Analyses of
GARVEE
Bonding Capacity
2002

Analyses for the
California Transportation Commission
April 2002

State Treasurer Philip Angelides

Table of Contents

Executive Summary

These analyses are provided to the California Transportation Commission to assist its compliance with the provisions of SB 928 (Burton) (Chapter 862 of 1999) requiring the Commission to prepare, in conjunction with the Treasurer's office, an annual analysis of California's bonding capacity for issuing Grant Anticipation Revenue Vehicles, or GARVEE notes, which are capital market borrowings repaid by federal transportation funds deposited in the State Highway Account.

The State's authority for issuance of GARVEE notes derives both from federal legislation and from the passage of SB 928 in 1999. The bill was sponsored by the State Treasurer's Office to ensure California had the necessary state legislative authority to make use of this new financing tool for accelerating high priority transportation projects. The bill became effective January 1, 2000. The first bonding capacity analysis was prepared in March 2000.

The issuance of GARVEE notes is subject to one important condition: the Treasurer may not authorize the issuance of the notes if the annual debt service on all outstanding GARVEE notes would exceed 30 percent of the State's historical annual deposits in the State Highway Account from federal funding.

Thus, the current and any future bonding capacity analyses must take place in the context of this "cap." These historical annual deposits are a known quantity at any given point in time, but clearly are subject to change over time, and must be examined anew at the time of each potential GARVEE note issuance.

Given the early stage of the GARVEE program, additional factors affecting bonding capacity, such as maturity structures and interest rates, also are subject to uncertainty at this time. As a result, these analyses continue the practice of prior analyses by providing numerous "sensitivity analyses" under a range of scenarios, with varying assumptions for maturity dates, interest rates, and available revenues. This approach will assist the Commission in examining and responding to future applications in the context of alternative scenarios.

Our analyses include scenarios with five-year maturity GARVEE notes issued in 2003 and maturing in 2008. The analyses show a resulting bonding capacity ranging from a low of $2.09 billion to a high of $3.04 billion under varying market conditions, assuming all federal deposits to the State Highway Account are used in the capacity calculations. These capacity amounts differ from the amounts reported last year. In 2001, the comparable bonding capacity ranged from a low of $2.13 billion to a high of $2.57 billion.

If one excludes the portion of these federal deposits characterized as “pass-through” revenues to local agencies, the bonding capacity is reduced, ranging from a low of $1.55 billion to a high of $2.25 billion given the same range of market conditions and a five-year maturity. In 2001, the comparable bonding capacity ranged from a low of $1.62 billion to a high of $1.95 billion. Three factors contributed to the change in capacity: higher revenues, a higher percentage of “pass-through” revenues, and a change in assumed interest rates.

Additional scenarios of GARVEE bonding capacity are provided as “sensitivity analyses” under various revenue and interest rate assumptions, with final maturities at ten, fifteen, and twenty years. Additional detail regarding the assumptions used for all the analyses are found in the body of this document and in the various attachments.

These analyses demonstrate that the capacity existing within the State’s GARVEE program can be affected dramatically by a wide range of circumstances, including policy and market factors. Therefore, the analyses should be used, not as a prescription, but rather as a tool for understanding the implications of alternative applications and the related potential GARVEE note structures that the Commission may be asked to consider over the coming year.

Purpose of Analyses

The following analyses are provided to assist the California Transportation Commission in meeting the requirements of SB 928 (Burton) (Chapter 862), sponsored by the State Treasurer's Office to ensure California had the necessary state legislative authority to make use of this new financing tool for accelerating high priority transportation projects. The analyses relate specifically to those requirements found in Section 14553(b) of the Government Code, which states:

> *"Notwithstanding Section 7550.5 of the Government Code, on or before April 1 of each year, the commission, in conjunction with the Treasurer's office, shall prepare an annual analysis of the bonding capacity of federal transportation funds deposited in the State Highway Account in the State Transportation Fund."*

The analyses have been performed consistent with the GARVEE notes bonding capacity guidelines provided in Section 14553.4 of the Government Code, which states:

> *"The Treasurer may not authorize the issuance of notes if the annual repayment obligations of all outstanding notes in any fiscal year would exceed 30 percent of the total amount of federal transportation funds deposited in the State Highway Account in the State Transportation Fund for any consecutive 12-month period within the preceding 24 months."*

Thus, the following analyses are intended to measure the capacity of the State Highway Account to support future issuance of GARVEE notes, given both the historical record of federal deposits to the State Highway Account and the "cap" on total outstanding GARVEE notes which would result from the 30 percent limitation referenced above.

