TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

Final Agenda

TBPOC CONFERENCE CALL
January 19, 2010, 3:00 pm – 4:00 pm

Topic	Presenter	Time	Desired Outcome
1. PROGRESS REPORTS **a. 3rd QUARTER 2009 RISK MANAGEMENT UPDATE*** **b. QUARTERLY BUDGET FORECAST***	 PMT/ J. Tapping, CT A. Fremier, BATA	 15 min 5 min	 Information Information
2. CCO 108 SUPPLEMENTAL CHANGES TO TOWER INCENTIVES*	T. Anziano, CT/ J. Tapping, CT	20 min	Approval
3. CHINA COMMUNICATIONS PLAN*	B. Ney, CT	20 min	Information
4. TBPOC INVITE LETTER TO MR. KANG*	PMT	10 min	Approval
Next TBPOC Meeting: February 11, 10:00 AM – 1:00 PM **Mission Bay Office, Oakland**			

*Attachments

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC)

DATE: January 15, 2010

FR: Program Management Team (PMT) / J. Tapping, SFOBB Project Risk Management Coordinator, CT

RE: Agenda No. - 1a

Item- Progress Reports
Third Quarter 2009 Risk Management Update

Recommendation:
For Information Only

Cost:
N/A

Schedule Impacts:
N/A

Discussion:
For TBPOC discussion, attached are the following:

1. Risk Management Briefing to the PMT on January 11, in preparation for the TBPOC meeting on February 11, 2010;
2. Risk Management Report 3rd Quarter 2009; and,
3. Risk Management Documentation 3rd Quarter 2009.

Attachment(s):

1. Risk Management Briefing
2. Risk Management Report 3rd Quarter 2009
3. Risk Management Documentation 3rd Quarter 2009

Risk Management Briefing

TOLL BRIDGE PROGRAM
OVERSIGHT COMMITTEE

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

February 11, 2010

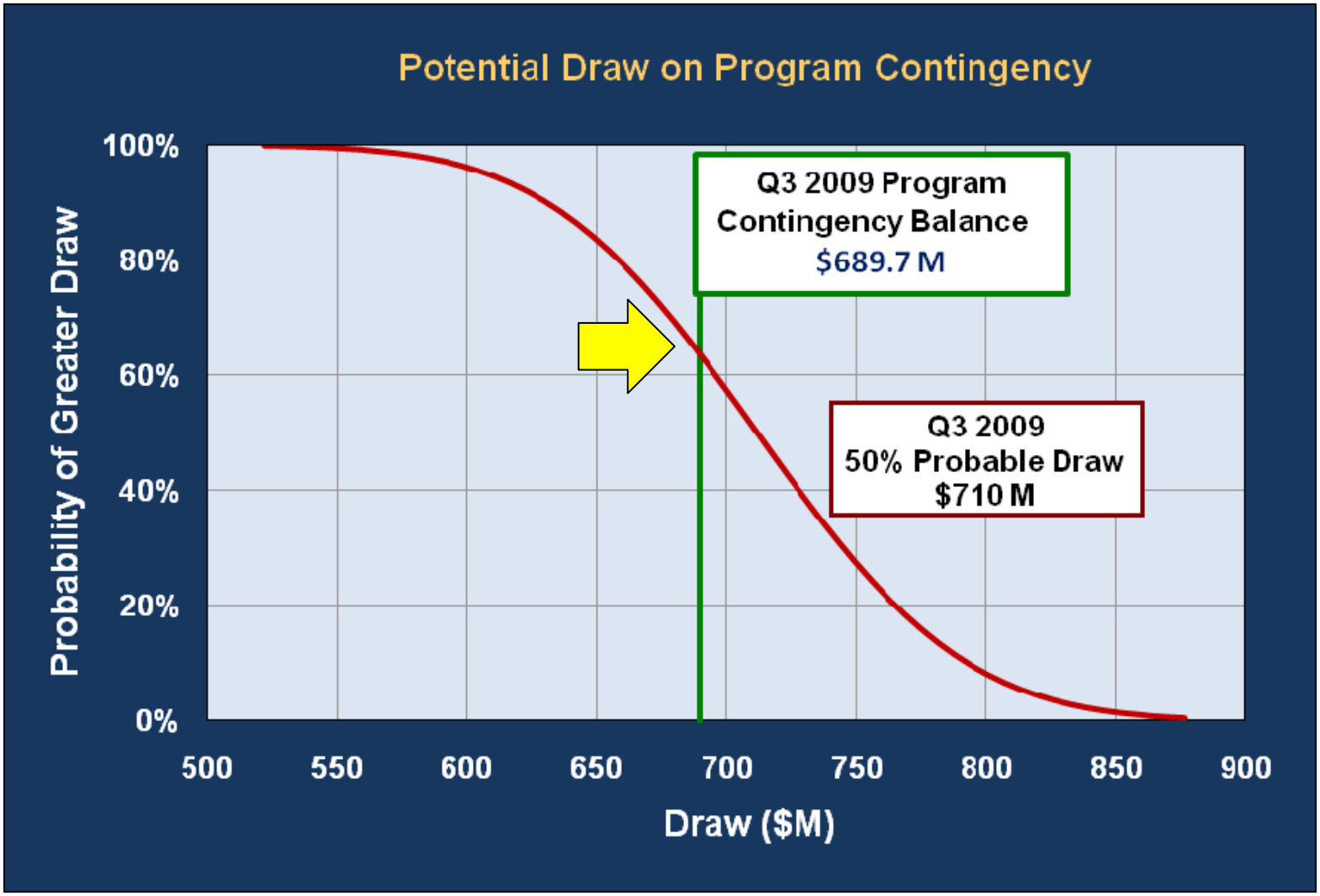
Outline

Cost Results

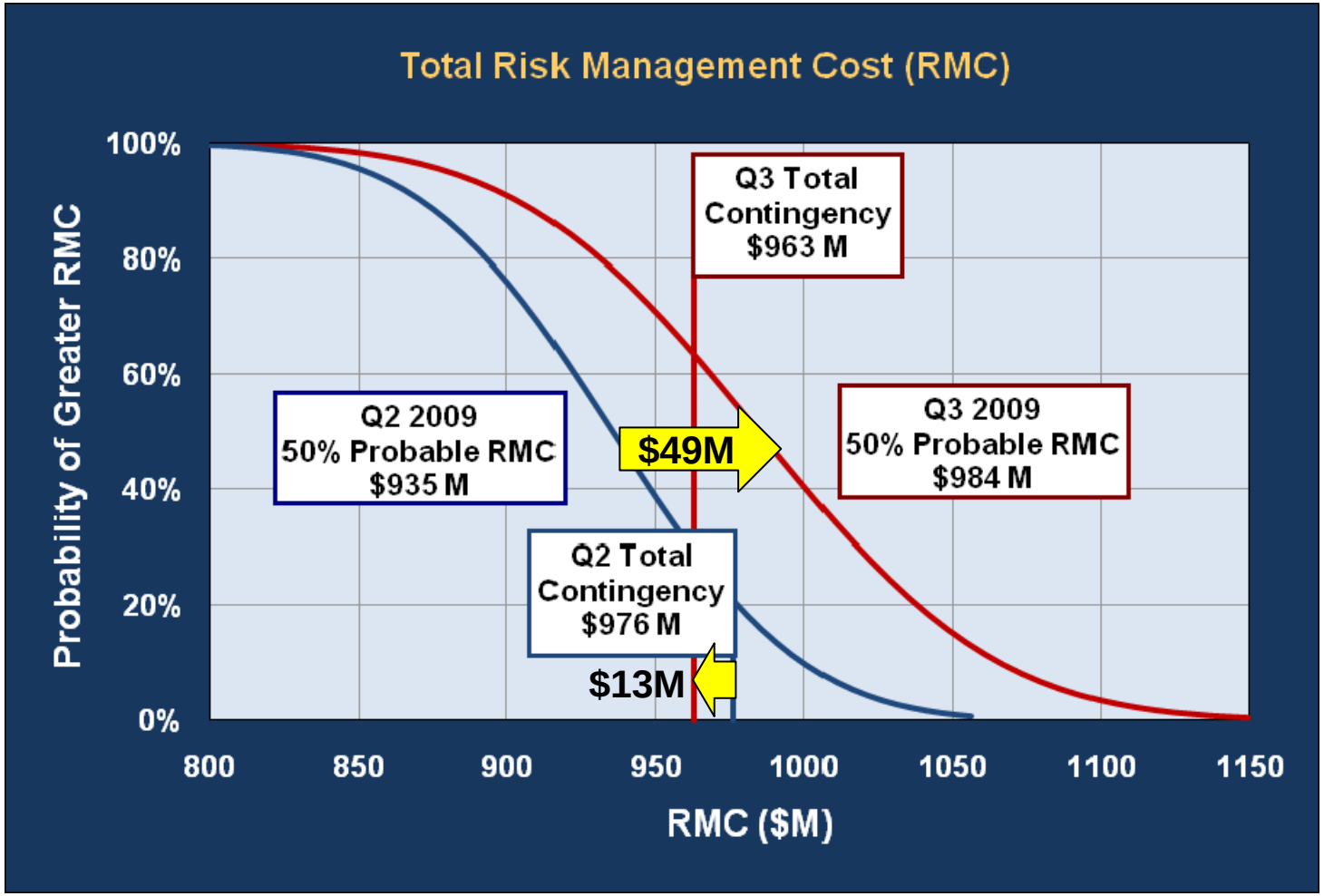
Schedule Results

Opportunities

Q3 2009 “Bottom Line”



Changes from Q2 to Q3



RMC Results

	Q3 50% Probable Risk Management Cost			
	Q3 2009			% Change
OTD1 Westbound	6,51			-21%
	17,89			64%
	440,788,000			6%
	21,223,000	36,122,000	(1 9,000)	-41%
	59,975,000	47,686,000	12,289,000	26%
YBI#2 Post Traffic	18,597,000	13,347,000	5,250,000	39%
Total East Span	**564,989,000**			6%
Program	98,300,000			-32%
Corridor CO	**663,289,000**			-2%
COS	**320,300,000**	256,400,000	63,900,000	25%
Total Corridor	**983,589,000**	934,616,000	48,973,000	5%
Draw	710,489,000	648,816,000	61,673,000	10%

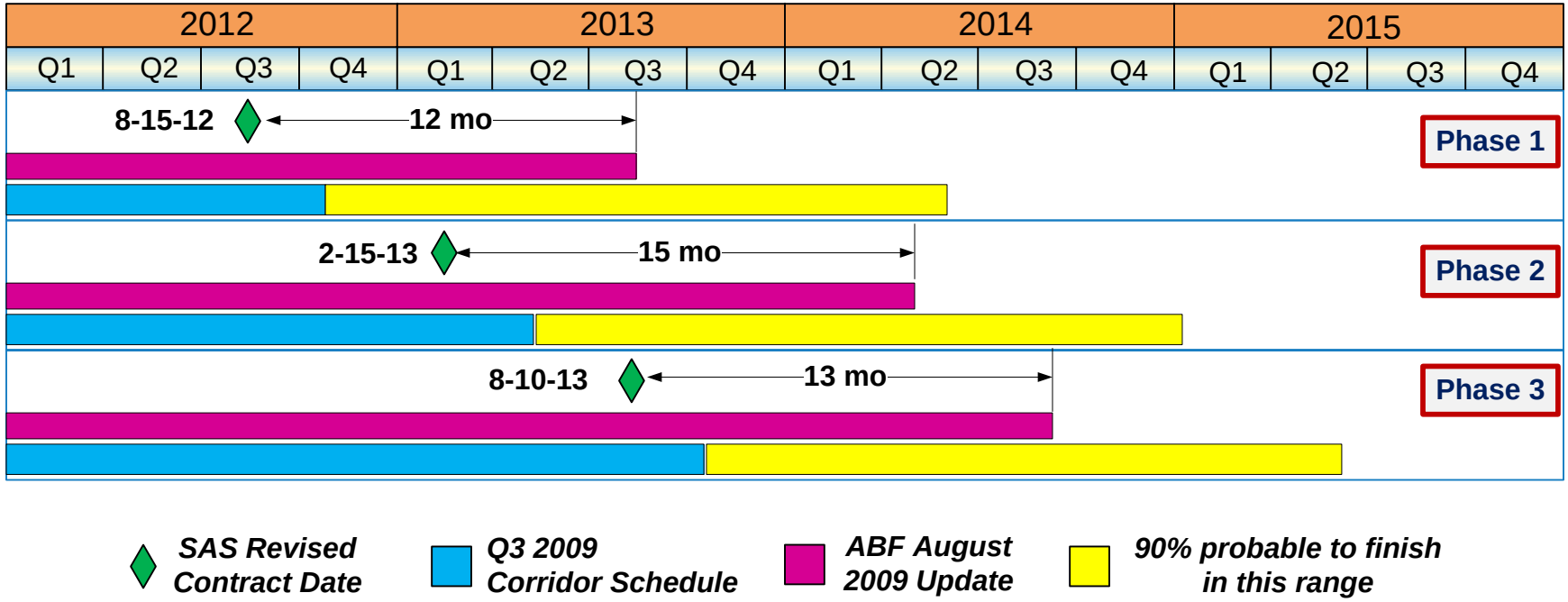
Increased schedule risk due to ABF 7.5 month slippage

Increased "gap"due to ABF 7.5 month slippage

Removed "out-of-scope" risks ($50-80M)
Potential cost saving on YBITS1 bid ($33-67M)

Increased due to ABF 7.5 month slippage

Q3 Schedule Risk Results



Summary of Q3 Opportunities

1.Recover delay from the SAS schedule – this reduces the risks of escalation to unawarded contracts, increased Capital Outlay Support costs, and narrows the YBITS 1 “gap”.

2.Cost saving potential on the YBITS 1 contract ranging from $33-67M.

3.Reduce the YBITS 1 “gap” to reduce exposure to compensable delay claims.

4.The program risk register has an opportunity to recover funds by selling excess parcels of land from the completed West Approach project.

5.The Corridor Schedule contains multiple opportunities to recover the SAS schedule.

6.Reduce Department exposure to compensable delay claims by managing to a Joint Schedule with the SAS contractor.

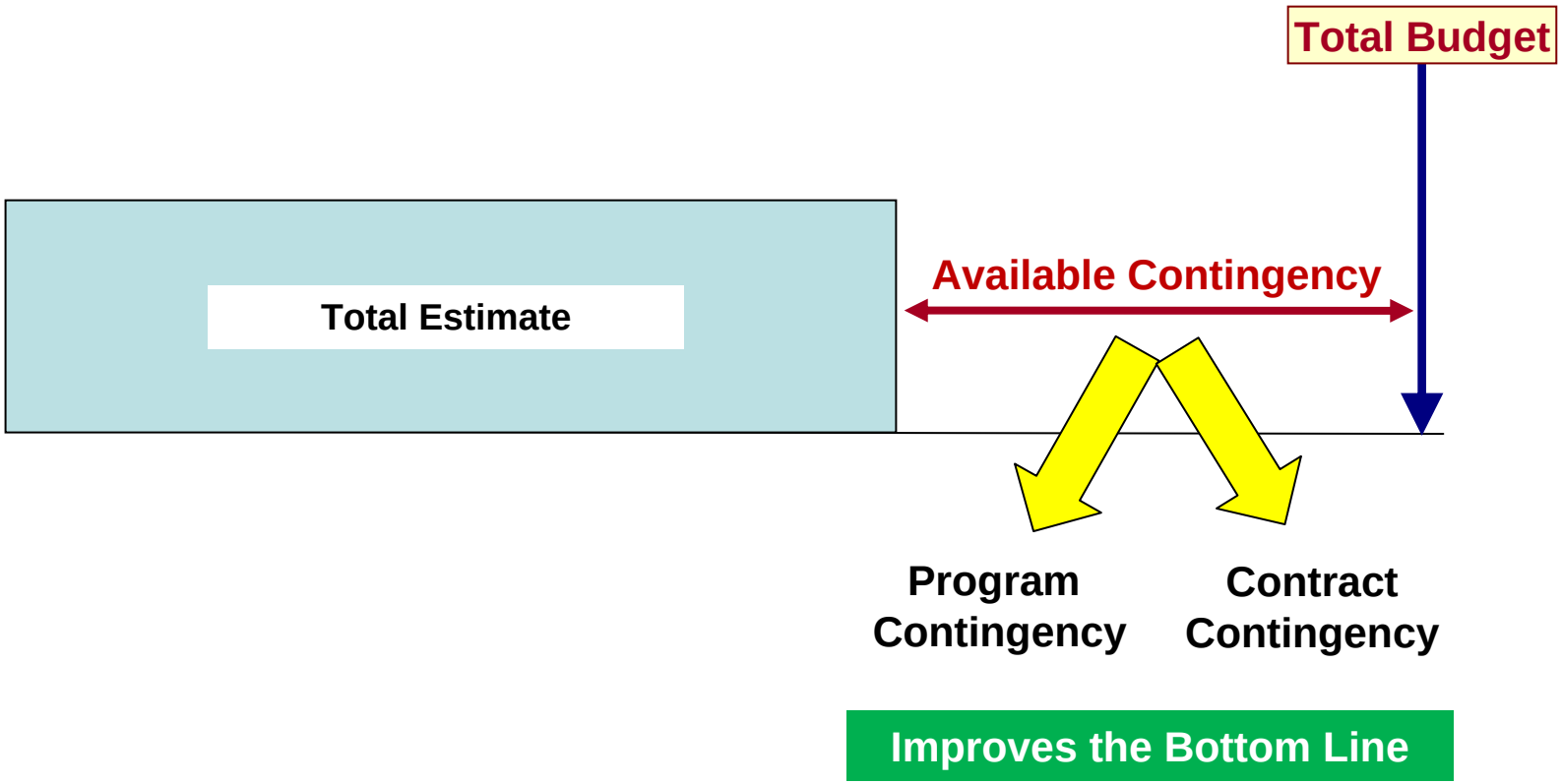
Antioch and Dumbarton Opportunities

Performed a cost risk analysis on the estimates.
Assessed uncertainties in quantities, prices and escalation.
As a result:

1.Antioch risk register has an opportunity to save up to $30M.

2.Dumbarton risk register has an opportunity to save up to $67M

Antioch/Dumbarton into TBSRP
Risk Implications



Questions?

TOLL BRIDGE SEISMIC RETROFIT PROGRAM

Risk Management Report

3rd Quarter 2009

Caltrans®

State of California
DEPARTMENT OF TRANSPORTATION

Memorandum

Business, Transportation and Housing Agency

Flex your power!
Be energy efficient!

To: TONY ANZIANO
Program Manager
Toll Bridge Program

Date: January 11, 2009

From: JON TAPPING
SFOBB Project Risk Management Coordinator

Subject: **Third Quarter 2009 Risk Management Report – Toll Bridge Seismic Retrofit Program**

With the concurrence of the Toll Bridge Seismic Retrofit Program (TBSRP) Project Manager, I submit for your approval the Third Quarter 2009 Quarterly Risk Management Report (QRMR) for the Toll Bridge Seismic Retrofit Program, reporting for the quarter ending September 30, 2009.

Recommend Approval:

JON TAPPING
SFOBB Project Risk Management Coordinator

KEN TERPSTRA
Project Manager
SFOBB East Span and West Approach

Approved:

TONY ANZIANO
Program Manager
Toll Bridge Program

Copies to:

R. Iwasaki	Director
M. Dougherty	Chief Engineer
N Ortega	Interim Chief Financial Officer
B. Pieplow	Division of Engineering Services
M. Leja	Chief, Division of Construction
S. Heminger	MTC/BATA Executive Director
B. Rhinehart	CTC Executive Director
A. Fremier	Project Management Team (BATA)
S. Maller	Project Management Team (CTC)

TOLL BRIDGE SEISMIC RETROFIT PROGRAM

RISK MANAGEMENT REPORT

3rd Quarter 2009

September 30, 2009

© 2009 Caltrans. No portion of this material may be copied or used without the written permission of Caltrans.

Prepared by CALTROP Corporation

Table of Contents

1 INTRODUCTION 1
2 HIGHLIGHTS 2
3 POTENTIAL DRAW ON PROGRAM CONTINGENCY 3
4 CORRIDOR SCHEDULE 6
5 SAS – SELF ANCHORED SUSPENSION CONTRACT 9
6 YBI DETOUR CONTRACT 15
7 OAKLAND TOUCHDOWN #1 (WESTBOUND) CONTRACT 18
8 OAKLAND TOUCHDOWN #2 (EASTBOUND) CONTRACT 21
9 YBI TRANSITION STRUCTURES #1 CONTRACT 24
10 YBI TRANSITION STRUCTURES #2 CONTRACT 28
11 PROGRAM RISKS 30
12 CAPITAL OUTLAY SUPPORT 32
APPENDIX "A" RISK MANAGEMENT EXPLANATIONS 33

1 INTRODUCTION

Assembly Bill (AB) 144, signed into law on July 18, 2005, authorized the Department of Transportation (Department) to develop and implement an expanded comprehensive risk management plan for the Toll Bridge Seismic Retrofit Program (TBSRP) to augment the established risk management protocols and mitigation measures already in place.

The Quarterly Risk Management Report (QRMR) summarizes risk management for each contract. It includes risk developments in the current quarter, risk management activities, risk management cost (RMC), RMC trend, and a look-ahead to next quarter. The QRMR supports summary risk management information that is included in other TBSRP reports. Among these are the monthly report to the Toll Bridge Program Oversight Committee (TBPOC) and the quarterly TBPOC report to the California Legislature.

2 HIGHLIGHTS

2.1 SAS CONTRACT

The SAS Contractor's August 2009 schedule update indicated that the SAS contract is about 13 months behind schedule from the revised contract dates. This delay increases escalation risk of unawarded contracts, COS cost risks, and the cost of the gap in the YBITS 1 contract.

Completion of the fabrication activities is subject to uncertainties of the number of necessary repairs and when they will be performed. This leads to significant uncertainty about shipment dates. Nevertheless, the risk management team has identified opportunities to recover about 11 months, mainly in the construction activities after fabrication.

2.2 YBITS 1 CONTRACT

The YBITS1 bid documents state that the contractor will be able to proceed to completing frame 2 without interruption after completing the work to Designated Portion of Work #1 (DP-1). The current DP-1 date is based on the original SAS contract date for completion of SAS Phase 1. That is, SAS Phase 1 will complete at the same time as YBITS1 DP-1.

The current status of the SAS contract has SAS Phase 1 completion 17 months after DP-1, exposing the Department to delay claims for this "gap". Efforts are underway to find a way to narrow the "gap" by delaying bid opening, extending DP-1 and/or the contract completion date by several months.

