

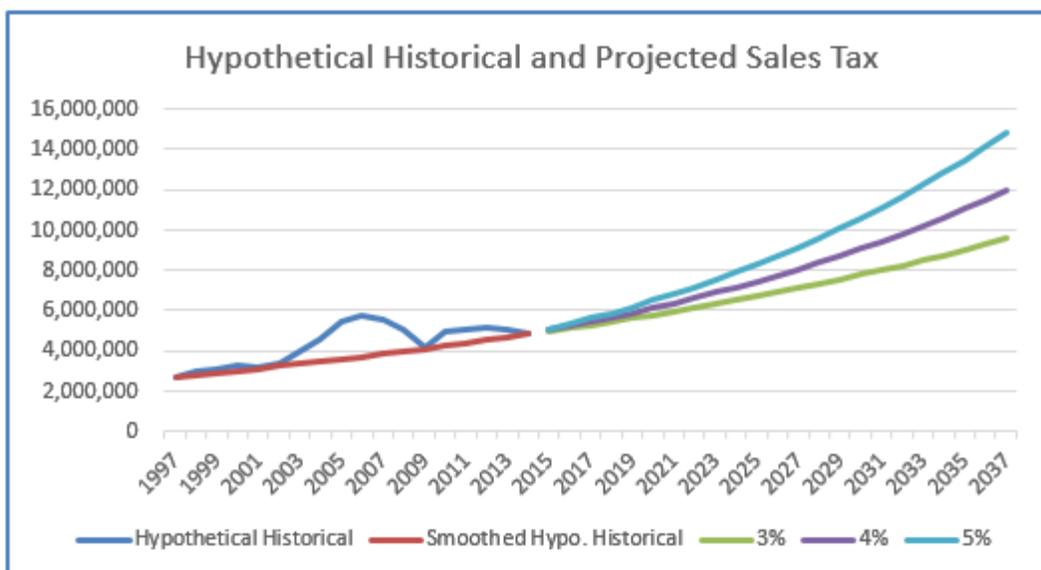
**Madera County
Sales Tax Revenue Analysis
June 16, 2016**

Montague DeRose and Associates, LLC (MDA) has prepared analysis to help in the assessment of potential ranges of sales tax revenue to be generated by a one cent dedicated sales tax on taxable sales in the unincorporated areas of Madera County. The analysis is comprised of two components, a static approach using a range of specified potential annual growth rates and Monte Carlo analysis to provide a probabilistic framework for potential annual growth rates.

Static Analysis

The key input for the static analysis is historical taxable sales data for the unincorporated area of Madera County obtained from the State of California Board of Equalization for 1997 through 2014 (fiscal years ending June 30). 1997 is the earliest year for which data is available. Data for fiscal year 2015 is not yet available. *Note that we did not include in the analysis any unallocated sales (i.e., sales not allocated in the Board of Equalization data to either the incorporated or unincorporated areas of the County).*

Based on this data, we computed “hypothetical historical” sales tax revenues for 1997 through 2014 by multiplying the annual taxable sales by 1%. The average annual percent change in hypothetical historical sales tax revenue for this period was 3.9%. We then projected a potential range of future annual sales tax revenues by increasing annual sales tax revenue by 3%, 4% or 5% each year through 2037. Based on this range of potential annual growth rates, sales tax revenues are projected to increase from about \$5mm in 2015 to between \$9 million and \$15 million in 2037. This data is shown in graphical and tabular form below. Note that forecasted potential sales tax revenue in fiscal years 2015 and 2016 are prior to the expected implementation of the sales tax. Also, note that forecasted potential sales tax revenue for fiscal year 2017 is for a full fiscal year. In actuality, depending on timing of implementation, sales tax revenue will be generated for only a portion of fiscal year 2017.