Uncertainty Drives Need for Sensitivity Analyses

At this time, the ultimate timing, maturity, interest costs, and level of available revenues related to any future GARVEE notes are uncertain. As a result, no single bonding capacity analysis is sufficient for purposes of guiding the Commission's evaluation and response to future applications for GARVEE funding. Therefore, to facilitate an informed consideration of future applications with structures and terms not yet known to the Commission, we have performed a series of "sensitivity analyses" under alternative scenarios. The factors that have been varied in these different analyses are identified in the following table.

Primary Factors Affecting Bonding Capacity Sensitivity Analyses
Final Maturity
Assumed Interest Rates
Annual Revenues Available
Treatment of Local "Pass-Through" Revenues

Information Sources

In performing these bonding capacity analyses, the State Treasurer's Office (STO) is relying on data obtained from the California Department of Transportation (CalTrans) regarding deposits into the State Highway Account in the State Transportation Fund from federal transportation funds. This information was provided on a monthly basis for the period of January 1999 through December 2001. See **Attachment A** for the complete listing of these monthly deposits and related calculations. In addition, CalTrans provided the STO with information indicating that approximately 26 percent, or $48.5 million average per month, of the federal deposits consist of local "pass-through" revenues, earmarked for local agency projects. Alternative treatments of these local pass-through revenues were taken into account in the analyses, as discussed in more detail below.

Estimates of potential interest costs under various scenarios were developed by the STO based on indices published by such industry-standard sources as Municipal Market Data. The interest rates used in the analyses were developed given expected trading ranges of the State's future GARVEE notes as compared to current interest rates for "A" rated California general obligation bonds of similar final maturities and average maturities.

Alternative market conditions also were taken into account in the analyses, as discussed in more detail below.

Summary of Alternative Assumptions

The two alternative scenarios for market conditions utilized in these analyses are as follows:

- **I. Base Case:** Assumes current market conditions for A-rated bonds
- **II. Market Sensitivity Case:** Assumes alternative market conditions for A-rated bonds

  Within each of these alternative scenarios for market conditions, we also varied the revenue assumptions, as follows:

  1. **Low Revenue:** Assumes the lowest cumulative 12-month revenues within the last 24 months (ending in December 2001)
  2. **Average Revenue:** Assumes the average cumulative 12-month revenues within the last 24 months (ending in December 2001)
  3. **High Revenue:** Assumes the highest cumulative 12-month revenues within the last 24 months (ending in December 2001)

     Within each of these alternative market and varied revenue analyses, we also considered two different treatments of local pass-through revenues:

     - **A. Included:** Deposits representing local pass-through revenues are included for purposes of bonding capacity calculations
     - **B. Excluded:** Deposits representing local pass-through revenues are excluded for purposes of bonding capacity calculations

Finally, for each scenario we varied the maturity of the bonds, as indicated below. The table below summarizes the range of assumptions for the various factors that are adjusted to achieve each sensitivity analysis. The different scenarios for each factor combine for a total of twelve different sensitivity analyses.

Factors	Range of Assumptions
Final Maturity	Four scenarios: varying at 5, 10, 15 & 20 years from date of issuance
Assumed Interest Rates	Two scenarios: one at current market rates and one at approximately 100 basis points above current market rates, adjusted for average maturity and potential shifts in the yield curve
Annual Revenues Available	Three scenarios: one at the lowest 12-month cumulative revenues, a second at the average 12-month cumulative revenues, and a third at the highest 12-month cumulative revenues over the last 24 months, ending Dec. 2001
Treatment of Local Pass-Through Revenues	Two scenarios: one including all local pass-through revenues within Annual Revenues for purpose of debt capacity test, and one excluding all local pass-through revenues from the debt capacity test

See **Attachment B** for the detailed assumptions utilized in each sensitivity analysis, as the factors presented previously are varied to achieve the complete set of alternative scenarios.

It also should be noted that the current analyses, by necessity, require significant simplification as compared to the myriad of structuring nuances that would be involved in actual note sales. As a result, certain ambiguities or alternative interpretations could lead to somewhat differing results in practice. One example of a simplification common to all scenarios is the assumption that all GARVEE notes within the capacity of a given scenario would be issued in a single, initial year, not staggered over multiple years as typically would be expected in a bonding program of significant magnitude.