2.3 YBI DETOUR CONTRACT

This contract has completed about 88 percent of the revised scope of the contract. The probable cost of risks decreased significantly this quarter due to the successful completion of the Labor Day weekend work and the rerouting of the Bay Bridge traffic onto the new Detour.

2.4 SUMMARY OF OPPORTUNITIES

An opportunity is defined as anything that has a positive impact on project cost and time objectives. Here are some of the main opportunities that the various risk management teams have identified:

1. Recover delay from the SAS schedule – this reduces the risks of escalation to unawarded contracts, increased Capital Outlay Support costs, and narrows the YBITS 1 "gap".
2. Modify the YBITS 1 contract to close the "gap" – this reduces exposure to compensable delay claims.
3. Schedule activities in the Corridor Schedule have an optimistic finish date that is earlier than the planned date, thus creating multiple opportunities in the schedule.
4. The program risk register has an opportunity to recover funds by selling excess parcels of land from the completed West Approach project.
5. Reduce Department exposure to compensable delay claims by managing to a Joint Schedule with the SAS contractor.
6. Use liquidated damages clauses to encourage recovery of schedules.

3 POTENTIAL DRAW ON PROGRAM CONTINGENCY

3.1 TOTAL CONTINGENCY AND RISK MANAGEMENT COST

The total contingency available to cover all risks comprises the contingency available from all contracts, plus the current balance in the Program Contingency. Each contract in design has an assigned contingency allowance. A contract in construction has a remaining contingency that is the difference between its budget and the sum of Bid Items, State Furnished Materials (SFM), Contract Change Orders (CCOs) and Remaining Supplemental Work (SW). COS has no contingency allowance. The amount by which the sum of all risks exceeds the total of all contingencies available from contracts represents a potential draw on the Program Contingency.

The following table shows the contingencies in the second and third quarters of 2009, and the change from the previous quarter.

	Q3 2009	Q2 2009	Change
1. Contingency Available from All Contracts ($M)	273.1	285.8	-12.7
2. Program Contingency Balance ($M)	689.7	689.7	0
3. Total Contingency ($M)	962.8	975.5	-12.7

The Total Contingency decreased by $12.7 million, primarily due to Contract Change Orders (CCO) approved during the 3rd quarter for the SAS contract.

The total cost of all risks, the Risk Management Cost (RMC), increased on average by $49 million from the 2nd quarter 2009. The respective RMC curves are shown in Figure 1 with Total Contingency for reference.

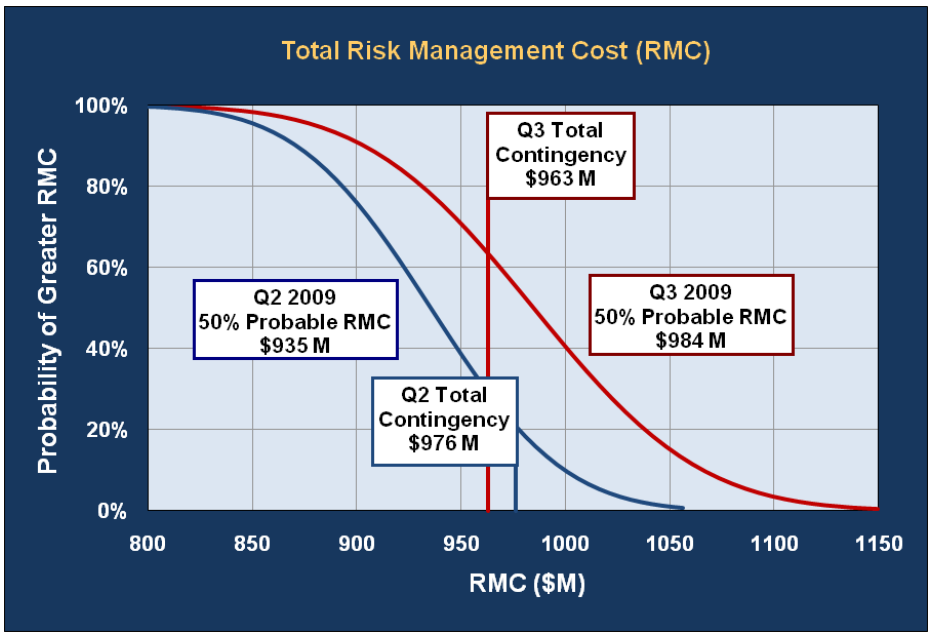


FIGURE 1 – RISK MANAGEMENT COST AND TOTAL CONTINGENCY

The increase in Risk Management Cost was driven mainly by additional delay in the SAS schedule since the 2nd quarter due to fabrication delays. This additional delay has a significant effect on the corridor: it adds escalation risk to unawarded contracts; it increases the Capital Outlay Support cost risk; and it exposes the Department to additional compensable delay risks.

The probability of risk management costs exceeding total contingency increased to about 63% in the 3rd quarter 2009.

3.2 POTENTIAL DRAW ON PROGRAM CONTINGENCY

The risk management process calculates the potential draw on program contingency each quarter, and compares it to the current balance in the Program Contingency[1]. The potential draw curve in Figure 2 is obtained by subtracting the total contingency available from contracts (item 1 in the above table) from the RMC curve in Figure 1.

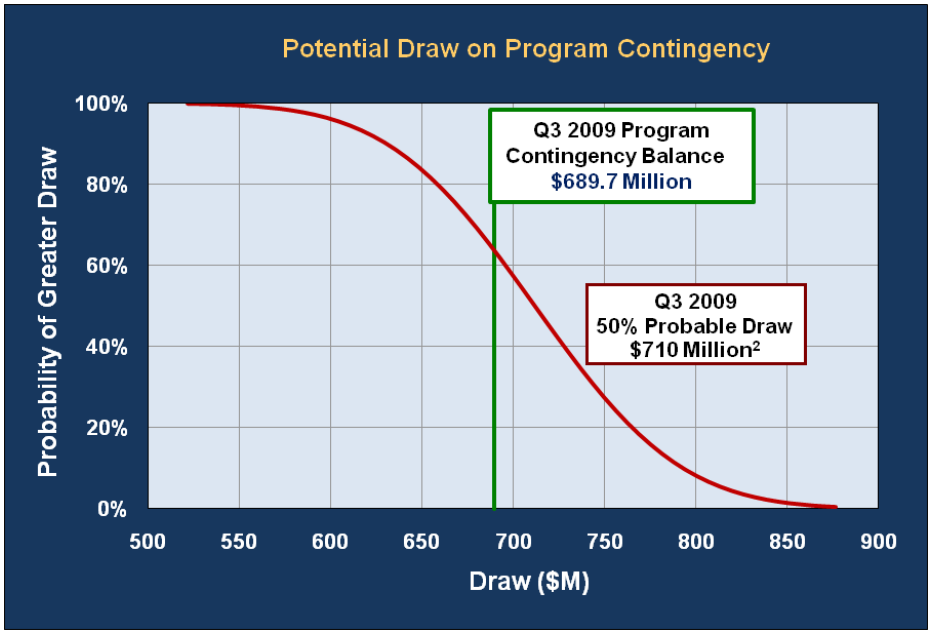


FIGURE 2 – POTENTIAL DRAW ON PROGRAM CONTINGENCY

As of the end of the 3rd quarter 2009, the 50% probable draw on Program Contingency is $710 million[2]. The potential draw ranges from about $550 million to $870 million[3]. The current Program Contingency balance is 63% probable to be insufficient to cover the identified risks. Risk mitigation actions are continuously developed and implemented to reduce the potential draw on the Program Contingency.

---

1 The Program Contingency funds could be used for other beneficial purposes than to cover risks, and should not be construed as a forecast of the future balance of Program Contingency funds.

2 The probable draw includes a $50 million bid environment opportunity for the YBIT1 contract. The proposed 4th quarter TBPOC Budget will account for the actual bid opportunity that is realized at bid opening.

3 See *A.4 Interpreting Risk Curves* on page 30 for an explanation of the curve and "range".

Out-of-Scope Program Risks: Program risks ***do not include*** the approximately $50 – 80 million cost of risks that are outside the scope and budget of the program (i.e. Light Pipe, BASE System, and potential indirect impacts resulting from the City of San Francisco's YBI Ramp project).

3.3 PROGRAM CONTINGENCY TREND

The Quarterly Risk Management Report has reported the potential draw on the Program Contingency since the first quarter of 2007.

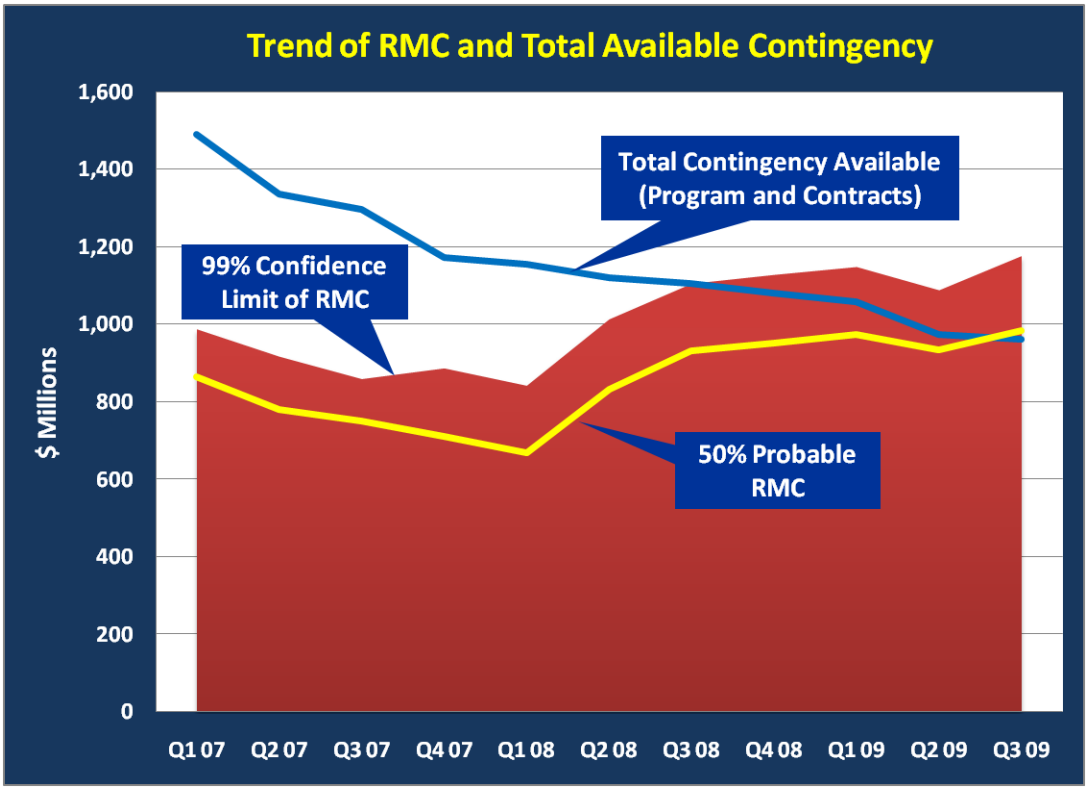


FIGURE 3 – PROGRAM CONTINGENCY TREND

The solid area depicts the range of potential draw that covers about 99% of all possible outcomes. There are possible outcomes beyond this range, but their probability is very small.

4 CORRIDOR SCHEDULE

4.1 CORRIDOR SCHEDULE INCORPORATES ALL SCHEDULES

The Corridor Schedule Team (CST) developed an intermediate level schedule for the Corridor to be used in evaluating schedule risk and recovery opportunities. This Corridor Schedule is a summarization of the contract schedules submitted by the various contractors and schedules developed by the Department for the contracts in design. The schedule information provided by the contractors and used for the schedule risk evaluation indicates that project completion milestones for seismic safety (eastbound open) may be up to 13 months later than the revised contract date.

4.2 IDENTIFIED CORRIDOR SCHEDULE RECOVERY OPPORTUNITIES

The CST and the Risk Management Team jointly identified opportunities to mitigate the overall SAS contract schedule impacts due to delays in East End shop drawings and fabrication. Most of the opportunities are during field construction and include re-sequencing concurrent work and redefining SAS Phase completion requirements. Among these opportunities are:

- Accelerated completion of the Orthotropic Box Girder (OBG) East End shop drawings,
- Overlapping of the OBG East End shop drawings, translation and fabrication activities,
- Accelerated fabrication of the OBG Lifts 13 and 14,
- Early shipment of the tower template to San Francisco so that the tower footing can be prepared before the first tower lift arrives,
- Earlier start of the cable temporary works,
- Additional shift work on the cable installation operations,
- Overlapping of the cable completion activities after load transfer, and,
- Sequencing MEP operations.

Redefining the completion milestones may help achieve the desired dates for bridge opening and seismic safety, while delaying SAS contract completion.

The major opportunities/changes to the SAS Contractor's schedule incorporated into the Corridor Schedule are listed below.

1. The duration of cable temporary works was reduced to reflect concurrent work on the main and back spans as discussed at the cable Opportunity Schedule meetings.
2. Removed internal tower painting as a predecessor for the start of cable temporary works.
3. Reduced the duration to install the Parallel Wire Strand (PWS) by assuming two crews hauling the PWS strands and one crew adjusting the PWS at night. The ABF schedule is based on one hauling crew and one adjusting crew as discussed at the Opportunity Schedule meetings.
4. Reduced the durations of final completion activities.

5. Split the OBG Align/Bolt/Weld activities into two activities. The first activity with 60% of the total duration is the critical predecessor that allows successor OBG lift erection to proceed. ABFJV has indicated that this change will be in the next schedule submittal.

Incorporation of these opportunities, if realized, may result in 11 months of schedule recovery. However, not all of the opportunities have yet been confirmed with, and implemented by, the SAS Contractor. Some of these adjustments required an increase in risk to scheduled activity durations.

The ABF August 2009 Update Schedule is compared to the Corridor Schedule in Figure 4.

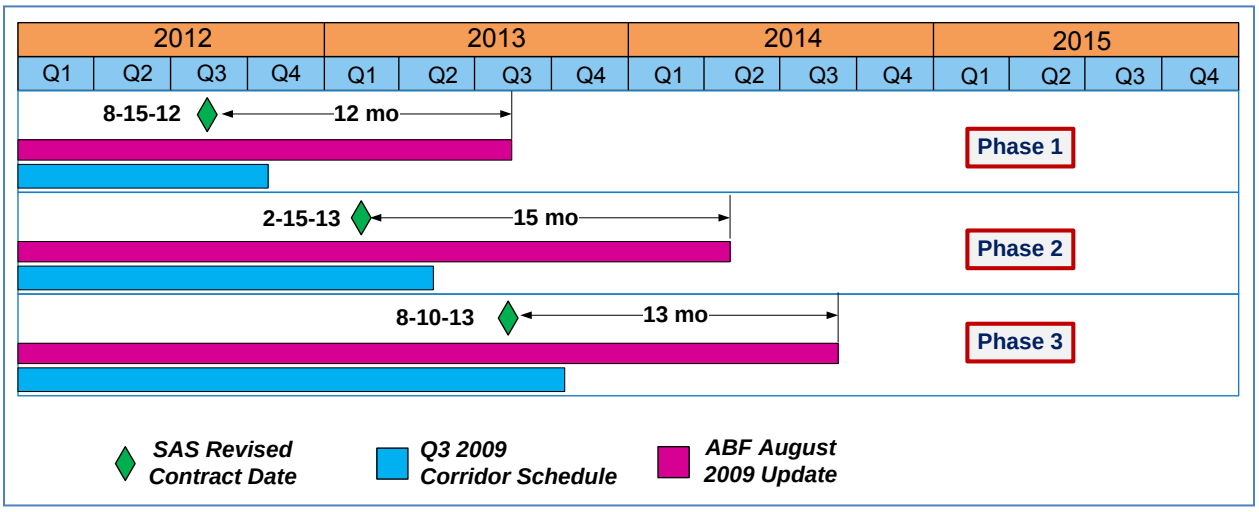


FIGURE 4 – SAS SCHEDULE

The SAS Phase milestone definitions are:

Phase 1 – Load transfer complete and area west of W2 turned over YBITS 1 contractor.
Phase 2 – SAS ready for westbound traffic
Phase 3 – SAS ready for eastbound traffic.

The ABF August Update schedule (purple bars) shows Phase 1, 2 and 3 completions 12, 15 and 13 months later than the revised contract dates, which are 5 months later than the corresponding dates in the TBPOC Approved Schedule. The Corridor Schedule (blue bars) incorporates the opportunities detailed above to recover about 10 to11 months.

4.3 SCHEDULE RISK ANALYSIS

The schedule risk analysis puts risk activities into the schedule and uncertainty onto some schedule activity durations[1]. When placing uncertainty onto the duration of an activity, the activity can possibly underrun its remaining duration (an opportunity) or possibly require more time. The risk analysis produces probability distributions for the finish date of the major milestones. The range of potential delay in the risk register is determined as the days between the optimistic, most likely and pessimistic finish dates and the current revised contract date. A possible range for Department

[1] See Appendix A.1 for a description of how risks are inserted into the Corridor Schedule.

responsibility is assessed and combined with the delay range and TRO+ range to get the range for the cost impact of the delay.

5 SAS – SELF ANCHORED SUSPENSION CONTRACT

5.1 STATUS

The SAS contract is estimated to be 46 percent complete. The probable cost of SAS risks has increased by 6 percent during this quarter after going down 15 percent in the 2nd quarter. This increase is primarily due to the first shipment of Orthotropic Box Girder (OBG) Deck Sections not ready to ship and the development of Shop Drawings for the East End not progressing as previously hoped.

The SAS Contractor's August 2009 schedule update indicates that the project as a whole is about 13 months behind schedule from the revised contract dates (18 months from the Approved Schedule dates). Development of shop drawings for the East End of the Orthotropic Box Girder (OBG) Lifts 12 – 14 continues to be worked on and impacts to fabrication have yet to be fully determined.

Fabrication continues in China. The May 2009 schedule update indicated that the first shipment of OBG lifts was to leave China in July 2009. The August 2009 schedule indicates a late September shipment, but that date has now slipped. Team China continues to monitor fabrication and to look for ways to recover lost time. Outstanding work and repairs may push the shipment date toward the New Year.

An agreement was made in the 2nd quarter to try and mitigate 6 months of delay by accelerating fabrication. Accelerated target dates for the first shipments have elapsed and mitigating future delays for these shipments is now the focus. Lessons learned by all parties in regard to scheduling work for punchlist items are expected to be applied to future shipments so that the work will be completed off the critical path for delivery.

Negotiations remain underway to resolve previous fabrication issues, which will be addressed in Supplements to Contract Change Order #108. These negotiations, to date, are to address fabrication of the first eleven OBG lifts and the Tower.

Painting of the OBG and Tower remains an issue. The Contractor has not implemented environmental controls and painting outside can only be performed under specified conditions. Without environmental controls the opportunity to paint outside is limited.

5.2 RISK MANAGEMENT ACTIVITIES

EAST END SHOP DRAWINGS

As discussed in previous Quarterly Risk Management Reports, efforts to generate shop drawings for the East End elements (Lifts 12 -14) have been time-consuming. Three-dimensional models of the East End OBG lifts were developed in the 3rd and 4th Quarters of 2008. The modeling identified many conflicts that were resolved or could be resolved prior to developing shop drawings. However, this was only a preliminary step in the development of shop drawings for these elements. The development and approval of shop drawings is taking longer than anticipated.

As indicated last Quarter, the Shop Drawings for Lift 12 have essentially been completed and approved by the Department. The approval was not in time to prevent shop space at ZPMC in China from being idle for periods of time. Approval of the Lift 13 and 14 shop drawings was expected by

the end of the calendar year and is now forecasted to be in Spring 2010. The date remains uncertain because it assumes that several proposed or newly implemented schedule mitigation measures will be effective. The Contractor's August 2009 Update shows approval of Lift 14 in May of 2010. Department representatives are meeting regularly with the Contractor to identify opportunities to improve the review/approval process and to get the drawings ready for ZPMC. The process to date has been hampered by the complexity of the steel in this area of the bridge, by the parties working at multiple locations, and by communication issues among the parties.

During the previous quarter, the urgency of developing shop drawings, particularly for the East End, escalated to a point where it became one of the most important challenges on the project to date. To address this challenge, the Department, TY Lin/Moffat Nichol, ABF, and CanDraft/Tensor (the detailer) began discussing ways and means to expedite delivery and approval of the drawings while maintaining the quality necessary to minimize the passing of risks into fabrication. Actions include the co-location of personnel from the Department, ABF, and TY Lin/Moffat Nichol at CanDraft's detailing offices in Vancouver, Canada. In addition, methodologies to streamline shop drawing approval and to repackage submittals to coincide with ZPMC's anticipated fabrication schedule are expected to be implemented. The Department and the Contractor are working on an agreement on the best way to handle the review and approval of the drawings. The intent of co-location is to get all parties together in one place so that issue resolution could be streamlined. The Department is expected to propose two concepts to the TBPOC in October - partial compensation and incentives. The hope is that all parties recognize the efforts they have made to resolve this issue and agree to a solution.

Tower Shaft

FABRICATION OF OBG AND TOWER

Team China continues to develop strategies to reduce risk and to accelerate fabrication while maintaining the specified quality. The Contractor and Team China remain diligent in their Quality Control and Quality Assurance efforts to assure that only elements of the finest quality leave the fabricator and enter the State.

Fit-up of OBG Lifts

Team China is working with the Contractor and ZPMC to mitigate OBG and Tower fabrication delays shown in the Contractor's latest schedule update. Responses to date include the implementation of the additional shop space under change order (CCO #108) and the use of shop space intended for other ZPMC projects should the opportunity arise. It is important to recognize that changes to the East End fabrication start dates have lessened the urgency to implement these methods.

Last quarter, Team China recommended the construction of an environmentally controlled temporary shelter to enable work to continue outdoors throughout the summer months sheltered

from the weather. Work could proceed in multiple shifts to expedite fabrication. Team China attempted to discuss this proposal with the contractor, but the contractor has yet to respond.

PAINTING OF OBG

The contractor is proposing revisions to its approved painting means and methods. Team China maintains that the environmental conditions at the fabrication facility will render approval of such a proposal unlikely, particularly in light of their obligation to meet delivery schedules. The contractor has made the decision to paint the elements in China without the use of environmental controls. Work has been progressing at a slower pace and is creating more punchlist items. Work seems to be keeping pace with other punchlist items and may end up off the critical path. However this may change as the punchlist gets smaller and shipment dates are refined.

