

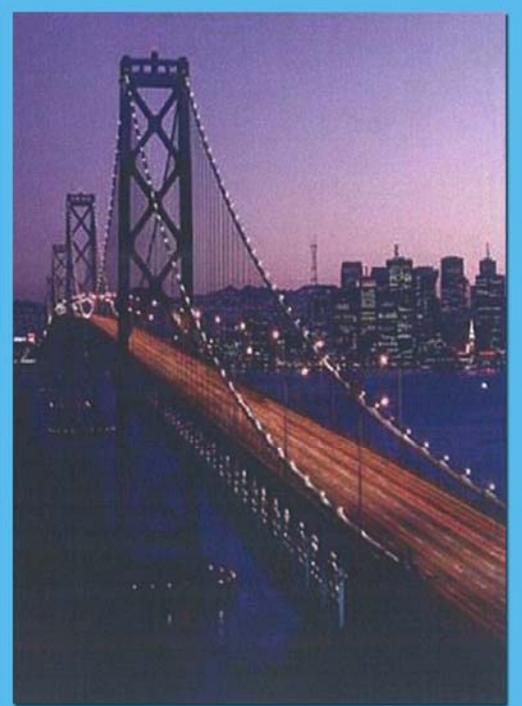
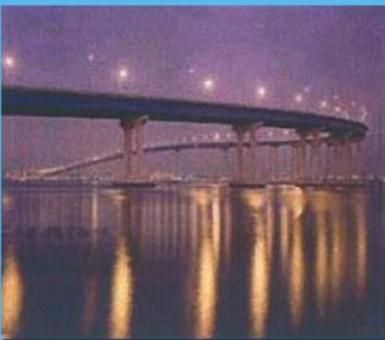
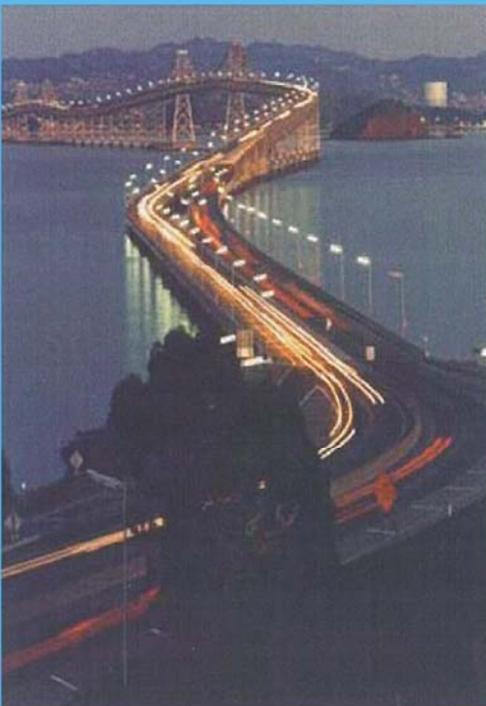
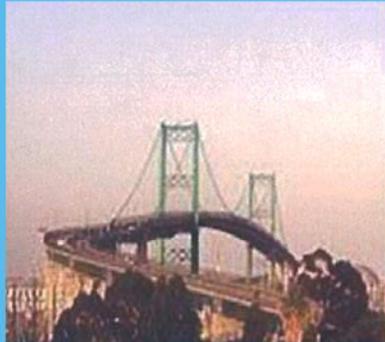


# Toll Bridge Seismic Retrofit Program Report

**Fourth Quarter Report**

Ending December 31, 2005

Submitted by  
Toll Bridge Program  
Oversight Committee







**Toll Bridge Program Oversight Committee  
Department of Transportation  
Office of the Director  
1120 N Street  
P.O. Box 942873  
Sacramento, CA 94273-0001**

February 14, 2006

Mr. Gregory Schmidt  
Secretary of the Senate  
State Capital, Room 3044  
Sacramento, CA 95814

Mr. E Dotson Wilson  
Chief Clerk of the Assembly  
State Capital, Room 3196  
Sacramento, CA 95814

Dear Messrs. Schmidt and Wilson:

The Toll Bridge Program Oversight Committee (TBPOC) is pleased to submit the 2005 Fourth Quarter "Toll Bridge Seismic Retrofit Program Report," prepared pursuant to California Streets and Highways Code Section 30952.2. The Fourth Quarter report includes project progress and activities for the Toll Bridge Seismic Retrofit Program through December 31, 2005.

California Streets and Highways Code Section 30952.1 established the TBPOC to exercise project oversight and control over the Toll Bridge Seismic Retrofit Program. The TBPOC is comprised of the Director of the Department of Transportation (Caltrans), the Executive Director of the Bay Area Toll Authority (BATA), and the Executive Director of the California Transportation Commission (CTC). The TBPOC's program oversight and control activities include review and approval of contract bid documents, review and resolution of project issues, evaluation and approval of project change orders and claims, and the issuance of monthly and quarterly program progress reports.

In January 2006, after the close of the 2005 Fourth Quarter, the TBPOC approved and Caltrans issued Addendum #7 for the San Francisco-Oakland Bay Bridge East Span Seismic Replacement Project Self Anchored Suspension (SAS) Bridge contract that is currently being advertised. The major revisions included in Addendum #7 are as follows:

- The bid opening date for the SAS contract has been extended from February 1, 2006 to March 22, 2006, in response to bidder requests to allow more time to better prepare bids and develop their construction teams. To help mitigate some of this additional bid time, Caltrans has committed to reduce its bid review process time from 60 days to 30 days. Caltrans expects to award the SAS contract by April 21, 2006, which results in an overall delay of only 20 days to the start of SAS construction.
- 180 days has been added to the current SAS contract to accommodate for the time bidders have requested to produce engineering drawings, full scale models, and acquire structural steel. To help mitigate some of this additional construction time, a \$50,000 per day incentive clause, not to exceed six months, was added to the contract to encourage an early completion of the SAS construction.
- The stipend offer to the top three responsive bidders has been raised from \$3.0 million to \$5.0 million. This makes submitting a bid more inviting by compensating contractors for their preliminary work expenditures.

The TBPOC has determined that one of the biggest risks to the cost of the project is the potential of not having competition from multiple bidders. Therefore, all of the revisions to the bid documents and specifications that have been approved by the TBPOC are an attempt to increase competition and to lower project cost. Please note that Addendum #7 was issued after the close of the fourth quarter. Therefore, this Fourth Quarter Report does not include the schedule changes that derive from the issuance of Addendum #7.

The TBPOC is committed to providing the Legislature with comprehensive and timely reporting on the Toll Bridge Seismic Retrofit Program. If there are any questions or if any additional information is required, please do not hesitate to contact the members of the TBPOC.

Sincerely,



WILL KEMPTON  
Director  
California Department of Transportation  
Chair, TBPOC



JOHN F. BARNA, JR.  
Executive Director  
California Transportation Commission



STEVE HEMINGER  
Executive Director  
Bay Area Toll Authority



**Toll Bridge Program Oversight Committee**  
**Department of Transportation**  
**Office of the Director**  
**1120 N Street**  
**P.O. Box 942873**  
**Sacramento, CA 94273-0001**

February 14, 2006

Mr. Joseph Tavaglione, Chair  
California Transportation Commission  
1120 N Street, Room 2221  
Sacramento, CA 95814

Mr. Jeremiah F. Hallisey, Vice Chair  
California Transportation Commission  
1120 N Street, Room 2221  
Sacramento, CA 95814

Dear Commissioners Tavaglione and Hallisey:

The Toll Bridge Program Oversight Committee (TBPOC) is pleased to submit the 2005 Fourth Quarter "Toll Bridge Seismic Retrofit Program Report," prepared pursuant to California Streets and Highways Code Section 30952.2. The Fourth Quarter report includes project progress and activities for the Toll Bridge Seismic Retrofit Program through December 31, 2005.

California Streets and Highways Code Section 30952.1 established the TBPOC to exercise project oversight and control over the Toll Bridge Seismic Retrofit Program. The TBPOC is comprised of the Director of the Department of Transportation (Caltrans), the Executive Director of the Bay Area Toll Authority (BATA), and the Executive Director of the California Transportation Commission (CTC). The TBPOC's program oversight and control activities include review and approval of contract bid documents, review and resolution of project issues, evaluation and approval of project change orders and claims, and the issuance of monthly and quarterly program progress reports.

In January 2006, after the close of the 2005 Fourth Quarter, the TBPOC approved and Caltrans issued Addendum #7 for the San Francisco-Oakland Bay Bridge East Span Seismic Replacement Project Self Anchored Suspension (SAS) Bridge contract that is currently being advertised. The major revisions included in Addendum #7 are as follows:

- The bid opening date for the SAS contract has been extended from February 1, 2006 to March 22, 2006, in response to bidder requests to allow more time to better prepare bids and develop their construction teams. To help mitigate some of this additional bid time, Caltrans has committed to reduce its bid review process time from 60 days to 30 days. Caltrans expects to award the SAS contract by April 21, 2006, which results in an overall delay of only 20 days to the start of SAS construction.
- 180 days has been added to the current SAS contract to accommodate for the time bidders have requested to produce engineering drawings, full scale models, and acquire structural steel. To help mitigate some of this additional construction time, a \$50,000 per day incentive clause, not to exceed to six months, was added to the contract to encourage an early completion of the SAS construction.
- The stipend offer to the top three responsive bidders has been raised from \$3.0 million to \$5.0 million. This makes submitting a bid more inviting by compensating contractors for their preliminary work expenditures.

The TBPOC has determined that one of the biggest risks to the cost of the project is the potential of not having competition from multiple bidders. Therefore, all of the revisions to the bid documents and specifications that have been approved by the TBPOC are an attempt to increase competition and to lower project cost. Please note that Addendum #7 was issued after the close of the fourth quarter. Therefore, this Fourth Quarter Report does not include the schedule changes that derive from the issuance of Addendum #7.

The TBPOC is committed to providing the CTC with comprehensive and timely reporting on the Toll Bridge Seismic Retrofit Program. If there are any questions or if any additional information is required, please do not hesitate to contact the members of the TBPOC.

Sincerely,



WILL KEMPTON  
Director  
California Department of Transportation  
Chair, TBPOC



JOHN F. BARNA, JR.  
Executive Director  
California Transportation Commission



STEVE HEMINGER  
Executive Director  
Bay Area Toll Authority

## Table of Contents

Executive Summary.....	2
Program Overview.....	4
Risk Management.....	5
Toll Bridge Seismic Retrofit Program—Cost Summary.....	6
Toll Bridge Seismic Retrofit Program—Schedule Summary.....	7
Program Costs.....	8
Baseline and Projected Budget.....	8
Summary of TBPOC Expenses.....	8
Program Schedule.....	9
Baseline and Projected Schedule.....	9
Program Funding and Financing.....	10
Funding Status.....	11
Program Financing.....	12
Project Status.....	13
Completed Projects.....	13
On-going Construction Projects.....	15
SFOBB West Approach.....	15
Milestones Achieved.....	15
Project Funding.....	15
Major Risk Issues.....	16
SFOBB East Span Seismic Replacement.....	17
Milestones Achieved.....	19
Project Funding.....	20
Project Funding.....	21
Baseline and Projected Budget and Schedule.....	21
Major Risk Issues.....	23
Quarterly Environmental Compliance Highlights.....	23
Other Toll Bridges.....	23
Appendices.....	25
Appendix A-1.....	26
Appendix A-2.....	27
Appendix B.....	28
Appendix C.....	30
Appendix D.....	37
Appendix E.....	38

## Executive Summary

The Toll Bridge Program Oversight Committee (TBPOC) submits the 2005 Fourth Quarter Report ending December 31, 2005, for the Toll Bridge Seismic Retrofit Program (TBSRP) in accordance with SB 66 and AB 144. This report provides the following:

1. Information on the progress of each project in the program.
2. Baseline budget for Capital Outlay (CO) and Capital Outlay Support (COS).
3. Current projected costs for CO and COS.
4. Expenditures to date.
5. Comparison of the baseline schedule to the December 2005 projected schedule.
6. Summary of the milestones achieved during the quarter.
7. Major risk assessment for the remaining projects.
8. Summary of expenses incurred by the TBPOC in performing its duties.

### Major Milestones and Program Activities During the 4<sup>th</sup> Quarter

Significant progress on the completion of the seismic retrofit projects continued during this past quarter. Appendix E includes a gallery of photos of construction activities on the bridge projects. Only one of the seven Toll Bridges in the TBSRP remains to be retrofitted. The major milestones achieved during the quarter include:

- All construction work on the Richmond-San Rafael Bridge seismic retrofit project was completed in October 2005. The California Department of Transportation (Caltrans) is currently in discussions with regulatory agencies concerning mitigation measures for negative impacts on fish in the project area. It is currently estimated that the project will have a savings of approximately \$89 million from the baseline

budget contained in AB 144 and SB 66. Caltrans is also finalizing project plans and specifications for a public access lot on the Marin side of the bridge to comply with a Bay Conservation and Development Commission (BCDC) permit condition.

- The San Francisco-Oakland Bay Bridge (SFOBB) West Approach Project has advanced to approximately 63 percent complete and is on schedule for completion in August 2009.
- The SFOBB East Span Seismic Replacement Project Skyway contract is 84 percent complete and is projected to be completed in 2007. In October 2005, the Federal Highway Administration (FHWA) sent a letter (dated October 21, 2005) to Caltrans regarding FHWA's findings on the foundation welding issues that had been raised about the Skyway project. The welding issues and ongoing investigations were discussed in the TBSRP 3<sup>rd</sup> Quarter report. As stated in the FHWA letter, FHWA has "determined that additional capacity and weld strength built into the structure, along with the extensive quality control and quality assurance process, results in Skyway foundations that meet or exceed required specifications, and are sufficient to carry all design loads." The California Attorney General has not formally or informally indicated that his investigation of this issue has been concluded.
- In November 2005, the TBPOC approved Contract Change Order (CCO) #29 to the SFOBB East Span Seismic Replacement Project Self-Anchored Suspension (SAS) Marine Foundation East Pier and Tower (E2/T1) contract. This change order, concerning the restart of work on this contract, has been signed by the contractor. The CCO cost of \$81 million is within the budget estimate for the project contained in AB 144.
- Caltrans has issued a total of six addenda for the SFOBB East Span Seismic Replacement Project

SAS contract. Addendum #5, issued in December 2005, extended the SAS schedule by six months in response to bidder inquiries and to attract more bidders and reduce the bid costs. Bids for the contract are due in February 2006.

- Design work continues on various contracts. The SFOBB East Span Seismic Replacement Project Oakland Touchdown contract has been split into multiple contracts to accelerate the work and to provide an opportunity for Disadvantaged Business Enterprise (DBE) participation.
- In September 2005, the Bay Area Toll Authority (BATA) approved a finance plan to deliver the TBSRP projects and other toll bridge improvement project dependant upon toll revenues from the state-owned bridges program. In December 2005, BATA approved the issuance of up to \$1.0 billion in toll bridge revenue bonds. The bond issuance will provide adequate cashflow to fund the SAS contract bid due in February 2006.
- In December 2005, BATA approved a budget revision and funding plan for the cost overruns on the Benicia-Martinez Bridge New Span project, which is an improvement project included in the Regional Measure 1 (RM 1) toll bridge program. This latest budget revision for the project increased the total project budget from \$1,060 to \$1,263 billion. In order to provide adequate funding for the project, the adopted funding plan maximizes available RM 1 funds for the project and relies on \$74 million of funds from the AB 144 funding program. AB 144 increased the fund capacity for the entire toll bridge program, including the TBSRP and RM 1 programs. The BATA finance plan (discussed below), adopted by BATA in September 2005, funds a total program of \$8.4 billion. The additional funds (\$74 million) required for the Benicia-Martinez Bridge New Span project from the AB 144 toll program is added costs that would reduce the capacity of the overall finance plan. However, the reduced

capacity will be offset by the estimated \$89 million cost savings from the recently completed Richmond-San Rafael Bridge Seismic Retrofit project. As a result, the overall funding plan for the seismic retrofit program would not be affected.