If, instead, such bonds were staggered <u>and</u> the program was assumed to have a fixed "end date" represented by the assumed final maturity used in each scenario, each resulting measure of maximum bonding capacity would have to be adjusted downward. This would be necessary because the GARVEE notes issued in subsequent years would have a shorter period during which to amortize principal before the fixed end date. This would increase the annual debt service necessary for a given par amount of notes, causing a reduction in total bonding capacity, assuming a fixed amount of annual revenues for each scenario.

Alternatively, this simplification would not have this constraint on capacity if the program were assumed to be structured on a “rolling maturity” basis, that is, with each GARVEE note issued in subsequent years within each scenario having exactly the same underlying terms, such as total years to maturity and interest rate, regardless of the timing of its issuance within the life span of the program. This latter simplification also would assume a fixed amount of annual revenues for each scenario.

This discussion is offered as an example, which is by no means exhaustive, of the implications of the necessary simplifications involved in any analysis of bonding capacity given current uncertainty about the “real life” conditions that will exist at the time of any future issuance of GARVEE notes. Therefore, care should be exercised in using these analyses, to avoid erroneous interpretations or conclusions.

Summary of Results

The analyses resulted in a slightly lower to somewhat higher bonding capacity than last year’s estimates depending upon the revenue assumptions used. For example, a 5-year maturity bond issuance corresponds to a bonding capacity ranging from $2.09 billion (low revenue, market sensitivity case) to $3.04 billion (high revenue, base case), or $40 million less to $470 million more respectively than in 2001. The higher interest rates used in the market sensitivity cases reduce bonding capacity in all cases.

The differences are greater the longer the maturity of the bond. For example, a 20-year maturity bond issuance under current market conditions corresponds to a bonding capacity ranging from $6.13 billion (low revenue, base case) to $8.64 billion (high revenue, base case), or $220 million less and $1.17 billion more respectively than in 2001.

The change in estimated capacity is primarily due to four factors:

1. Higher federal deposits in the State Highway Account during the 24 month analysis period (January 2000 through December 2001),
2. a lower “low revenue” average during the analysis period,
3. lower overall market interest rates, and
4. a change from “AA” to “A” ratings as the basis for interest rate assumptions used in the analyses.

The average monthly deposits into the State Highway Account during the analysis period are higher than one year ago. For example, the average monthly deposit from January 2000 through December 2001 was over $161 million, or $21.4 million more than from January 1999 through December 2000. The 12-month rolling average for this year's analyses is $1.78 billion, which remains relatively unchanged.

Ratings assigned to recent GARVEE notes issued by other states suggest that an "A" rating is more likely than the "AA" rating assumed for the 2001 analyses. The interest rates used for the 2002 analyses assume an "A" rating on the bonds. If we faced market conditions comparable to those faced in 2001, the lower rating would result in higher interest rate assumptions than were assumed in the 2001 analyses. However, the last year has seen a decline in municipal market interest rates. As a result, the average interest rate of 3.60 percent for an "A" rated bond with a five-year maturity assumed this year is 17 basis points below the average interest rate of 3.77 percent for an "AA" rated bond assumed in the 2001 analyses.

The following table summarizes key results of our analyses. Detailed worksheets supporting the results can be found in Attachment C for ease of reference.

Summary of Results for GARVEE Bonding Capacity Sensitivity Analyses		
Scenario	**I. Base Case Current Conditions**	**II. Market Sensitivity Case Alternative Conditions**
1-A: Low Revenue, Include Local Pass-Through Revenues		
5 year maturity	$2.15 billion	$2.09 billion
10 year maturity	$3.86 billion	$3.67 billion
15 year maturity	$5.16 billion	$4.82 billion
20 year maturity	$6.13 billion	$5.64 billion
1-B: Low Revenue, Exclude Local Pass-Through Revenues		
5 year maturity	$1.59 billion	$1.55 billion
10 year maturity	$2.86 billion	$2.72 billion
15 year maturity	$3.82 billion	$3.57 billion
20 year maturity	$4.54 billion	$4.17 billion
2-A: Avg. Revenue, Include Local Pass-Through Revenues		
5 year maturity	$2.41 billion	$2.34 billion
10 year maturity	$4.32 billion	$4.11 billion
15 year maturity	$5.77 billion	$5.39 billion
20 year maturity	$6.86 billion	$6.31 billion
2-B: Avg. Revenue, Exclude Local Pass-Through Revenues		
5 year maturity	$1.78 billion	$1.73 billion
10 year maturity	$3.20 billion	$3.04 billion
15 year maturity	$4.27 billion	$3.99 billion
20 year maturity	$5.08 billion	$4.67 billion
3-A: High Revenue, Include Local Pass-Through Revenues		
5 year maturity	$3.04 billion	$2.95 billion
10 year maturity	$5.44 billion	$5.18 billion
15 year maturity	$7.27 billion	$6.79 billion
20 year maturity	$8.64 billion	$7.95 billion
3-B: High Revenue, Exclude Local Pass-Through Revenues		
5 year maturity	$2.25 billion	$2.18 billion
10 year maturity	$4.03 billion	$3.83 billion
15 year maturity	$5.38 billion	$5.03 billion
20 year maturity	$6.40 billion	$5.88 billion