SAS CABLE INSTALLATION

While the SAS appears to have two cables, there is actually only one continuous main cable that is anchored within the decks at the eastern end where it ties into the Skyway orthotropic box girder sections. This cable is carried over the tower and wrapped around W2 bent cap at the western end. The Cable Focus Team is developing strategies and solutions to mitigate potential risks associated with the cable.

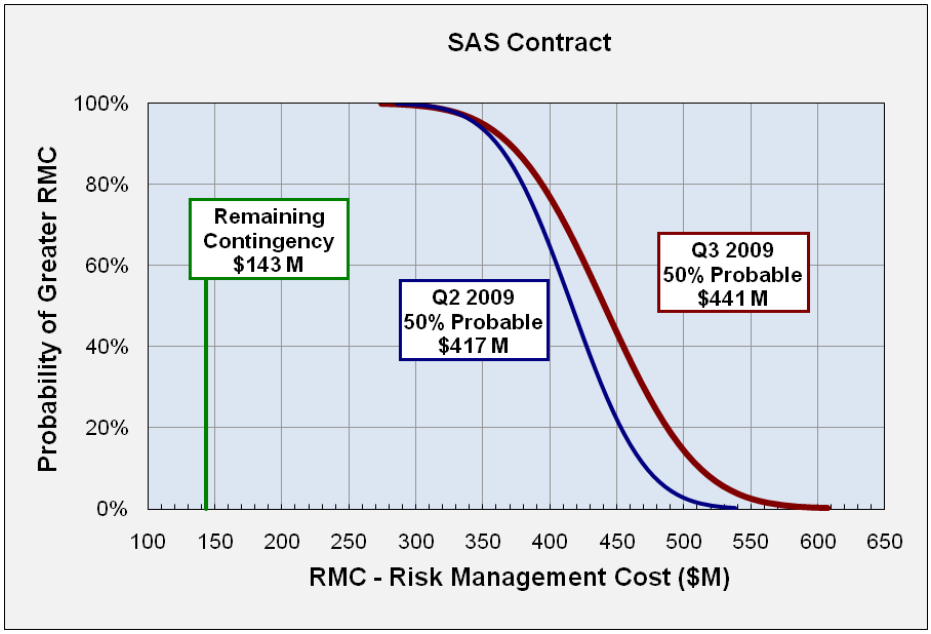
The Cable Focus Team meets weekly to address issues and refine plans. It has retained international experts in cable installation. It has provided recommendations for the Department and the Contractor to consider.

Testing of Parallel Wire Strand (PWS) occurred in Japan during the quarter. Although the testing did not go as planned, there were many lessons learned. This test was an important risk mitigation measure undertaken by the parties. The contractor will have the opportunity to refine procedures between now and the actual PWS installation date. The potential loss of valuable time can be mitigated or eliminated by undertaking measures such as this.

5.3 RISK MANAGEMENT COST

The chart below shows the probability distribution of Risk Management Cost (RMC). This information is provided to the Project Manager and Program Manager for their consideration in budget analysis and quarterly forecasting.

The current quarter RMC probability distribution is the aggregate of risks, Notices of Potential Claims (NOPCs) and future CCOs as of September 30, 2009. The remaining contingency on this contract is $143 million.

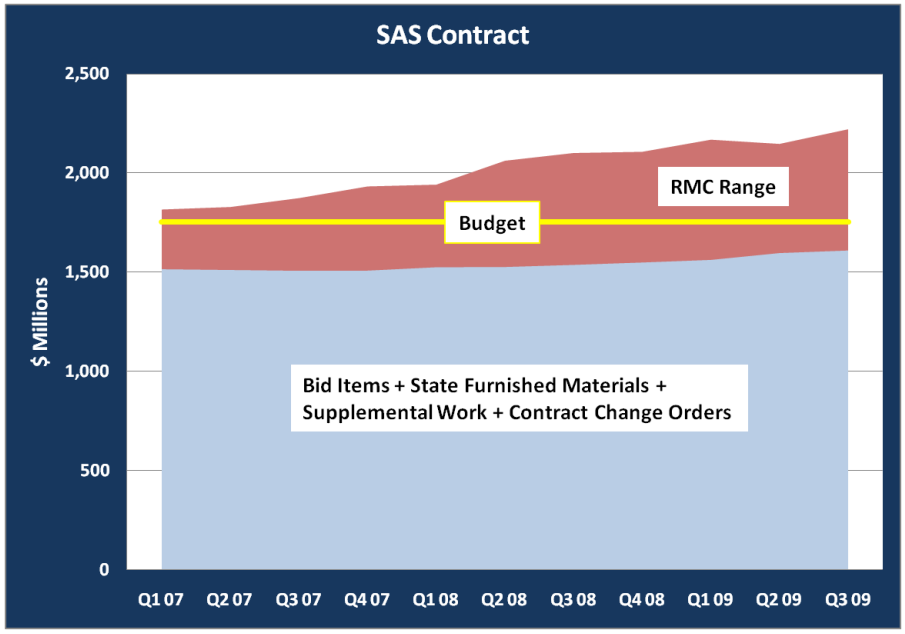


The following table shows three RMC values from the current curve, each with its associated probability of being exceeded.

Probability of Greater Risk Management Cost			
Probability	*90%*	*50%*	*10%*
Risk Management Cost	$370 M	$441 M	$512 M

RISK MANAGEMENT TREND

The chart shows the total of Bid Items, SFM, remaining SW and CCOs from the 1st quarter 2007 to date. The range of Capital Outlay risks is on top (in red). The width of the RMC range embraces over 99 percent of the possible outcomes. The budget line is the approved TBPOC budget for the quarter.



5.4 LOOK AHEAD

SHIPMENT DATES

Forecasting shipment dates continues to be difficult. The pace of repairs is slower than expected, and it is likely that the first shipment will not depart China until late this year. The Contractor is contemplating rearranging OBG and Tower lifts among shipments.

ENGAGE SCHEDULE PARTNERSHIP

The Joint Opportunity Schedule development began in the 1st quarter 2009 as a joint effort between the Department and the Contractor. It has been tabled as efforts have been redirected to resolving the East End working drawing issues. The Risk Management team views an agreed schedule as a planning tool that should be used to identify and call attention to risks and their potential impacts on the structure and bridge opening. The Corridor Schedule Team and the Risk Management Team believe that the project and the program will be best served by a focused effort to jointly develop a schedule for the remaining portion of the project.

RESOLUTION OF FABRICATION ISSUES

In the 2nd Quarter the Department issued a contract change order to provide initial compensation for impacts to fabrication of the tower and the OBG Lifts 1 – 11 (CCO #108). The Department continued negotiations to resolve the remaining outstanding issues. It is important to note that there will be several similar change orders over the next year. A final draft of CCO #108 S1 is expected to be presented to the TBPOC in October and subsequently issued to the contractor.

Other resolutions will include East End shop drawing development, East End fabrication and if necessary, one to address construction activities in the Bay Area. A change order to address preliminary compensation and incentives to the shop drawing detailers has been under negotiation throughout this Quarter. Final drafts are expected to be presented to the TBPOC in October. This is

considered the first of several steps that will be needed to resolve this challenge, as the shop drawings issue has been ongoing and is expected to continue.

6 YBI DETOUR CONTRACT

6.1 STATUS

This contract is in construction with approximately 88 percent of the revised scope of the contract now completed. The probable cost of risks decreased about 40 percent this quarter. This was primarily due to the successful completion of the Labor Day weekend work and the rerouting of the Bay Bridge traffic onto the new Detour. Nine risks were retired from the risk register this quarter.

6.2 RISK MANAGEMENT ACTIVITIES

EAST TIE-IN / TRAFFIC SWITCH

The collaborative on-site meetings between Construction, Design and the Contractor continued in the field through the Labor Day Weekend. These meetings helped resolve various constructability issues that could have caused significant delays to the traffic switch schedule.

The Risk Management Team conducted a schedule risk analysis of the East Tie-in Roll-Out/Roll-In Labor Day weekend work. The Team assessed the duration uncertainties of critical activities. The risk analysis determined a low probability that the work could be completed in the 3-day closure of the original plan, and a very high probability (>95%) that the work could be completed during a 4-day bridge closure. The analysis helped the construction team justify a four-day bridge closure to the Toll Bridge Program Oversight Committee. While the opening of the Bay Bridge was impacted by the Eye-Bar crack discovered in the existing bridge, the East Tie-In weekend work was completed within the 4-day bridge closure. The schedule risk analysis helped the project team account for unexpected events and then work to a realistic schedule that was achieved. Achieving this significant milestone on time has enhanced the TBSRP program's credibility with the public.

The Department and the Contractor, in association with many local transit agencies, developed a contingency plan that was put into effect on the Monday evening of the Labor Day weekend and was working very well before it was called-off due to the successful opening of the Bridge at 6:24 am on Tuesday morning.

With the opening of the YBI detour to traffic, many of the project and program risks associated with this project have now been retired.

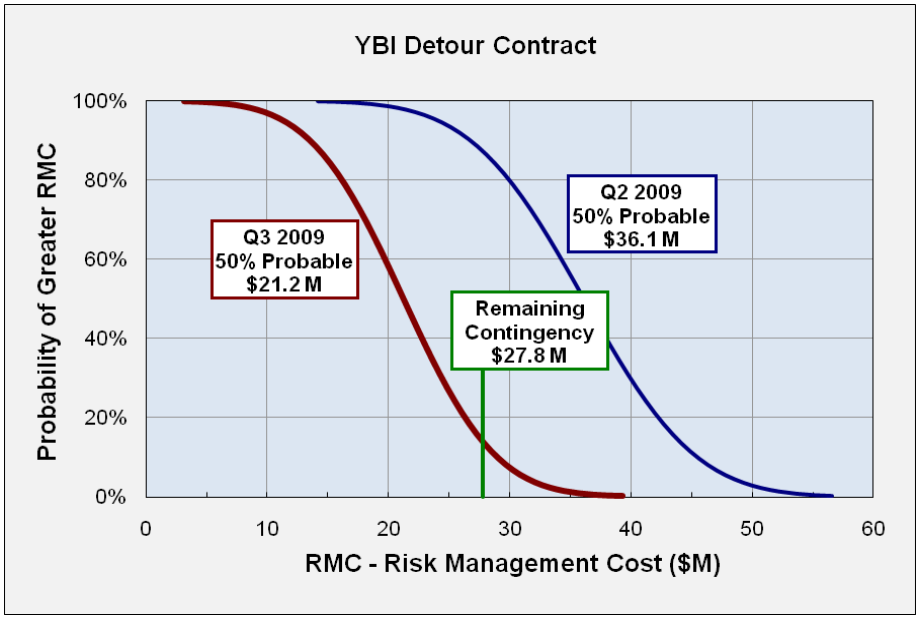
PROJECT COMPLETION

Project Management and the Contractor came to an agreement on overall project completion and a CCO was executed to extend the project duration into December 2010.

6.3 RISK MANAGEMENT COST

The chart below shows the probability distribution of RMC. This information is provided to the Project Manager and Program Manager for their consideration in budget analysis and quarterly forecasting.

The current quarter RMC probability distribution is the aggregate of risks, NOPCs and future CCOs as of September 30, 2009. The remaining contingency on this contract is $27.8 million.

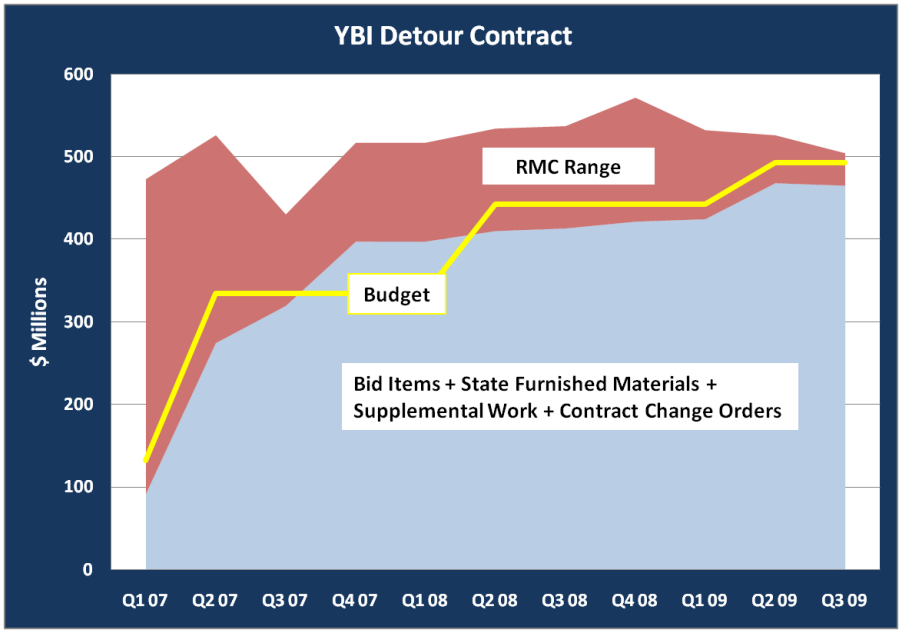


The following table shows three RMC values from the current curve, each with its associated probability of being exceeded.

Probability of Greater Risk Management Cost			
Probability	*90%*	*50%*	*10%*
Risk Management Cost	$14 M	$21.2 M	$29 M

RMC TREND

The chart shows the total of Bid Items, SFM, remaining SW and CCOs from the 1st quarter 2007 to date. The range of CO risks is on top (in red). The width of the range embraces over 99 percent of the possible outcomes. The budget line is the approved TBPOC budget for the quarter.



6.4 LOOK AHEAD

DEMOLITION

The project risk management team held several workshops to assess the cost and benefits of demolishing the YB4 span up in the air versus lowering it to the ground for demolition. A matrix of risks was quantified and helped the project team decide that demolition closer to the ground will reduce schedule risks to the SAS project and is therefore more cost effective. This work and demolition of the remainder of the old bridge from the East Tie-In to the West Tie-In will occur over the next several months.

7 OAKLAND TOUCHDOWN #1 (WESTBOUND) CONTRACT

7.1 STATUS

This contract is in construction, nearing 85 percent completion. The contract Designated Portion of Work milestone has been met this quarter and the probable cost of risks decreased by 21 percent. One risk related to potential future claims has been added. Five risks were reduced and two CCOs were retired due to the progress of the work.

7.2 RISK MANAGEMENT ACTIVITIES

EASTBOUND ACCESS DURING LABOR DAY TRENCHING OPERATION

An electrical ductbank was successfully trenched across the eastbound highway during the Labor Day weekend bridge closure, to mitigate risks related to the Jack and Bore operation originally planned. To avoid interruption to the YBID Contractor during the Roll-Out/Roll-In operation, two 2-lane ramps were constructed as a detour around the trenching area. The CCO allowance accounting for the costs was added to the CCO Log and retired from the risk register.

The CCO Log has been updated, and an allowance accounting for cost variances between the CCO Log and the engineer's estimate has also been retired.

POTENTIAL CONTRACTOR CLAIMS FOR EARLY COMPLETION DELAY

Although the schedule currently indicates project completion prior to the contract completion date (i.e. float), the contractor has indicated that it intends to pursue compensation for deferred time CCOs, as well as for any future impacts to early completion by the Department. The Department has requested Time Impact Analyses supporting the contractor's entitlement, and an allowance has been added to the risk register to account for potential added costs.

ISDS CONFLICT RESOLUTION

Integrated Shop Drawings (ISDs) were required from the contractor at highly congested areas of the structure to help identify conflicts of electrical, mechanical and/or structural elements. Conflict resolution took longer than anticipated, and a CCO was issued to settle delays and added costs that occurred on Westbound Frame 1. All ISDs are now completed. A risk allowance remains to cover pending and forthcoming CCOs for the remaining force account work needed to correct conflicts identified from the ISDs.

REDUCED RISKS DUE TO PROJECT PROGRESS

Four additional risks have been reduced due to the work progress:

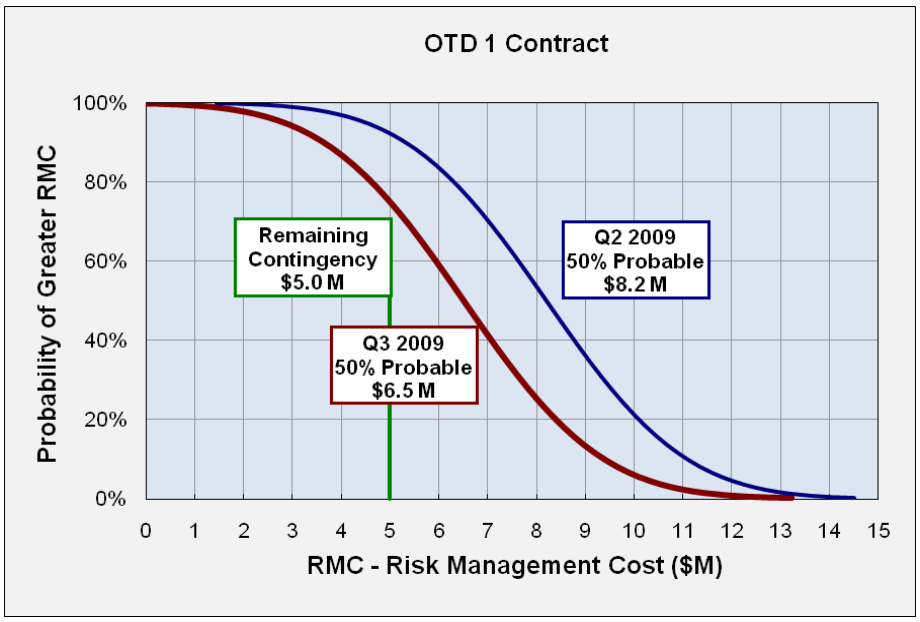
- The Contractor's Work Impacts Known Utilities,
- Construction impacts public traffic more than provided for in the contract,

- Conflicts with unknown utilities,
- Buried Man-Made Objects and Differing Site Conditions.

7.3 RISK MANAGEMENT COST

The chart below shows the probability distribution of RMC. This information is provided to the Project Manager and Program Manager for their consideration in budget analysis and quarterly forecasting.

The current quarter RMC probability distribution is the aggregate of risks, NOPCs and future CCOs as of September 30, 2009. The TBPOC has assigned an approved budget for all OTD contracts, and not to this contract, the risk management team allocated $5 million to this contract from the $10.3 million contingency remaining for all OTD contracts.

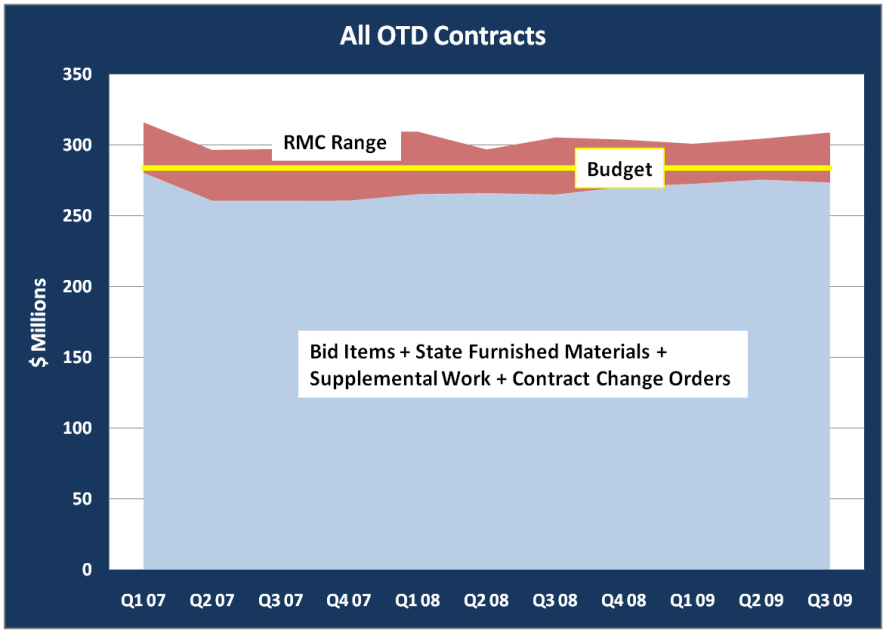


The following table shows three RMC values from the current curve, each with its associated probability of being exceeded.

Probability of Greater Risk Management Cost			
Probability	*90%*	*50%*	*10%*
Risk Management Cost	$3.7 M	$6.5 M	$9.4 M

RMC TREND

The chart shows the total of Bid Items, SFM, remaining SW and CCOs from the 1st quarter 2007 to date. The range of Capital Outlay risks is on top (in red). The width of the range embraces over 99 percent of the possible outcomes. The budget line is the approved TBPOC budget for the quarter.



The chart is for all OTD contracts combined because the TBPOC has not established a budget for each contract.

7.4 LOOK AHEAD

SHORE BIRD HABITAT DESIGN APPROVAL

A rip-rap shore bird habitat is to be constructed by the OTD1 project as part of the ongoing environmental conservation efforts of the Department. To better protect the birds, the San Francisco Bay Conservation and Development Commission (BCDC) requested a change to the location of the habitat from 60 feet to 200 feet from the shore. The change requires marine access that may impact the Bay. The updated design is awaiting BCDC determination whether additional mitigation measures such as eel-grass replanting and Bay floor restoration will be necessary.

UPCOMING CONSTRUCTION ACTIVITIES

On the bridge structure, installation of the electrical service platforms, stressing of Eastbound Frame 1, and pulling-in the pipe beams are scheduled to occur in the upcoming fourth quarter. The Mole Substation building, the Maintenance Road Detour, as well as the Eastbound Detour will be near complete as well. The project is currently scheduled to complete in March 2010.

8 OAKLAND TOUCHDOWN #2 (EASTBOUND) CONTRACT

8.1 STATUS

This contract is in design. This is the last contract that could impact the corridor schedule. The probable cost of risks increased by 64% percent this quarter due to an increase in the risk that the current estimate is not consistent with the project's proposed schedule, increased potential schedule delays, and the addition of a new risk accounting for potential scope increases.

8.2 RISK MANAGEMENT ACTIVITIES

THE CURRENT ESTIMATE IS NOT CONSISTENT WITH PROPOSED PROJECT SCHEDULE

The proposed schedule for the project includes compressing the time between the Westbound and Eastbound traffic openings from one year to seven months. The OTD1 cellular concrete operation was monitored to evaluate the feasibility of compressing the schedule. The concrete placement rate was acceptable, and an incentive specification will be drafted. The incentive cost is not yet included in the project estimate and is accounted for by the increase of this risk.