AB 144 also requires Caltrans to develop and implement an expanded comprehensive risk management plan for the TBSRP to augment the established risk management protocols and mitigation measures already in place. An update on these risk management activities is included in this report in Appendix C.



*Richmond-San Rafael Bridge ribbon cutting.*

## Program Overview

Seven of the nine state-owned toll bridges were identified for seismic retrofit in the TBSRP:

1. Benicia-Martinez Bridge
2. Carquinez Bridge
3. San Mateo-Hayward Bridge
4. Vincent Thomas Bridge
5. San Diego-Coronado Bridge
6. Richmond-San Rafael Bridge
7. San Francisco-Oakland Bay Bridge (SFOBB) (West Span, West Approach, and construction of the new East Span).

Seismic retrofit of these complex structures presents an extremely difficult engineering challenge and nowhere in the world has a bridge seismic safety program of this size been undertaken. Although the Dumbarton and the Antioch bridges were not included in the program, Caltrans is continuing to

work on seismic vulnerability studies to assess the potential for necessary retrofit work on these structures. See discussion on page 23.

As shown in *Table 1 - TBSRP Project Status*, a significant portion of the TBSRP is complete. Currently, it is anticipated that there will be a cost savings of approximately \$89 million from the project cost included in the AB 144/SB 66 baseline budget on the recently completed Richmond-San Rafael Bridge.

The SFOBB West Approach and new East Span Seismic Replacement projects are currently under construction. The 4<sup>th</sup> Quarter forecast for those projects indicates that they will be completed within the AB 144/SB 66 baseline cost and schedule estimates, although the schedule for the completion of the new East Span has been extended by six months in response to bidder inquiries.

*Tables 2 and 3* provide a summary of the cost, schedule, and status of all the TBSRP projects.

**Table 1 - TBSRP Project Status**

Toll Bridge Seismic Retrofit Projects	Seismic Safety Status
San Francisco-Oakland Bay Bridge East Span Replacement	Construction
San Francisco-Oakland Bay Bridge West Approach Replacement	Construction
San Francisco-Oakland Bay Bridge West Span Seismic Retrofit	Complete
San Mateo-Hayward Bridge Seismic Retrofit	Complete
Richmond-San Rafael Bridge Seismic Retrofit	Complete
Eastbound Carquinez Bridge Seismic Retrofit	Complete
Benicia-Martinez Bridge Seismic Retrofit	Complete
San Diego-Coronado Bridge Seismic Retrofit	Complete
Vincent Thomas Bridge Seismic Retrofit	Complete

## Risk Management

Caltrans has prepared and is implementing risk management plans (RMP) for all remaining TBSRP projects.

Caltrans’ RMPs provide for a systemic process of identifying, analyzing, and responding to project risk. Implementation of the RMPs provides for maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events to project objectives (e.g., cost, schedule and quality).

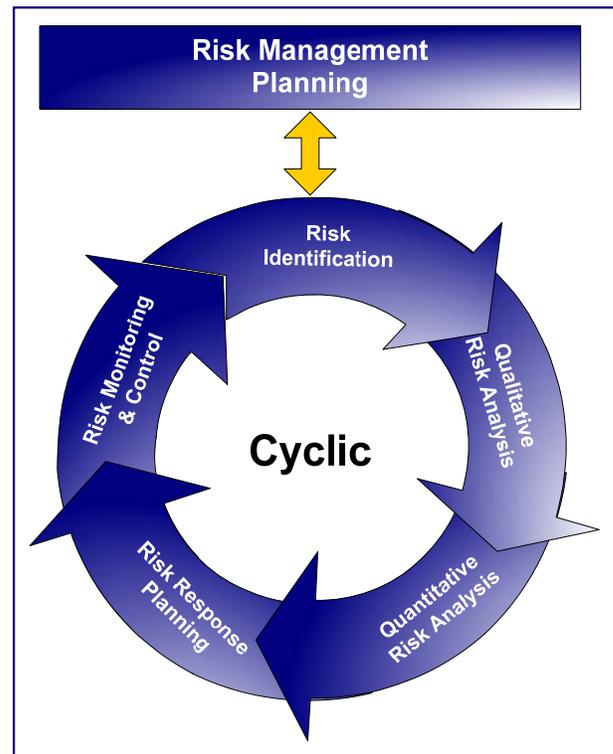
Each element of the RMP is explained below and shown in *Figure 1 - Risk Management Planning*:

1. Risk Management Planning – deciding how to approach, plan and execute the risk management activities for the project.
2. Risk Identification – determining which risks might affect the project and documenting their characteristics.
3. Qualitative Risk Analysis – prioritizing risks for subsequent further analysis or action by assessing and combining their probability and impacts.
4. Quantitative Risk Analysis – analyzing numerically the effect of identified risks on overall project objectives.
5. Risk Response Planning – developing options and actions to enhance opportunities and to reduce impact to project objectives.
6. Risk Monitoring and Control – tracking identified risks, monitoring residual risks, identifying new risks, executing risk response plans, and evaluating their effectiveness throughout the project life cycle.

Although the risk management processes above are presented as discreet elements with well-defined

interfaces, in practice they often overlap and interact with each other. This report identifies potential risk items (“Major Risk Issues”) for each of the TBSRP projects and proposed actions to mitigate the risks. Appendix C includes the risk assessment and risk management plan for the SFOBB East Span Seismic Replacement project.

**Figure 1 – Risk Management Planning**



Also, Caltrans and BATA have embarked on an initiative to manage risk jointly on the SFOBB East Span Seismic Replacement and SFOBB West Approach Replacement Projects. The objective is to share program and project risk information to provide reliable risk assessments and risk reports to the TBPOC in support of its decision-making processes. Further information on this initiative is shown in Appendix C.

**Table 2-Toll Bridge Seismic Retrofit Program—Cost Summary (\$Millions)**

Project	Work Status	AB 144 / SB 66 Budget	Approved Changes	Current Budget	Actual Cost To Date (12/2005)	4th Quarter 2005 Forecast	At-Completion Variance	Cost Status
a	b	c	d	e = c + d	f	g	h = g - e	i
<b>SFOBB East Span Replacement Project</b>								
Capital Outlay Support		959.4	-	959.4	398.1	977.1	17.7	●
Capital Outlay Construction								
Skyway	Construction	1,293.0	-	1,293.0	961.2	1,293.0	-	●
SAS Superstructure	Advertised	1,753.7	-	1,753.7	-	1,767.4	13.7	●
SAS E2/T1 Foundations	Construction	313.5	-	313.5	88.3	313.5	-	●
YBI Transition Structures	Design	299.3	-	299.3	-	318.4	19.1	●
Oakland Touchdown	Design	283.8	-	283.8	-	272.7	(11.1)	●
South/South Detour	Design/ Const Design	131.9	-	131.9	30.0	133.8	1.9	●
Existing Bridge Demolition	Design	239.2	-	239.2	-	222.0	(17.2)	●
Stormwater Treatment Measures	Design	15.0	-	15.0	-	15.0	-	●
East Span Completed Projects		90.3	-	90.3	89.0	90.3	-	
Right-of-Way and Environmental Mitigation		72.4	-	72.4	38.7	72.4	-	●
Other Budgeted Capital		35.1	-	35.1	-	11.0	(24.1)	
<b>Total SFOBB East Span Replacement Project</b>		<b>5,486.6</b>	<b>-</b>	<b>5,486.6</b>	<b>1,605.3</b>	<b>5,486.6</b>	<b>-</b>	
<b>SFOBB West Approach Replacement</b>								
	Construction							●
Capital Outlay Support		120.0	-	120.0	71.2	120.0	-	
Capital Outlay Construction		309.0	-	309.0	178.4	309.0	-	
<b>Total SFOBB West Approach Replacement</b>		<b>429.0</b>	<b>-</b>	<b>429.0</b>	<b>249.6</b>	<b>429.0</b>	<b>-</b>	
<b>Richmond-San Rafael Bridge Retrofit</b>								
	Construction							●
Capital Outlay Support		134.0	-	134.0	122.6	127.0	(7.0)	
Capital Outlay Construction		780.0	-	780.0	666.4	698.0	(82.0)	
<b>Total Richmond-San Rafael Bridge Retrofit</b>		<b>914.0</b>	<b>-</b>	<b>914.0</b>	<b>789.0</b>	<b>825.0</b>	<b>(89.0)</b>	
<b>Program Completed Projects</b>								
	Complete							
Capital Outlay Support		219.8	-	219.8	219.4	219.8	-	
Capital Outlay Construction		705.6	-	705.6	697.9	705.6	-	
<b>Total Program Completed Projects</b>		<b>925.4</b>	<b>-</b>	<b>925.4</b>	<b>917.3</b>	<b>925.4</b>	<b>-</b>	
<b>Miscellaneous Program Costs</b>								
		30.0	-	30.0	25.1	30.0	-	
<b>Program Contingency</b>								
		900.0	-	900.0	-	989.0	89.0	
<b>Total Toll Bridge Seismic Retrofit Program</b>		<b>8,685.0</b>	<b>-</b>	<b>8,685.0</b>	<b>3,586.3</b>	<b>8,685.0</b>	<b>-</b>	

- Within Approved Schedule and Budget
  - Potential Cost and Schedule Impacts: Possible future need for Program Contingency Allocation
  - Known Cost and Schedule Impacts: Request for Program Contingency Allocation forthcoming
- Note: Details may not sum to totals due to rounding effects.

**Table 3-Toll Bridge Seismic Retrofit Program—Schedule Summary**

Project	Project Complete AB 144 / SB 66 Baseline	Project Complete Forecast	Schedule Variance (Months)	Schedule Status	Remarks
a	b	c	d = c - b	e	f
SFOBB East Span Replacement Project					
Skyway	Apr 07	Apr 07	-	●	Fabrication issues concerning the Skyway hinge pipe beams could impact project schedule and budget.
SAS E2/T1 Foundations	Jun 08	Mar 08	(3)	●	The suspension of work on this contract has been lifted. The TBPOC has approved the Contract Change Order (CCO) that restarts the work.
SAS Superstructure	Mar 12	Sep 12	6	●	This contract is being re-advertised. Addendum #5 to the SAS Contract, issued by Caltrans on 12/21/05, extends the completion schedule for the SAS by 6 months.
YBI Transition Structures	Nov 13	Nov 13	-	●	Schedule is being assessed.
Oakland Touchdown (OTD)	Nov 13	Nov 13	-	●	Schedule is being assessed.
• OTD Submarine Cable	n/a	Jul 07	-	●	
• OTD Westbound	n/a	Jul 09	-	●	
• OTD Eastbound	n/a	Nov 13	-	●	Schedule is being assessed.
YBI South/South Detour	Jul 07	Jul 07	-	●	Schedule is being assessed.
Existing Bridge Demolition	Sep 14	Sep 14	-	●	Schedule is being assessed.
Stormwater Treatment Measures	Mar 08	Jul 08	4	●	Schedule variance due to additional time required to resolve and address issue related to contractibility prior to RTL the project.
Open to Traffic Date: West Bound	Sep 11	Mar 12	6	●	Schedule variance due to extension of the completion schedule for the SAS by 6 months.
Open to Traffic Date: East Bound	Sep 12	Mar 13	6	●	Schedule variance due to extension of the completion schedule for the SAS by 6 months.
SFOBB West Approach Replacement	Aug 09	Aug 09	-	●	
Richmond-San Rafael Bridge Retrofit	Aug 05	Oct 05	2	●	Seismic retrofit completed July 29, 2005. Formal acceptance of this contract on October 28, 2005.

## Program Costs

### Baseline and Projected Budget

The 2005 AB 144/SB 66 baseline budget is \$7.785 billion for Capital Outlay (CO) and Capital Outlay Support (COS) plus \$900 million for the program contingency, for a total baseline budget of \$8.685 billion. The 4<sup>th</sup> Quarter forecast for the program is within the \$8.685 billion budget. As highlighted above, an approximate \$89 million cost savings is projected for the Richmond-San Rafael Bridge project. As shown in *Table 4 - Toll Bridge Seismic Retrofit Program Baseline (AB 144 / SB 66) And Forecasts* below, the 4<sup>th</sup> Quarter forecast shifts the projected cost savings from the Richmond-San Rafael project into the available program

contingency funds.

Additional cost estimate and expenditure detail for the TBSRP is included in Appendices A-1 and A-2. The details of the cost estimates and expenditures for the SFOBB East Span are shown in Appendix B.

### Summary of TBPOC Expenses

Pursuant to Streets and Highways Code Section 30952.1 (d), expenses incurred by Caltrans, BATA, and the CTC for costs directly related to the duties associated with the TBPOC are to be reimbursed by toll revenues. At present, the member agencies of the TBPOC are developing actual and expected expenditures for their work activities related to the TBPOC. During the 1<sup>st</sup> quarter of 2006, the TBPOC will develop the processes and procedures for budgeting and reimbursing each agency for costs related to their participation on the TBPOC.

**Table 4 -Toll Bridge Seismic Retrofit Program Baseline (AB 144 / SB 66)  
And Forecasts (\$ million)**

Contracts	AB 144 / SB 66 Baseline Budget	4 <sup>th</sup> Quarter 2005 Forecast	Difference from Baseline
<b>Completed Projects</b>			
Benicia-Martinez	177.8	177.8	-
Carquinez	114.2	114.2	-
San Mateo-Hayward	163.5	163.5	-
Vincent Thomas	58.5	58.5	-
San Diego-Coronado	103.5	103.5	-
SFOBB West Span	307.9	307.9	-
<b>Ongoing Projects</b>			
Richmond-San Rafael	914.0	825.0	(89.0)
SFOBB West Approach	429.0	429.0	-
SFOBB East Span	5,486.6	5,486.6	-
Miscellaneous Program Costs	30.0	30.0	-
<b>Subtotal</b>	<b>7,785.0</b>	<b>7,696.0</b>	<b>(89.0)</b>
Program Contingency	900.0	989.0	89.0
<b>Total Program</b>	<b>8,685.0</b>	<b>8,685.0</b>	<b>-</b>

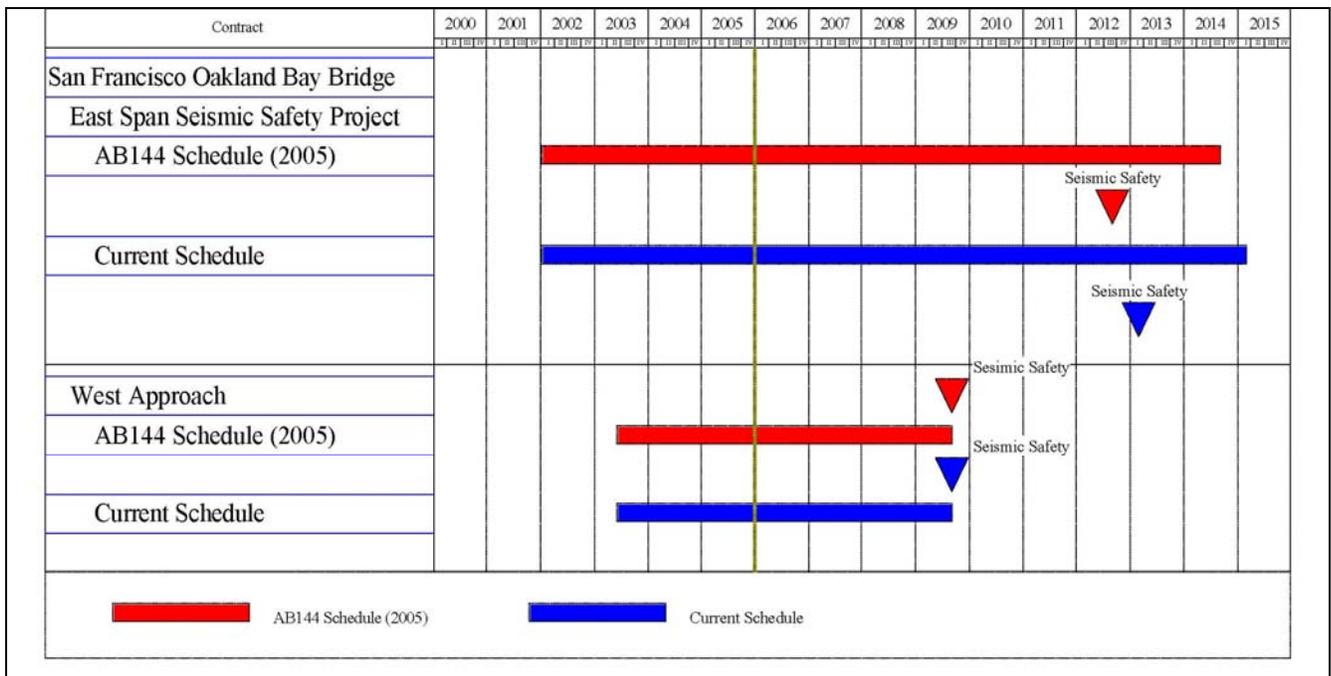
# Program Schedule

## Baseline and Projected Schedule

The seismic retrofit on six of the seven toll bridges in the TBSRP is complete. These structures include the Benicia-Martinez, Carquinez, Richmond-San Rafael, San Mateo-Hayward, Vincent Thomas, and San Diego-Coronado bridges. Seismic retrofitting of the SFOBB West Span was completed in June 2004; the Richmond-San Rafael Bridge seismic retrofit work was completed in October 2005. The SFOBB West Approach and East Span Seismic Replacement projects are currently under construction. The December 2005 schedule calls for achieving seismic safety and opening to traffic the SFOBB new East Span in 2013. The opening date for the project has been extended by six months due to the approval in December 2005 of Addendum #5 to the SFOBB East Span Seismic Replacement Project SAS contract. This addendum

to extend the completion date of the SAS contract by six months was issued to respond to bidder inquiries and to attract more bidders which would attempt to reduce project costs and restored the schedule to the initial SAS bid duration. It is estimated that all of the construction activities for the SFOBB East Span Seismic Replacement project will be completed by 2014, marked by the planned demolition of the existing SFOBB East Span. The schedule for the SFOBB East Span Seismic Replacement project does not include the schedule risks that have been projected by the risk management activities (Appendix C). *Chart 1 - Toll Bridge Seismic Retrofit Program Schedule*, shows the baseline AB 144/SB 66 project schedule versus the projected completion schedules for the TBSRP projects under construction.