Recent Events

The San Diego Association of Governments (SANDAG) has proposed using GARVEE notes to finance a portion of an upcoming highway improvement project, the I-15 Managed Lanes Project. SANDAG has requested that this project be included in the 2002 State Transportation Improvement Program (STIP) for partial funding through GARVEE financing. Approval to utilize GARVEE notes must be obtained from the California Transportation Commission (CTC). This project has been approved as part of the 2002 STIP adoption by the CTC at its April 4, 2002 meeting.

In addition, several Regional Transportation Planning Agencies are exploring the possibility of using GARVEE notes to finance portions of their transportation projects. The CTC held discussions with these entities regarding the possibility of pooling multiple projects under a single GARVEE issue, thereby reducing the costs of issuance. The Department of Transportation is evaluating the feasibility and impact of utilizing GARVEE notes for projects under the State Highway Operation and Protection Program and other non-STIP programs. Current law does not allow for the use of GARVEE notes on non-STIP programs; however, AB 3036, if adopted, would authorize the use of GARVEE notes for some non-STIP projects.

Conclusion

As the above analyses show, the ultimate capacity existing within the State's GARVEE program will depend on a wide range of circumstances over time, including market conditions, maturity structures, available revenues, and other factors that may be considered by the California Transportation Commission over the coming year.

We hope these analyses will prove useful in the consideration of future applications in light of some of the structuring options available under the GARVEE program, in addition to meeting the immediate goal of assisting the Commission in preparing its annual report.

ATTACHMENT A

MONTHLY DEPOSITS TO
STATE HIGHWAY ACCOUNT
FROM FEDERAL FUNDS

FEDERAL DEPOSITS INTO THE STATE HIGHWAY ACCOUNT

	Federal Deposits -- By Month		
	1999	2000	2001
Month	Deposit Amount	Deposit Amount	Deposit Amount
January	$ 201,606,455.01	$ 214,693,101.00	$ 292,768,595.59
February	$ 70,480,828.62	$ 94,948,610.41	$ 101,908,226.48
March	$ 131,057,017.42	$ 205,220,057.43	$ 116,551,593.66
April	$ 122,732,697.83	$ 147,504,794.21	$ 119,796,825.42
May	$ 132,322,008.15	$ 108,381,081.51	$ 156,000,075.99
June	$ 121,341,118.90	$ 167,864,562.76	$ 253,660,527.36
July	$ 132,756,296.49	$ 150,382,435.48	$ 147,895,873.85
August	$ 249,424,523.43	$ 117,373,486.00	$ 204,700,825.57
September	$ 202,260,569.27	$ 122,198,875.54	$ 174,876,482.17
October	$ 122,918,370.81	$ 150,734,015.97	$ 182,116,657.75
November	$ 109,248,154.57	$ 104,873,241.58	$ 234,233,366.71
December	$ 140,192,794.42	$ 41,768,650.18	$ 263,201,366.08
TOTAL	$ 1,736,340,834.92	$ 1,625,942,912.07	$ 2,247,710,416.63
Monthly average [1]		$140,095,156.12	$161,402,222.03

[1] For the preceding 24 month period ending December 31 of the respective calendar year.

Source: California Department of Transportation

CUMULATIVE 12-MONTH
FEDERAL DEPOSITS INTO STATE HIGHWAY ACCOUNT
OVER 24-MONTH PERIOD, ENDING DECEMBER 31, 2001

Period Covered		12-Mo. Total Revenues Deposited	
Jan-00	Dec-00	$1,625,942,912.07	
Feb-00	Jan-01	$1,704,018,406.66	
Mar-00	Feb-01	$1,710,978,022.73	
Apr-00	Mar-01	$1,622,309,558.96	
May-00	Apr-01	**$1,594,601,590.17**	**Lowest 12-mo. Total**
Jun-00	May-01	$1,642,220,584.65	
Jul-00	Jun-01	$1,728,016,549.25	
Aug-00	Jul-01	$1,725,529,987.62	
Sep-00	Aug-01	$1,812,857,327.19	
Oct-00	Sep-01	$1,865,534,933.82	
Nov-00	Oct-01	$1,896,917,575.60	
Dec-00	Nov-01	$2,026,277,700.73	
Jan-01	Dec-01	**$2,247,710,416.63**	**Highest 12-mo. Total**
		$1,784,839,658.93	**Average 12-mo. Total**