Fiscal Year End	Hypothetical Historical *	Smoothed Hypo. Hist.	Annual % Growth Rate		
			3%	4%	5%
1997	2,732,450	2,732,450			
1998	3,017,000	2,826,015			
1999	3,057,980	2,922,783			
2000	3,301,910	3,022,866			
2001	3,226,580	3,126,375			
2002	3,378,540	3,233,428			
2003	3,962,440	3,344,148			
2004	4,605,670	3,458,658			
2005	5,433,160	3,577,090			
2006	5,711,010	3,699,577			
2007	5,594,110	3,826,258			
2008	5,061,450	3,957,277			
2009	4,174,860	4,092,783			
2010	4,929,050	4,232,928			
2011	5,015,710	4,377,872			
2012	5,195,140	4,527,780			
2013	5,032,410	4,682,820			
2014	4,843,170	4,843,170			
2015 ¹			4,988,465	5,036,897	5,085,329
2016 ¹			5,138,119	5,238,373	5,339,595
2017 ²			5,292,263	5,447,908	5,606,575
2018			5,451,031	5,665,824	5,886,903
2019			5,614,561	5,892,457	6,181,249
2020			5,782,998	6,128,155	6,490,311
2021			5,956,488	6,373,281	6,814,827
2022			6,135,183	6,628,213	7,155,568
2023			6,319,238	6,893,341	7,513,346
2024			6,508,815	7,169,075	7,889,014
2025			6,704,080	7,455,838	8,283,464
2026			6,905,202	7,754,071	8,697,637
2027			7,112,358	8,064,234	9,132,519
2028			7,325,729	8,386,803	9,589,145
2029			7,545,501	8,722,276	10,068,603
2030			7,771,866	9,071,167	10,572,033
2031			8,005,022	9,434,013	11,100,634
2032			8,245,173	9,811,374	11,655,666
2033			8,492,528	10,203,829	12,238,449
2034			8,747,304	10,611,982	12,850,372
2035			9,009,723	11,036,461	13,492,890
2036			9,280,015	11,477,920	14,167,535
2037			9,558,415	11,937,036	14,875,912
Total (2017- 2037)			151,763,494	174,165,256	200,262,652

¹ Forecast for 2015 and 2016 are prior to expected implementation of sales tax

² Potential dollar amounts are for full fiscal year, implementation during fiscal year will result in actual revenue for 2017 being less than potential full year revenue

Monte Carlo Analysis

The key inputs to the Monte Carlo analysis are derived also from historical taxable sales data for the unincorporated area of Madera County obtained from the State of California Board of Equalization for 1997 through 2014. From this data we derived the average annual percent change in taxable sales (3.9%) and the standard deviation of the annual percent changes (10.1%). This data is shown in the table below. *Note again that we did not include in the analysis any unallocated sales (i.e., sales not allocated to either the incorporated or unincorporated areas of the County).*