SCOPE INCREASE

As design progresses from the 65% stage to the 95% stage, the project scope evolves and miscellaneous design changes are expected. An allowance to account for scope increase has been added.

CONSTRUCTION IMPACTS PUBLIC TRAFFIC MORE THAN PROVIDED FOR IN THE CONTRACT

The risk has increased this quarter as a full bridge closure is under evaluation. The westbound bridge may require closure prior to switching traffic onto the new westbound structure, to ensure that the work can be completed without impacting safety. An eastbound bridge closure may be required to allow for the safe demolition of the existing westbound structure where it crosses over live eastbound traffic. A demolition contractor has been given as-builts, and a cost estimate as well as a determination whether a closure is needed are expected shortly.

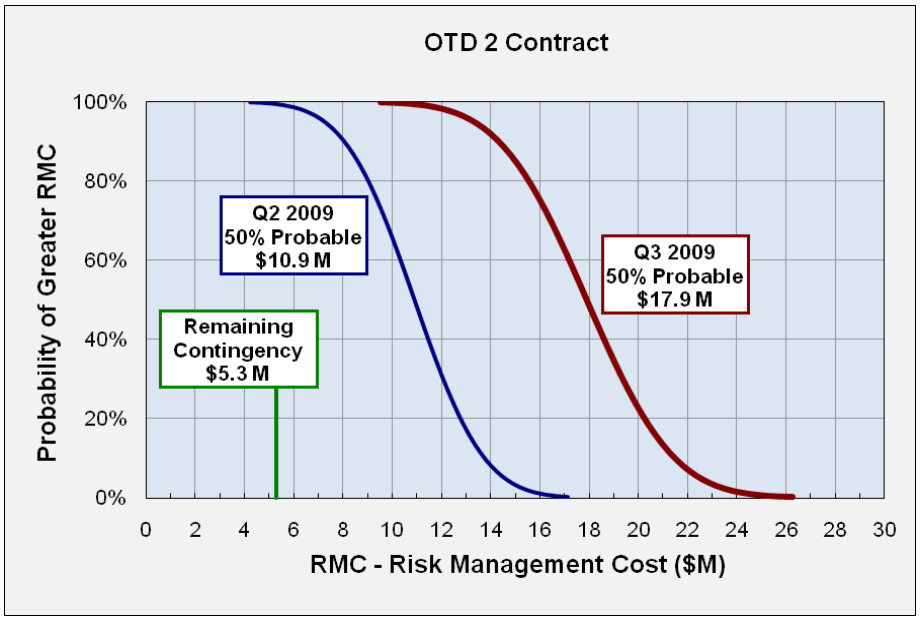
REPLACEMENT OF SKYWAY PLATFORM RAILINGS

The design of the bridge service platform railings has changed, and the Skyway railing will be replaced for aesthetic consistency. OTD2 was directed to add the work to its scope, and a risk allowance was added last quarter. However, all remaining Skyway items are currently under review to determine which contract will perform the work. Until a determination is made, the estimated cost of the items is carried by the program risk register, and the allowance for the railings has been retired from this contract.

8.3 RISK MANAGEMENT COST

The chart below shows the probability distribution of RMC. This information is provided to the Project Manager and Program Manager for their consideration in budget analysis and quarterly forecasting.

The current quarter RMC probability distribution is the aggregate of risks, NOPCs and future CCOs as of September 30, 2009. The TBPOC has assigned an approved budget for all OTD contracts, and not to this contract, the risk management team allocated $5.3 million to this contract from the $10.3 million contingency remaining for all OTD contracts.



The following table shows three RMC values from the current curve, each with its associated probability of being exceeded.

Probability of Greater Risk Management Cost			
Probability	*90%*	*50%*	*10%*
Risk Management Cost	$14.3 M	$17.9 M	$21.5 M

RMC TREND

The TBPOC has not established a budget for each OTD contract. The chart for all OTD contracts combined is on page 20.

8.4 LOOK AHEAD

ESTIMATE UPDATE

The 95% design package is expected to circulate in the upcoming quarter. Comments will be incorporated and the estimate will be updated to reflect the scope of the project.

DEVELOPMENT OF INTEGRATED SHOP DRAWINGS (ISDS) DURING DESIGN

A decision was made to develop ISDs for the project during the design phase to solve electrical-mechanical-structural conflicts and revise the contract plans accordingly. Lessons learned from the

OTD1 and YBITS1 projects are being incorporated. A timetable should be adopted for the ISDs work.

BRIDGE OPENING PLANNING

The OTD2 project will put traffic on the westbound lanes and later on the eastbound. Detailed plans for the traffic switches are to be prepared, including a current evaluation of whether a single full bridge closure will be better than two one-way closures.

9 YBI TRANSITION STRUCTURES #1 CONTRACT

9.1 STATUS

The contract bid opening is December 15, 2009. The probable cost of risks of this contract increased by 26% percent this quarter mainly due to SAS schedule impacts. Cost risk analysis of the estimate identified an opportunity to save $33-67 million. This is captured in the program risk register because the potential saving will be realized by the program.

9.2 RISK MANAGEMENT ACTIVITIES

CONSTRUCTION DELAY OF YBITS1 BY SAS AFTER YBITS1 AWARD

The YBITS1 bid documents state that the contractor will be able to proceed to completing frame 2 without interruption after completing the work to Designated Portion of Work #1 (DP-1). The current DP-1 date is based on the original SAS contract date for completion of SAS Phase 1. That is, SAS Phase 1 will complete at the same time as YBITS1 DP-1.

After award of the YBITS1 contract, the progress of the SAS and YBITS 1 contracts may diverge. The YBITS contractor may be ready to complete the Hinge K closure, but SAS will not be ready to turn over the required area. This situation could occur due to YBITS contractor performance or an SAS delay that occurs after contract award. The YBITS1 contractor will not be able to complete the last 12 meters and stress Frame 2 of the westbound and eastbound structures, keeping them on falsework for an extended duration.

The department may be liable for additional costs due to extended falsework rental, TRO/TRO+, and other associated delay costs.

Risk mitigation actions include:

- Liquidated damages are included in SAS contract for late Phase 1 completion.
- The bid opening date has been adjusted to better match the SAS schedule.
- The number of contract days could be extended to negate or reduce the need for overtime to complete the project.
- The falsework has been enhanced to allow for the extended duration.
- After the YBITS 1 contract award a joint Caltrans/YBITS contractor/SAS contractor team is to be established to investigate the means of completing Frame 2 prior to SAS Phase 1 completion.
- If a significant delay occurs, the YBITS 1 contract could be terminated after completion of DP-1 and the remaining work completed by emergency contract, director's order, or other contracting means.

The risk has increased this quarter as the schedule risk analysis indicates a longer potential delay to the SAS contract than previously expected.

ADDENDA ITEMS COST ALLOWANCE

The risk register carries addenda item costs until they are approved and added to the Basic Engineering Estimating System (BEES). The BEES has been updated this quarter to reflect the costs of addenda 1 through 6 items, and the addenda items cost allowances decreased accordingly.

The yet-to-be-approved addenda items allowance now carries the potential costs of addenda #7 and #8. Once they are approved and the BEES updated, this allowance will be retired from the risk register.

ELECTRICAL/MECHANICAL CONFLICTS WITH STRUCTURAL ELEMENTS

Past projects experienced electrical/mechanical conflicts with structural elements, due in part to the fact that each part was designed by a different firm. A risk mitigation plan was adopted, which includes:

- Integrated Shop Drawings (ISDs) are being developed as part of design to reduce the likelihood of conflicts and potential costs of rework and/or delays in construction. ISDs work began in Q2 2009. As issues are identified and resolved, plan sheets are updated and are to be included in addenda #7 and #8.

- Specifications for ISDs have been included in addendum #5, requiring the Contractor to produce ISDs that include its own proprietary work methods as the first order of work.

Pending additional budget allocation, ISDs work will continue past addendum #8 deadlines, and issues resolved will be included in CCOs after contract award. The risk has increased this quarter due to the possibility that ISDs work will not be 100% complete, and the contractor could claim that the Department has not demonstrated that the plans are constructible

CONSTRUCTION NOISE EXCEEDING PERMIT WITH U.S. COAST GUARD

The permit with the U.S. Coast Guard provides some noise limitations due to the proximity of barracks. However, construction is inherently noisy. If excessive construction or traffic noise is encountered, the Coast Guard will require the department to mitigate the problem, resulting in added costs. The risk has increased this quarter to reflect increased sensitivity to noise now that the YBI Detour is open to traffic.

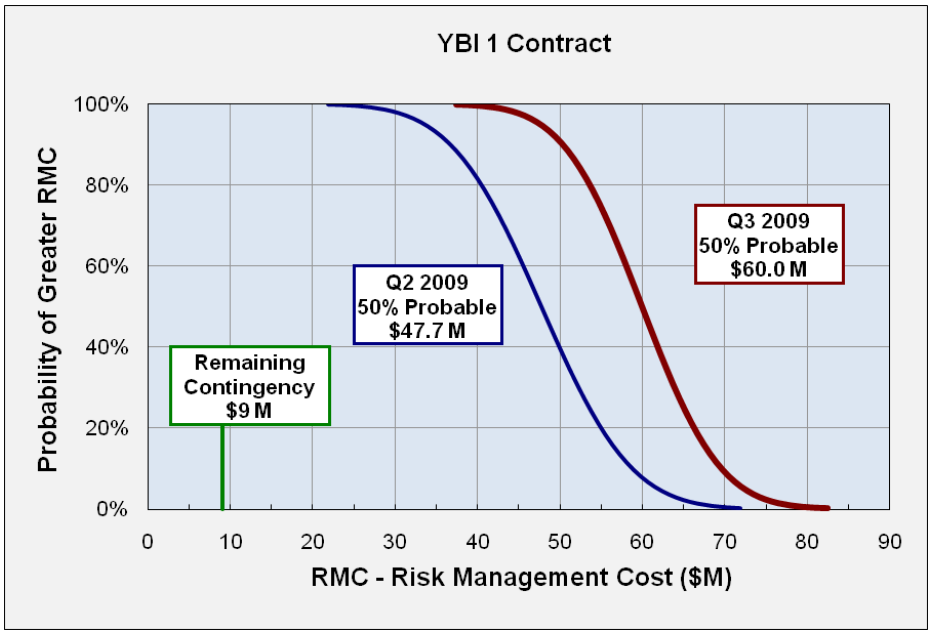
MISCELLANEOUS ADMINISTRATIVE AND TECHNICAL CCOS

The risk register carries an allowance for minor CCOs that are not specifically called out on the register. The most likely value is a percentage of work remaining, based on history of all construction contracts. The risk increased this quarter due to the inclusion of addenda 1 through 6 item costs in the estimate.

9.3 RISK MANAGEMENT COST

The chart below shows the probability distribution of RMC. This information is provided to the Project Manager and Program Manager for their consideration in budget analysis and quarterly forecasting.

The current quarter RMC probability distribution is the aggregate of risks, NOPCs and future CCOs as of September 30, 2009. The TBPOC has assigned an approved budget for all YBI contracts, and not to this contract, the risk management team allocated $9 million to this contract from the $13.3 million contingency remaining for all YBI contracts.

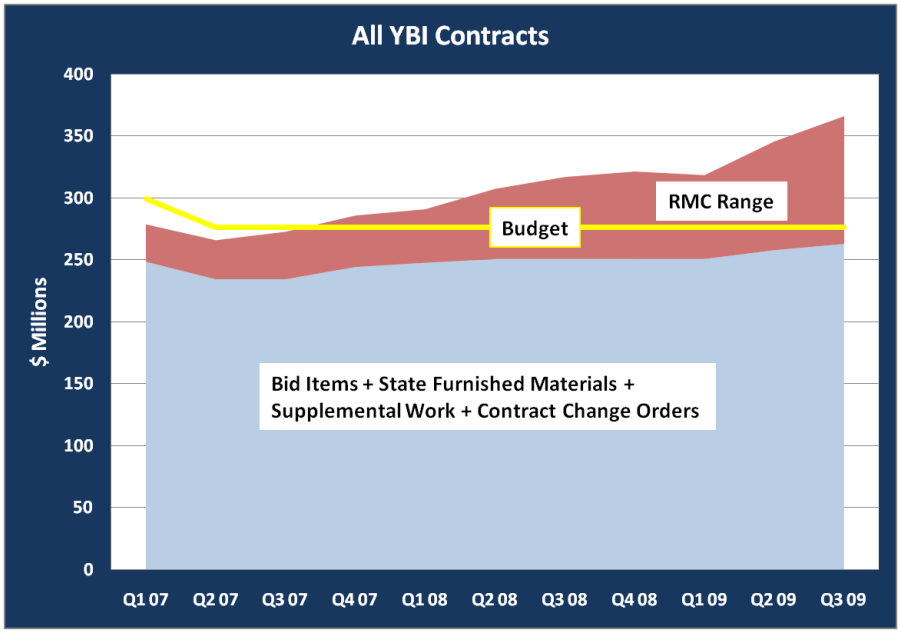


The following table shows three RMC values from the current curve, each with its associated probability of being exceeded.

Probability of Greater Risk Management Cost			
Probability	*90%*	*50%*	*10%*
Risk Management Cost	$50 M	$60 M	$70 M

RMC TREND

The chart shows the total of Bid Items, SFM, remaining SW and CCOs from the 1st quarter 2007 to date. The range of Capital Outlay risks is on top (in red). The width of the range embraces over 99 percent of the possible outcomes. The budget line is the approved TBPOC budget for the quarter.



The chart is for all YBI contracts combined because the TBPOC has not established a budget for each contract.

9.4 LOOK AHEAD

HINGE "K" AVAILABILITY

Delays may result if the YBITS1 structure is ready for Hinge "K" closure, but the SAS contractor is not ready to vacate the area. Based on the status of the YBID and SAS contracts, the TBPOC approved moving the bid open date to December 15, 2009. However, a schedule gap still exists and may be widened if additional delays are encountered on the SAS contract. An additional bid open delay, an extension to project duration or a combination of the two is recommended.

INTEGRATED SHOP DRAWINGS CONFLICT RESOLUTION

Completion of the ISDs is recommended, to avoid submittal approval delays and added costs resulting from conflict resolution during construction.

10 YBI TRANSITION STRUCTURES #2 CONTRACT

10.1 STATUS

This contract is in design with current PS&E date of March 2011. The probable cost of risk has increased by 39% this quarter due to the addition of a new risk accounting for increased scope.

10.2 RISK MANAGEMENT ACTIVITIES

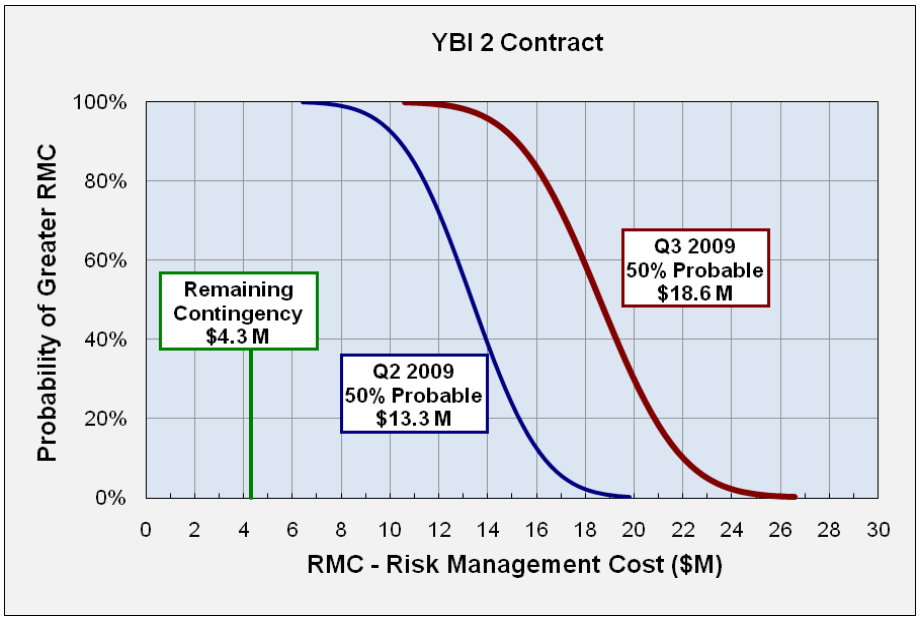
POTENTIAL SCOPE INCREASE

YBITS2 is the last large-scale project on Yerba Buena Island. The project scope is expected to evolve over the next 2-3 years. A new risk allowance for potential scope increase has been added this quarter.

10.3 RISK MANAGEMENT COST

The chart below shows the probability distribution of RMC. This information is provided to the Project Manager and Program Manager for their consideration in budget analysis and quarterly forecasting.

The current quarter RMC probability distribution is the aggregate of risks, NOPCs and future CCOs as of September 30, 2009. The TBPOC has assigned an approved budget for all YBI contracts, and not to this contract, the risk management team allocated $4.3 million to this contract from the $13.3 million contingency remaining for all YBI contracts.



The following table shows three RMC values from the current curve, each with its associated probability of being exceeded.

Probability of Greater Risk Management Cost			
Probability	*90%*	*50%*	*10%*
Risk Management Cost	$15.2 M	$18.6 M	$22.0 M

RMC TREND

The TBPOC has not established a budget for each YBI contract. The chart for all YBI contracts combined is on page 26.

10.4 LOOK AHEAD

DEVELOPMENT OF INTEGRATED SHOP DRAWINGS (ISDS) DURING DESIGN

A decision has been made to develop ISDs for the project during the design phase, to solve electrical-mechanical-structural conflicts and revise the contract plans accordingly. Lessons learned from prior projects should be incorporated and a timetable adopted for the ISDs work. This project has relatively fewer utilities compared to other projects.

PROPOSED SCHEDULE EVALUATION

The current YBITS 2 advertise and award schedule should be adjusted in the future to match the progress of the YBITS1 and OTD2 projects.

11 PROGRAM RISKS

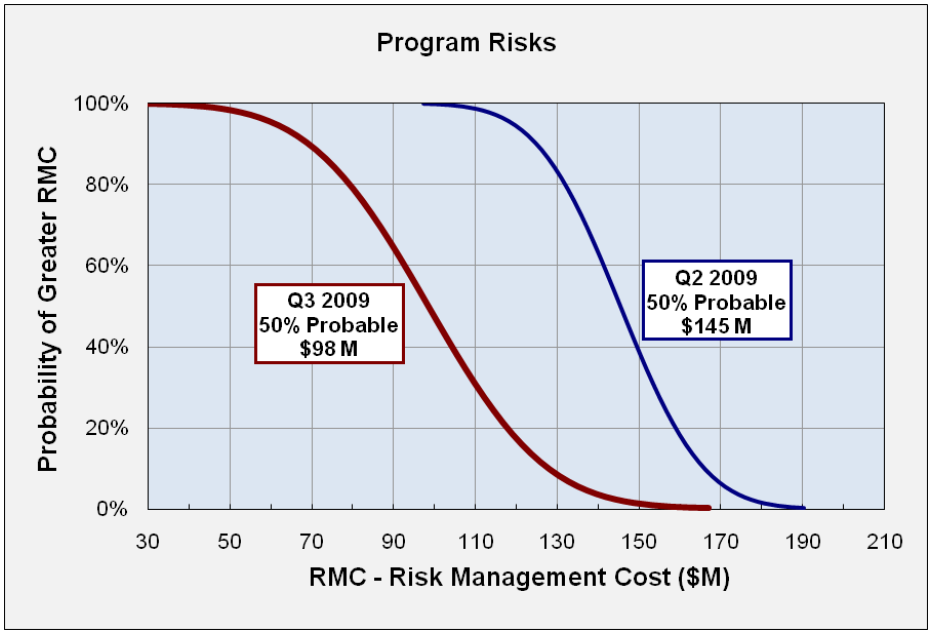
The Program Risk Register contains risks that are not specific to a particular contract and risks that may affect several contracts. The 50% probable RMC of program risks decreased by 32% this quarter. The "out-of-scope" risks were retired because they are generally within the control of the program and the TBPOC decided that this was not purely an element of program risk. A cost risk analysis of the YBITS 1 estimate yielded an opportunity of about $33-67 million.

The cost risk of MEP systems increased and the additional delay in the ABF August 2009 schedule update increased delay cost risks from the previous quarter.

The delay impact risks in the SAS and YBITS 1 contracts are calculated on the assumption that the SAS contract will be recovered by about 6 months. Accordingly, the program risk register has a risk that this recovery will not be realized. This risk impacts the SAS and YBITS 1 contracts, as well as Capital Outlay Support and the escalation of unawarded contracts.

11.1 RISK MANAGEMENT COST

The chart below shows the probability distribution of Program RMC as of September 30, 2009.



The following table shows three RMC values from the current curve, each with its associated probability of being exceeded.

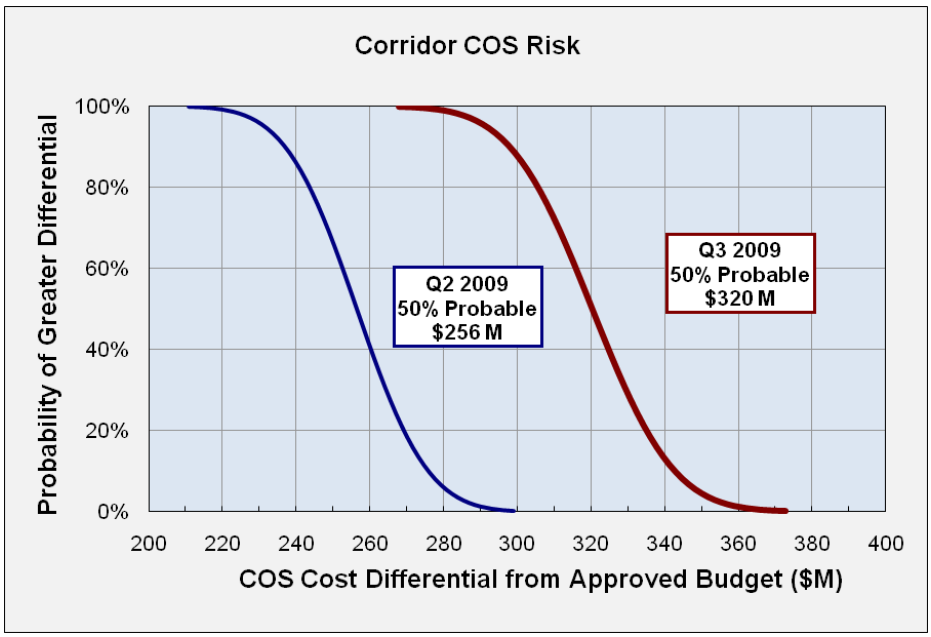
Probability of Greater Risk Management Cost			
Probability	*90%*	*50%*	*10%*
Risk Management Cost	$70 M	$98 M	$126 M

This does not include: Light Pipe, BASE system, and residual risk to the Department for including the YBI ramp for the City of San Francisco, and the Light Pipe.