Source: California Department of Transportation

ATTACHMENT B

DETAILED ASSUMPTIONS
FOR SENSITIVITY ANALYSES

Summary of Assumptions for GARVEE Bonding Capacity Sensitivity Analyses			
I. Base Case – Current Market Conditions			
Scenarios	**Factors**	**Assumptions**	**Comments**
Scenario 1 (Low Rev) *** including 1-A, 1-B**	Final Maturity	5, 10, 15, 20 years	Analyses run at each final maturity listed at left
	Interest Rates	3.60%, 4.11%, 4.44% and 4.67%	Rates indicated relate to each respective final maturity above; listed rates represent average rate for each est. avg. maturity in current market
	Annual Revenues	$1,594,602,000	Lowest 12-month cumulative total of federal funds deposited w/in last 24 months, ending Dec. 2001
*	Treatment of Local Pass-Throughs	Scenario 1-A: Included Scenario 1-B: Excluded	Differentiates whether local pass-through revenues are included or excluded in Annual Revenues for purpose of debt service "test"
*	Debt Service "Test"	Scenario 1-A: $478,381,000 Scenario 1-B: $354,002,000	Not to exceed 30% of Annual Revenues; Scenario 1-A w/o adjustment, Scenario 1-B adjusted to net-out local pass-throughs
Scenario 2 (Avg Rev) *** including 2-A, 2-B**	Final Maturity	5, 10, 15, 20 years	Analyses run at each final maturity listed at left
	Interest Rates	3.60%, 4.11%, 4.44% and 4.67%	Rates indicated relate to each respective final maturity above; listed rates represent average rate for each est. avg. maturity in current market
	Annual Revenues	$1,784,840,000	Average 12-month cumulative total of federal funds deposited w/in last 24 months, ending Dec. 2001
*	Treatment of Local Pass-Throughs	Scenario 2-A: Included Scenario 2-B: Excluded	Differentiates whether local pass-through revenues are included or excluded in Annual Revenues for purpose of debt service "test"
*	Debt Service "Test"	Scenario 2-A: $535,452,000 Scenario 2-B: $396,235,000	Not to exceed 30% of Annual Revenues; Scenario 2-A w/o adjustment, Scenario 2-B adjusted to net-out local pass-throughs

Summary of Assumptions for GARVEE Bonding Capacity Sensitivity Analyses			
I. Base Case – Current Market Conditions			
Scenarios	**Factors**	**Assumptions**	**Comments**
Scenario 3 (Hi Rev) *** including 3-A, 3-B**	Final Maturity	5, 10, 15, 20 years	Analyses run at each final maturity listed at left
	Interest Rates	3.60%, 4.11%, 4.44% and 4.67%	Rates indicated relate to each respective final maturity above; listed rates represent average rate for each est. avg. maturity in current market
	Annual Revenues	$2,247,710,000	Average 12-month cumulative total of federal funds deposited w/in last 24 months, ending Dec. 2001
*	Treatment of Local Pass-Throughs	Scenario 3-A: Included Scenario 3-B: Excluded	Differentiates whether local pass-through revenues are included or excluded in Annual Revenues for purpose of debt service "test"
*	Debt Service "Test"	Scenario 3-A: $674,313,000 Scenario 3-B: $498,992,000	Not to exceed 30% of Annual Revenues; Scenario 3-A w/o adjustment, Scenario 3-B adjusted to net-out local pass-throughs