**Chart 1. Toll Bridge Seismic Retrofit Program Schedule Baseline AB 144/SB 66 vs. Projected Schedule**



## Program Funding and Financing

AB 144 established a funding level of \$8.685 billion for the TBSRP. The bill specifies funding sources for the program, as shown in *Table 5 -Program Budget*.

<b>Table 5 - Program Budget</b>		
As of December 31, 2005		
(Dollars in Millions)		
<b>Fund</b>		
<b>AB 1171 Funding</b>	<b>Budgeted</b>	<b>Allocated</b>
Proposition 192	790.00	789.00
Toll Bridge Seismic Retrofit Account (TBSRA)		2,781.41
Seismic Surcharge Revenue	2,282.00	
San Diego Coronado Toll Bridge Revenue Fund	33.00	
Vincent Thomas Bridge	15.00	
State Highway Account <sup>(1)(2)</sup>	745.00	
Public Transportation Account <sup>(1)(3)</sup>	130.00	
ITIP/SHOPP/Federal Contingency	448.00	
Federal Highway Bridge Replacement and Rehabilitation (HBRR)	642.00	635.50
<b>AB 144 Funding</b>		
Seismic Surcharge Revenue	2,150.00	
BATA Consolidation	820.00	
SHA <sup>(4)</sup>	430.00	
Redirect Spillover	125.00	
Motor Vehicle Account	75.00	
<b>Total</b>	<b>8,685.00</b>	<b>4,205.91</b>
<p><sup>(1)</sup> The California Transportation Commission adopted a new schedule and changed the PTA/SHA split on December 15, 2005.</p> <p><sup>(2)</sup> To date, \$440 million has been transferred from the SHA to the TBSRP, including \$85.5 million of the \$290 million scheduled by the CTC to occur in 2005-06. An additional \$100 million has been expended directly from the account. The Department anticipates receipt of the remaining balance in Fiscal Year 2005-06 as directed by the California Transportation Commission.</p> <p><sup>(3)</sup> To date, \$17.5 million has been transferred from the PTA to the TBSRP, including \$7.5 million of the \$80 million scheduled by the CTC to occur in 2005-06. Approximately \$112.5 million remains to be transferred. The Department anticipates receipt of such balance in Fiscal Years 2005-06 and 2006-07 as directed by the California Transportation Commission.</p> <p><sup>(4)</sup> Includes \$300 million direct SHOPP contribution to demolition of existing SFOBB East Span.</p>		
<p><b>Notes:</b></p> <p>Program budget includes \$900 million program contingency.</p> <p>Encumbrances for certain capital projects that were previously over-reported due to Accounting system error have been corrected. This correction appears as a reduction to allocations.</p>		

## Funding Status

The program’s financial status of revenues and expenditures is summarized in the table below, *Table 6 -Toll Bridge Seismic Retrofit Program Financial Status*. The figures include the surcharge revenues collected, transfers from the SHA and the

Public Transportation Account (PTA), and expenditures from the Toll Bridge Seismic Retrofit Account (TBSRA) and the Seismic Retrofit Bond Act of 1996 (Proposition 192). Through September 2005, \$789 million provided by Proposition 192 has been allocated by the California Transportation Commission (CTC).

<b>Table 6 - Toll Bridge Seismic Retrofit Program Financial Status</b>	
As of December 31, 2005 (Dollars in Millions)	
<b>Revenues:</b>	
Toll Surcharge	687.90
SMIF Interest	83.00
Bond Revenue (Seismic Bond of 1996)	790.00
Bond Revenue (Toll Revenue Bonds)	1,062.00
Commercial Paper	80.00
SANDAG	33.00
Vincent Thomas	6.90
Federal Highway Bridge Replacement and Rehabilitation	300.00
<b>Transfers to TBSRA:</b>	
Motor Vehicle Account	75.00
State Highway Account	540.00
Public Transportation Account	17.50
<b>Total Revenues and Transfers</b>	<b>3,675.30</b>
<b>Expenditures:</b>	
Capital Outlay	2,750.08
State Operations	836.21
<b>Total Expenditures</b>	<b>3,586.29</b>
<b>Encumbrances:</b>	
Capital Outlay <sup>(5)</sup>	593.38
State Operations	26.24
<b>Total Encumbrances</b>	<b>619.62</b>
<b>Total Expenditures and Encumbrances</b>	<b>4,205.91</b>
<sup>(1)</sup> The Toll Surcharge is dedicated to repayment of bonds beginning September 1, 2003. Toll Surcharge shown here is only toll revenue collected prior to that date.	
<sup>(2)</sup> \$80 Million in Commercial Paper issued on or about April 5, 2005.	
<sup>(3)</sup> To date, \$440 million has been transferred from the SHA to the TBSRP, including \$85.5 million of the \$290 million scheduled by the CTC to occur in 2005-06. An additional \$100 million has been expended directly from the account. The Department anticipates receipt of the remaining balance in Fiscal Year 2005-06 as directed by the California Transportation Commission.	
<sup>(4)</sup> To date, \$17.5 million has been transferred from the PTA to the TBSRP, including \$7.5 million of the \$80 million scheduled by the CTC to occur in 2005-06. Approximately \$112.5 million remains to be transferred. The Department anticipates receipt of such balance in Fiscal Years 2005-06 and 2006-07 as directed by the California Transportation Commission.	
<sup>(5)</sup> Encumbrances for certain capital projects that were previously over-reported due to Accounting system error have been corrected. This correction appears as a reduction to allocations.	

## Program Financing

As discussed above, AB 144 consolidated the administration of all toll revenues collected on the state-owned Bay Area toll bridges and financing of the TBSRP under the jurisdiction of BATA. BATA has direct programmatic responsibilities for the administration of all toll revenues collected on the state-owned bridges in the Bay Area and responsibilities for financial management of the TBSRP program, including:

- Administrative responsibility for collection and accounting of all toll revenues.
- Authorization to increase tolls on the state-owned bridges by \$1.00, effective no sooner than January 1, 2007.
- Project level toll setting authority as necessary to cover additional cost increases beyond the funded \$900 million program contingency in order to complete the toll bridge seismic retrofit program.
- Assumption of funding all of the roadway and bridge structure maintenance from Caltrans once bridge seismic retrofit projects are completed.

In accordance with its responsibilities provided under the law, in September 2005, BATA adopted a finance plan for the TBSRP. The major components of the finance plan include:

- Issuing \$6.2 billion in debt, including defeasance of \$1.5 billion in outstanding State Infrastructure Bank bonds and commercial paper;
- Increasing tolls on the state-owned bridges by \$1.00, (from \$3.00 to \$4.00 for two-axle vehicles), effective January 1, 2007;

- Securing the maximum amount of state funding early in the construction schedule to most efficiently use toll funds (see discussion below); and,
- Locking in current interest rates to the extent possible in order to improve the chances that the entire toll program construction and the operations and maintenance can be delivered within the \$4.00 auto toll level.

In September 2005, BATA approved a Finance Plan for the TBSRP and other toll bridge improvement programs dependent on toll revenues from the state-owned bridges. The finance plan calls for \$6.2 billion in new debt issuances, including defeasance of the existing outstanding State Infrastructure Bank bonds. Consistent with the finance plan, in December 2005, BATA approved the issuance of up to \$1.0 billion of 2006 toll bridge revenue bonds. The bond issuance will provide adequate cashflow to fund the Self-Anchored Suspension contract for the East Span Replacement project, for which bids are due on February 1, 2006.

Additionally, pursuant to the law, BATA held two public hearings, one in October and one in November 2005, to receive public testimony regarding the proposed \$1.00 seismic surcharge toll increase beginning on January 1, 2007 on the state-owned toll bridges in the Bay Area. BATA is expected to consider and act on the seismic surcharge increase in January 2006. BATA is acting well in advance of the statutory effective date for the toll increase in order to provide the bond rating agencies and financial institutions with clear assurances that BATA has taken the necessary steps to have the financial capacity to fund the seismic retrofit program.

Pursuant to AB 144, on September 29, 2005, the CTC adopted a schedule - revised in December 2005 - for the transfer of state funds to BATA to fund the TBSRP. The schedule contains the timing and sources of the state contributions, which begin in FY 2005-06 and distributes the contributions over the years of project construction to ensure a timely balance between state sources and the contributions

from toll funds. In December 2005, the CTC re-adopted the schedule to reflect opportunities to maximize the use of available PTA funds and correct prior transfer transactions. The CTC’s December 2005 revised schedule for the transfer of funds allows BATA to pledge the state fund contribution to the financing of the TBSRP per BATA’s adopted finance plan. The CTC schedule is included in Appendix D.

the West Span of the SFOBB. See *Table 7 -Cost Comparison AB 144/SB 66, 4<sup>th</sup> Quarter 2005 Forecast and Expenditures through December 2005 for Completed Bridges*. As discussed above, the Richmond-San Rafael Bridge project expenditures have not been completely closed because Caltrans is in discussions with regulatory agencies regarding potential mitigations for impacts on fish in the project area.

## Project Status

### Completed Projects

Seismic retrofit and project close-out has been completed on the Benicia-Martinez, Carquinez, San Mateo-Hayward, Richmond-San Rafael, Vincent Thomas, San Diego-Coronado toll bridges and on

The Richmond-San Rafael Bridge seismic retrofit was completed on July 29, 2005 and all construction activities for the project were completed on October 28, 2005.

The current cost forecast for the Richmond-San Rafael Bridge project includes approximately \$89 million in savings from the \$914 million project cost budgeted in the AB 144/SB 66 forecast, as projected in Caltrans’ August 2004 cost reporting. The total budget estimate for the project includes \$16.9 million for the deck joint rehabilitation work, which is an eligible component of the overall

**Table 7 - Cost Comparison AB 144/ SB 66, Fourth Quarter Forecast and Expenditures through December 31, 2005 for Completed Bridges (\$ million)**

Project	AB 144/ SB 66 Budget	Approved Changes	Current Budget	Cost To Date (12/2005)	4 <sup>th</sup> Quarter 2005 Forecast	Variance
a	b	c	d = b + c	e	f	g = f - d
San Francisco-Oakland Bay Bridge West Span Seismic Retrofit Project	307.9	-	307.9	300.9	307.9	-
Carquinez Bridge Retrofit Project	114.2	-	114.2	114.2	114.2	-
Benicia-Martinez Bridge Retrofit Project	177.8	-	177.8	177.8	177.8	-
San Mateo-Hayward Bridge Retrofit Project	163.5	-	163.5	163.4	163.5	-
Richmond-San Rafael Bridge Retrofit Project	914.0	-	914.0	789.0	825.0	(89.0)
Vincent Thomas Bridge Retrofit Project	58.5	-	58.5	58.4	58.5	-
San Diego-Coronado Bridge Retrofit Project	103.5	-	103.5	102.6	103.5	-
<b>TOTAL</b>	<b>1839.4</b>	<b>-</b>	<b>1839.4</b>	<b>1706.3</b>	<b>1750.4</b>	<b>(89.0)</b>

*Note: Details may not sum to totals due to rounding effects. Capital Outlay Support and Capital Outlay have been combined.*

seismic retrofit work for the bridge. The entire deck joint project was originally funded from RM 1 toll funds. In July 2005, with concurrence from Caltrans, BATA rescinded \$16.9 million in RM 1 funds from the deck joint project. To backfill the RM 1 funding, Caltrans committed an equivalent amount of seismic retrofit funding to the deck joint portion of the project. This action was taken to make additional RM 1 funds available for the Benicia-Martinez Bridge New Span project. The budget for the Richmond-San Rafael Bridge Seismic Retrofit project includes \$16.9 million of costs for the deck joint rehabilitation work.

Caltrans also is finalizing project plans and specifications for a public access lot on the Marin side of the bridge to comply with a Bay Conservation and Development Commission

(BCDC) permit condition.

To close out the project, Caltrans faces potential exposures concerning the environmental mitigation for negative impacts on fish, which is currently being discussed with regulatory agencies. Final savings for the Richmond-San Rafael Bridge project will be based on the resolution of pending negotiations with environmental permitting agencies regarding cost of pile driving mitigation. The project cost forecast allows the project budget to be reduced by \$82 million in CO and \$7 million in COS. As shown in *Table 4*, the \$89 million savings for the project adds to the total Program Contingency for the TBSRP (See Appendix A).



*Richmond-San Rafael Toll Bridge*

## On-going Construction Projects

### SFOBB West Approach

The SFOBB West Approach seismic retrofit project will remove and replace the west approach to the SFOBB, which includes all of the westbound mainline and most of the eastbound mainline from 4<sup>th</sup> Street to the SFOBB West Anchorage, and all of the connecting entrance and exit ramps in downtown San Francisco. The construction work, which began in June 2003, is approximately 63 percent complete. Completion of this project is scheduled for 2009.

Upon completion of the retrofit project, the West Approach mainline and ramps will have the same number of traffic lanes as before, but with improved highway geometrics. The mainline eastbound and westbound structures will be adjacent to each other at 4<sup>th</sup> Street and transition to a double-deck configuration with their own independent support system from Rincon Hill to the anchorage in order to tie into the existing SFOBB.

### Milestones Achieved

Following the temporary re-striping of the new Fremont Street off-ramp to accommodate three lanes, the Harrison Street off-ramp was closed for reconstruction on September 6, 2005. The ramp will remain closed for three years. Demolition of the ramp occurred on November 5 and 6, 2005. Impacts to the adjacent neighborhood were minimized by completing this demolition in only one weekend.

After the shift of the westbound mainline traffic in September 2005, Caltrans completed the technically challenging demolition of the first of four anchorage areas on October 16, 2005. Completed over five weekends, this complicated work presented

significant construction staging and traffic control issues and risks that were successfully mitigated by Caltrans. Lessons learned by Caltrans during these demolition operations will help to reduce risks during future similar operations for the demolition of the remaining three anchorage areas.