12 CAPITAL OUTLAY SUPPORT

The Capital Outlay Support cost includes support cost risks that affect all contracts and risks from contracts that have an impact on COS. The COS risks are measured as a differential from the current $853.4 million approved COS budget. Any COS cost risk in excess of the current approved COS budget would be a draw on the Program Contingency.

The chart below shows the current COS cost differential probability distribution, with the previous quarter result in blue.



The 50% probable COS cost risk increased by about 25% from the previous quarter. The primary contributors to the increase are:

- Delays in the SAS fabrication activities in China and reassessment of potential SAS construction delays added an average of $47.4 million to the SAS project.
- Potential SAS delays impact YBITS 1 by extending its completion and the duration of the "gap" during which Frame 2 remains on falsework. The combined effect adds an average of $23.7 million to the YBITS 1 project.
- Assessment of actual expenditures, salaries, and overhead rates reduced the Global Impacts by about $6.3 million.

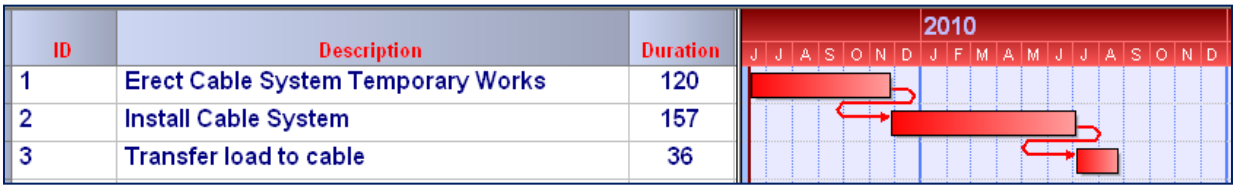
Appendix "A" RISK MANAGEMENT EXPLANATIONS

A.1 HOW RISKS ARE INSERTED INTO THE CORRIDOR SCHEDULE

The Corridor Schedule Team developed an intermediate level schedule for the Corridor to be used in evaluating schedule risk and recovery opportunities. This Corridor Schedule is a summarization of the contract schedules submitted by the various contractors and schedules developed by the Department for the contracts in design.

The Corridor Schedule Team has inserted into the schedule "risk" activities representative of the risks identified in each of the quarterly contract risk meetings. A single risk from the risk register can occur in several places in the schedule and therefore "risk" activities are created and evaluated for each occurrence.

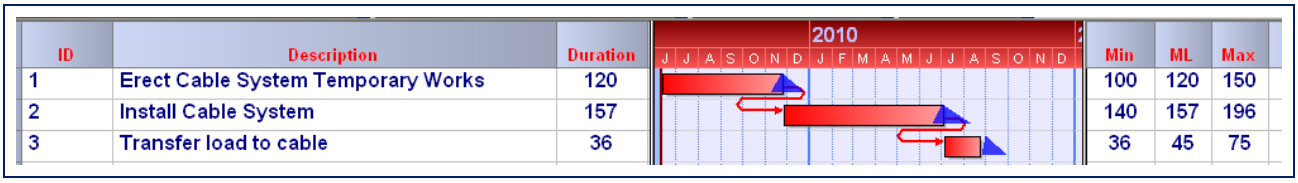
To describe the process, consider the three sequential activities in Figure 5, adapted from a section of the Corridor Schedule. The data is fictitious, for illustrative purposes only.



ID	Description	Duration
1	Erect Cable System Temporary Works	120
2	Install Cable System	157
3	Transfer load to cable	36

FIGURE 5 THREE ACTIVITIES FROM CORRIDOR SCHEDULE

Each activity has a scheduled duration, but the duration may not be certain. A range of uncertainty is estimated for each activity, expressed as a minimum, most likely and maximum duration in the rightmost columns of Figure 6. The duration uncertainty distribution is represented by the blue triangle.



ID	Description	Duration	Min	ML	Max
1	Erect Cable System Temporary Works	120	100	120	150
2	Install Cable System	157	140	157	196
3	Transfer load to cable	36	36	45	75

FIGURE 6 UNCERTAINTIES IN SCHEDULED DURATIONS

If an activity has a risk associated with it in the risk register, the risk is inserted after the activity in the form of a "risk activity".

The example schedule in Figure 7 has the risk activities inserted.

ID	Description	Duration	Min	ML	Max	Prob %
1	Erect Cable System Temporary Works	120	100	120	150	
1 RISK	Problems Erecting Cable Temporary Works	0	0	20	60	40%
2	Install Cable System	157	140	157	196	
2 RISK	Problems installing Cable System	0	0	30	90	50%
3	Transfer load to cable	36	36	45	75	
3 RISK	Problems transfering load	0	0	40	90	60%

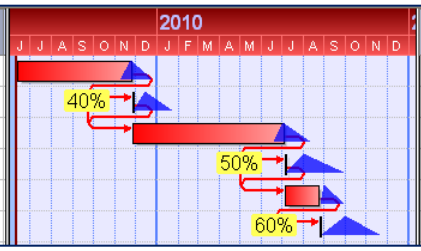


FIGURE 7 RISKS IN THE SCHEDULE

The risk activities (the red rows) appear as zero-duration activities so as not to change the schedule dates. Each risk activity has a probability of the risk occurring ("Prob %") and a duration range defined by the values in the minimum ("Min"), most likely ("ML") and maximum ("Max") columns.

Since schedule risks can be concurrent and are not necessarily additive, the schedule is analyzed using Monte Carlo simulation to develop probabilistic schedule results. Each Monte Carlo iteration creates a version of the schedule by selecting at random which risk activities are included, and, for the included risk activities, a duration drawn at random for their respective duration ranges. For 1000 Monte Carlo iterations, analyzing the 1000 schedules produces the probability distributions of path durations through the schedule, probability distributions for key milestones, and the probability of an activity or risk activity being on a critical path (its "criticality").

The probable critical paths are determined by tracing backward through the schedule. Starting from a finish milestone, the first activity on the path is the milestone's predecessor having the highest criticality. The next activity is the highest-criticality predecessor of the first activity, and so on to the beginning of the schedule. There may be a juncture where there are two predecessors of approximately equal criticality. At this point the probable critical path splits into two, and each of these is traced back to the beginning. This is how primary, secondary and tertiary probable critical paths are determined.

A.2 WHAT RISK MANAGEMENT DOES AND DOES NOT INCLUDE

Risk management of a project addresses risks that may affect its defined objectives of cost, time, scope and quality. Given a project plan, risk management generally looks at ways in which the project may not go according to plan. Risk management focuses on the defined project scope and objectives, and therefore does not include:

1. Risks or possible decisions that may kill the project. If the project ceases to exist, there are no risks to manage.

   For example, risk management does not include risks such as the loss of funding, natural disaster that destroys all or part of the construction, acts of governments, etc.

2. Risks or possible decisions that may materially change the project. If the project objectives are changed substantially, risk management will start afresh on the "new" project.

   For example, the YBID Implementation Strategy Memorandum materially changed the YBI Detour contract. The risk of such a decision was not in the risk register of the original contract.

In a nutshell, risk management is confined to quantifying risks that are intended to be covered by project and program contingency.

A.3 ABOUT "RISK" AND "OPPORTUNITY"

The concept of risk can include both upside as well as downside impacts. This means that the word "risk" can be used to describe uncertainties that, if they occurred, would have a negative or harmful effect, and the same word can also describe uncertainties that, if they occurred, would be helpful. In short, there are two sides to risk: threats and opportunities.

A risk that has no threat is a **"pure opportunity".** It is simply an unplanned good thing that might happen. For example, a new design method might be released which we can apply to benefit our project.

Opportunity is the **inverse of threat** if a risk has both threat and opportunity. Where a risk variable exists on a continuous scale and there is uncertainty over the eventual outcome, instead of just defining the risk as the downside it might also be possible to consider upside potential. For example, if we have included escalation at 5% in our budget for future contracts and this rate could range from say 3% to 7% depending on economic conditions at the time of advertisement, we have an opportunity in the 3%-5% range and a threat in the 5%-7% range. Opportunity and threat exist in the one risk. If the budget were based on 7% escalation we would have only opportunity. If based on 3% we would have only threat.

Threat and opportunity can also depend on how we define the risk. For example, if the risk is that an external agency may relax its requirements and this saves us money relative to what we have budgeted currently in our plan, this is an opportunity. If the risk is defined as the agency may tighten its requirements and this adds to our costs, this is a threat. We can only separate the opportunity and threat if we are certain that the agency may act only one way and not the other. If the risk is that the agency may change its requirements, we could have impacts that range from positive to negative. We would have both opportunity and threat in the same risk, and the degree of each would depend on what we have budgeted in our plan.

Uncertainty in the cost of major CCOs is another example of opportunity. If we enter an estimate into the CCO log and the final outcome could range from less than the estimate to more than the estimate, we have both an opportunity and a threat. The degree of opportunity and threat depends on where the estimate lies within the range.

PROJECTS IN DESIGN

Projects in design have the greatest potential for opportunities because the project is still open to changes. Risk reduction and avoidance are opportunities, as are value analysis, constructability reviews and innovations in design, construction methods and materials.

PROJECTS IN CONSTRUCTION

Once a project enters construction, the project objectives (scope, time and cost) are fixed contractually. Any changes are made using a contract change order (CCO). The only opportunity to save money or time is from a negative CCO such as resulting from a Cost Reduction Incentive Proposal (CRIP) by a contractor. Otherwise, CCOs add cost and/or time to the project. So, the prime opportunity during construction is to reduce or eliminate risks.

A.4 INTERPRETING RISK CURVES

Combining all risks of a contract using Monte Carlo simulation methods produces a risk cost curve such as in Figure 8. It is the familiar "bell curve" shape that covers all possible combinations of the risks, and can be thought of as a "smoothed out" version of a histogram that depicts the relative frequencies of small output cost ranges. It extends from zero cost at one end (none of the risks occur) to a very large cost number at the other end (all risks occur). The area under the density curve equals one, that is, it covers 100% of the possible outcomes.

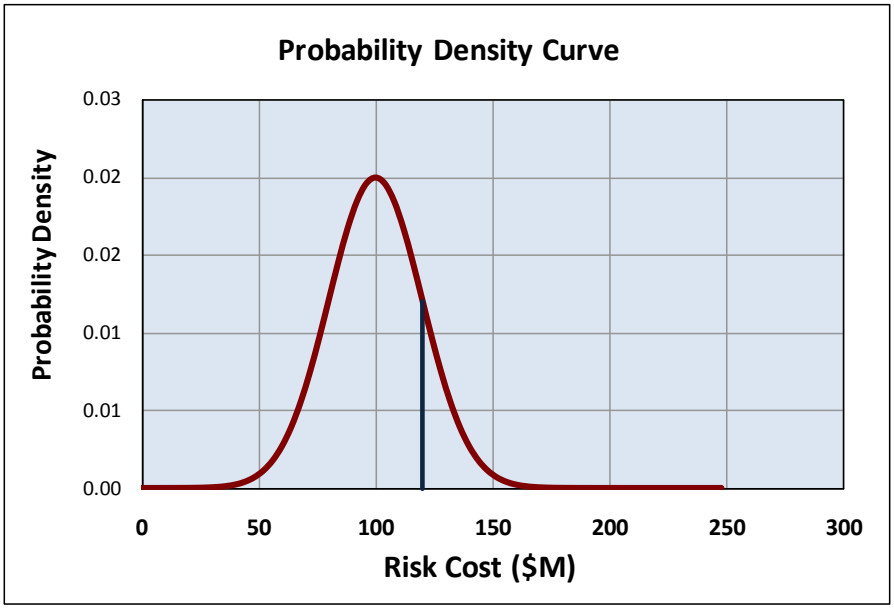


FIGURE 8 – PROBABILITY DENSITY CURVE

The probability density curve is not very convenient for determining the probability of a cost exceeding a specific value. For example, the probability of exceeding $120M in Figure 8 is determined by calculating the area under the curve to the right of $120M. Instead of performing such calculations from the probability density curve, it is transformed into the probability curve in Figure 9 by performing the area-under-the-curve calculations for all costs on the horizontal axis.

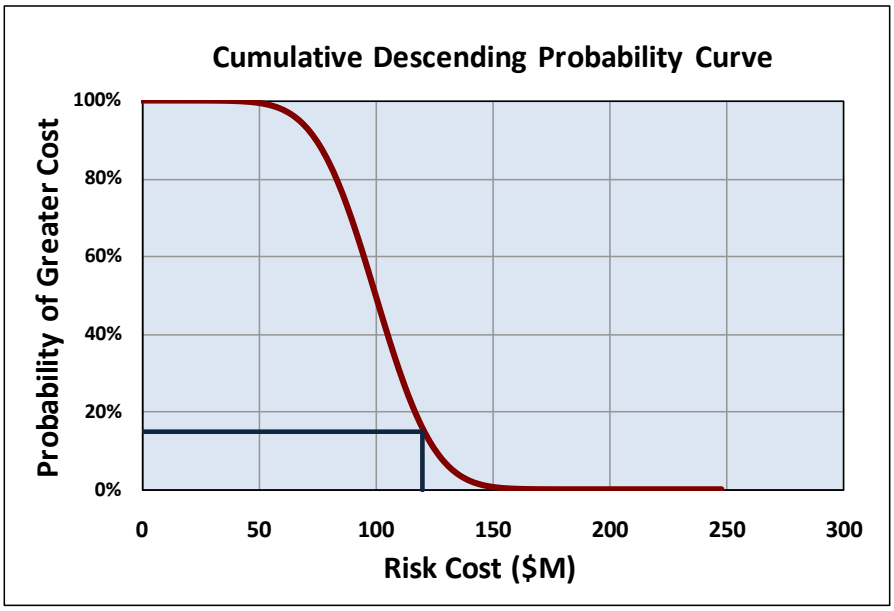


FIGURE 9 – CUMULATIVE DESCENDING PROBABILITY CURVE

The curve in Figure 9 can be used to directly read off the probability of exceeding any value of cost. For example, there is a 15% chance of exceeding $120M. Note that although the curve appears to reach a zero probability of overrun at about $150M, there is still less than a 1% chance of some cost greater than $150M. None of the probabilities above $150M are zero; they are just very small, much less than 1%.

Note that the curve does not include risks or possible decisions that may kill or materially change the project.

WHAT DO WE MEAN BY "RANGE"?

In our reports, we often refer to a "range" of risk management cost or draw on Program Contingency. Although the risk curve extends to very small values of probability, for practical purposes, we define "range" to cover about 99% of all possible outcomes. In other words, the "range" extends from where the risk curve appears to reach 100% probability to where it appears to reach 0% probability. For example, the "range" of risk cost in Figure 9 is from about $50M to $150M.

TOLL BRIDGE SEISMIC RETROFIT PROGRAM

Risk Management Documentation

3rd Quarter 2009

CONFIDENTIAL – DELIBERATIVE PROCESS

Caltrans®

State of California
DEPARTMENT OF TRANSPORTATION

Memorandum

Business, Transportation and Housing Agency

Flex your power!
Be energy efficient!

To: TONY ANZIANO
Program Manager
Toll Bridge Program

Date: January 11, 2010

From: JON TAPPING
SFOBB Project Risk Management Coordinator

Subject: **Third Quarter 2009 Risk Management Documentation – Toll Bridge Seismic Retrofit Program**

With the concurrence of the Toll Bridge Seismic Retrofit Program (TBSRP) Project Manager, I submit for your approval the Third Quarter 2009 Risk Management Documentation report for the Toll Bridge Seismic Retrofit Program, reporting for the quarter ending September 30, 2009.

Risk Management Documentation (RMD) contains sensitive information about the Department's management and negotiation strategies and confidential (deliberative process) information about contracts, capital outlay support (COS) and program risks. RMD includes quantitative analyses of the contracts and COS, details of changes from the previous quarter, risk registers for contracts (including risk response actions), COS and the program, and information about risks, Notices of Potential Claim, and Contract Change Orders. The distribution of RMD is restricted and requests for additional copies should be directed to the SFOBB Project Risk Management Coordinator.

Recommend Approval:

JON TAPPING
SFOBB Project Risk Management Coordinator

KEN TERPSTRA
Project Manager
SFOBB East Span and West Approach

Approved:

TONY ANZIANO
Program Manager
Toll Bridge Program

Copies to:

R. Iwasaki	Director
M. Dougherty	Interim Chief Engineer
N Ortega	Chief Financial Officer
B. Pieplow	Division of Engineering Services
M. Leja	Chief, Division of Construction

TOLL BRIDGE SEISMIC RETROFIT PROGRAM

RISK MANAGEMENT DOCUMENTATION

3rd Quarter 2009

September 30, 2009

RESTRICTED DISTRIBUTION

CONFIDENTIAL – DELIBERATIVE PROCESS

©2009 Caltrans. No portion of this material may be copied or used without the written permission of Caltrans.

Prepared by CALTROP Corporation

RESTRICTED DISTRIBUTION
CONFIDENTIAL – DELIBERATIVE PROCESS

This report, Risk Management Documentation (RMD), contains sensitive information about the Department's management and negotiation strategies and confidential (deliberative process) information about contracts, capital outlay support (COS) and program risks. RMD includes quantitative analyses of the contracts and COS, details of changes from the previous quarter, risk registers for contracts (including risk response actions), COS and the program, and information about risks, Notices of Potential Claim, and Contract Change Orders.

The ***distribution of RMD is restricted*** and requests for additional copies should be directed to the SFOBB Project Risk Management Coordinator.

TABLE OF CONTENTS

1 RECOMMENDATIONS 1
1.1 Complete the Joint Corridor Schedule 1
1.2 Monitor Multiple Critical Paths of the Corridor Schedule 1
1.3 Close the Gap in the YBITS 1 Schedule 2
1.4 Minimize the time between Westbound and Eastbound Opening 2

2 CORRIDOR SCHEDULE METHODOLOGY 3
2.1 Corridor Schedule Incorporates all Schedules 3
2.2 Identified Corridor Schedule Recovery Opportunities 3
2.3 Recovery Opportunities Incorporated into the Corridor Schedule 4
2.4 How Risks are Inserted into the Corridor Schedule 5

3 CORRIDOR SCHEDULE CRITICAL PATHS 7
3.1 Paths to Load Transfer 7
3.2 Paths from Load Transfer to Westbound Opening 8
3.3 Paths from Westbound Opening to Eastbound Opening 8

4 SCHEDULE RISK ANALYSIS RESULTS FOR MILESTONES 10
4.1 SAS Milestones 10
4.2 The Corridor Schedule – Westbound Opening Milestone 10
4.3 The Corridor Schedule – Eastbound Opening Milestone 11
4.4 The Gap in the YBITS 1 Schedule 12

5 CORRIDOR RISK MANAGEMENT COSTS 14
5.1 Contract Contingencies 14
5.2 Capital Outlay Risk Management Cost 15
5.3 Capital Outlay Support 20
5.4 Corridor Total RMC 22

APPENDIX "A" APPENDICES 23
Quantitative Analysis Tables 23
Risk Registers 23

Note:

The data in this report are as of September 30, 2009. Any developments after the close of the quarter will be incorporated into the next Risk Management Documentation report.

1 RECOMMENDATIONS

1.1 COMPLETE THE JOINT CORRIDOR SCHEDULE

The SAS contractor has been granted five months extension to the original contract dates. Four of the five months are compensable. The SAS Contractor's August 2009 schedule update indicates that the SAS contract is about 13 months behind schedule from the revised contract dates. A Joint Opportunity Schedule development effort commenced in the first quarter to identify recovery opportunities and to produce a joint schedule by which to manage the SAS contract henceforth. This effort was placed on hold while the assigned teams concentrate on resolving the Orthotropic Box Girder (OBG) East End issues. In April 2009 the Contractor presented to the TBPOC a strategy for recovering most of the delays known at that time. Since then, the Contractor's forecast has slipped about 7 additional months, so the strategy ought to be revised to match the current contract status and outlook.

The Corridor Schedule and Risk Management Teams recognize that the only way to develop a true planning schedule for the SAS contract is to establish a dedicated joint contractor/owner team. Therefore, it is recommended that the Joint Opportunity Schedule be completed and integrated into the Corridor Schedule that is a tool for managing the contracts.

Such a Corridor Schedule will be an effective tool to support decision-making by management and the TBPOC for:

1. Evaluation of recovery opportunities – their effect on the schedule and the associated risks and uncertainties,
2. Synchronization of the contracts,
3. Early identification of and preventive action for potential delays to the schedule,
4. Assessment and mitigation of schedule risks, and,
5. Tracking the critical and near-critical activities.

1.2 MONITOR MULTIPLE CRITICAL PATHS OF THE CORRIDOR SCHEDULE

The Corridor Schedule revealed that there are multiple paths in the SAS schedule that are within 60-90 days float of each other. The primary critical path has no float – it is the longest path. The secondary and tertiary paths, while not on the longest path, are close enough that they could move onto the primary path due to a slight variation in the progress of any of the paths as the project progresses[1]. While the primary critical path remains the same in 3rd quarter 2009, the secondary and tertiary paths have changed.

For example, there are three paths to the commencement of cable installation:

1. The primary critical path contains the Orthotropic Box Girder (OBG) East End shop drawing process, followed by fabrication, delivery and erection of OBG Lifts 13 and 14.
2. The secondary critical path has fabrication of OBG Lift 11, delivery of OBG Lift 11 and tower Lift 3 (currently planned to be on the same voyage) and erection of the tower.
3. A tertiary path is through OBG Lift 12 fabrication, delivery of OBG Lift 12 and tower Lifts 4/5 and erection of the tower.

[1] Details of the paths are in section 3 beginning at page 7.

It is recommended that management remain focused on these paths and consider them in evaluating mitigation and recovery efforts for the SAS contract.

After the SAS contract completes load transfer and Phase 1, there are multiple critical paths to westbound bridge opening. These paths run through the completion of westbound SAS, and completion of the eastern YBITS westbound frame and Hinge KW. In making mitigation decisions for the SAS and planning the YBITS 1 contract, management ought to remain aware of these multiple paths and their relationships.

Likewise, after the bridge is opened to westbound traffic there are multiple paths through the SAS, YBITS 1 and OTD 2 contracts to eastbound traffic opening. With the ultimate goal of achieving seismic safety with eastbound traffic, management should be mindful of these paths while monitoring progress and evaluating schedule deviations and mitigations.