Summary of Assumptions for GARVEE Bonding Capacity Sensitivity Analyses			
II. Market Sensitivity Case – Alternative Market Conditions			
Scenarios	**Factors**	**Assumptions**	**Comments**
Scenario 1 (Low Rev) *** including 1-A, 1-B**	Final Maturity	5, 10, 15, 20 years	Analyses run at each final maturity listed at left
	Interest Rates	4.60%, 5.11%, 5.44% and 5.67%	Rates indicated relate to each respective final maturity above; listed rates represent average rate for each est. avg. maturity in alternative market
	Annual Revenues	$1,594,602,000	Lowest 12-month cumulative total of federal funds deposited w/in last 24 months, ending Dec. 2001
*	Treatment of Local Pass-Throughs	Scenario 1-A: Included Scenario 1-B: Excluded	Differentiates whether local pass-through revenues are included or excluded in Annual Revenues for purpose of debt service "test"
*	Debt Service "Test"	Scenario 1-A: $478,381,000 Scenario 1-B: $354,002,000	Not to exceed 30% of Annual Revenues; Scenario 1-A w/o adjustment, Scenario 1-B adjusted to net-out local pass-throughs
Scenario 2 (Avg Rev) *** including 2-A, 2-B**	Final Maturity	5, 10, 15, 20 years	Analyses run at each final maturity listed at left
	Interest Rates	4.60%, 5.11%, 5.44% and 5.67%	Rates indicated relate to each respective final maturity above; listed rates represent average rate for each est. avg. maturity in alternative market
	Annual Revenues	$1,784,840,000	Average 12-month cumulative total of federal funds deposited w/in last 24 months, ending Dec. 2001
*	Treatment of Local Pass-Throughs	Scenario 2-A: Included Scenario 2-B: Excluded	Differentiates whether local pass-through revenues are included or excluded in Annual Revenues for purpose of debt service "test"
*	Debt Service "Test"	Scenario 2-A: $535,452,000 Scenario 2-B: $396,235,000	Not to exceed 30% of Annual Revenues; Scenario 2-A w/o adjustment, Scenario 2-B adjusted to net-out local pass-throughs

Summary of Assumptions for GARVEE Bonding Capacity Sensitivity Analyses			
II. Market Sensitivity Case – Alternative Market Conditions			
Scenarios	**Factors**	**Assumptions**	**Comments**
Scenario 3 (Hi Rev) *** including 3-A, 3-B**	Final Maturity	5, 10, 15, 20 years	Analyses run at each final maturity listed at left
	Interest Rates	4.60%, 5.11%, 5.44% and 5.67%	Rates indicated relate to each respective final maturity above; listed rates represent average rate for each est. avg. maturity in alternative market
	Annual Revenues	$2,247,710,000	Average 12-month cumulative total of federal funds deposited w/in last 24 months, ending Dec. 2001
*	Treatment of Local Pass-Throughs	Scenario 3-A: Included Scenario 3-B: Excluded	Differentiates whether local pass-through revenues are included or excluded in Annual Revenues for purpose of debt service "test"
*	Debt Service "Test"	Scenario 3-A: $674,313,000 Scenario 3-B: $498,992,000	Not to exceed 30% of Annual Revenues; Scenario 3-A w/o adjustment, Scenario 3-B adjusted to net-out local pass-throughs

ATTACHMENT C

DETAILED WORKSHEETS
FOR SENSITIVITY ANALYSES

OVERVIEW OF GARVEE BONDING CAPACITY ANALYSES

($ in 000's)

	Low Revenue		Average Revenue		High Revenue	
Base Case	**I-1A**	**I-1B**	**I-2A**	**I-2B**	**I-3A**	**I-3B**
Maximum Par Amount	$2,153,932	$1,593,911	$2,410,898	$1,784,067	$3,036,127	$2,246,736
Interest rate	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	5	5	5	5	5	5
Market Sensitivity	**II-1A**	**II-1B**	**II-2A**	**II-2B**	**II-3A**	**II-3B**
Maximum Par Amount	$2,094,357	$1,549,826	$2,344,216	$1,734,722	$2,952,152	$2,184,594
Interest rate	4.60%	4.60%	4.60%	4.60%	4.60%	4.60%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	5	5	5	5	5	5
Base Case	**I-1A**	**I-1B**	**I-2A**	**I-2B**	**I-3A**	**I-3B**
Maximum Par Amount	$3,858,743	$2,855,473	$4,319,096	$3,196,135	$5,439,185	$4,025,000
Interest rate	4.11%	4.11%	4.11%	4.11%	4.11%	4.11%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	10	10	10	10	10	10
Market Sensitivity	**II-1A**	**II-1B**	**II-2A**	**II-2B**	**II-3A**	**II-3B**
Maximum Par Amount	$3,674,097	$2,718,834	$4,112,421	$3,043,196	$5,178,913	$3,832,398
Interest rate	5.11%	5.11%	5.11%	5.11%	5.11%	5.11%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	10	10	10	10	10	10
Base Case	**I-1A**	**I-1B**	**I-2A**	**I-2B**	**I-3A**	**I-3B**
Maximum Par Amount	$5,157,664	$3,816,675	$5,772,979	$4,272,010	$7,270,110	$5,379,886
Interest rate	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	15	15	15	15	15	15
Market Sensitivity	**II-1A**	**II-1B**	**II-2A**	**II-2B**	**II-3A**	**II-3B**
Maximum Par Amount	$4,819,919	$3,566,743	$5,394,941	$3,992,261	$6,794,033	$5,027,588
Interest rate	5.44%	5.44%	5.44%	5.44%	5.44%	5.44%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	15	15	15	15	15	15
Base Case	**I-1A**	**I-1B**	**I-2A**	**I-2B**	**I-3A**	**I-3B**
Maximum Par Amount	$6,131,556	$4,537,356	$6,863,058	$5,078,670	$8,642,884	$6,395,739
Interest rate	4.67%	4.67%	4.67%	4.67%	4.67%	4.67%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	20	20	20	20	20	20
Market Sensitivity	**II-1A**	**II-1B**	**II-2A**	**II-2B**	**II-3A**	**II-3B**
Maximum Par Amount	$5,636,594	$4,171,084	$6,309,047	$4,668,701	$7,945,198	$5,879,451
Interest rate	5.67%	5.67%	5.67%	5.67%	5.67%	5.67%
Annual Debt Service *	(478,381)	(354,002)	(535,452)	(396,235)	(674,313)	(498,992)
Term	20	20	20	20	20	20