Prior to the demolition of the first of four anchorage areas, Caltrans launched an outreach campaign to inform the media and the public of the upcoming activities, including the demolition work on the anchorage spans. Caltrans has also established a real-time media response team with 511.org to disseminate up-to-date information to the public on all time-sensitive activities.

Following demolition of this anchorage area, the contractor commenced with the erection of falsework for construction of the new frame 7U(N), an operation that is critical to the completion of the West Approach. Major work during December 2005 included cast in drilled hole (CIDH) and cast in steel shell (CISS) pile driving operations for the mainline, 5th Street and Harrison off ramps; preparation and steel work prior to the early Spring 2006 demolition of Frame 8U(N); the continuation of 4th Street retrofit work; and the start of Stage 2 Frames 1U and 2U for the SFOBB Mainline Westbound structure.

### Project Funding

The AB 144/SB 66 baseline budget totals \$429 million for the project with \$309 million for CO and \$120 million for COS. See *Table 8 - Baseline and Estimated Budget Need for SFOBB West Approach*.

**Table 8 - Baseline and Estimated Budget Need for SFOBB West Approach (\$ million)**

	AB 144/ SB 66 Budget	4 <sup>th</sup> Quarter 2005 Forecast	Difference
COS	120.0	120.0	-
CO	309.0	309.0	-
<b>Total</b>	<b>429.0</b>	<b>429.0</b>	<b>-</b>

## Major Risk Issues

Caltrans' West Approach risk management team is continuing with its efforts to manage project risks. During the quarter, no new significant risks have surfaced.

A major risk element involving the demolition procedures at the first of the four anchorage areas has been resolved and no longer jeopardizes the project's objectives. The three remaining anchorage areas are still a substantial risk, but the unknowns have been significantly reduced by the experience and knowledge gained from the previous operations.

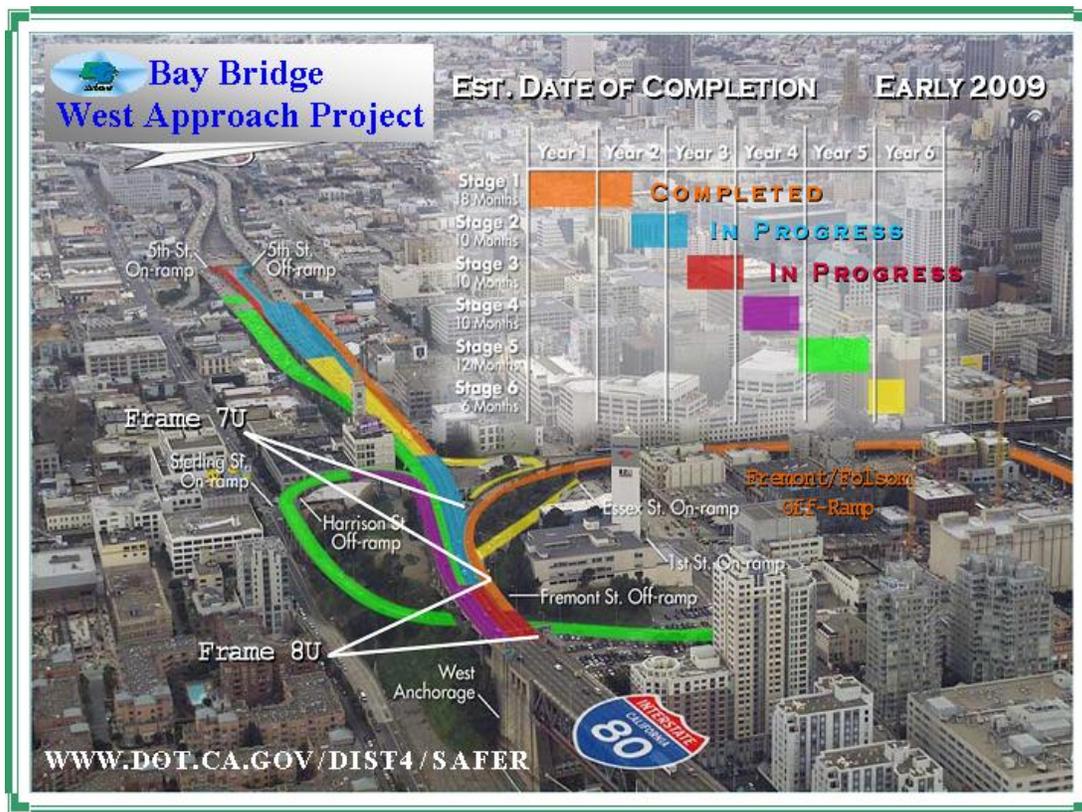
Some of the important lessons learned are as follows:

- Purchasing additional BART services during impacted hours proved to be a successful mitigation effort and will continue to be used during future construction activities that can

impact traffic patterns.

- The aggressive informational campaigns proved successful in mitigating adverse public perception.
- Equipment and labor resources were increased during low traffic times such as nights and weekends. This strategy reduced inconveniences to the surrounding residents and businesses and minimized impact to the regional motorists while maintaining the level of production required to keep the project on schedule.

Based on this effort, the projected cost, including identified risks, is currently within the budget needs forecasted in AB 144/SB 66 (See Appendix A).



West Approach Project Stages

- USCG Road Relocation
- SAS Land Foundations (W2)
- YBI Electrical Substation

## **SFOBB East Span Seismic Replacement**

The SFOBB East Span Seismic Replacement project will be seismically retrofitted through the complete replacement of the existing span. The project includes construction of the Skyway portion of the bridge, which consists of two parallel concrete structures, each approximately 1.3 miles in length; a Self-Anchored Suspension (SAS) Bridge consisting of a 510 foot tower supporting a bridge deck connecting the Skyway bridge to Yerba Buena Island (YBI), transition structures on YBI and on the east end of the bridge connecting to the toll plaza area, and demolition of the existing east span. The SFOBB East Span project now consists of 19 contracts. Note that the East End connection to the toll plaza, also known as the Oakland Touchdown (OTD) contract, was split into four contracts by the TBPOC to facilitate construction flow. Splitting this contract will remove elements of the OTD construction from the critical path for completion of the new East Span.

The 19 SFOBB East Span contracts are identified below:

Eight contracts are **complete**:

- Interim Retrofit (Existing Bridge)
- East Span Retrofit (Existing Bridge)
- Pile Installation Demonstration
- Oakland Touchdown Geofill
- Yerba Buena Island (YBI) Archaeology

Three contracts are under **construction**:

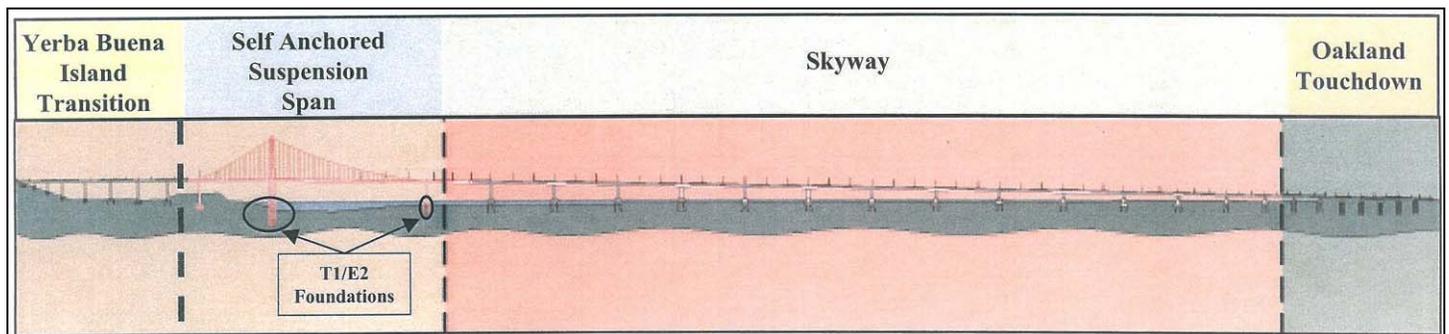
- Skyway contract (84 percent complete).
- South/South Detour (35 percent complete).
- SAS Marine Foundations (E2/T1) (This contract was re-started on July 29, 2005 and is 29 percent complete.)

One **advertised**:

- Self-Anchored Suspension (SAS) (advertised August 1, 2005 with bids to be opened February 1, 2006).

Seven contracts are in **design**:

- OTD Contract 1 (construct westbound structure, eastbound marine foundation, eastbound detour, and electrical substation). The contract is planned to be advertised in fall 2006.
- OTD Contract 2 (construct eastbound superstructure, landscaping and maintenance road). The contract is planned to be advertised in summer 2010.
- OTD Submarine Cable design is complete and is scheduled to be advertised for construction in early 2006.



*SFOBB East Span Replacement Project.*

- OTD Portions of the Corridor Electrical Contract: This scope will likely not be executed as a separate contract. It is now envisioned that this work scope will be included within OTD Contract 2 and/or other contracts within the East Span corridor.
- YBI Transition Structure design (80 percent complete).
- Stormwater Treatment Measures design is complete and the contract is to be advertised in early 2006.
- Existing Bridge Demolition design (10 percent complete).

the major components of the SFOBB East Span Seismic Replacement project is shown in *Table 9 SFOBB East Span Seismic Replacement Project Schedule Summary* below. There is a potential delay to the Skyway contract schedule due to issues with the fabrication of the hinge pipe beams that connect the major frames of the bridge. Also, the East Span opening date has been delayed by six months due to the TBPOC approval and Caltrans' issuance of Addendum #5 to the SAS contract. This addendum extended the completion date of the SAS contract by six months, in response to bidder inquiries, and to attract more bidders and therefore attempt to lower project costs.

The forecasted completion date as compared to the AB 144/SB 66 Baseline completion date for each of

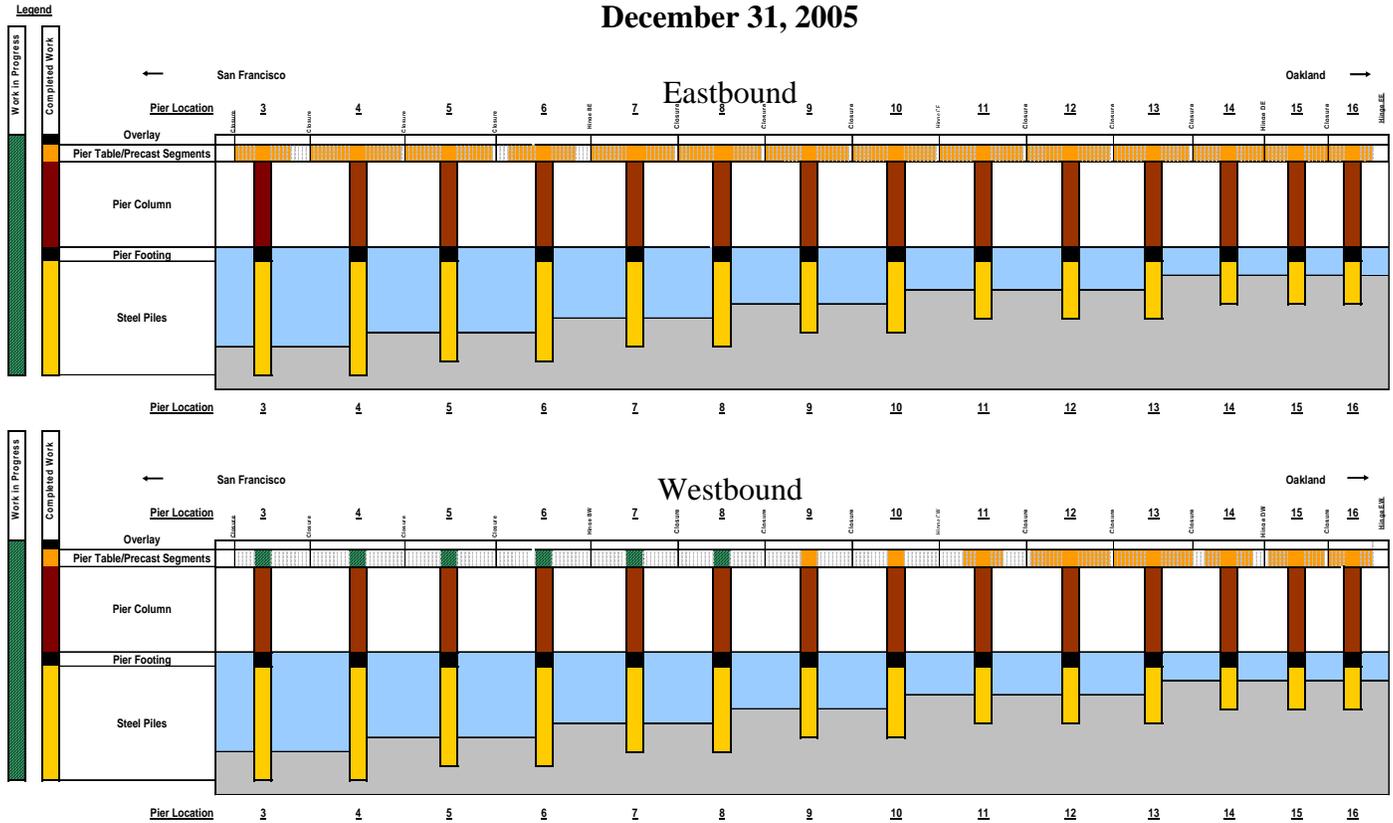
**Table 9. SFOBB East Span Seismic Replacement Project Schedule Summary**

Contract	AB 144/SB 66 Baseline Project Completion Date	4 <sup>th</sup> Quarter 2005 Forecast Project Completion Date	Variance (Months)
Skyway	April 2007	April 2007	-
YBI South / South Detour	July 2007	July 2007*	-
Stormwater Treatment Measures	March 2008	March 2008	-
SAS E2/T1 Foundations	June 2008	March 2008	(3)
Open to Traffic: West Bound	September 2011	March 2012	6
SAS Superstructure	March 2012	September 2012	6
Open to Traffic: East Bound	September 2012	March 2013	6
Oakland Touchdown	November 2013	November 2013*	-
◆ OTD Submarine Cable	N/A	July 2007	-
◆ OTD Westbound	N/A	July 2009	-
◆ OTD Eastbound	N/A	November 2013	-
YBI Transition Structures	November 2013	November 2013*	-
Existing Bridge Demolition	September 2014	September 2014*	-

*Note: The New East Span forecast to be fully open to traffic in 2013. Construction activities will continue beyond that date to complete the project, including demolition of the existing structure.*

*\*Project schedules under assessment due to 6 month extension of the SAS contract schedule.*

## San Francisco-Oakland Bay Bridge East Span Seismic Replacement Project Skyway Contract Progress Diagram December 31, 2005



### Milestones Achieved

- The Skyway contract is currently in construction and is 84 percent complete as of December 2005. The Foundation work is complete with the exception of installing Fenders around six of the pier footings. The Fender work is currently scheduled to begin in January 2006 and be completed by September 2006. The last remaining pier column was completed in late December 2005. The Pier Tables are 75 percent complete. Segment erection is currently 63 percent complete. The Eastbound structure is 96 percent complete, while the Westbound structure is 30 percent complete. The Stockton pre-cast yard continues to maintain a steady pace of casting one concrete bridge segment every two to three days in each of the two

casting beds or roughly five segments per week. Currently, 403 of 452 segments or 89 percent have been cast with the remaining 49 segments scheduled to be complete by June 2006. A total of 284 segments (63 percent) have been installed to date. Caltrans and Contractor positions concerning the Hinge Pipe Beam fabrication issues have been heard by a Dispute Resolution Board (DRB) during November and December 2005. The DRB decision is expected in January 2006.