1.3 CLOSE THE GAP IN THE YBITS 1 SCHEDULE

The YBITS1 bid documents state that the contractor will be able to proceed to completing frame 2 without interruption after completing the work to Designated Portion of Work #1 (DP-1). The current DP-1 date is based on the original SAS contract date for completion of SAS Phase 1. That is, SAS Phase 1 will complete at the same time as YBITS1 DP-1.

After award of the YBITS1 contract, the progress of the SAS and YBITS 1 contracts may diverge. The YBITS contractor may be ready to complete the Hinge K closure, but SAS will not be ready to turn over the required area. This situation could occur due to YBITS contractor performance or an SAS delay that occurs after contract award. The YBITS1 contractor will not be able to complete the last 12 meters and stress Frame 2 of the westbound and eastbound structures, keeping them on falsework for an extended duration.

The department may be liable for additional costs due to extended falsework rental, TRO/TRO+, and other associated delay costs.

It is recommended that the gap be closed by extending the project duration and/or extending the number of days specified to complete the DP-1 work scope. Additionally the bid opening date for YBITS 1 could be further postponed.

1.4 MINIMIZE THE TIME BETWEEN WESTBOUND AND EASTBOUND OPENING

Due to spatial conflicts between the new eastbound bridge and the existing westbound bridge and roadway, the Eastbound Oakland Touchdown (OTD) structure and roadway cannot be completed until after traffic is placed on the new Westbound bridge. The approved schedule includes a one year period between opening the bridge to Westbound and Eastbound traffic. The CST and Risk management teams have previously identified means to reduce this time to 7 months.

However, there is a safety concern with the critical path work required to demolish a portion of the existing bridge near live Eastbound Traffic. As such, the teams are investigating the possibility of performing the demolition over the 3 to 4 day weekend closure when traffic will be placed on the new westbound bridge. While enhancing safety, the time period between westbound and eastbound openings may be further reduced.

2 CORRIDOR SCHEDULE METHODOLOGY

2.1 CORRIDOR SCHEDULE INCORPORATES ALL SCHEDULES

The Corridor Schedule Team (CST) developed an intermediate level schedule for the Corridor to be used in evaluating schedule risk and recovery opportunities. This Corridor Schedule is a summarization of the contract schedules submitted by the various contractors and schedules developed by the Department for the contracts in design. The schedule information provided by the contractors and used for the schedule risk evaluation indicates that project completion milestones may be up to 18 months late in relation to the Approved Schedule for seismic safety (eastbound open).

The CST and the Risk Management Team identified opportunities in previous quarters and this quarter that could mitigate a portion of this potential delay.

2.2 IDENTIFIED CORRIDOR SCHEDULE RECOVERY OPPORTUNITIES

SAS CONTRACT

The CST and the Risk Management Team jointly identified opportunities to mitigate the overall SAS contract schedule impacts due to delays in East End shop drawings and fabrication. Most of the opportunities are during field construction and include re-sequencing concurrent work and redefining SAS Phase completion requirements. These opportunities, if realized, may result in up to 11 months of schedule recovery. Among these opportunities are:

- Accelerated completion of the OBG East End shop drawings,
- Overlapping of the OBG East End shop drawings, translation and fabrication activities,
- Accelerated fabrication of the OBG Lifts 13 and 14,
- Early shipment of the tower template to San Francisco so that the tower footing can be prepared before the first tower lift arrives,
- Earlier start of the cable temporary works,
- Additional shift work on the cable installation operations,
- Overlapping of the cable completion activities after load transfer, and,
- Sequencing MEP operations.

The contractor has already planned to add a voyage from China to mitigate some of the delays in fabrication. Re-sequencing of cargo and/or additional voyages to disconnect the tower and OBG deliveries may further mitigate some of the fabrication delay.

Redefining the completion milestones may help achieve the desired dates for bridge opening and seismic safety, while delaying SAS contract completion.

A Caltrans/ABFJV partnered schedule effort has begun to further investigate these and other potential schedule mitigations. However, the effort is on hold while staff in China and Pier 7 is investigating ways to accelerate shop drawing and fabrication schedules. A team of Caltrans, TY Lin, and ABFJV personnel has been co-located in the shop-drawing subcontractor's office in Canada to expedite the preparation and review of the OBG east end shop drawings. Ways to protect the OBG lifts from weather are under consideration to mitigate the risk of delays during painting in outdoor areas of the fabrication facility.

2.3 RECOVERY OPPORTUNITIES INCORPORATED INTO THE CORRIDOR SCHEDULE

During development and updating of the Corridor Schedule, the CST and Risk Team incorporated several opportunities and other assumptions into the SAS schedule. Most of the recovery opportunities are in the construction phase of the SAS contract and allow for re-sequencing certain work activities to better reflect concurrent work and redefining Phase completion requirements. These opportunities resulted in a Corridor Schedule with SAS milestone completion essentially at the contract dates.

The major opportunities/changes to the SAS Contractor's schedule incorporated into the Corridor Schedule are listed below.

CHANGES MADE IN THE 1ST QUARTER 2009

1. The duration of cable temporary works was reduced to reflect concurrent work on the main and back spans as discussed at the cable Opportunity Schedule meetings.
2. Removed internal tower painting as a predecessor for the start of cable temporary works.
3. Reduced the duration to install the PWS by assuming two crews hauling the PWS strands and one crew adjusting the PWS at night. The ABF schedule is based on one hauling crew and one adjusting crew as discussed at the Opportunity Schedule meetings.
4. Reduced the durations of final completion activities.

CHANGES MADE IN THE 2ND QUARTER 2009

5. Split the OBG Align/Bolt/Weld activities into two activities. The first activity with 60% of the total duration is the critical predecessor that allows successor OBG lift erection to proceed. ABFJV has indicated that this change will be in the next schedule submittal.
6. Used the East End Focus Team's completion dates for OBG Lift 13 and 14 working drawings. Lift 13 will finish on October 15, 2009 instead of December 26, 2009 in the ABF schedule. Lift 14 will finish October 30, 2009 instead of May 5, 2010. This is consistent with what the TBPOC is being told[1].

CHANGES MADE IN THE 3RD QUARTER 2009

7. Revised the OBG erection logic to conform to the logic changes made by the contractor in the schedule updates through August 2009.
8. Established OBG lift 13/14 shop drawing completion dates based on input from Caltrans engineers. Included a duration range to allow for possible acceleration for shop drawing completion or extension based on the August2009 contractor schedule.
9. Based the OBG Lift 13/14 fabrication durations on the August 2009 schedule with an acceleration possibility.
10. Overlapped the OBG East End shop drawing, translation and fabrication activities.

However, not all of the opportunities have yet been confirmed with, and implemented by, the SAS Contractor.

Some of these adjustments required an increase in risk to scheduled activity durations.

---

[1] The East End Focus Team indicates that the approval of Lift 14 working drawings may occur in Spring 2010.

2.4 HOW RISKS ARE INSERTED INTO THE CORRIDOR SCHEDULE

The Corridor Schedule Team has inserted into the schedule "risk" activities representative of the risks identified in each of the quarterly contract risk meetings. A single risk from the risk register can occur in several places in the schedule and therefore "risk" activities are created and evaluated for each occurrence.

To describe the process, consider the three sequential activities in Figure 1, simplified from a section of the Corridor Schedule.

ID	Description	Duration
1	Erect Cable System Temporary Works	120
2	Install Cable System	157
3	Transfer load to cable	36

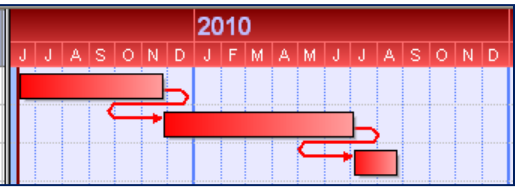


FIGURE 1 THREE ACTIVITIES FROM CORRIDOR SCHEDULE

Each activity has a scheduled duration, but the duration may not be certain. A range of uncertainty is estimated for each activity, expressed as a minimum, most likely and maximum duration in the rightmost columns of Figure 2. The duration uncertainty distribution is represented by the blue triangle.

ID	Description	Duration	Min	ML	Max
1	Erect Cable System Temporary Works	120	100	120	150
2	Install Cable System	157	140	157	196
3	Transfer load to cable	36	36	45	75

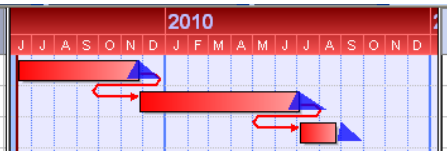


FIGURE 2 UNCERTAINTIES IN SCHEDULED DURATIONS

If an activity has a risk associated with it in the risk register, the risk is inserted after the activity in the form of a "risk activity".

The example schedule in Figure 3 has the risk activities inserted.

ID	Description	Duration	Min	ML	Max	Prob %
1	Erect Cable System Temporary Works	120	100	120	150	
1 RISK	Problems Erecting Cable Temporary Works	0	0	20	60	40%
2	Install Cable System	157	140	157	196	
2 RISK	Problems installing Cable System	0	0	30	90	50%
3	Transfer load to cable	36	36	45	75	
3 RISK	Problems transfering load	0	0	40	90	60%

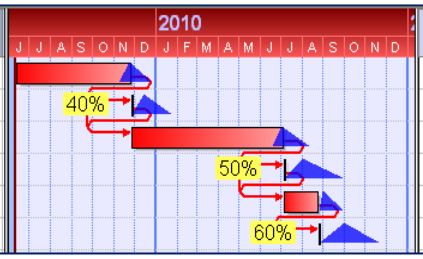


FIGURE 3 RISKS IN THE SCHEDULE

The risk activities (the red rows) appear as zero-duration activities so as not to change the schedule dates. Each risk activity has a probability of the risk occurring ("Prob %") and a duration range defined by the values in the minimum ("Min"), most likely ("ML") and maximum ("Max") columns.

Since schedule risks can be concurrent and are not necessarily additive, the schedule is analyzed using Monte Carlo simulation to develop probabilistic schedule results. Each Monte Carlo iteration creates a version of the schedule by selecting at random which risk activities are included, and, for the included risk activities, a duration drawn at random for their respective duration ranges. For 1000 Monte Carlo iterations, analyzing the 1000 schedules produces the probability distributions of path durations through the schedule, probability distributions for key milestones, and the probability of an activity or risk activity being on a critical path (its "criticality").

The probable critical paths are determined by tracing backward through the schedule. Starting from a finish milestone, the first activity on the path is the milestone's predecessor having the highest criticality. The next activity is the highest-criticality predecessor of the first activity, and so on to the beginning of the schedule. There may be a juncture where there are two predecessors of approximately equal criticality. At this point the probable critical path splits into two, and each of these is traced back to the beginning. This is how primary, secondary and tertiary probable critical paths are determined.

3 CORRIDOR SCHEDULE CRITICAL PATHS

A primary critical path has no float – it is the longest path. Any delay to an activity on a critical path will delay the completion milestones. Secondary and tertiary paths, while not on the longest path, are close enough that they could move onto the primary path as the project progresses.

3.1 PATHS TO LOAD TRANSFER

Completion of the SAS load transfer is a key milestone to completing the SAS and Corridor. There are three critical paths to load transfer as shown in Figure 4.

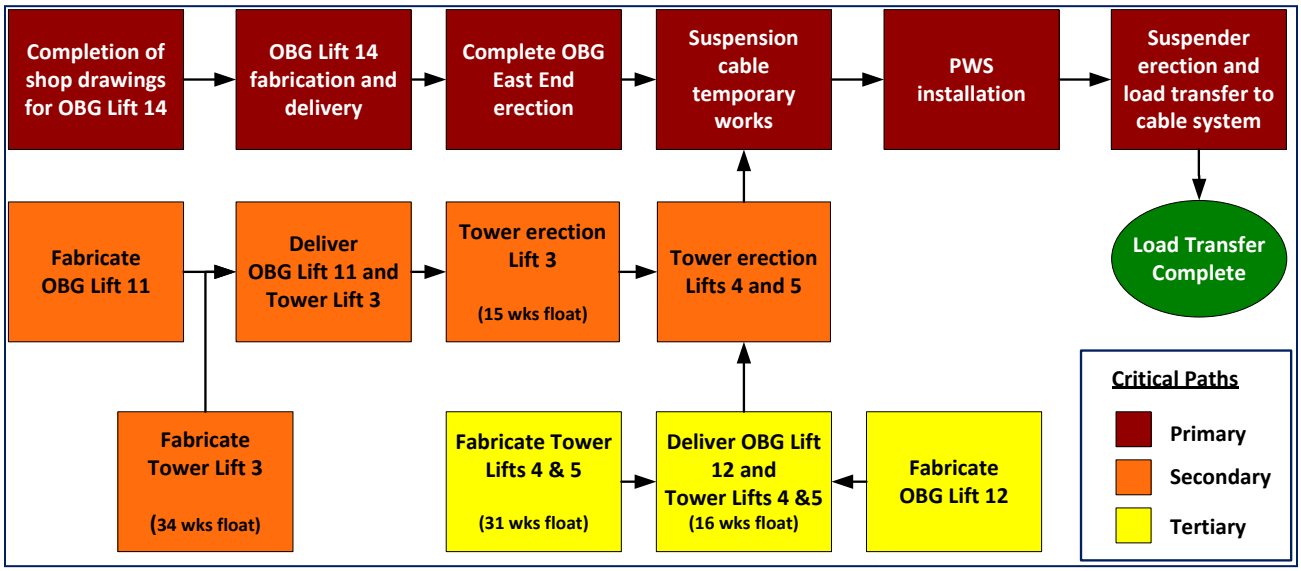


FIGURE 4 – CRITICAL PATHS TO LOAD TRANSFER

Based on the August 2009 update schedule for the SAS the most critical path to load transfer remains unchanged from the previous quarter, running through the OBG Lift 13 and 14 shop drawings, fabrication, erection to the cable temporary works, PWS installation, and suspender installation.

The secondary and tertiary paths run through the erection of Tower Lifts 3, 4 and 5, which are in turn constrained by the delivery of sea transport and delivery of the respective lifts. Tower Lift 3 is planned to be on a voyage with OBG Lift 11 and Tower Lifts 4 and 5 are planned to be on a voyage with OBG Lift 12.

Departure from China of both of these voyages is controlled by the respective OBG lift fabrication. In secondary and tertiary paths, the tower lifts are ready for shipment several months ahead of the OBG. There is a possibility to resequence the voyage cargo to accelerate the tower lift deliveries. This would reduce the risk of the tower erection controlling the cable erection. However, with the uncertainty in the fabrication schedule, progress should be closely monitored before any decision is made to re-sequence deliveries.

All tower erection must be completed before starting the cable system temporary works. The OBG sections through Lift 6E must be erected before setting Tower Lift 1.

3.2 PATHS FROM LOAD TRANSFER TO WESTBOUND OPENING

SAS load transfer then leads to opening the bridge in the westbound direction. The critical paths from load transfer to westbound opening are shown in Figure 5. They have not changed from the previous quarter.

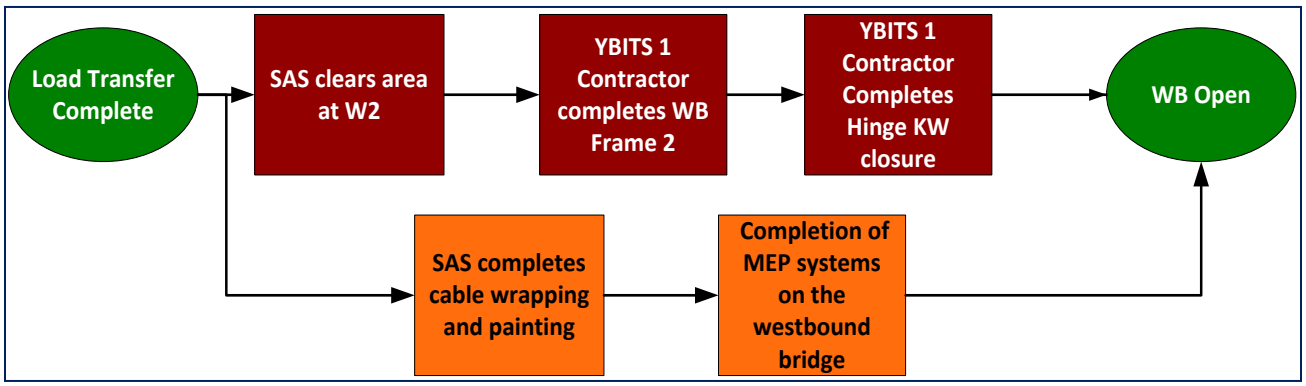


FIGURE 5 – CRITICAL PATHS FROM LOAD TRANSFER TO WESTBOUND OPENING

On the primary path, once load transfer is completed the SAS contractor removes the temporary works at W2 and clears the area for the YBI Transition Structures (YBITS 1) contractor to complete the westbound frame 2 and the Hinge K closure.

On the secondary path, the SAS contractor has to complete the cable wrapping and painting, and the electrical and mechanical systems must be completed on the westbound bridge.

The Westbound Opening milestone is driven by the YBITS 1 contract, with the SAS contract work finishing about one month prior. This difference is so small that either contract could be the driver and decisions to adjust the SAS contract schedule should also consider the effects on the YBITS 1 contract schedule.

3.3 PATHS FROM WESTBOUND OPENING TO EASTBOUND OPENING

Since a portion of the existing westbound bridge and roadway is in conflict with the new eastbound structure and roadway, traffic must be transferred to the new westbound structure prior to completion of the eastbound bridge and approach. Once traffic is switched to the new westbound bridge, the critical paths to opening eastbound traffic are shown in Figure 6. They have not changed from the previous quarter.

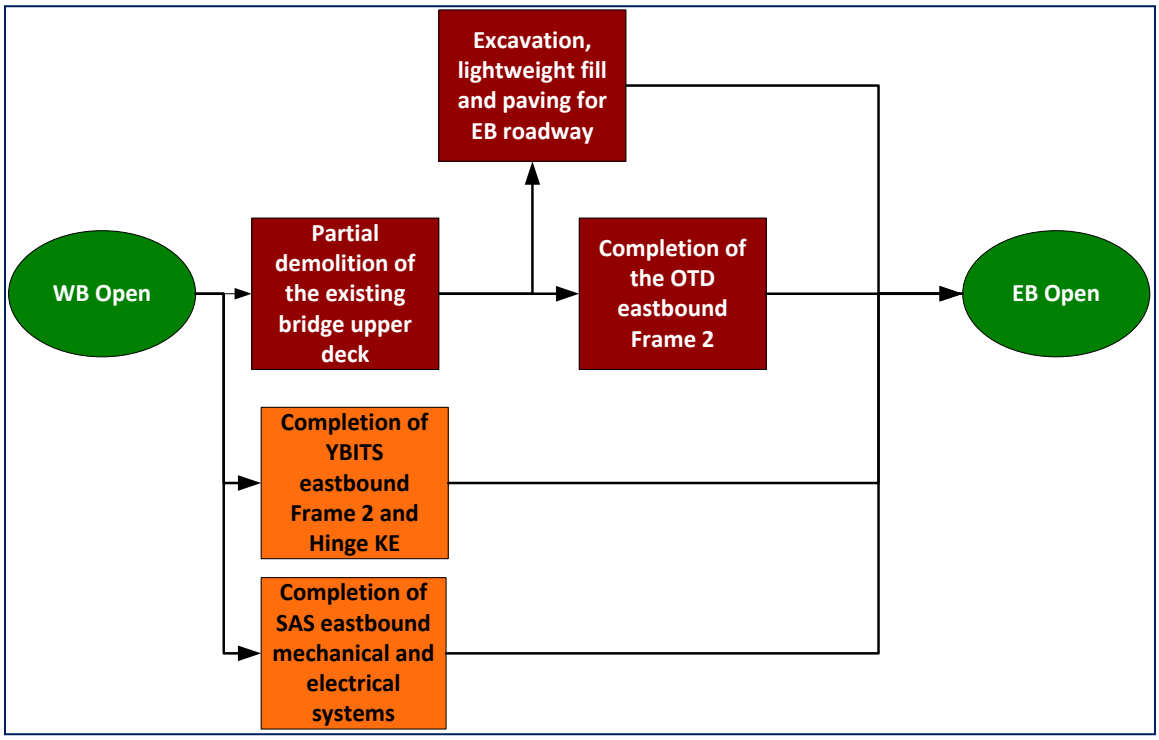


FIGURE 6 – CRITICAL PATHS FROM WESTBOUND OPENING TO EASTBOUND OPENING

On the primary path, partial demolition of the existing bridge upper deck is followed by completion of the Oakland Touchdown Eastbound (OTD 2) Frame 2 and roadway excavation, lightweight fill and paving for the eastbound roadway. Completion of the YBITS eastbound Frame 2 and Hinge KE and SAS eastbound mechanical and electrical systems are secondary paths to opening the eastbound bridge to traffic.

The Eastbound Opening milestone is driven by the OTD 2 contract, with the YBITS 1 and SAS contracts finishing 2-3 months prior. Decisions to adjust the SAS contract schedule should consider the effects on the YBITS 1 and OTD 2 contracts. Any decision should not focus solely on the SAS contract even though it is the one that is currently behind schedule. Lessons learned from the Oakland Touchdown Westbound (OTD 1) and YBI Detour (YBID) contracts will be used to reassess OTD 2 contract risks, and may change the risks in the OTD 2 schedule and the driver of eastbound opening.

4 SCHEDULE RISK ANALYSIS RESULTS FOR MILESTONES

4.1 SAS MILESTONES

The SAS Phase milestone definitions are:

Phase 1 – Load transfer complete and area west of W2 turned over to the YBITS 1 contractor.

Phase 2 – SAS ready for westbound traffic

Phase 3 – SAS ready for eastbound traffic.

The Corridor Schedule and ABF May 2009 Update schedules are compared in Figure 7.

