program Severity (A)	Ultimate Claims (B)	Ultimate Program Losses (C)
2009-2010	144,786	42	6,081,012
2010-2011	155,960	25	3,899,000
2011-2012	200,342	38	7,612,996
2012-2013	277,611	36	9,993,996
2013-2014	241,796	56	13,540,576
2014-2015	249,110	56	13,950,160
2015-2016	256,410	45	11,538,450
2016-2017	264,151	71	18,754,721
2017-2018	271,845	50	13,592,250
Total		419	\$98,963,161

Notes:

- (A) From Appendix B, Page 9, Column (H).
- (B) From Appendix B, Page 9, 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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Frequency and Severity Method

Accident Year	Ultimate	Ultimate Claims (B)	Ultimate	Trend Factor (D)	Trended		Factor to SIR (G)	Program Severity (H)
	\$100K - \$1M Losses (A)		\$100K - \$1M Severity (C)		\$100K - \$1M Severity (E)	\$100K - \$1M Severity (F)		
2009-2010	6,081,000	42	144,786	1.301	188,367	144,786	1.000	144,786
2010-2011	3,899,000	25	155,960	1.264	197,133	155,960	1.000	155,960
2011-2012	7,613,000	38	200,342	1.227	245,820	200,342	1.000	200,342
2012-2013	9,994,000	36	277,611	1.192	330,912	277,611	1.000	277,611
2013-2014	15,328,000	56	273,714	1.158	316,961	241,796	1.000	241,796
2014-2015	15,541,000	56	277,518	1.124	311,930	249,110	1.000	249,110
2015-2016	15,142,000	45	336,489	1.092	367,446	256,410	1.000	256,410
2016-2017	21,150,000	71	297,887	1.060	315,760	264,151	1.000	264,151
2017-2018	13,777,000	50	275,540	1.030	283,806	271,845	1.000	271,845

Average \$100K - \$1M Severity: \$284,237
Average 09/10-15/16 \$100K - \$1M Severity: \$279,796
Average 09/10-16/17 \$100K - \$1M Severity: \$284,291

Selected \$100K - \$1M Severity: \$280,000
Prior: \$265,000

Notes:

- (A) Selected average of results from Appendices B, B, and B.
- (B) Appendix B, Page 10, Column (C).
- (C) (A) / (B).
- (D) From Appendix E, Column (J).
- (E) (C) x (D).
- (F) Selected Limited Severity / (D).
- (G) Based on a Burr 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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Frequency and Severity Method
Projection of Ultimate Claims

Accident Year	Reported Claim Development (A)	Closed Claim Development (B)	Selected Ultimate Claims (C)	Composite Exposure (10,000s) (D)	Claim Frequency (E)	Trend Factor (F)	Trended Claim Frequency (G)
2009-2010	42	40	42	1,383.387	0.030	1.094	0.033
2010-2011	25	27	25	1,352.738	0.018	1.083	0.019
2011-2012	38	41	38	1,319.251	0.029	1.072	0.031
2012-2013	36	37	36	1,272.103	0.028	1.062	0.030
2013-2014	56	62	56	1,263.792	0.044	1.051	0.046
2014-2015	56	69	56	1,275.831	0.044	1.041	0.046
2015-2016	45	58	45	1,290.973	0.035	1.030	0.036
2016-2017	71	50	71	1,330.844	0.053	1.020	0.054
2017-2018	60	63	50	1,350.734	0.037	1.010	0.037
Total	429	447	419	11,839.653			0.037

(H) Selected 2018-2019 Frequency: 0.040

Program Year:	2018-2019	2019-2020
(I) Trend Factor:	1.000	1.010
(J) Selected Frequency:	0.040	0.040
(K) Composite Exposure:	1,337.556	1,357.619
(L) Ultimate Claims:	54	54

Notes:

- (A) From Appendix B, Page 11, (C).
- (B) From Appendix B, Page 12, (C).
- (C) Selected from (A) and (B).
- (D) From Appendix N, Page 2, (G).
- (E) (C) / (D).
- (F) From Appendix E.
- (G) (E) x (F).
- (H) The selected frequency of .040 is based on (G).
- (I) From Appendix E.
- (J) (H) x (I).
- (K) From Appendix N, Page 2, (G).
- (L) (J) x (K).

This exhibit summarizes the estimated numbers of claims and shows the estimated frequencies per 10,000 units of composite exposure, Appendix E, page2, Item (G).

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Frequency and Severity Method
Reported Claim Count Development

Accident Year	Claims Reported as of 12/31/2018 (A)	Reported Claim Development Factor (B)	Ultimate Claims (C)	Trended Claim Frequency (D)
2009-2010	41	1.022	42	0.033
2010-2011	24	1.032	25	0.020
2011-2012	36	1.042	38	0.031
2012-2013	34	1.052	36	0.030
2013-2014	53	1.063	56	0.047
2014-2015	52	1.074	56	0.046
2015-2016	40	1.128	45	0.036
2016-2017	57	1.241	71	0.054
2017-2018	24	2.482	60	0.045
Total	361		429	0.038

Notes:

- (A) Provided by the Authority.
- (B) From Appendix B, Page 15.
- (C) (A) x (B).
- (D) (C) / [Appendix B, Page 10, (D)] x [Appendix B, Page 10, (F)].