- The SAS Superstructure Contract was re-advertised on August 1, 2005. Bid opening is scheduled for February 1, 2006. Outreach sessions held during the 4<sup>th</sup> quarter included a final outreach meeting for potential bidders on November 30, 2005. In addition to continuing with actions taken to encourage additional bidders for the project, the TBPOC has

evaluated and responded to contractor inquiries, resulting in the release of six addenda. Key technical issues addressed included the clarification and revision of various technical specifications, and the revision of the SAS contract schedule wherein the overall contract time was increased by six months. This was done in response to requests from multiple firms which would potentially submit bids on this contract.

- Work on the E2/T1 contract was suspended in January 2005 with approximately 29 percent of the work completed. In July 2005, Caltrans notified the contractor to restart the work on the project. In November 2005, the TBPOC approved, and in December 2005, the contractor signed, a change order involving contract changes and compensation for the suspension and re-start of work. The CCO cost of \$81 million is within the budget estimate for the project contained in AB 144. The contractor has set the steel template for the piling for the T1 foundation and is continuing with field preparations to resume progress on this contract.
- The YBI South-South Detour contract was 35 percent complete as of December 2005. To minimize impacts on the traveling public, portions of the East and West Tie-in operations remain suspended. The contract is performance based, whereby the contractor is responsible for both designing and constructing the detour structures. The contractor has formed and poured columns at Bents 48 and 49, and the construction of the other bents is also in progress. The contractor's engineer continues to perform design work on the east and west tie-in structures for the detour.
- Work on contracts in design continues. The Stormwater Treatment Measures contract to implement best practices for stormwater runoff treatment will be advertised in early 2006. The TBPOC approved the splitting of the OTD Contract into four multiple contracts to reduce the risk of any of this work impacting the

project schedule. Of these, the first contract to be completed involves the relocation of a submarine electrical cable from Oakland to Treasure Island, and is forecast to finish in July 2007. The YBI Transition Structure contract is the subject of a Value Analysis study conducted by Caltrans. The design of the Bridge Demolition contract is at 10 percent complete and currently on hold. Dismantling of the existing East Span is pending the completion and traffic switched on the new East Span. This is likely to take place in 2013. Because of the long lead-time, it is possible that specifications and other conditions may change by then. These changes may impact the demolition contract. If the design (PS&E) is complete and put on hold for advertisement, the PS&E package will require "rework". To avoid or minimize the possibility of redesign or rework, and the associated costs, the demolition contract was placed on-hold.



*Skyway Structure looking East from YBI.*

## Project Funding

### Baseline and Projected Budget and Schedule

The AB 144/SB 66 baseline budget for the SFOBB East Span is \$5.486 billion with \$4.527 billion for CO and \$959.4 million for COS. This amount does not include program contingencies. See *Table 10. SFOBB East Span Replacement Cost Summary*.

Caltrans re-evaluates project and contract cost forecasts continuously. The Estimate-at-Completion as of December 31, 2005 includes revised forecasts from AB 144/SB 66 budget, as follows:

- A forecast increase in the cost of Capital Outlay Support (COS) to \$977.1 million as a result of a detailed staffing and consultant contract cost forecast completed as of the end of the 4<sup>th</sup> Quarter 2005. This forecast includes

considerations of revised and increased construction contract schedules as mentioned elsewhere in this report that require coverage by staff and consultants.

- A forecasted \$13.7 million increase for the Self-Anchored Suspension (SAS) Superstructure Contract to cover actions taken to encourage additional bidders for the project, including the increase to the bidder's stipend to \$3 million for the lowest three responsive bidders.
- A forecasted \$19.1 million increase for the Yerba Buena Island (YBI) Transition Structure Contract due to a higher estimate for electrical work and scheduling.
- A forecasted \$11.1 million decrease in the capital outlay for the Oakland Touchdown (OTD) Contract due to the split of the OTD contract into multiple contracts to accelerate work and to reduce schedule risks. The capital outlay support for the contract was increased to

**Table 10 - SFOBB East Span Replacement Cost Summary (\$Millions)**

Contract a	AB 144/ SB 66 Budget b	Approved Changes c	Current Budget d = b + c	Cost To Date (12/2005) e	4 <sup>th</sup> Quarter 2005 Forecast f	Variance g = f - d
Capital Outlay Support	959.4	-	959.4	398.1	977.1	17.7
Capital Outlay Construction						
Skyway	1,293.0	-	1,293.0	961.2	1,293.0	-
SAS Superstructure	1,753.7	-	1,753.7	-	1,767.4	13.7
SAS E2/T1 Foundations	313.5	-	313.5	88.3	313.5	-
YBI Structures	299.3	-	299.3	-	318.4	19.1
Oakland Touchdown	283.8	-	283.8	-	272.7	(11.1)
YBI South/South Detour	131.9	-	131.9	30.0	133.8	1.9
Existing Bridge Demolition	239.2	-	239.2	-	222.0	(17.2)
Stormwater Treatment Measures	15.0	-	15.0	-	15.0	-
East Span Completed Projects	90.3	-	90.3	89.0	90.3	-
Right-of-Way and Environmental Mitigation	72.4	-	72.4	38.7	72.4	-
Other Budgeted Capital	35.1	-	35.1	-	11.0	(24.1)
<b>TOTAL</b>	<b>5,486.6</b>	<b>-</b>	<b>5,486.6</b>	<b>1,605.3</b>	<b>5,486.6</b>	<b>-</b>

Note: Details may not sum to totals due to rounding effects.

cover the additional work to split the contract and to administer four separate contracts over a longer duration rather than the original single contract.

- A forecasted \$1.9 million increase for the Yerba Buena Island (YBI) South-South Detour Contract due to a potential extension of contract to integrate with the schedule of the SAS contract.
- A forecasted \$17.2 million decrease for the Bridge Demolition Contract due to a re-evaluation of the cost escalation rates for the project.

All of the variances discussed above can be funded from Other Budgeted Capital and do not reflect an overall change in forecast for the SFOBB East Span project.

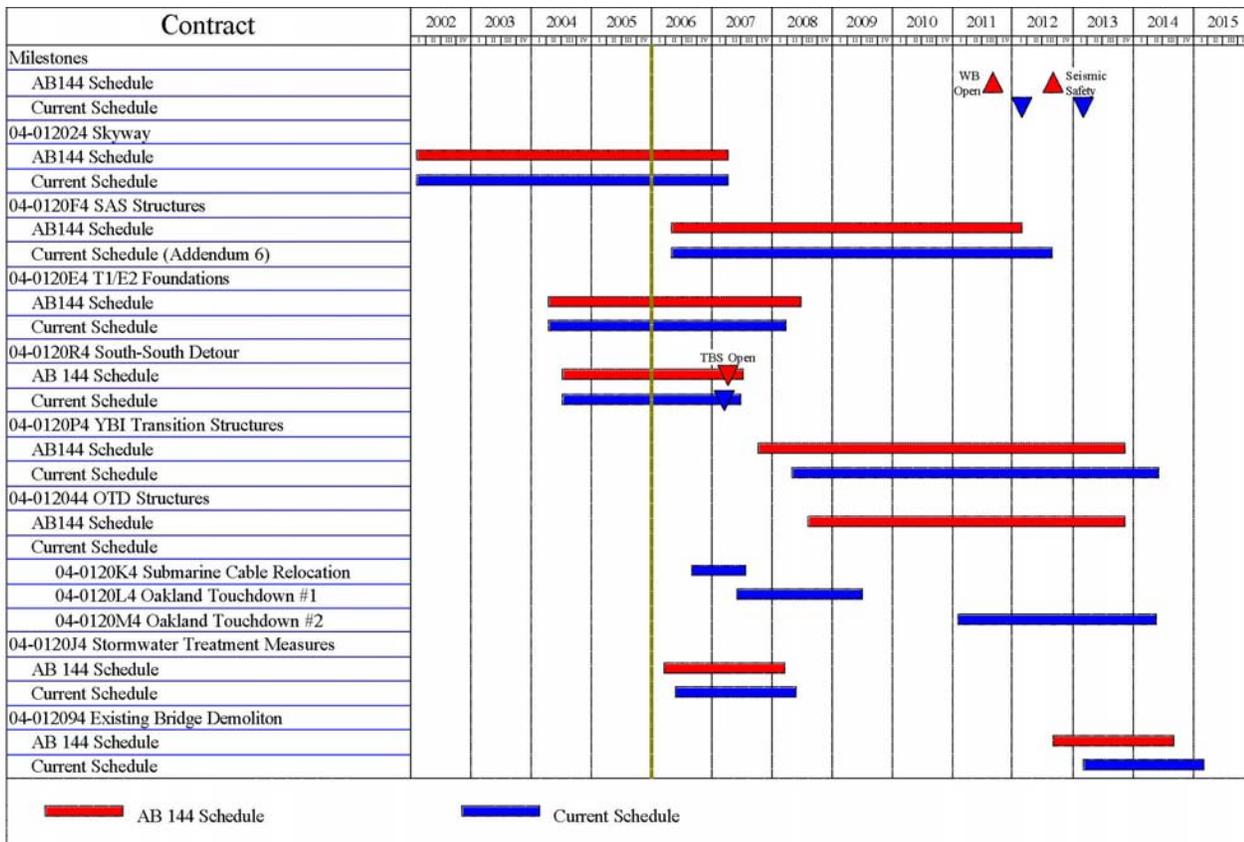
The AB 144/SB 66 baseline schedule for

seismically retrofitting the structure and opening the bridge to traffic in both directions is 2012.

However, the forecast opening date has been revised to 2013 due to the TBPOC approval and Caltrans issuance of Addendum #5 to the SAS contract. This addendum extended the completion date of the SAS contract by 6 months in response to bidder inquiries and to attract more bidders and lower project costs. The completion of the East Span has been forecast for 2014. However, the overall East Span schedule is being re-assessed to fully understand the impact of the SAS schedule increase of 6 months. This schedule does not provide for the estimated schedule risk associated with the construction of the East Span. The TBPOC is working aggressively to manage and reduce these additional schedule risks, as shown in Appendix C.

The comparison of the AB 144/SB 66 baseline schedule and the current projected schedule is

**Chart 2. San Francisco-Oakland Bay Bridge East Span Corridor  
Schedule Baseline AB 144/SB 66 vs. Current Projected**



shown in *Chart 2 -SFOBB East Span Corridor Schedule, Baseline AB 144/SB 66 vs. Current Projected*. It should be noted that the schedules shown in *Chart 2* do not at this time account for the issues with the fabrication of the hinge pipe beams on the Skyway contract and the potential issues that may affect the schedule identified in the SFOBB East Span Seismic Retrofit Project Risk Management Plan.

## Major Risk Issues

### SFOBB East Span Project Replacement Risk Management Plan

Caltrans is implementing comprehensive risk management on all SFOBB East Span Seismic Replacement Project contracts in accordance with AB 144. Currently, Caltrans and BATA have embarked on an initiative to manage risk jointly. Risk response efforts continue to focus on encouraging responsive bids for the SAS contract. Implementing prudent risk responses by SAS contract addenda reduces one of the SAS contract's most significant risks – a potential limited bidding pool. Updates of these risk management activities are included in Appendix C.

## Quarterly Environmental Compliance Highlights

SFOBB East Span environmental tasks for the current quarter are focused on mitigation monitoring. All weekly, monthly and annual compliance reports to resource agencies have been delivered on time with no comments from receiving agencies. Key successes this quarter include:

- The North Basin Pilot Eelgrass Program is being monitored on a quarterly basis and the project will be reviewed in July 2006 to determine its success. Assuming the pilot

program is successful, 13 acres of eelgrass habitat will be planted at North Basin.

- Peregrine falcon monitoring resumed on December 1, 2005. Falcons were observed at the existing bridge throughout the month of December and it is anticipated the pair will make a nesting attempt in 2006.
- The mitigation project committed to addressing 155 acres of storm water run-off will go out to bid in January 2006. The project is in final plan review with BCDC.
- Negotiations with the U.S. Fish and Wildlife Service, California Department of Fish and Game, and the Navy appear to be moving toward an early 2007 land transfer for the Skaggs Island Mitigation Program.
- The Shorebird Roosting Habitat Mitigation Project has received all agency approval.

## Other Toll Bridges

### Dumbarton and Antioch Bridges.

The original design of the Dumbarton and Antioch Bridges were based on design criteria developed after the 1971 San Fernando Earthquake. In the early 1990's, Caltrans determined that these two structures had the seismic resistant features required by the post 1971 codes and were not likely to be vulnerable during a major seismic event. Since that time, Caltrans has pursued an aggressive seismic research program, and based on the results of this program, significantly revised its seismic design practice in the late 1990's. Consistent with recommendations by the Caltrans Seismic Advisory Board, Caltrans regularly reassesses the seismic hazard and performance of its bridges. Due to the tremendous changes in seismic design practice that have occurred since the design of the Dumbarton and Antioch bridges, a comprehensive assessment of the potential need and scope for seismic retrofit based on current knowledge is prudent.

### Previous Reports:

A number of limited studies have been made of these bridges in the past. However, none of the

studies have fully assessed the seismic performance of the structures under current standards.

### **Vulnerability Studies**

In late 2004, Caltrans initiated vulnerability studies on the Dumbarton and Antioch bridges. The purpose of these studies was to determine if the bridges would meet current seismic performance standards. The studies were essentially completed in May 2005. They were not a complete global analysis, but rather an investigation of selected bents modeled as independent structures. The analysis was limited in scope and based on as-built plans and currently available geotechnical information. The superstructure response was not analyzed.

The Dumbarton and Antioch Bridges have many seismic resistant features, and the results of the vulnerability studies indicate that the bridges should perform well in a moderate seismic event. However, during a major seismic event, some potential vulnerabilities (summarized below) become apparent.

- Foundation response generally governs performance. The piles may plunge axially and potentially cause permanent footing rotations.
- Potentially large foundation displacements and rotations may result in deformations that cannot be easily repaired.
- The bent cap, pile cap, pile and superstructure are not capacity protected by the ductile columns and, as a result, these elements may be damaged in a major event, especially if the foundation is retrofitted.

Given the limitations of the studies, there was insufficient evidence to conclusively determine the performance of the bridges during a maximum credible earthquake (MCE). While the Dumbarton and Antioch bridges may meet performance standards, a more comprehensive technical study is necessary to understand the performance of these structures during an MCE event. A study of this

level is necessary to accurately determine the structures' response and to develop any necessary retrofit strategies. A comprehensive geotechnical study using the latest analysis techniques is likely necessary in order to perform this level of analysis.

### **Sensitivity Analysis**

As a follow-up to the Vulnerability Study, a sensitivity analysis is being performed on a single representative bent used in the Vulnerability Study (Bent 23 of the Dumbarton Bridge). The goal of the analysis is to determine the structural response associated with uncertainties in the geotechnical data. An envelope of soil conditions (best-case and worst case scenarios) was used in the analysis. The results of the Sensitivity Analysis will be used to determine the scope and value of conducting further geotechnical studies.

While the Sensitivity Analysis is ongoing, preliminary results indicate that the seismic response of the bridge is largely dependant on the soil conditions and that a comprehensive geotechnical investigation is essential for understanding the bridge's performance during a major seismic event. A work plan is being developed to assess the extent of geotechnical work needed for a complete seismic analysis and to assess the required performance levels for each structure.

### **Cost and Schedule**

A preliminary cost estimate, schedule, and an initial risk analysis have been developed to complete a comprehensive seismic analysis for each bridge. The preliminary estimate and schedule were developed as a baseline assuming a complete geotechnical and geophysical investigation is required at each bridge.

The TBPOC will consider how to proceed with this comprehensive seismic analysis in the coming months, and will update the Legislature in the 1<sup>st</sup> Quarter report for 2006.

## Appendices

- A. TBSRP All Bridges AB 144/SB 66 Baseline Budget, Forecasts, and Expenditures through September 30, 2005 Comparison (A-1 and A-2).
- B. TBSRP East Span Only AB 144/SB 66 Baseline Budget, Forecasts, and Expenditures through September 30, 2005 Comparison.
- C. San Francisco-Oakland Bay Bridge East Span Seismic Replacement Project Risk Management Plan.
- D. California Transportation Commission 4<sup>th</sup> Quarter Schedule.
- E. Project/Contract Photographs.