* Annual Debt Service constrained to 30% of historical annual deposits into the State Highway Account from Federal Funds. See page 3 of this analysis for an explanation of the assumptions presented within this table. Source of base data: California Department of Transportation.

(white / non-shaded) = Base Case Scenarios (yellow / shaded) = Market Sensitivity Case Scenarios

ATTACHMENT D

DETAILED CHARTS
FOR SENSITIVITY ANALYSES

Base Case, I - 1A (Low Revenue, Local Deposits Included)

Low Revenue ($ in 000's)	**$1,594,602**
Debt Service Test (30% of Low Revenue)	**$478,381**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate(1)	3.60%	4.11%	4.44%	4.67%
Par Capacity	**$2,153,932**	**$3,858,743**	**$5,157,664**	**$6,131,556**
Annual Debt Service Required	$478,381	$478,381	$478,381	$478,381

Base Case, I - 1B (Low Revenue, Local Deposits Excluded)

Low Revenue ($ in 000's)	**$1,594,602**
State Portion of Revenues (74%)	**$1,180,005**
Debt Service Test (30% State Portion)	**$354,002**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate(1)	3.60%	4.11%	4.44%	4.67%
Par Amount	**$1,593,911**	**$2,855,473**	**$3,816,675**	**$4,537,356**
Annual Debt Service Required	$354,002	$354,002	$354,002	$354,002

(1) The assumed interest rate is based on a March 13, 2002, generic A-rated State of California general obligation bond scale. The rate used is the average for all the maturities in each scenario. It assumes a level debt amortization.

Base Case, I - 2A (Average Revenue, Local Deposits Included)

Average Revenue ($ in 000's) **$1,784,840**

Debt Service Test (30% of Average Revenue) **$535,452**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate[1]	3.60%	4.11%	4.44%	4.67%
Par Amount	**$2,410,898**	**$4,319,096**	**$5,772,979**	**$6,863,058**
Annual Debt Service Required	$535,452	$535,452	$535,452	$535,452

Base Case, I - 2B (Average Revenue, Local Deposits Excluded)

Average Revenue ($ in 000's) **$1,784,840**

State Portion of Revenues (74%) **$1,320,782**

Debt Service Test (30% of State Portion) **$396,235**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate[1]	3.60%	4.11%	4.44%	4.67%
Par Amount	**$1,784,067**	**$3,196,135**	**$4,272,010**	**$5,078,670**
Annual Debt Service Required	$396,235	$396,235	$396,235	$396,235

(1) The assumed interest rate is based on a March 13, 2002, generic A-rated State of California general obligation bond scale. The rate used is the average for all the maturities in each scenario. It assumes a level debt amortization.