This exhibit shows the calculation of estimated ultimate claims for each year based on reported claims as provided by the Authority. 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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Frequency and Severity Method
Closed Claim Count Development

Accident Year	Claims Closed as of 12/31/2018 (A)	Closed Claim Development Factor (B)	Ultimate Claims (C)	Trended Claim Frequency (D)
2009-2010	37	1.082	40	0.032
2010-2011	24	1.109	27	0.022
2011-2012	35	1.164	41	0.033
2012-2013	30	1.222	37	0.031
2013-2014	46	1.344	62	0.052
2014-2015	41	1.680	69	0.056
2015-2016	23	2.520	58	0.046
2016-2017	8	6.300	50	0.038
2017-2018	2	31.500	63	0.047
Total	246		447	0.039

Notes:

- (A) Provided by the Authority.
- (B) From Appendix B, Page 16.
- (C) (A) x (B).
- (D) (C) / [Appendix B, Page 10, (D)] x [Appendix B, Page 10, (F)].

This exhibit shows the calculation of estimated ultimate claims for each year based on closed claims as provided by the Authority. 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.

Authority for California Cities Excess Liability - Liability (\$100K - \$1M Analysis)

Loss Rate Trend

Accident Year	Payroll	Preliminary Ultimate Loss	Untrended Loss Rate	Trended Loss Rate
2009-2010	13,833,870	6,081,000	0.440	0.626
2010-2011	13,527,375	3,899,000	0.288	0.394
2011-2012	13,192,511	7,613,000	0.577	0.759
2012-2013	12,721,025	9,994,000	0.786	0.994
2013-2014	12,637,920	15,419,000	1.220	1.484
2014-2015	12,758,313	15,971,000	1.252	1.464
2015-2016	12,909,732	15,819,000	1.225	1.378
2016-2017	13,308,438	21,333,000	1.603	1.734
2017-2018	13,507,341	13,771,000	1.020	1.060

Exponential Trends

Years	R-square	Fitted Trend
09/10-15/16	0.815	1.273
13/14-17/18	0.012	0.989
11/12-17/18	0.503	1.119
09/10-17/18	0.704	1.191
	Prior Trend:	1.040
	Selected Trend:	1.040

Authority for California Cities Excess Liability

Historical Payroll by Member

Member	1987-88 Payroll (00)	1988-89 Payroll (00)	1989-90 Payroll (00)	1990-91 Payroll (00)	1991-92 Payroll (00)	1992-93 Payroll (00)	1993-94 Payroll (00)	1994-95 Payroll (00)	1995-96 Payroll (00)	1996-97 Payroll (00)	1997-98 Payroll (00)
Anaheim	863,430	945,634	887,693	997,604	1,032,792	1,017,556	1,106,327	1,138,132	1,159,649	1,186,315	1,183,599
Bakersfield	363,542	385,888	427,532	456,470	479,556	490,078	463,172	544,562	558,232	592,428	626,800
Burbank	403,276	435,541	517,034	546,240	570,952	606,092	612,781	633,112	651,359	628,837	665,202
Gardena	126,061	150,116	155,950	167,690	183,626	0	0	0	0	0	0
Modesto	296,655	340,582	340,582	403,120	486,797	492,189	479,750	496,562	535,022	533,981	596,710
Monterey	0	0	150,186	167,555	177,538	176,550	181,500	206,054	212,611	225,039	235,554
Mountain View	0	0	0	0	0	310,326	292,142	307,338	325,808	341,322	360,295
Ontario	280,023	325,401	368,037	425,392	459,269	440,000	517,000	518,010	524,206	574,396	582,744
Palo Alto	385,839	409,895	441,571	469,616	500,629	526,146	552,171	606,885	575,477	607,900	677,305
Salinas	0	0	0	0	0	0	0	0	0	0	0
Santa Barbara	300,236	342,392	355,513	393,889	438,230	421,442	464,065	494,001	496,728	525,742	562,649
Santa Cruz	0	0	0	0	0	0	0	0	0	164,906	327,837
Santa Monica	530,434	556,978	610,936	682,891	758,378	657,800	770,000	856,975	863,634	912,836	943,294
Visalia	121,195	137,709	144,025	165,025	189,676	172,119	196,757	202,780	199,965	208,770	210,996
Total	3,670,691	4,030,134	4,399,059	4,875,491	5,277,443	5,310,299	5,635,666	6,004,411	6,102,690	6,502,472	6,972,985