**Appendix A-1.**

<b>Toll Bridge Seismic Retrofit Program</b>			
<b>AB 144/SB 66 Baseline Budget, Forecasts and Expenditures Through December 31, 2005</b>			
(\$ millions)			
<b>Bridge</b>	<b>AB 144/SB 66 Baseline</b>	<b>4th Quarter 2005 Forecast</b>	<b>Expenditures Through December 31, 2005</b>
<b>Benicia-Martinez</b>			
Capital Outlay Support	38.1	38.1	38.1
Capital Outlay	139.7	139.7	139.7
<b>Total</b>	<b>177.8</b>	<b>177.8</b>	<b>177.8</b>
<b>Carquinez</b>			
Capital Outlay Support	28.7	28.7	28.8
Capital Outlay	85.5	85.5	85.4
<b>Total</b>	<b>114.2</b>	<b>114.2</b>	<b>114.2</b>
<b>San Mateo-Hayward</b>			
Capital Outlay Support	28.1	28.1	28.1
Capital Outlay	135.4	135.4	135.3
<b>Total</b>	<b>163.5</b>	<b>163.5</b>	<b>163.4</b>
<b>Vincent Thomas</b>			
Capital Outlay Support	16.4	16.4	16.4
Capital Outlay	42.1	42.1	42.0
<b>Total</b>	<b>58.5</b>	<b>58.5</b>	<b>58.4</b>
<b>San Diego-Coronado</b>			
Capital Outlay Support	33.5	33.5	33.2
Capital Outlay	70.0	70.0	69.4
<b>Total</b>	<b>103.5</b>	<b>103.5</b>	<b>102.6</b>
<b>Richmond-San Rafael</b>			
Capital Outlay Support	134.0	127.0	122.6
Capital Outlay	780.0	698.0	666.4
<b>Total</b>	<b>914.0</b>	<b>825.0</b>	<b>789.0</b>
<b>West Span Retrofit</b>			
Capital Outlay Support	75.0	75.0	74.8
Capital Outlay	232.9	232.9	226.1
<b>Total</b>	<b>307.9</b>	<b>307.9</b>	<b>300.9</b>
<b>West Approach</b>			
Capital Outlay Support	120.0	120.0	71.2
Capital Outlay	309.0	309.0	178.4
<b>Total</b>	<b>429.0</b>	<b>429.0</b>	<b>249.6</b>
<b>SFOBB East Span</b>			
Capital Outlay Support	959.3	977.1	398.0
Capital Outlay	4,492.2	4,498.5	1,207.3
Other Budgeted Capital	\$35.10	\$11.00	\$0.00
<b>Total</b>	<b>5,486.6</b>	<b>5,486.6</b>	<b>1,605.3</b>
Miscellaneous Program Costs	30.0	30.0	25.1
Subtotal Capital Outlay Support	1,463.1	1,443.9	811.2
Subtotal Capital Outlay	6,321.9	6,222.1	2,750.0
Subtotal Toll Seismic Retrofit	7,785.0	7,696.0	3,586.3
Program Contingency	900.0	989.0	0.0
<b>Total Toll Seismic Retrofit Program</b>	<b>8,685.0</b>	<b>8,685.0</b>	<b>3,586.3</b>

Notes:

(Due to the rounding of numbers, the totals above are show within \$0.2).

## Appendix A-2.

<b>Toll Bridge Seismic Retrofit Program - SAS Alternative</b>				
<b>AB 144/SB 66 Baseline Budget, Forecasts and Expenditures Through December 2005</b>				
Bridge	(\$ millions)			
	Column B AB 144/SB 66 Baseline Budget	Column C Expenditures to date and Encumbrances As of December 31, 2005 See Note (1)	Column D Estimated Costs not yet Spent or Encumbered As of December 31, 2005	Column E Total Forecast As of December 31, 2005  (Columns C +D)
<b>Other Completed Projects</b>				
Capital Outlay Support	144.9	144.7	0.2	144.9
Capital Outlay	472.6	473.1	(0.5)	472.6
<b>Total</b>	<b>617.5</b>	<b>617.8</b>	<b>(0.3)</b>	<b>617.5</b>
<b>Richmond-San Rafael</b>				
Capital Outlay Support	127.1	123.2	3.8	127.0
Capital Outlay	704.9	671.9	26.1	698.0
Project Reserves	82.0			
<b>Total</b>	<b>914.0</b>	<b>795.1</b>	<b>29.9</b>	<b>825.0</b>
<b>West Span Retrofit</b>				
Capital Outlay Support	75.0	74.9	0.1	75.0
Capital Outlay	232.9	234.1	(1.2)	232.9
<b>Total</b>	<b>307.9</b>	<b>309.0</b>	<b>(1.1)</b>	<b>307.9</b>
<b>West Approach</b>				
Capital Outlay Support	120.0	73.0	47.0	120.0
Capital Outlay	309.0	288.8	20.2	309.0
<b>Total</b>	<b>429.0</b>	<b>361.8</b>	<b>67.2</b>	<b>429.0</b>
<b>SFOBB East Span -Skyway</b>				
Capital Outlay Support	197.0	122.9	74.1	197.0
Capital Outlay	1,293.0	1,187.6	105.4	1,293.0
<b>Total</b>	<b>1,490.0</b>	<b>1,310.5</b>	<b>179.5</b>	<b>1,490.0</b>
<b>SFOBB East Span -SAS- Superstructure</b>				
Capital Outlay Support	214.6	19.8	194.8	214.6
Capital Outlay	1,753.7	-	1,767.4	1,767.4
<b>Total</b>	<b>1,968.3</b>	<b>19.8</b>	<b>1,962.2</b>	<b>1,982.0</b>
<b>SFOBB East Span -SAS- Foundations (Includes E2/T1 and W2 Foundations)</b>				
Capital Outlay Support	62.5	19.1	43.4	62.5
Capital Outlay	339.9	304.3	35.6	339.9
<b>Total</b>	<b>402.4</b>	<b>323.4</b>	<b>79.0</b>	<b>402.4</b>
<b>Small YBI Projects</b>				
Capital Outlay Support	10.6	10.1	0.5	10.6
Capital Outlay	15.7	17.2	(1.5)	15.7
<b>Total</b>	<b>26.3</b>	<b>27.3</b>	<b>(1.0)</b>	<b>26.3</b>
<b>South/South Detour</b>				
Capital Outlay Support	29.5	14.7	14.8	29.5
Capital Outlay	131.9	90.0	43.8	133.8
<b>Total</b>	<b>161.4</b>	<b>104.7</b>	<b>58.6</b>	<b>163.3</b>
<b>YBI - Transition Structures</b>				
Capital Outlay Support	78.7	9.3	69.4	78.7
Capital Outlay	299.4	0.1	318.3	318.4
<b>Total</b>	<b>378.1</b>	<b>9.4</b>	<b>387.7</b>	<b>397.1</b>
<b>Oakland Touchdown</b>				
Capital Outlay Support	74.4	20.3	71.8	92.1
Capital Outlay	283.8	0.1	272.6	272.7
<b>Total</b>	<b>358.2</b>	<b>20.4</b>	<b>344.4</b>	<b>364.8</b>
<b>East Span Other Small Project</b>				
Capital Outlay Support	212.3	193.6	18.7	212.3
Capital Outlay	170.8	76.3	70.4	146.7
<b>Total</b>	<b>383.1</b>	<b>269.9</b>	<b>89.1</b>	<b>359.0</b>
<b>Existing Bridge Demolition</b>				
Capital Outlay Support	79.7	0.2	79.5	79.7
Capital Outlay	239.2	-	222.0	222.0
<b>Total</b>	<b>318.9</b>	<b>0.2</b>	<b>301.5</b>	<b>301.7</b>
<b>Miscellaneous Program Costs</b>				
	30.0	36.6	(6.6)	\$30.0
<b>Total Capital Outlay Support (3)</b>	<b>1,463.1</b>	<b>862.4</b>	<b>581.5</b>	<b>\$1,443.9</b>
<b>Total Capital Outlay</b>	<b>6,321.9</b>	<b>3,343.5</b>	<b>2,878.6</b>	<b>\$6,222.1</b>
<b>Program Total</b>	<b>7,785.0</b>	<b>4,205.9</b>	<b>3,490.1</b>	<b>\$7,696.0</b>

(1). Funds allocated to project or contract for Capital Outlay and Support needs includes Capital Outlay Support total allocation for FY 05/06.

(2). BSA provided a distribution of program contingency in December 2004 based on Bechtel Infrastructure Corporation input.

This column is subject to revision upon completion of Department's risk assessment update.

(3). Total Capital Outlay Support includes program indirect costs.

(Due to the rounding of numbers, the totals above are shown within \$0.2).

## Appendix B.

### Toll Bridge Seismic Retrofit Program - SFOBB East Span Only AB 144/SB 66 Baseline Budget, Forecasts and Expenditures Through December 2005

(\$ millions)

East Span Contract		AB 144/SB 66 Baseline	4th Quarter 2005 Forecast	Expenditures Through December 2005
<b>SFOBB East Span -Skyway</b>				
	Capital Outlay Support	197.0	197.0	119.9
	Capital Outlay	1,293.0	1,293.0	961.2
	<b>Total</b>	<b>1,490.0</b>	<b>1,490.0</b>	<b>1,081.1</b>
<b>SFOBB East Span -SAS- Superstructure</b>				
	Capital Outlay Support	214.6	214.9	16.6
	Capital Outlay	1,753.7	1,767.2	-
	<b>Total</b>	<b>1,968.3</b>	<b>1,982.1</b>	<b>16.6</b>
<b>SFOBB East Span -SAS- W2 Foundations</b>				
	Capital Outlay Support	10.0	10.0	9.2
	Capital Outlay	26.4	26.4	25.7
	<b>Total</b>	<b>36.4</b>	<b>36.4</b>	<b>34.9</b>
<b>SFOBB East Span -SAS- E2/T1 Foundations</b>				
	Capital Outlay Support	52.5	52.5	7.6
	Capital Outlay	313.5	313.5	88.3
	<b>Total</b>	<b>366.0</b>	<b>366.0</b>	<b>95.9</b>
<b>YBI/SAS (Archeology)</b>				
	Capital Outlay Support	1.1	1.1	1.1
	Capital Outlay	1.1	1.1	1.1
	<b>Total</b>	<b>2.2</b>	<b>2.1</b>	<b>2.2</b>
<b>YBI - USCG Rd Relocation</b>				
	Capital Outlay Support	3.0	3.0	2.7
	Capital Outlay	3.0	3.0	2.8
	<b>Total</b>	<b>6.0</b>	<b>6.0</b>	<b>5.5</b>
<b>YBI - Substation &amp; Viaduct</b>				
	Capital Outlay Support	6.5	6.5	6.3
	Capital Outlay	11.6	11.6	11.2
	<b>Total</b>	<b>18.1</b>	<b>18.1</b>	<b>17.5</b>
<b>Oakland Touchdown (Total, including the following split contracts and prior-to-split expenses)</b>				
	Capital Outlay Support	74.4	92.1	19.2
	Capital Outlay	283.8	272.7	-
	<b>Total</b>	<b>358.2</b>	<b>364.8</b>	<b>19.2</b>
<b>Oakland Touchdown Contract No. 1</b>				
	Capital Outlay Support	74.4	49.9	-
	Capital Outlay	283.8	196.7	-
	<b>Total</b>	<b>358.2</b>	<b>246.6</b>	<b>-</b>
<b>Oakland Touchdown Contract No. 2</b>				
	Capital Outlay Support	-	15.8	-
	Capital Outlay	-	62.0	-
	<b>Total</b>	<b>-</b>	<b>77.8</b>	<b>-</b>
<b>Oakland Touchdown Contract - Navy Cable</b>				
	Capital Outlay Support	-	3.0	-
	Capital Outlay	-	9.6	-
	<b>Total</b>	<b>-</b>	<b>12.6</b>	<b>-</b>
<b>Oakland Touchdown Contract - Electrical Systems</b>				
	Capital Outlay Support	-	1.4	-
	Capital Outlay	-	4.4	-
	<b>Total</b>	<b>-</b>	<b>5.8</b>	<b>-</b>

(Due to the rounding of numbers, the totals above are shown within \$0.2).

**Appendix B (Cont.)**

**Toll Bridge Seismic Retrofit Program - SFOBB East Span Only**  
**AB 144/SB 66 Baseline Budget, Forecasts and Expenditures Through December 2005**

(\$ millions)

East Span Contract		AB 144/SB 66 Baseline	4th Quarter 2005 Forecast	Expenditures Through December 2005
<b>South/South Detour</b>				
	Capital Outlay Support	29.5	29.5	13.9
	Capital Outlay	131.9	133.8	30.0
	<b>Total</b>	<b>161.4</b>	<b>163.3</b>	<b>43.9</b>
<b>YBI - Transition Structures</b>				
	Capital Outlay Support	78.7	78.7	7.8
	Capital Outlay	299.3	318.5	-
	<b>Total</b>	<b>378.0</b>	<b>397.1</b>	<b>7.8</b>
<b>Oakland Geofill</b>				
	Capital Outlay Support	2.5	2.5	2.5
	Capital Outlay	8.2	8.2	8.2
	<b>Total</b>	<b>10.7</b>	<b>10.7</b>	<b>10.7</b>
<b>Pile Installation Demonstration Project</b>				
	Capital Outlay Support	1.8	1.8	1.8
	Capital Outlay	9.2	9.2	9.2
	<b>Total</b>	<b>11.0</b>	<b>11.0</b>	<b>11.0</b>
<b>Existing Bridge Demolition</b>				
	Capital Outlay Support	79.7	79.7	0.2
	Capital Outlay	239.2	222.0	-
	<b>Total</b>	<b>318.9</b>	<b>301.7</b>	<b>0.2</b>
<b>Stormwater Treatment Measures</b>				
	Capital Outlay Support	6.0	6.0	4.0
	Capital Outlay	15.0	15.0	-
	<b>Total</b>	<b>21.0</b>	<b>21.0</b>	<b>4.0</b>
<b>Right-of-way and Environmental Mitigation</b>				
	Capital Outlay Support	-	-	-
	Capital Outlay	72.4	72.4	38.7
	<b>Total</b>	<b>72.4</b>	<b>72.4</b>	<b>38.7</b>
<b>Sunk Cost - Existing East Span Retrofit</b>				
	Capital Outlay Support	39.5	39.5	39.5
	Capital Outlay	30.8	30.8	30.8
	<b>Total</b>	<b>70.3</b>	<b>70.3</b>	<b>70.3</b>
<b>Environmental Phase (Expended)</b>				
	Capital Outlay Support	97.7	97.7	97.7
<b>Project Expenditures, Pre-splits</b>				
	Capital Outlay Support	44.9	44.9	44.9
<b>Non-project Specific Costs</b>				
	Capital Outlay Support	20.0	20.0	3.2
<b>Subtotal East Span Capital Outlay Support</b>		<b>959.4</b>	<b>977.0</b>	<b>398.1</b>
<b>Subtotal East Span Capital Outlay and Sunk Costs</b>		<b>4,492.1</b>	<b>4,498.6</b>	<b>1,207.2</b>
<b>Other Budgeted Capital</b>		<b>35.1</b>	<b>11.0</b>	<b>-</b>
<b>Total SFOBB East Span</b>		<b>5,486.6</b>	<b>5,486.6</b>	<b>1,605.3</b>

(Due to the rounding of numbers, the totals above are shown within \$0.2).