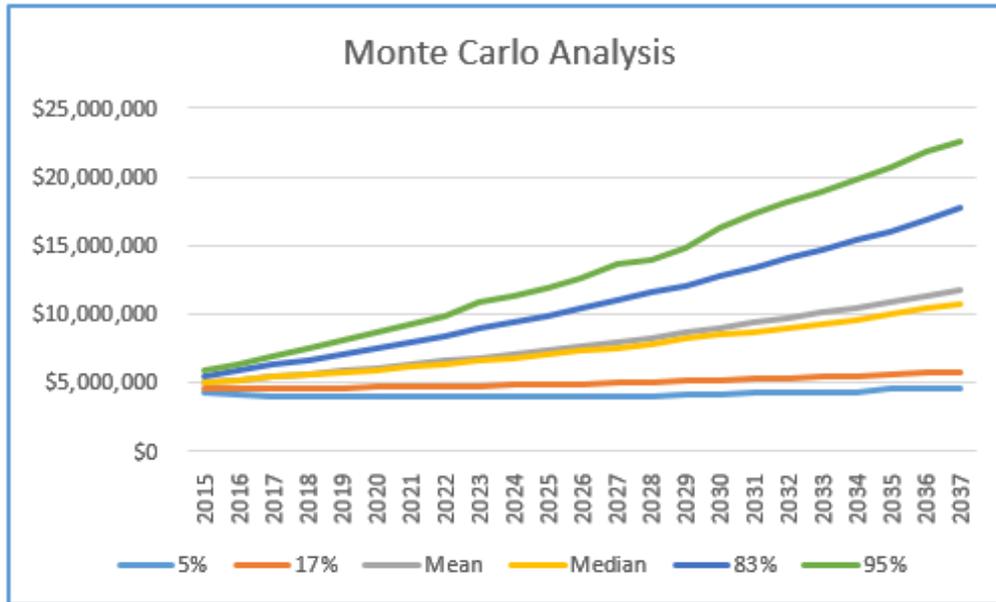
HISTORICAL SALES TAX DATA				
Fiscal Year	Taxable Sales	Change In	% Change	Hypothetical
30-Jun	Uninc. Area	Taxable Sales	Taxable Sales	1% Sales Tax
1997	273,245,000			2,732,450
1998	301,700,000	28,455,000	10.4%	3,017,000
1999	305,798,000	4,098,000	1.4%	3,057,980
2000	330,191,000	24,393,000	8.0%	3,301,910
2001	322,658,000	(7,533,000)	-2.3%	3,226,580
2002	337,854,000	15,196,000	4.7%	3,378,540
2003	396,244,000	58,390,000	17.3%	3,962,440
2004	460,567,000	64,323,000	16.2%	4,605,670
2005	543,316,000	82,749,000	18.0%	5,433,160
2006	571,101,000	27,785,000	5.1%	5,711,010
2007	559,411,000	(11,690,000)	-2.0%	5,594,110
2008	506,145,000	(53,266,000)	-9.5%	5,061,450
2009	417,486,000	(88,659,000)	-17.5%	4,174,860
2010	492,905,000	75,419,000	18.1%	4,929,050
2011	501,571,000	8,666,000	1.8%	5,015,710
2012	519,514,000	17,943,000	3.6%	5,195,140
2013	503,241,000	(16,273,000)	-3.1%	5,032,410
2014	484,317,000	(18,924,000)	-3.8%	4,843,170
Average Change		14,374,750	3.9%	
Std. Dev. Of Change		45,279,503	10.1%	

To determine potential ranges of future sales tax revenues that could be generated by a one cent sales tax on taxable sales in the unincorporated area, MDA prepared a Monte Carlo analysis using @Risk software developed by Palisade Corporation. The analysis assumes the distribution of future annual sales tax revenues can be defined by a normal distribution with a mean annual change of 3.9% and a standard deviation of annual change equal to 10.1% (consistent with the historical data). Based on our experience and a “best fit” analysis of the historical data, it is our view that these are reasonable assumptions to use. The Monte Carlo simulation generates 1,000 “paths” of future sales tax revenues using a “random walk” (or General Brownian Motion) process.

The analysis suggest that there is an approximately 68% probability that average annual grow rates in taxable sales (and therefore in sales tax revenue) will be between about 1.0% and 5.5% (in other words, within minus/plus one standard deviation from the mean). These average annual growth rates would result in sales tax revenue between about \$6 million and \$18 million in 2037. It also indicates that there is less than an approximately 5% chance (two standard deviations below the mean) of the average annual growth rate being less than about 0.4%, resulting in sales tax revenue of under \$5 million in 2037. It also indicates that there is less than an approximately 5% chance (two standard deviations

above the mean) of the average annual growth rate being greater than about 6.4%, which would result in sales tax revenue of over \$22 million in 2037.