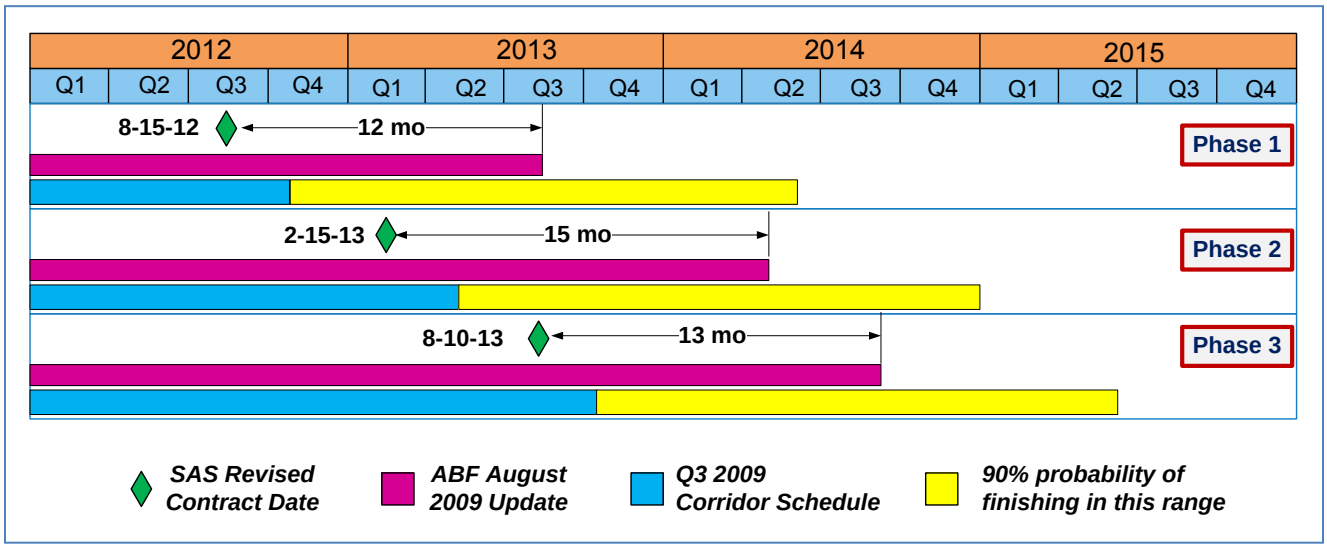


FIGURE 7 – SAS SCHEDULE

During the 3rd quarter, management added 4 months of compensable time to the SAS contract milestone dates. The ABF August Update schedule (purple bars[1]) shows Phase 1, 2 and 3 completions 12, 15 and 13 months later than the revised contract dates. The Corridor Schedule (light blue bars) incorporated the opportunities detailed in section 2.3 to recover approximately eleven months of the delays reflected in the ABF August 2009 update. The Corridor Schedule milestones are now about 2-3 months later than the current contract milestone dates for each of the three phases.

With schedule risks included, a Phase finish date has a 90% probability of falling within the range indicated by the yellow bar. For Phase 3, there is a 90% chance of completion before June 2015.

4.2 THE CORRIDOR SCHEDULE – WESTBOUND OPENING MILESTONE

The westbound opening milestone is impacted by risks in the SAS, YBI Transition Structures (YBITS 1) and Oakland Touchdown Eastbound (OTD 2) schedules. The YBITS 1 contract is the driver, as shown in Figure 8.

[1] Completion ranges cannot be determined for the ABF schedule because it is not known what risks are already included by ABF.

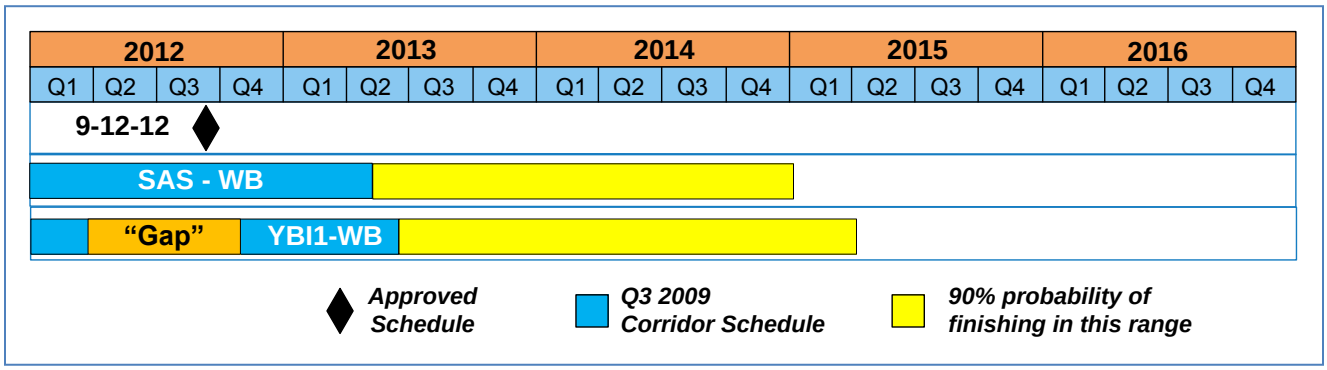


FIGURE 8 – WESTBOUND OPENING

Excluding risks, the YBITS 1 contract determines the westbound opening date in the Q3 2009 Corridor Schedule, finishing about one month later than the SAS westbound contract. After the SAS contractor turns over the area west of W2 to the YBITS 1 contractor, the completion of YBITS 1 activities (completion of frame 2, prestressing, concrete aging and Hinge K closure) requires slightly more time than the SAS westbound completion activities. This time difference may be mitigated with the YBITS 1 contractor after the contract is awarded.

With schedule risks included, there is a 90% probability of the westbound opening occurring before April 2015.

4.3 THE CORRIDOR SCHEDULE – EASTBOUND OPENING MILESTONE

The Eastbound Opening milestone is impacted by risks in the SAS, YBI Transition Structures (YBITS 1) and Oakland Touchdown Eastbound (OTD 2) schedules. The driver is the OTD2 contract (Figure 9).

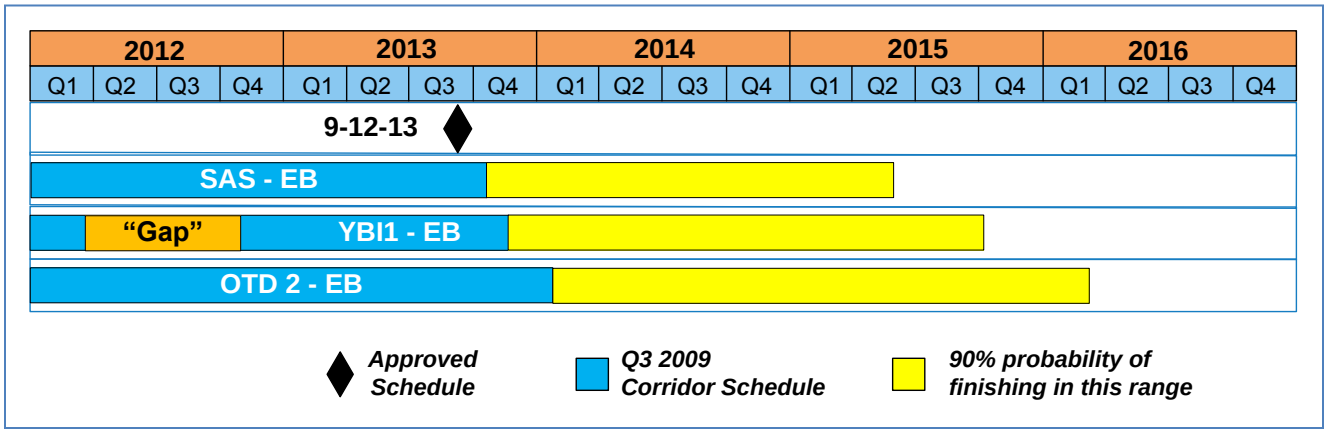


FIGURE 9 – EASTBOUND OPENING

Excluding risks, the OTD2 contract determines the eastbound opening date, requiring additional time after the SAS and YBITS 1 contracts complete their eastbound activities. While the SAS and YBITS 1 contractors can begin the eastbound completion work prior to the westbound opening, the OTD 2 contractor is constrained from doing any eastbound work until traffic is placed on the westbound bridge. OTD 2 requires more time to complete its critical activities (demolish a portion of the existing westbound bridge, complete the eastbound structure and roadway) than the other contracts. The CST is investigating ways to reduce the time required to complete the eastbound work, including using a full bridge closure at westbound opening to remove the portion of the existing bridge that is over the existing eastbound traffic way.

With schedule risks included, there is a 90% probability of the eastbound opening occurring before March 2016.

4.4 THE GAP IN THE YBITS 1 SCHEDULE

The schedule risk analysis provides important information that is currently used to develop risk mitigations for one of the significant YBITS 1 contract risks – the time the structure is expected to remain on falsework (the schedule "gap"). Typically, falsework is designed by the contractor and is in place for a relatively short time. Parts of YBITS 1 may remain on falsework for an extended time, because the completion of the eastern YBITS frames is dependent on when SAS completes Phase 1 and turns over the area around W2 to the YBITS 1 contractor for completion of Frame 2 and the Hinge K closure.

Figure 10 indicates the range of time that the eastern frame may remain on falsework according to the current plan for the YBITS 1 contract and the August 2009 status of the SAS contract. Schedule risks in either contract are not factored into the diagram.

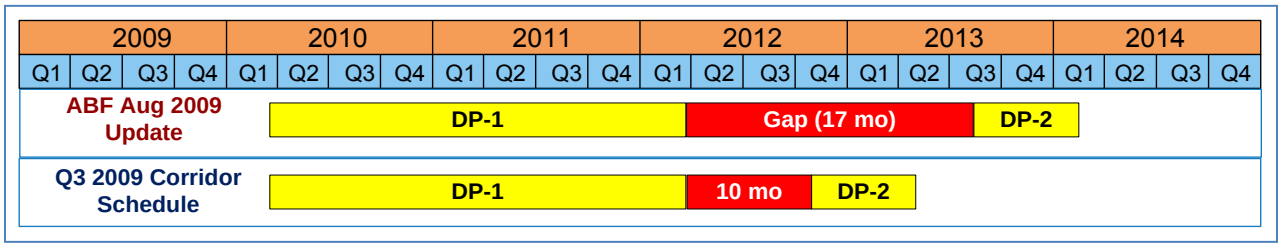


FIGURE 10 – GAP IN YBITS 1 SCHEDULE

The YBITS 1 contract specifies a number of days to complete the activities in DP-1 and has DP-2 activities starting immediately after DP-1. However, the current status of the SAS contract according to the ABF August 2009 update creates a 17-month gap between DP-1 and DP-2, during which the incomplete YBITS Frame 2 will rest on falsework.

If the SAS contract is recovered as assumed in the Q3 2009 Corridor Schedule, the gap reduces to 10 months. However, when risks are factored in, the gap could range from 14 to 27 months, driven mainly by the risks in the SAS contract (Figure 11).

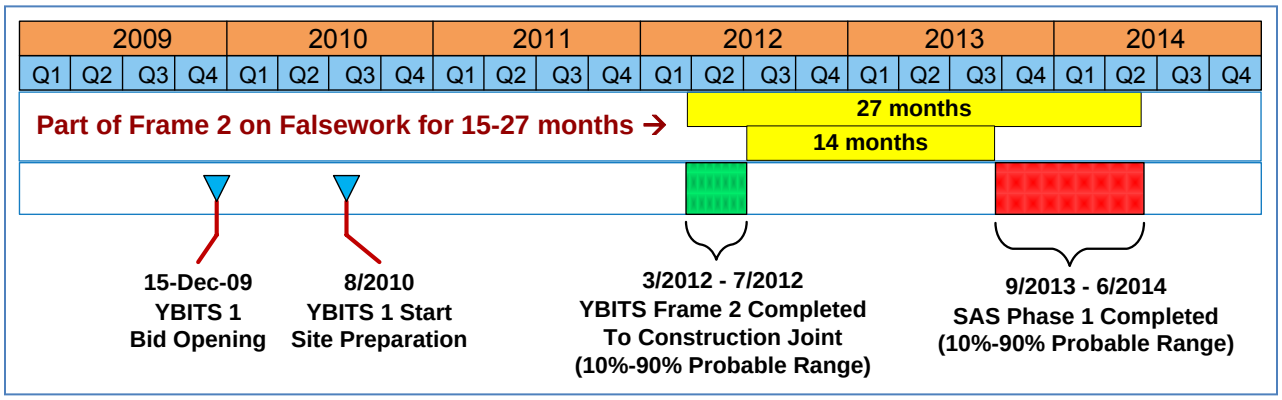


FIGURE 11 – YBITS EASTERN FRAME ON FALSEWORK

The existence of the gap exposes the Department to potential claims for delay. Recognizing this risk, the Corridor Schedule and Risk Teams proposed potential risk mitigating responses to management

such as postponing bid opening, extending the overall contract duration and/or extending the duration of DP-1. Management is currently considering adding 6 to 9 months to the duration of DP-1.

5 CORRIDOR RISK MANAGEMENT COSTS

5.1 CONTRACT CONTINGENCIES

The following table is provided by Program Management. It summarizes the contract contingencies as of the end of the 3rd quarter.

Q3 2009 Project Contingencies				
Project	**AB144 Budget ($M)**	**TBPOC Current Approved Budget ($M)**	**Bid Items + State Furnished Materials + CCOs + Remaining Supplemental Work ($M)**	**Project Contingency ($M)**
	(A)	**(B)**	**(C)**	**(D) = (B) - (C)**
Skyway	1,293.0	1,254.1	1,245.2	8.9
SAS	1,753.7	1,753.7	1,610.3	143.4
E2/T1	313.5	280.9	278.6	2.3
South-South Detour	131.9	492.8	465.0	27.8
Stormwater BMPs	15.0	18.3	17.3	1.0
West Approach	309.0	350.7	338.1	12.6
YBI #1			207.9	
YBI #2			52.2	
YBI #3`			2.7	
YBI Total	299.4	276.1	262.8	13.3
OTD #1			205.2	
OTD #2			53.7	
Submarine Cable			10.6	
Electrical Systems			4.0	
OTD Total	283.8	283.8	273.5	10.3
Bridge Demolition	239.2	239.2	185.7	53.5
Total Corridor	4,638.5	4,949.6	4,676.5	**273.1**

Note: Project Contingency Excludes opportunities from Excess R/W sales

The contingency remaining on each contract is the difference between columns (B) and (C).

A total Corridor contingency of $273.1 million is available from contracts to offset risks. This figure is used in the Quarterly Risk Management Report to calculate the adequacy of the Program Contingency. Total Corridor contingency is down $12.7 million from the previous quarter due to $15.1 million in new Contract Change Orders (CCO) for SAS and OTD1, offset by a $2.9 million reduction in YBI Detour CCOs and $4.5 million reduction in the OTD2 estimate.

5.2 CAPITAL OUTLAY RISK MANAGEMENT COST

Corridor capital outlay risk management cost (RMC) is the sum of the risks of the contracts and program risks. The current probability curve is shown in Figure 12.

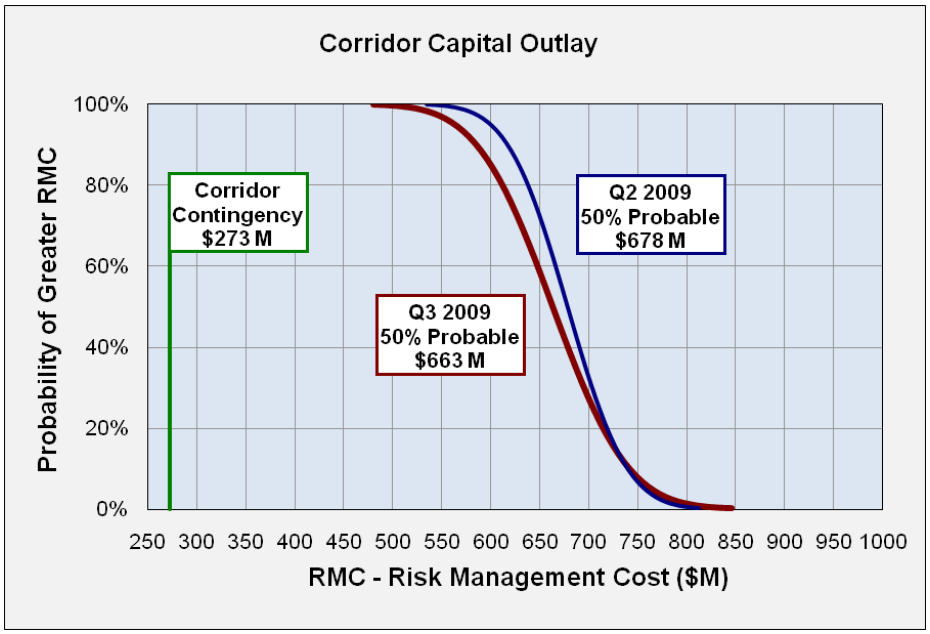


FIGURE 12 – CORRIDOR CAPITAL OUTLAY RMC

The 50% probable RMC has decreased by about $15 million from the previous quarter. The current $273 million Corridor contingency available from all contracts is insufficient to cover the capital outlay risks. The shortfall accounts for part of the potential draw on Program Contingency.

CAPITAL OUTLAY RMC CHANGES

The following table summarizes the 50% probable Capital Outlay Risk Management Cost per contract and for program risks. The risks were evaluated in a workshop environment for each of the contracts and program risks. The workshops were conducted with the participation of the cross-functional units that help administer the Toll Program and comprise the Risk Management Teams.

	50% Probable Risk Management Cost ($)			
Project	**Q3 2009**	**Q2 2009**	**Change**	**% Change**
OTD1 Westbound	6,516,000	8,213,000	(1,697,000)	-21%
OTD2 Eastbound	17,890,000	10,907,000	6,983,000	64%
Self-Anchor Suspension	440,788,000	416,505,000	24,283,000	6%
YBI Detour	21,223,000	36,122,000	(14,899,000)	-41%
YBI#1 Mainline Structures	59,975,000	47,686,000	12,289,000	26%
YBI#2 Post Traffic Switch	18,597,000	13,347,000	5,250,000	39%
Total East Span	**564,989,000**	532,780,000	32,209,000	6%
Program	98,300,000	145,436,000	(47,136,000)	-32%
Corridor CO	**713,289,000**	678,216,000	(14,927,000)	-2%

Overall, the average Corridor Capital Outlay RMC decreased by $14,927,000 from the previous quarter. Capital Outlay changes from the previous quarter are detailed below per contract.

SAS CONTRACT

The probable cost of SAS risks has increased by 6 percent during this quarter. This increase is primarily due to the first shipment of Orthotropic Box Girder (OBG) Deck Sections not ready to ship and the development of Shop Drawings for the East End not progressing as previously hoped.

	ID	SAS Risks	Current ($)	Previous ($)	Change ($)
Risk	1	Schedule: Potential delay during construction	125,333,000	60,000,000	65,333,000
CCO	108	CCO - Global Resolution of Fabrication Issues in China - Excludes East End	45,000,000		45,000,000
CCO	106	CCO - Global Resolution of Fabrication Issues - Excludes East End	*Retired*	42,500,000	(42,500,000)
Risk	1.1	Schedule: Uncertainty in TRO+ rate	*Retired*	22,500,000	(22,500,000)
Risk	94	Tower Fabrication: Fit-up issues	20,000,000	28,000,000	(8,000,000)
Risk	92	Tower Fabrication: Welding issues	10,000,000	13,500,000	(3,500,000)
NOPC	55	NOPC 5 Cable/OBG interference	Retired	3,142,000	(3,142,000)
Risk	32	Environmental: Unforeseen events	700,000	3,500,000	(2,800,000)
Risk	77	Sole Source Procurement: Issues with sole source items excluding Cable and Cable Wrapping (S-Wire)	825,000	2,475,000	(1,650,000)
Risk	99	Cable Field Installation: Installation of Parallel Wire Strand (PWS)	2,100,000	600,000	1,500,000
Risk	69	OBG Working Drawings: East End Complexity Challenges (Excludes Fabrication)	5,400,000	6,750,000	(1,350,000)
CCO	68	Cost variation on CCO 24 - Traveler Redesign	2,167,000	3,000,000	(833,000)
Risk	90	Permits: Waterway	400,000	1,200,000	(800,000)
Risk	21	Forgings and Castings: Conflicts or differing opinions	900,000	1,500,000	(600,000)
Risk	37	Traveler System Redesign - Potential for Delays due to Design Complexities	450,000		450,000
Risk	52	Painting: OBG issues during fabrication	5,250,000	4,900,000	350,000
Risk	27	Weather: Delays to epoxy AC operations	450,000	750,000	(300,000)
Risk	78	Painting: OBG issues in field	625,000	375,000	250,000
NOPC	41	NOPC 2: Candraft-Tensor RFI issues (Service Platform) - excessive number of RFIs	*Retired*	250,000	(250,000)
Risk	101	Cable Field Installation: Removal of Temporary Works	*Retired*	225,000	(225,000)
Risk	35	Cable Procurement: Fabrication or delivery of cable	125,000	275,000	(150,000)
Total Change					**24,283,000**

YBI DETOUR CONTRACT

YBID risk decreased due to the successful completion of the Labor Day weekend work.

	ID	YBID Risks	Current ($)	Previous ($)	Change ($)
Risk	36	Roll out/roll in at ETI impacts traffic beyond weekend closure (excludes Weather Risks)	*Retired*	5,000,000	(5,000,000)
CCO	59.1	Cost of Accelerating the work to meet the Labor Day Schedule for the ETI traffic switch.	*Retired*	2,667,000	(2,667,000)
CCO	60.1	Cost of Accelerating the work to meet the Project Completion Date of April 30 2010 (Demo & YBITS Advance)	*Retired*	2,500,000	(2,500,000)
CCO	58	Direct cost variance of WTI Phase 2 from the current Implementation Strategy.	1,333,000	2,333,000	(1,000,000)
Risk	28	Delay in construction beyond anticipated completion date in the Strategy Document (Dec 2010).	*Retired*	800,000	(800,000)
CCO	56	Direct cost variance of New Viaduct from the current Implementation Strategy.	1,333,000	2,000,000	(667,000)
Risk	67	Delivery of unique structural items is delayed.	*Retired*	600,000	(600,000)
Risk	64	Weather delay at a critical time (traffic switch weekend)	*Retired*	500,000	(500,000)
CCO	33	Miscellaneous CCOs	5,000,000	5,400,000	(400,000)
Risk	65	Unforeseen conditions in the existing superstructure.	*Retired*	375,000	(375,000)
Risk	40	Delivery of ETI design affects construction time for the planned traffic switch.	*Retired*	200,000	(200,000)
Risk	69	Designing the ETI Moving System and developing its strategy.	*Retired*	180,000	(180,000)
Risk	44	WTI phase 2 construction problems during closure causes delay and impacts traffic during construction.	*Retired*	10,000	(10,000)
Total Change					**(14,899,000)**

PROGRAM LEVEL

The cost risk of MEP systems and impacts of the additional delay in the ABF August 2009 schedule update increased from the previous quarter. The additional delay impacts the SAS and YBITS 1 contracts, and the escalation of unawarded contracts.