## Appendix C.

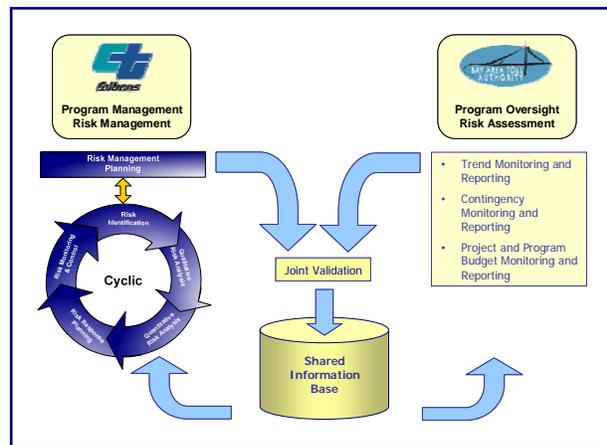
### San Francisco-Oakland Bay Bridge East Span Seismic Replacement Project Risk Management Plan

A summary of Caltrans’ comprehensive risk management activities for the SFOBB East Span Seismic Replacement contracts is provided below.

#### “One Mission, One Vision”

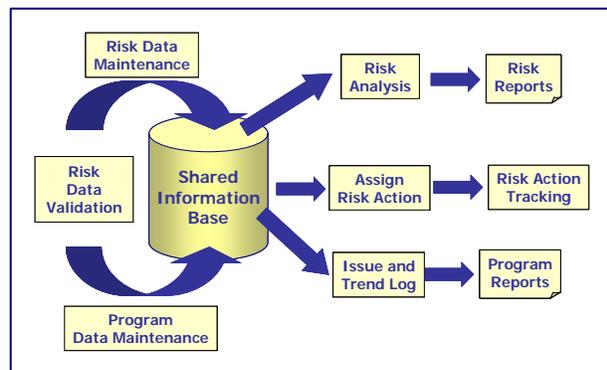
Caltrans, BATA and CTC have embarked on an initiative to manage risk jointly on the SFOBB project. The objective is to share program and project risk information to provide reliable risk assessments, identify risk responses and trends to mitigate risks, and to provide risk reports to the TBPOC in support of its decision-making processes.

Caltrans, BATA and CTC recognized that their risk management and program oversight activities would benefit from using a shared information base. The key to the cooperative effort is the joint evaluation of both risk and trend log data entered into a risk management information database. While Caltrans and BATA will continue to discharge their respective responsibilities, they will rely on the same information for decisions and reporting. The integration of risk management with trend monitoring will provide risk-based cost and schedule forecasts.



Caltrans, BATA and CTC will implement the “One Mission, One Vision” initiative in the 1<sup>st</sup> quarter of 2006. The initial actions are:

- Conduct workshops to:
  - Lay the foundation for a common understanding of “risk” among the SFOBB project team, and,
  - Gain agreement on risk metrics.
- Implement the shared information base:
  - Transfer and scrub risk register data
  - Populate all fields (qualitative and quantitative data)
  - Data exchange for oversight functions
  - Build report templates
  - Enable risk response assignment and tracking
  - Establish access for authorized users



### **SFOBB East Span Schedule Risk**

As reported in the Third Quarter 2005 TBSRP Report, the results of the SAS and E2-T1 quantitative schedule analysis schedule risk analysis indicated that there was approximately an eighty percent probability that the SAS contract date of completion would be extended (whether by contractor, third party, weather, owner or other excusable delay) up to 21 months from the AB 144 schedule. The Department and TBPOC's current SAS schedule risk analysis indicates that because of the successful E2-T1 contract restart change order and the proactive SAS addenda and bidder inquiry process there has been a significant reduction in the magnitude of the risk of delay of the current SAS schedule forecast completion date as a result of contractor, third party, weather, owner or other excusable delay. As conditions warrant, the schedule risk analysis will be updated. Moreover, as schedule risk response enhancements are implemented, their effectiveness in reducing the delay risk will be reassessed, and the schedule delay risk will be adjusted accordingly.

### **SAS Risk Management**

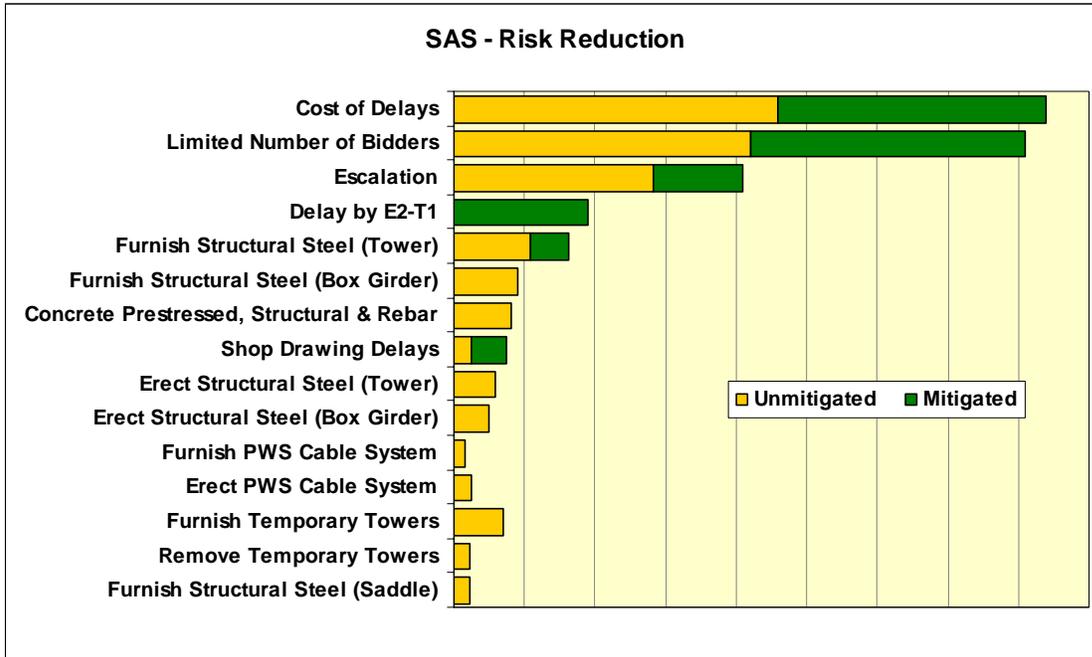
Current risk response efforts continue to focus on encouraging multiple responsive bids for the SAS contract. Implementing prudent risk responses by SAS contract addenda reduces one of the SAS contract's most significant risks – a potential limited bidding pool.

Caltrans has conducted several industry and bidder outreaches and has responded to concerns raised by bidders. Six addenda have been issued to facilitate bidder competition. Milestone DP1 has been removed from the SAS contract, thereby eliminating a contract interface that could have caused delays. Six months have been added to the other SAS milestones in response to bidders' concerns that the construction schedule was too short; this change in schedule will encourage competition, thereby lowering construction costs.

Cost risk analysis of the SAS contract is an ongoing process, with revisions from time to time as conditions of the project change. Many of the risk factors identified earlier have been mitigated. The Buy America provision has been removed, and several risk response efforts have been included to attract multiple bidders. The SAS schedule risk analysis can now be used to determine the cost of potential contract time extensions.

An SAS cost risk analysis has been performed and incorporates risk response measures to date. The conclusions of the cost risk analysis indicate that there is less than a 5 percent likelihood of overrunning the "AB 144/SB 66 Baseline Budget and Program Contingency." Moreover, the risk response measures to date have reduced some risks significantly, as indicated in the chart below.

The cost of delays has been reduced as a result of having performed a quantitative schedule risk analysis to better define and evaluate delay risks. The continued participation of at least two potential bidders is evidence that Caltrans has been successful in reducing the risk of a limited bidding pool. Escalation and furnishing risks have been reduced by removal of the Buy America provisions. The restart of the E2-T1 contract was negotiated to minimize the risk that it could delay the SAS contract. The risk of delays in approving shop drawings has been reduced by the "Campus" concept – having people involved in this process co-located to facilitate the timely resolution of complex technical issues arising from the review and approval of the Contractor's working drawings.



**Self-Anchored Suspension Contract Bid Cost Risk**

As reported in the 2005 3<sup>rd</sup> Quarter Toll Bridge Seismic Retrofit Program (TBSRP) Report, the largest cost risk identified in the San Francisco-Oakland Bay Bridge (SFOBB) Project risk management plan is maintaining a competitive bidding pool for the San Francisco-Oakland Bay Bridge Self-anchored Suspension (SAS) contract. As reported in the 3<sup>rd</sup> Quarter Report and hereunder, Caltrans and the Toll Bridge Program Oversight Committee (TBPOC) have undertaken many aggressive risk responses to enhance bidder competition with respect to the SAS contract. Many of these enhancements, such as eliminating an interfacing contract milestone “Designated Portion of Work No. 1” and adding contract working days occurred in late-December 2005 under SAS contract Addendum Nos. 5 and 6.

As shown on Appendix A, no change to the SAS contract capital outlay forecast is recommended at this time. The potential cost and schedule changes resulting from the late-December 2005 SAS contract enhancements are currently being assessed. This cost and schedule assessment will also incorporate developing information with respect to the SAS cost risks described below, as well as the refinement of estimated costs that will become available with the advent of the SAS contract bid opening.

Appendix C, Figures 2, 3, and 4, of the 2005 3<sup>rd</sup> Quarter TBSRP Report and Appendix C of this report describe in detail the many risk responses implemented by Caltrans and the TBPOC with respect to the SAS contract and how such risk responses have reduced SAS contract bid cost risk and insured continuing contractor interest in bidding.

Moreover, SAS contract Addendum Nos. 5 and 6 implemented many contract enhancements that serve to reduce potential cost and schedule risk. These enhancements include, but are not limited to, 1) greater flexibility and facilitated constructability provisions associated with structural steel, welding, shear key, and saddle fabrication, 2) a streamlined and accelerated working drawing submittal and review process, 3) streamlined and accelerated structural steel mock-up provisions, and 4) clarification of insurance

requirements and responsibility for damage to the work caused by potential acts of the Public Enemy and terrorists.

Notwithstanding the many contract and business practice enhancements implemented by Caltrans and the TBPOC, it should be noted that the potential limited number of qualified bidders for the SAS contract, the fabrication and transportation concerns with the use of international steel suppliers, the possibility for complex constructability issues, the coordination with other contractors on other SFOBB East Span contracts, and the engineering work the contractor must perform and coordinate pose significant risk to estimated SAS contract cost.

Several new and developing risks have recently been identified under the SFOBB Project risk management plan. For example, shortly after the advertisement of the SAS contract, Hurricanes Katrina and Rita devastated the Gulf Coast of the United States. At this time, there are potential unknown impacts resulting from these events -- most significantly the impact on shipping costs and the construction labor force. Fuel cost increases and labor shortages due to rebuilding efforts in the Gulf Coast region may also contribute to SAS cost risk. At this time, reliable documentation of such potential cost impacts will not be known prior to the SAS contract bid opening.

Moreover, industry and market factor cost risks may reflect price volatility of materials and fuel, availability of skilled labor and equipment, rising bonding and insurance costs to contractors, risk of bonding and insurance requirements limiting the number of bidders, and the declining value of the U.S. dollar may impact the price of imported materials. Current demand for labor in metropolitan areas such as Oakland and San Francisco is also increasing labor prices, particularly for specialized labor, and demand for equipment worldwide has impacted the price of equipment.

With respect to the steel market, prices in recent months have stabilized. Indicators appear to be that this stabilization will continue, however, volatility does remain with material costs that could impact the SAS contract.

The combination of the factors described above indicates that the risk of construction cost escalation remains a concern for the SAS contract. These factors will continue to be assessed under Caltrans' SFOBB Project risk management plan.

### **Federal Highway Administration's San Francisco-Oakland Bay Bridge East Span Project Estimate Review**

In November 2005, the Federal Highway Administration (FHWA) performed a cost estimate review for the SFOBB East Span Project. The objective of FHWA's review was to verify the accuracy and reasonableness of the current total cost estimate to complete the SFOBB East Span Project and to develop a probability range for the cost estimate based on the project's current stage of design and construction.

The FHWA review concluded that Caltrans' cost estimating methods are reasonable and considered within industry standards for this type of project. The review also concluded that the application of escalation, contingencies, and the identification of a project reserve for unknowns and future risks also appeared reasonable.

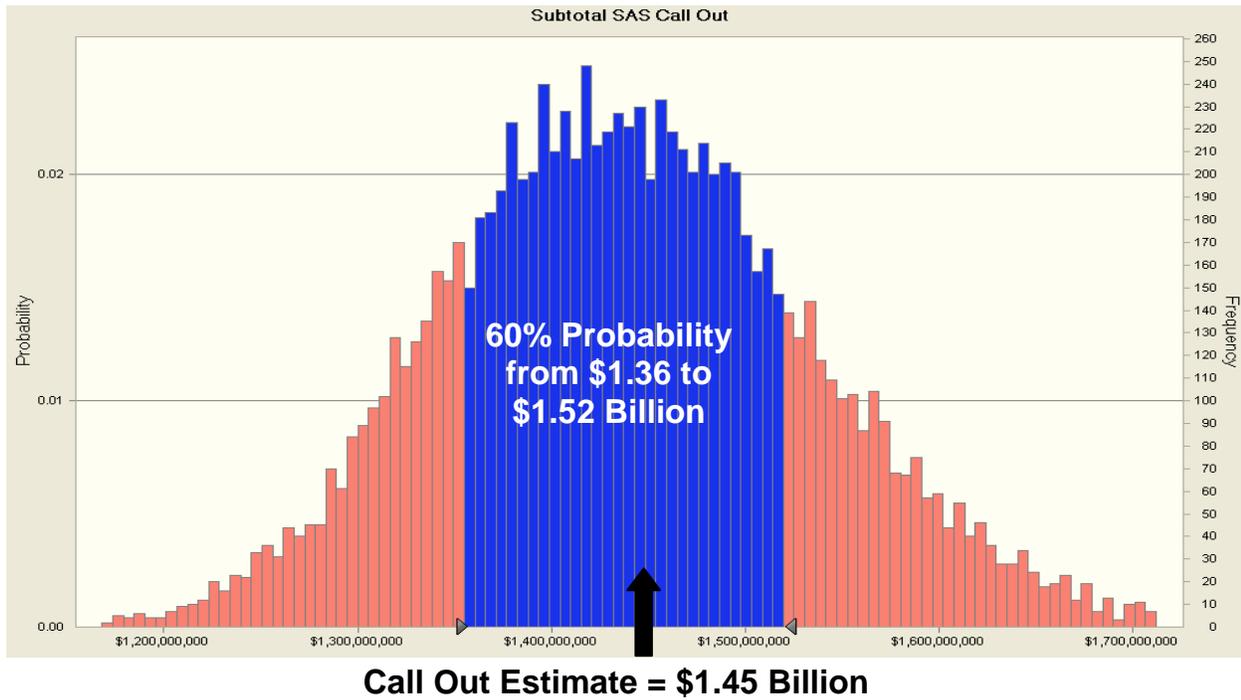
In summary, the FHWA SFOBB East Span Project Estimate Review recommended no project budget adjustments at this time. Caltrans and the TBPOC concur with this recommendation.

Expressing an estimate as a range is a common approach used in the risk management industry and was the approach taken by the FHWA review. This approach reflects the limits of estimating precision at each stage of project development when crucial decisions are yet to be made and the specific risks cannot be estimated exactly. This approach facilitates communication of the identified risks and their potential cost impacts so that project stakeholders can better understand the limits and assumptions of an estimate.

Self-Anchored Suspension Contract -- Multiple Bidder Scenario

Under a multiple SAS contract bidder scenario, FHWA’s estimate review concluded that the Caltrans current bid “call out” estimate is presently in the center of the FHWA probability range. These results are depicted in FHWA’s figure below.