Note, that for statistical forecasting purposes, the 17-year period for which we have historical data is “short” relative to the 23-year forecast period. This shortcoming may be partially offset by the fact that the historical data does cover the large changes in annual taxable sales seen during and just after the Financial Crisis. These large annual changes increase the standard deviation, which may lend an aspect of conservatism to the analysis. The results of the Monte Carlo analysis are shown below in graph and tabular form:



PROJECTED SALES TAX DATA						
Year	5%	16%	Mean	Median	84%	95%
2015 ¹	4,229,467	4,543,065	5,031,772	5,032,062	5,520,478	5,829,726
2016 ¹	4,095,030	4,521,339	5,225,990	5,167,278	5,930,640	6,400,647
2017 ²	4,058,161	4,537,747	5,426,576	5,389,262	6,315,405	6,963,571
2018	4,037,659	4,590,240	5,631,874	5,601,686	6,673,507	7,574,699
2019	3,984,606	4,624,474	5,850,431	5,791,148	7,076,387	8,135,265
2020	3,941,307	4,661,824	6,081,279	5,967,590	7,500,734	8,734,920
2021	4,019,180	4,685,604	6,322,868	6,166,884	7,960,132	9,322,112
2022	3,997,584	4,736,581	6,572,533	6,378,275	8,408,485	9,893,080
2023	4,032,581	4,768,247	6,840,926	6,613,762	8,913,604	10,815,540
2024	4,001,606	4,815,552	7,111,603	6,777,941	9,407,654	11,315,390
2025	4,043,968	4,887,456	7,390,103	7,047,668	9,892,749	11,905,480
2026	3,981,080	4,930,491	7,689,746	7,292,385	10,448,999	12,620,700
2027	4,054,813	5,025,578	7,986,052	7,576,231	10,946,524	13,595,450
2028	4,029,888	5,061,888	8,308,434	7,824,997	11,554,980	13,899,860
2029	4,096,491	5,160,004	8,630,072	8,230,470	12,100,139	14,790,600
2030	4,208,870	5,225,666	8,973,133	8,466,662	12,720,600	16,277,040
2031	4,253,772	5,260,349	9,335,427	8,641,153	13,410,505	17,349,980
2032	4,322,437	5,332,689	9,704,239	8,894,818	14,075,788	18,224,970
2033	4,243,459	5,450,442	10,073,750	9,243,350	14,697,047	18,974,310
2034	4,287,193	5,508,351	10,476,490	9,573,263	15,444,621	19,739,890
2035	4,531,097	5,669,114	10,851,640	10,009,590	16,034,167	20,688,020
2036	4,516,816	5,697,046	11,304,440	10,366,832	16,911,832	21,787,480
2037	4,588,293	5,724,475	11,766,690	10,702,242	17,808,907	22,550,800
Total (2017 - 2037)	87,230,861	106,353,819	172,328,306	162,556,209	238,302,767	295,159,157
Avg. Ann. Growth Rate	0.4%	1.1%	3.9%	3.7%	5.5%	6.4%

¹ Forecast for 2015 and 2016 are prior to expected implementation of sales tax

² Potential dollar amounts are for full fiscal year, implementation during fiscal year will result in actual revenue for 2017 being less than potential full year revenue

Summary

The analyses prepared by MDA are based primarily on historical annual taxable sales data for the unincorporated area of Madera County obtained from the State of California Board of Equalization for fiscal years 1997 through 2014. Both analyses suggest that in the near term, a one cent sales tax on taxable sales in the unincorporated area of Madera will generate annual revenues of about \$5 million.

The static analysis indicates that by 2037, annual tax revenues would grow to approximately \$9.5 million at a 3% annual growth rate; to about \$12 million at a 4% growth rate; and to about \$15 million at a 5% growth rate.

The Monte Carlo analysis provides additional probabilistic information. The Monte Carlo analysis suggests that there is a roughly 66% probability that the average annual growth rate over the forecast period will be between about 1.0% and 5.5%, resulting in 2037 sales tax revenues of between about \$6 million and \$18 million. The analysis suggests there is less than a 5% chance of the average annual growth rate being less than about 0.4% and less than a 5% chance of the average annual growth rate being greater than about 6.4%.

Of course, many variables will affect future taxable sales in the unincorporated area and there is no assurance that realized sales tax revenue growth rates and amounts will not be significantly different from the rates and amounts provided in this analysis.