Base Case, I - 3A (High Revenue, Local Deposits Included)

High Revenue ($ in 000's)	**$2,247,710**
Debt Service Test (30% of High Revenue)	**$674,313**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate(1)	3.60%	4.11%	4.44%	4.67%
Par Amount	**$3,036,127**	**$5,439,185**	**$7,270,110**	**$8,642,884**
Annual Debt Service Required	$674,313	$674,313	$674,313	$674,313

Base Case, I - 3B (High Revenue, Local Deposits Excluded)

High Revenue ($ in 000's)	**$2,247,710**
State Portion of Revenues (74%)	**$1,663,305**
Debt Service Test (30% of State Portion)	**$498,992**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate(1)	3.60%	4.11%	4.44%	4.67%
Par Amount	**$2,246,736**	**$4,025,000**	**$5,379,886**	**$6,395,739**
Annual Debt Service Required	$498,992	$498,992	$498,992	$498,992

(1) The assumed interest rate is based on a March 13, 2002, generic A-rated State of California general obligation bond scale. The rate used is the average for all the maturities in each scenario. It assumes a level debt amortization.

Market Sensitivity Case, II - 1A (Low Revenue, Local Deposits Included)

Low Revenue ($ in 000's)	**$1,594,602**
Debt Service Test (30% of Low Revenue)	**$478,381**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate[1]	4.60%	5.11%	5.44%	5.67%
Par Amount	**$2,094,357**	**$3,674,097**	**$4,819,919**	**$5,636,594**
Annual Debt Service Required	$478,381	$478,381	$478,381	$478,381

Market Sensitivity Case, II - 1B (Low Revenue, Local Deposits Excluded)

Low Revenue ($ in 000's)	**$1,594,602**
State Portion of Revenues (74%)	**$1,180,005**
Debt Service Test (30% of State Portion)	**$354,002**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate [1]	4.60%	5.11%	5.44%	5.67%
Par Amount	**$1,549,826**	**$2,718,834**	**$3,566,743**	**$4,171,084**
Annual Debt Service Required	$354,002	$354,002	$354,002	$354,002

(1) The assumed interest rates are based on a March 13, 2002, generic A-rated State of California general obligation bond scale (increased by 100 basis points (1%) for market fluctuations). The rate used is the average for all the maturities in each scenario. It assumes a level debt amortization.

Market Sensitivity Case, II - 2A (Average Revenue, Local Deposits Included)

Average Revenue ($ in 000's) **$1,784,840**

Debt Service Test (30% of Average Revenue) **$535,452**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate[(1)]	4.60%	5.11%	5.44%	5.67%
Par Amount	**$2,344,216**	**$4,112,421**	**$5,394,941**	**$6,309,047**
Annual Debt Service Required	$535,452	$535,452	$535,452	$535,452

Market Sensitivity Case, II - 2B (Average Revenue, Local Deposits Excluded)

Average Revenue ($ in 000's) **$1,784,840**

State Portion of Revenues (74%) **$1,320,782**

Debt Service Test (30% of State Portion) **$396,235**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate[(1)]	4.60%	5.11%	5.44%	5.67%
Par Amount	**$1,734,722**	**$3,043,196**	**$3,992,261**	**$4,668,701**
Annual Debt Service Required	$396,235	$396,235	$396,235	$396,235

(1) The assumed interest rates are based on a March 13, 2002, generic A-rated State of California general obligation bond scale (increased by 100 basis points (1%) for market fluctuations). The rate used is the average for all the maturities in each scenario. It assumes a level debt amortization.

Market Sensitivity Case, II - 3A (High Revenue, Local Deposits Included)

High Revenue ($ in 000's)	**$2,247,710**
Annual Debt Service Capacity (30% of High Revenue)	**$674,313**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate[1]	4.60%	5.11%	5.44%	5.67%
Par Amount	**$2,952,152**	**$5,178,913**	**$6,794,033**	**$7,945,198**
Annual Debt Service Required	$674,313	$674,313	$674,313	$674,313

Market Sensitivity Case, II - 3B (High Revenue, Local Deposits Excluded)

High Revenue ($ in 000's)	**$2,247,710**
State Portion of Revenues (74%)	**$1,663,306**
Debt Service Test (30% of State Portion)	**$498,992**

(Dollars in Thousands)

	5 Years	10 Years	15 Years	20 Years
Assumed Date of Issuance	2003	2003	2003	2003
Assumed Final Maturity	2008	2013	2018	2023
Assumed Interest Rate[1]	4.60%	5.11%	5.44%	5.67%
Par Amount	**$2,184,594**	**$3,832,398**	**$5,027,588**	**$5,879,451**
Annual Debt Service Required	$498,992	$498,992	$498,992	$498,992

(1) The assumed interest rates are based on a March 13, 2002, generic A-rated State of California general obligation bond scale (increased by 100 basis points (1%) for market fluctuations). The rate used is the average for all the maturities in each scenario. It assumes a level debt amortization.