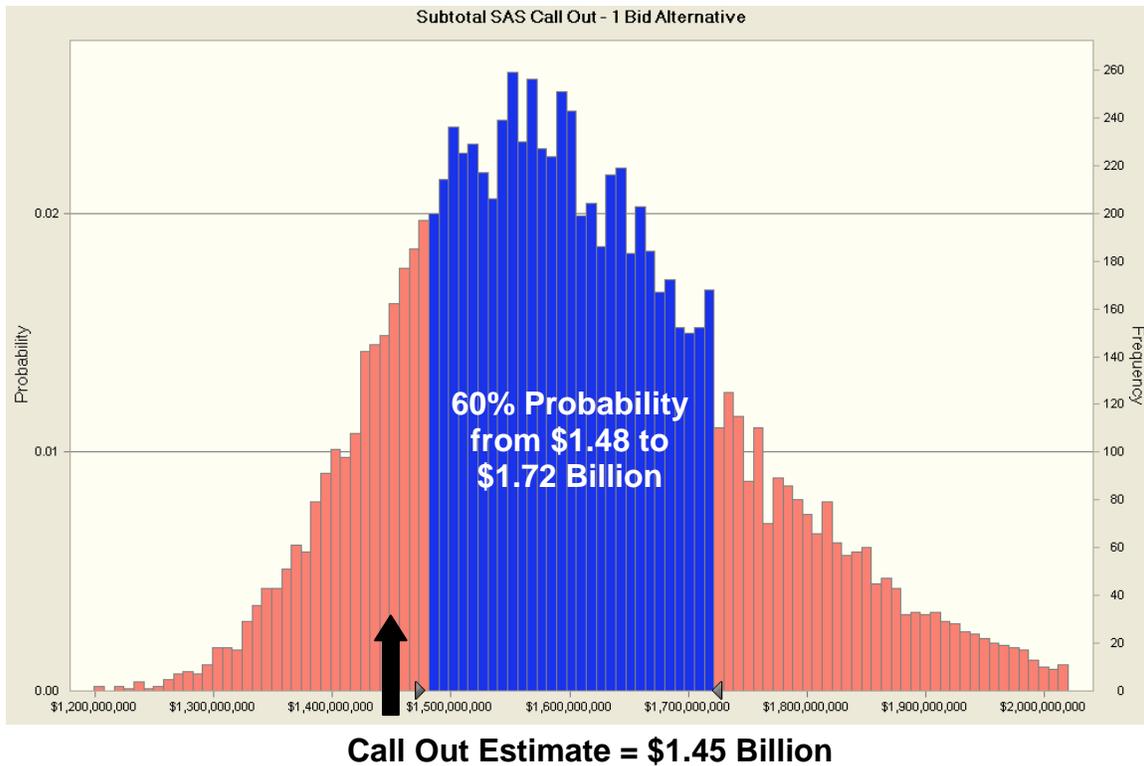
**SAS Call Out – Multiple Bids**



Self-Anchored Suspension Contract -- Potential Single Bidder Scenario

As stated by the Director of Caltrans, Will Kempton, at the January 19, 2006 press conference, obtaining a competitive bid at the time of bid opening is the single most important cost avoidance activity presently in play on the SAS. To underscore this, the FHWA cost estimate review did demonstrate that a single bidder scenario on March 22, 2006 could have a significant impact on the value of the bid received. These results are depicted in the figure below.

**SAS Call Out – 1Bid Alternative**

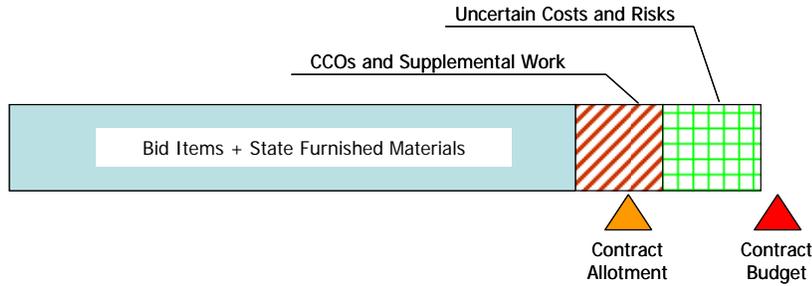


FHWA’s conclusions with respect to potential multiple and single bidder scenarios are consistent with Caltrans’ SFOBB Project risk management plan.

Caltrans and the TBPOC will continue to aggressively implement actions to optimize the potential for obtaining multiple bidders on the SAS contract.

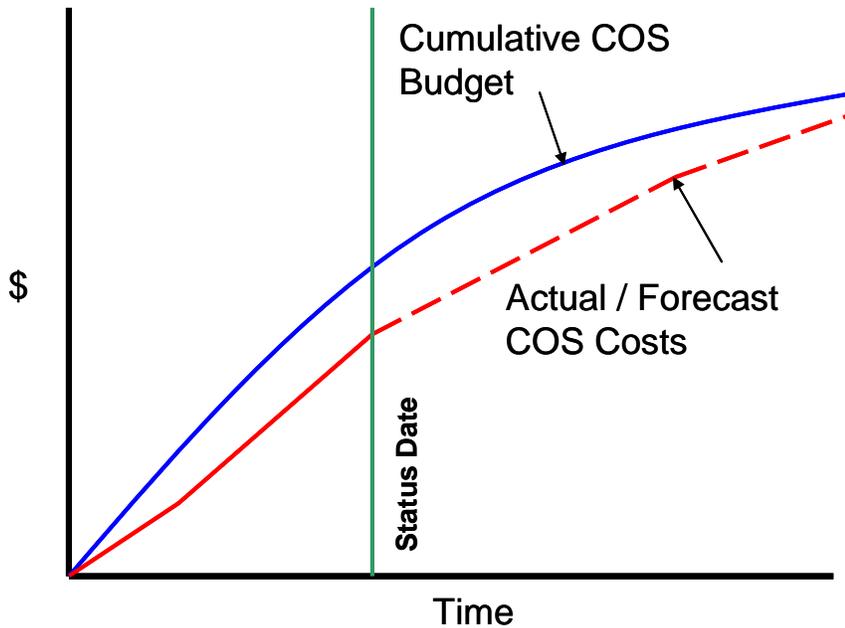
**Risk in Budget Status Reporting**

Cost risk analyses of all ongoing construction contracts and of Capital Outlay Support costs are proceeding. These analyses will provide input to a contingency contract budget status bar chart currently under development (see sample below).



Two regions of the bar chart will show the Bid Items and State Furnished Materials, and CCOs and Supplemental Work remaining. The third region will forecast the uncertain costs and risks, using results from the cost risk analysis models.

To display the status of Capital Outlay Support (COS) budgets and forecasts, a COS status curve is also under development. This curve, an example of which is shown below, displays the time phased COS budget versus the cumulative actual costs to date and the time phased COS cost forecast.



## Appendix D.

### California Transportation Commission TBSRP Contributions, Revised December 2005.

**Schedule of Contributions to the Toll bridge Seismic Retrofit Program (\$ million)**

Source	Description	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Total
AB1171	SHA	290									290
	PTA	80	40								120
	HBRR	100	100	100	42						342
	Contingency				1	99	100	100	148		448
AB 144	SHA*	2	8				53	50	17		130
	MVA	75									75
	Spillover		125								125
	SHA**									300	300
	<b>Total</b>	<b>547</b>	<b>273</b>	<b>100</b>	<b>43</b>	<b>99</b>	<b>153</b>	<b>150</b>	<b>165</b>	<b>300</b>	<b>1830</b>

\* Caltrans Efficiency Savings

\*\* SFOBB East Span Demolition Cost

## Appendix E.

### Project/Contract Photographs.

### San Francisco-Oakland Bay Bridge (SFOBB) East Span Replacement Project

#### Skyway Contract



*Pier Column construction of the Westbound Skyway*



*Aerial view of the West end of the Skyway with temporary towers on the right*



*Skyway Construction-Water Level View*



*Use of Self Launching Erection Device (SLED) for Precast Concrete Deck Segments*

### Skyway Contract (cont.)



*Aerial View of Skyway Deck (looking west) 1*



*Aerial View of Skyway Deck (looking west) 2*



*Aerial View of Skyway Deck (looking west) 3*



*Aerial View of Skyway Construction (looking west) 1*



*Aerial View of Skyway Construction (looking west) 2*



*Aerial View of Skyway Construction (looking east)*

**Skyway Contract (cont.)**



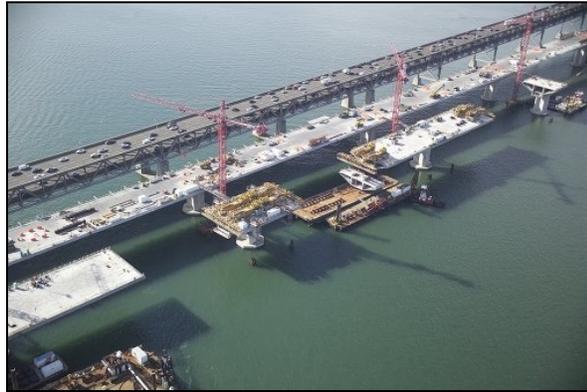
*Aerial View of SFOB (looking east from the YBI)*



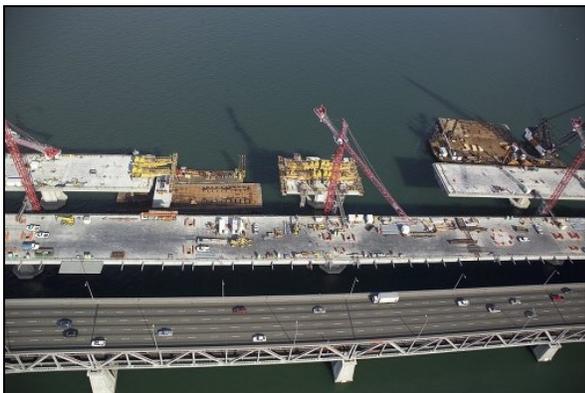
*Aerial View of Pier 15 & 16*



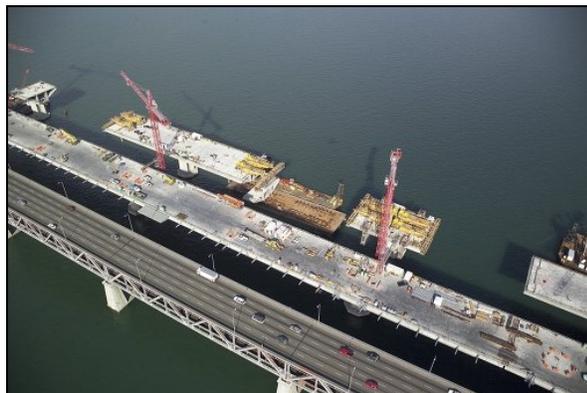
*Aerial View of Pier 3,4 & 5 (looking east)*



*Aerial View of East-bound - West-bound Roadway Section (looking west) 1*

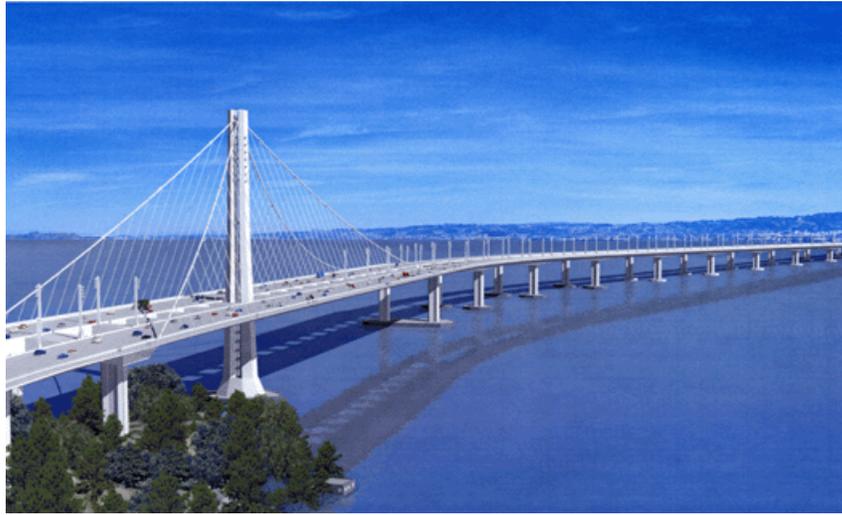


*Aerial View of East-bound - West-bound Roadway Section (looking west) 2*



*Aerial View of East-bound - West-bound Roadway Section (looking west) 3*

## Self-Anchored Suspension (SAS) Superstructure Contract



*SAS Superstructure Artist Rendition.*



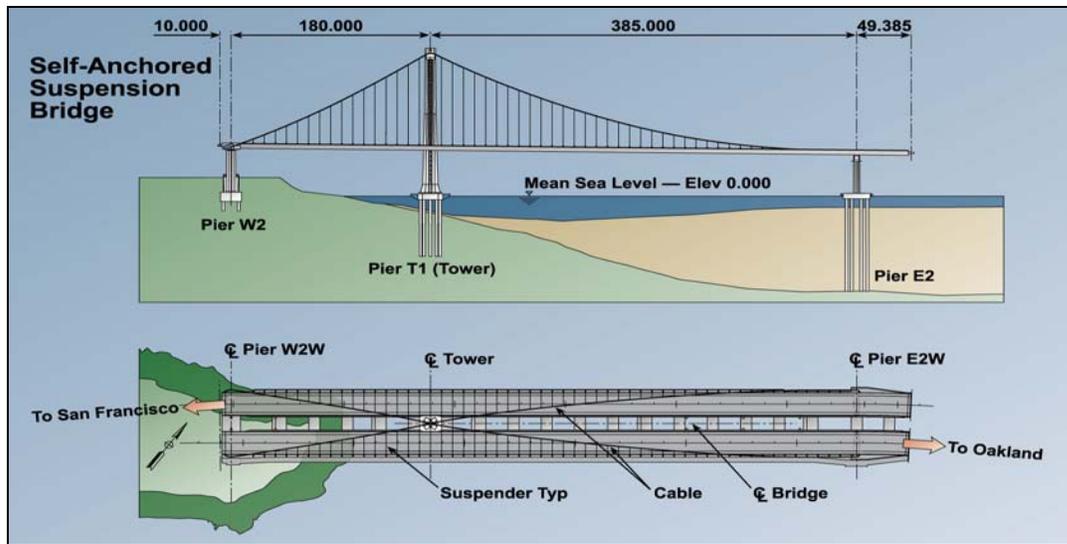
*SAS Superstructure Artist Rendition Night Shot.*

## Self-Anchored Suspension (SAS) E2/T1 Foundation Contract



T1 = Foundation for the 530-foot steel tower  
E2 = Eastern Support of the suspension roadway  
W2 = Western Support of the suspension roadway

View of the completed W2 pier columns at the Yerba Buena Island, which will be the western support of the Self-Anchored Suspension (SAS) structure



## Yerba Buena Island (YBI) South/South Detour Contract



*Pier Column Construction for Bents 50 and 51*



*Footing and Pier Columns for Bent 48*



*Piles for Bent No. 52*



*Drilling for CIDH piles for Bent 53*



*SoSoDet - Construction of columns for the viaduct portion of the Temporary Bypass Structure (TBS) adjacent to the U.S. Coast Guard Road on Yerba Buena Island*



*SoSoDet - Construction of Bent 48 grade beams along the former Southgate Road on Yerba Buena Island*

# San Francisco-Oakland Bay Bridge (SFOBB) West Approach Replacement Project



*New Frame 7U north False work at bents 20 and 21*



*New 5th Street off ramp Bents 1 thru 5, CISS Piles*



*Frame 1U and 2U*



*Harrison St. Off-ramp Pre-demolition 1*



*Harrison St. Off-ramp Pre-demolition 2*



*Tendon Cutting*

# San Francisco-Oakland Bay Bridge (SFOBB) West Approach Replacement Project (cont.)



Harrison St. Off-ramp Demolition 1



Harrison St. Off-ramp Demolition 2



Harrison St. Off-ramp Demolition 3



Harrison St. Off-ramp Demolition 4



Harrison St. Off-ramp Demolition 5



Harrison St. Off-ramp Demolition 6

## San Francisco-Oakland Bay Bridge (SFOBB) West Approach Replacement Project (cont.)



Temporary Support Frame (Super Bent at Bent #43) 1



Temporary Support Frame (Super Bent at Bent #43) 2



Temporary Support Frame (Super Bent at Bent #43) 3



Temporary Support Frame (Super Bent at Bent #43) 4



Demolition of Frame 7U North & 8U North over First St.  
On-ramp 1



Demolition of Frame 7U North & 8U North over First St.  
On-ramp 2