Member	1998-99 Payroll (00)	1999-00 Payroll (00)	2000-01 Payroll (00)	2001-02 Payroll (00)	2002-03 Payroll (00)	2003-04 Payroll (00)	2004-05 Payroll (00)	2005-06 Payroll (00)	2006-07 Payroll (00)	2007-08 Payroll (00)	2008-09 Payroll (00)
Anaheim	1,221,632	1,347,535	1,393,423	1,497,038	1,571,861	1,686,921	1,702,110	1,874,760	1,933,055	1,936,850	2,133,195
Bakersfield	656,309	672,981	679,346	710,898	746,845	769,039	775,782	828,105	889,657	928,430	916,017
Burbank	0	0	0	0	0	0	963,640	961,084	1,080,588	1,021,641	1,190,705
Gardena	0	0	0	0	0	0	0	0	0	0	0
Modesto	599,204	621,472	656,651	711,909	761,554	745,169	757,072	777,859	808,720	836,950	811,447
Monterey	246,524	262,721	284,379	307,684	320,894	313,632	313,439	315,127	303,985	340,838	362,102
Mountain View	409,155	408,020	434,816	470,177	517,208	479,749	474,925	505,565	558,760	579,550	628,761
Ontario	589,308	605,886	637,469	683,592	692,474	710,686	732,721	783,778	808,309	827,467	855,991
Palo Alto	722,355	727,013	771,366	875,829	907,965	976,695	964,635	910,388	920,271	964,648	980,859
Salinas	0	0	0	0	0	0	0	0	0	0	0
Santa Barbara	587,051	644,650	658,205	688,383	715,412	731,380	739,835	827,558	767,235	826,778	882,947
Santa Cruz	330,666	368,019	383,500	421,614	414,665	404,596	405,476	415,167	494,206	483,045	537,520
Santa Monica	997,024	1,028,662	1,156,953	1,234,923	1,274,089	1,221,506	1,263,241	1,350,510	1,445,204	1,539,768	1,662,386
Visalia	218,084	237,134	256,559	257,861	290,675	269,603	281,525	300,145	295,903	323,116	345,222
Total	6,577,313	6,924,094	7,312,668	7,859,909	8,213,644	8,308,977	9,374,402	9,850,045	10,305,894	10,609,082	11,307,152

Member	2009-10 Payroll (00)	2010-11 Payroll (00)	2011-12 Payroll (00)	2012-13 Payroll (00)	2013-14 Payroll (00)	2014-15 Payroll (00)	2015-16 Payroll (00)	Projected 2016-17 Payroll (00)	Projected 2017-18 Payroll (00)	Projected 2018-19 Payroll (00)	Projected 2019-20 Payroll (00)
Anaheim	2,081,250	2,049,763	1,963,200	1,975,427	2,031,900	2,106,346	2,269,090	2,503,567	2,510,955	2,548,620	2,586,850
Bakersfield	882,235	882,175	913,612	974,793	981,145	1,007,547	1,032,898	1,023,381	1,047,246	1,062,950	1,078,890
Burbank	1,104,309	1,219,034	1,095,927	1,080,687	1,058,814	1,050,336	1,057,419	1,084,724	1,113,654	1,130,360	1,147,320
Gardena	0	0	0	0	0	0	0	0	0	0	0
Modesto	796,393	741,932	730,670	723,669	721,682	711,912	761,798	799,877	845,531	858,210	871,080
Monterey	375,986	371,980	362,541	361,402	362,125	367,532	374,195	386,413	418,860	425,140	431,520
Mountain View	632,482	629,984	618,793	624,667	633,130	660,314	684,770	734,551	765,191	776,670	788,320
Ontario	836,504	821,292	837,165	724,834	734,451	774,343	825,770	890,589	995,163	1,010,090	1,025,240
Palo Alto	1,000,933	992,673	1,041,460	919,927	996,990	1,064,558	981,613	1,041,359	1,166,441	1,183,940	1,201,700
Salinas	0	0	0	0	0	0	0	0	0	292,660	594,100
Santa Barbara	844,604	828,178	824,422	865,528	881,841	905,611	929,442	977,924	990,759	1,005,620	1,020,700
Santa Cruz	506,288	506,381	511,940	521,594	544,821	579,725	607,172	638,596	660,528	670,440	680,500
Santa Monica	1,668,433	1,714,221	1,851,043	1,830,595	1,850,554	1,902,819	2,007,425	2,106,921	2,176,626	2,209,280	2,242,420
Visalia	346,541	339,496	344,696	363,276	366,787	425,402	455,159	474,743	486,940	494,240	501,650
Total	11,075,957	11,097,108	11,095,468	10,966,401	11,164,240	11,556,443	11,986,752	12,662,643	13,177,894	13,668,220	14,170,290

Note: Data provided by ACCEL.

Authority for California Cities Excess Liability

ULAE as of June 30, 2019

(A) Selected ULAE Factor	3.5%
(B) Provision for Unpaid ULAE :	
IBNR at 6/30/19	\$15,781,000
Half of Case Reserves at 6/30/19	8,044,000
Computation Base	\$23,825,000
Provision for Unpaid ULAE at 6/30/19	\$834,000