The delay impact risks in the SAS and YBITS 1 contracts are calculated on the assumption that the SAS contract will be recovered by about 6 months. Accordingly, the program risk register has a risk that this recovery will not be realized. This risk impacts the SAS and YBITS 1 contracts, as well as Capital Outlay Support and the escalation of unawarded contracts.

The "out-of-scope" risks were retired and a cost risk analysis of the YBITS 1 yielded an opportunity of about $50 million.

	ID	Program Risks	Current ($)	Previous ($)	Change ($)
Risk	1	No recovery of SAS schedule	50,000,000	14,133,000	35,867,000
Risk	35	Additional cost to incorporate light pipe into the bridge	*Retired*	31,410,000	(31,410,000)
Risk	52	Potential Cost Saving on YBITS 1 Bid	(50,000,000)		(50,000,000)
Risk	42	Escalation of unawarded contracts due to delays	45,000,000	22,500,000	22,500,000
Risk	33	Additional cost to incorporate BASE system into new bridge.	*Retired*	18,000,000	(18,000,000)
Risk	43	Higher Escalation Rate for unawarded contracts	7,000,000	10,500,000	(3,500,000)
Risk	34	Ramps on YBI for City of San Francisco	*Retired*	3,150,000	(3,150,000)
Risk	17	Cost of MEP Systems increases due to scope changes and problems during systems testing	36,000,000	35,443,000	557,000
Total Change					**(30,136,000)**

OAKLAND TOUCHDOWN 1

Due to progress of the work, OTD1 risks were reduced by about $1.7 million this quarter.

	ID	OTD 1 Risks	Current ($)	Previous ($)	Change ($)
Risk	4	Buried Man-Made Objects and Differing Site Conditions	105,000	2,000,000	(1,895,000)
Risk	54	Contractor Claims for Early Completion Delay	1,100,000		1,100,000
Risk	18	Conflicts with unknown utilities.	94,000	438,000	(344,000)
Risk	52	Design conflicts between electrical, mechanical and structural elements may be discovered during ISDs preparation or during construction	375,000	583,000	(208,000)
CCO	1001	Cost variance between the CCO log and the Engineer's Estimate	*Retired*	167,000	(167,000)
Risk	12	Construction impacts public traffic more than provided for in the contract.	75,000	150,000	(75,000)
CCO	TBD	Eastbound access during Labor Day trenching operation	*Retired*	75,000	(75,000)
Risk	37	Contractor's Work Impacts Known Utilities	50,000	83,000	(33,000)
Total Change					**(1,697,000)**

OAKLAND TOUCHDOWN 2

	ID	OTD 2 Risks	Current ($)	Previous ($)	Change ($)
Risk	3	Current Estimate Not Consistent with Proposed Project Schedule	5,250,000	2,250,000	3,000,000
Risk	25	Scope Increase	2,100,000		2,100,000
Risk	2	Construction Delay (TRO+)	3,433,000	2,100,000	1,333,000
Risk	7	Construction impacts public traffic more than provided for in the contract.	1,925,000	1,375,000	550,000
		Total Change			**6,983,000**

YBITS 1

The probable cost of risks increased by 36% percent this quarter mainly due to SAS schedule impacts caused by the additional 7-8 months of delay in the ABF August 2009 Update.

	ID	YBITS 1 Risks	Current ($)	Previous ($)	Change ($)
Risk	40	Construction delay of YBI1 by SAS after YBITS 1 award	18,333,000	4,275,000	14,058,000
Risk	41	Gap in Construction due to early award of YBITS 1 contract	9,000,000	1,680,000	7,320,000
Risk	44	Yet-to-be-approved addenda Items expected to be added to the Estimate	1,920,000	7,502,000	(5,582,000)
Risk	43	Approved addenda Items to be added to the Estimate	*Retired*	4,368,000	(4,368,000)
Risk	38	Higher "A" costs due to A+B bidding	*Retired*	2,250,000	(2,250,000)
CCO	1000	Miscellaneous administrative/technical CCOs	8,200,000	7,140,000	1,060,000
Risk	32	Conflicts between electrical, mechanical, and structural elements	2,800,000	1,750,000	1,050,000
Risk	24	Delay in Construction (TRO+)	5,167,000	4,433,000	734,000
Risk	9	Construction noise exceeding permit with Coast Guard	667,000	400,000	267,000
		Total Change			**12,289,000**

YBITS 2

	ID	YBITS 2 Risks	Current ($)	Previous ($)	Change ($)
Risk	38	Scope Increase	5,250,000		5,250,000
		Total Change			**5,250,000**

5.3 CAPITAL OUTLAY SUPPORT

The Capital Outlay Support cost includes support cost risks that affect all contracts and risks from contracts that have an impact on COS. The COS risks are measured as a differential from the current $853.4 million approved COS budget. Any COS cost risk in excess of the current approved COS budget would be a draw on the Program Contingency.

Figure 13 shows the current COS cost differential probability distribution, with the previous quarter result in blue.

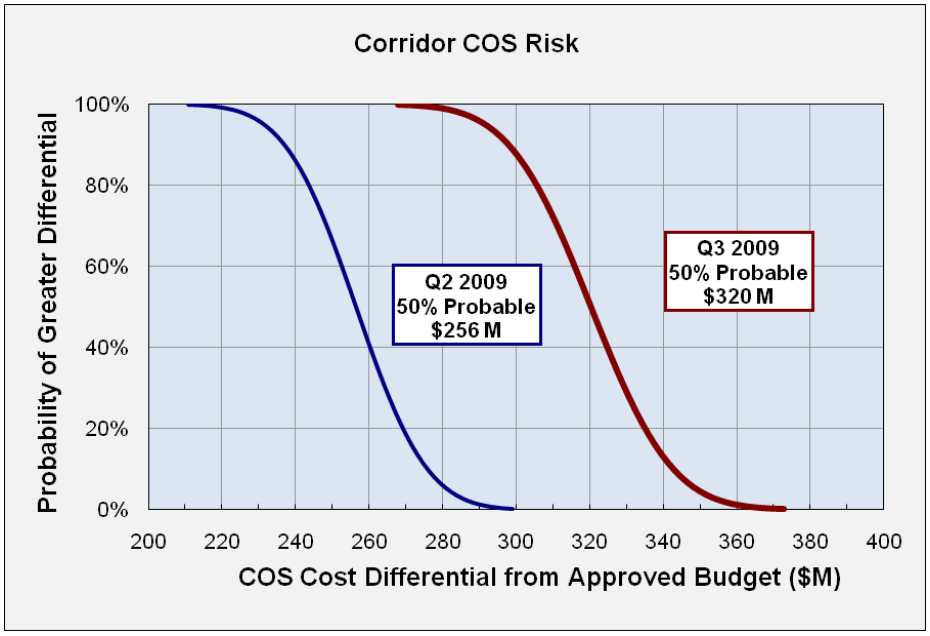


FIGURE 13 – CAPITAL OUTLAY SUPPORT RISK

The 50% probable COS cost risk increased by about $64 Million from the previous quarter. The primary contributors to the increase are:

- Delays in the SAS fabrication activities in China and reassessment of potential SAS construction delays added $47 million to the SAS project.
- Potential SAS delays impact YBITS 1 by extending its completion and the length of the "gap" during which Frame 2 remains on falsework. The combined effect adds $23.7 million to the YBITS 1 project.
- Assessment of actual expenditures, salaries, and overhead rates reduced the Global Impacts by about $6.3 million.

CAPITAL OUTLAY SUPPORT CHANGES

The following table summarizes the 50% probable COS cost differential per contract.

The COS risks were evaluated in a workshop environment with the input of the cross functional units that help administer the Toll Program. The COS cost differential is measured from the current approved COS budget.

The "Global" and "Program" items in the table capture the COS risks that impact all contracts.

Contract	50% Probable COS Differential ($M)			% Change
	Q3 2009	Q2 2009	Change	
SAS	232.2	184.8	47.4	26
Global	42.9	49.2	(6.3)	(13)
YBI Detour	20.4	21.7	(1.3)	(6)
YBI Transition Structures	43.8	20.1	23.7	118
OTD Contracts	14.3	13.1	1.2	9
Program	8.0	9.1	(1.1)	(12)
Stormwater Treatment	(0.3)	(0.3)		
E2-T1 Foundations	(4.1)	(4.2)	0.1	(2)
Skyway	(2.5)	(2.8)	0.3	11
Demolition	(31.3)	(31.3)		
Total East Span	**323.4**	**259.4**	**64.0**	**25**
West Approach	(3.0)	(3.0)		
Total Corridor	**320.4**	**256.4**	**64.0**	**25**

COS RISK TREND

Figure 14 shows the COS risk from the 1st quarter 2007 to date. The range of COS risks is on top. The width of the range is such that it embraces over 99 percent of the possible outcomes.

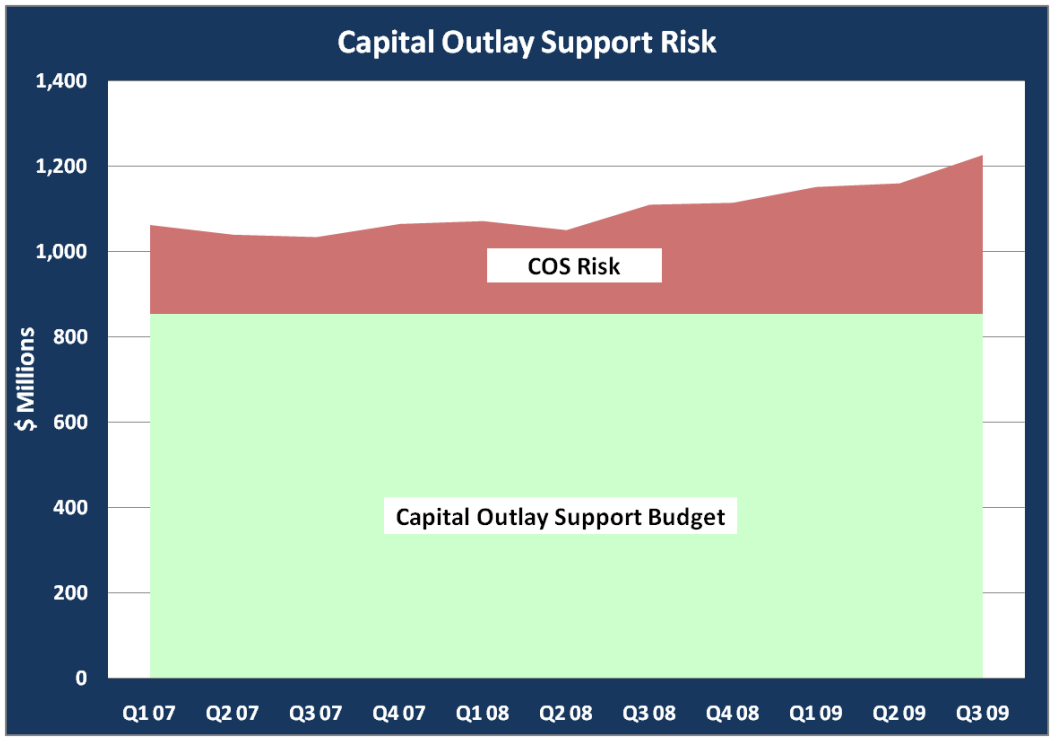


FIGURE 14 – COS RISK TREND

5.4 CORRIDOR TOTAL RMC

Corridor total risk management cost curve, capital outlay and COS risk combined, is shown in Figure 15.

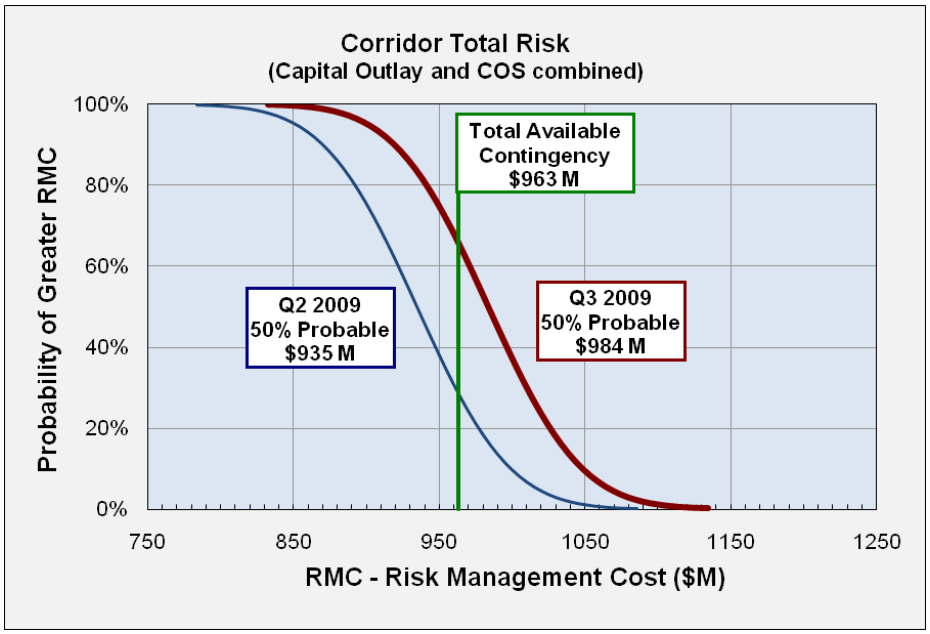


FIGURE 15 – CORRIDOR TOTAL RMC

Corridor 50% probable RMC has increased about $49 million from the previous quarter to $984 million. The 3rd quarter $963 million total available contingency is the sum of the $689.7 million balance in the Program Contingency and $273.1 million remaining contingency from contracts. It is 63% probable to be sufficient to cover total corridor risk that ranges from about $850 million to $1,130 million.

Appendix "A" APPENDICES

QUANTITATIVE ANALYSIS TABLES

The quantitative analysis tables summarize the risk data for each contract and list the "probable risk management cost" of each item for the current and previous quarters.

The "probable risk management cost" is the average (i.e. 50% probable) cost calculated for each item. It is equal to the average of the low and high probabilities times the average of the optimistic, most likely and pessimistic costs. It is only one of many possible outcomes.

RISK REGISTERS

The risk register section contains the risk register for each contract, the program, and capital outlay support. Each register is prefaced by a listing of its risk response team and definitions of impacts.

Corridor Program - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50% Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous
Risks								
1	No recovery of SAS schedule	$80,000,000		$120,000,000	40%	60%	$50,000,000	$14,133,000
42	Escalation of unawarded contracts due to delays	$60,000,000	$90,000,000	$120,000,000	40%	60%	$45,000,000	$22,500,000
17	Cost of MEP Systems increases due to scope changes and problems during systems testing	$25,000,000	$33,000,000	$50,000,000	100%	100%	$36,000,000	$35,443,000
43	Higher Escalation Rate for unawarded contracts	$10,000,000	$20,000,000	$40,000,000	20%	40%	$7,000,000	$10,500,000
15	Additional costs and possible delays arising from renewal of permits.	$5,000,000		$10,000,000	60%	80%	$5,250,000	$5,250,000
49	Additional work on Skyway	$3,000,000		$5,000,000	100%	100%	$4,000,000	$4,000,000
48	Corridor clean-up	$2,000,000		$6,000,000	80%	100%	$3,600,000	$3,600,000
51	State material tax increase for unawarded contracts.	$2,000,000		$3,000,000	100%	100%	$2,500,000	$2,500,000
50	State material tax increase	$5,000,000		$8,000,000	20%	30%	$1,625,000	$1,625,000
46	Coordination of WB opening activities.	$2,000,000		$4,000,000	40%	60%	$1,500,000	$1,500,000
18	SSD: Impacts to public traffic.	$0		$5,000,000	40%	60%	$1,250,000	$1,250,000
40	YBITS #2: Removal of Temporary Structures on USCG Property	$0		$5,000,000	40%	60%	$1,250,000	$1,250,000
21	Advance temporary access to the bike path to coincide with EB bridge opening to traffic.	$1,000,000	$1,500,000	$2,000,000	60%	80%	$1,050,000	$1,050,000
29	Tugboat prevailing wage differential for water taxi work.	$0	$1,000,000	$3,000,000	60%	80%	$933,000	$933,000
37	Skyway maintenance	$500,000		$1,000,000	40%	60%	$375,000	$375,000
41	Additional Access to USCG on YBI.	$0		$1,000,000	40%	60%	$250,000	$250,000
13	Department could become liable for a reportable mishap or OSHA action.	$0		$5,000,000	0%	20%	$250,000	$250,000
20	OPPORTUNITY WEST APPROACH: Sale of Excess right-of-way parcels	$(15,000,000)	$(13,600,000)	$(12,000,000)	99%	100%	$(13,533,000)	$(13,533,000)
52	Potential Cost Saving on YBITS 1Bid	$(67,000,000)	$(50,000,000)	$(33,000,000)	100%	100%	$(50,000,000)	
47	Delay by Traffic Operating System				40%	60%		
						20 Risks - Total Risk Cost:	**$98,300,000**	

Corridor Program - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50% Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous

Subtotals	Risks:	$98,300,000
	NOPCs:	$0
	CCOs:	$0
50% Probable Risk Management Cost		$98,300,000

OTD1 Westbound - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range Low	Cost Range Most Likely	Cost Range High	Probability Low	Probability High	50%Probable Cost Current	50%Probable Cost Previous
Risks								
54	Contractor Claims for Early Completion Delay	$0		$4,400,000	40%	60%	$1,100,000	
53	Requested design changes/improvements	$500,000	$1,000,000	$2,000,000	60%	80%	$817,000	$817,000
20	Problems with deck alignment matching Skyway or problems with the pipe beam interface with Skyway	$600,000		$3,000,000	20%	40%	$540,000	$540,000
52	Design conflicts between electrical, mechanical and structural elements may be discovered during ISDs preparation or during construction	$500,000		$1,000,000	40%	60%	$375,000	$583,000
24	Unforeseen Environmental Issues	$200,000		$1,000,000	20%	40%	$180,000	$180,000
4	Buried Man-Made Objects and Differing Site Conditions	$200,000		$500,000	20%	40%	$105,000	$2,000,000
18	Conflicts with unknown utilities.	$125,000		$500,000	20%	40%	$94,000	$438,000
12	Construction impacts public traffic more than provided for in the contract.	$0		$500,000	20%	40%	$75,000	$150,000
37	Contractor's Work Impacts Known Utilities	$0	$0	$500,000	20%	40%	$50,000	$83,000
11	Conflicts or differing opinions over welding.	$0		$200,000	0%	20%	$10,000	$10,000
23	Construction Delay (TRO+)				0%	1%		
						11 Risks - Total Risk Cost:	**$3,346,000**	
CCOs								
1000	Miscellaneous Future CCOs	$0	$2,670,000	$5,340,000	100%	100%	$2,670,000	$2,670,000
92	Shore bird habitat	$300,000		$700,000	100%	100%	$500,000	$500,000
						2 CCOs - Total CCO Cost:	**$3,170,000**	

Subtotals	**Risks:**	**$3,346,000**
	NOPCs:	**$0**
	CCOs:	**$3,170,000**
50% Probable Risk Management Cost		**$6,516,000**

OTD2 Eastbound - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range Low	Cost Range Most Likely	Cost Range High	Probability Low	Probability High	50%Probable Cost Current	50%Probable Cost Previous
Risks								
3	Current Estimate Not Consistent with Proposed Project Schedule	$5,000,000		$10,000,000	60%	80%	$5,250,000	$2,250,000
2	Construction Delay (TRO+)	$2,300,000	$3,500,000	$4,500,000	100%	100%	$3,433,000	$2,100,000
25	Scope Increase	$1,000,000		$5,000,000	60%	80%	$2,100,000	
7	Construction impacts public traffic more than provided for in the contract.	$500,000		$5,000,000	60%	80%	$1,925,000	$1,375,000
16	Electrical/Mechanical System connections adjacent to existing contracts may require extra work.	$500,000		$2,000,000	60%	80%	$875,000	$875,000
5	Difficulties removing the existing structure, including lead removal issues.	$500,000		$2,000,000	40%	60%	$625,000	$625,000
8	Increased cost due to environmental impacts.	$500,000	$750,000	$1,000,000	60%	80%	$525,000	$525,000
9	Conflict with any existing utilities.	$200,000		$500,000	40%	60%	$175,000	$175,000
18	Additional Hazardous Material Removal	$200,000		$500,000	40%	60%	$175,000	$175,000
20	Design conflicts between electrical, mechanical and structural elements may be discovered during ISDs preparation or during construction	$200,000		$500,000	40%	60%	$175,000	$175,000
4	A differing site condition (excluding existing utilities and bridge structure, and additional hazardous materials). This issue is only in relation to EB abutment and Roadway.	$200,000		$500,000	40%	60%	$175,000	$175,000
23	Access to Bike path temporary parking lot	$200,000	$250,000	$600,000	20%	40%	$105,000	$105,000
19	Changes to expansion joints design	$0		$500,000	20%	40%	$75,000	$75,000
6	Working Drawings Review and RFI Response Time	$0		$500,000	20%	40%	$75,000	$75,000
10	Contract documents not complete at RTL date (mid-2010)	$0		$500,000	0%	20%	$25,000	$25,000
11	Problems with deck alignment matching EB frame 1 constructed by OTD1	$0		$200,000	0%	20%	$10,000	$10,000
						16 Risks - Total Risk Cost:	**$15,723,000**	
CCOs								
1000	Miscellaneous Future CCOs	$0	$2,167,000	$4,334,000	100%	100%	$2,167,000	$2,167,000
						1 CCOs - Total CCO Cost:	**$2,167,000**	

OTD2 Eastbound - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50%Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous

Subtotals	Risks:	$15,723,000
	NOPCs:	$0
	CCOs:	$2,167,000
50% Probable Risk Management Cost		$17,890,000

Self-Anchor Suspension - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50%Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous
Risks								
1	Schedule: Potential delay during construction	$78,000,000	$123,000,000	$175,000,000	100%	100%	$125,333,000	$60,000,000
105	Fabrication: East End (Lifts 12 - 14)	$50,000,000		$100,000,000	80%	100%	$67,500,000	$67,500,000
94	Tower Fabrication: Fit-up issues	$30,000,000		$50,000,000	40%	60%	$20,000,000	$28,000,000
93	OBG & Cross Beam Fabrication: Fit-up issues (Excludes East End)	$20,000,000		$50,000,000	40%	60%	$17,500,000	$17,500,000
91	OBG Fabrication: Welding issues - Excludes East End	$10,000,000		$20,000,000	60%	80%	$10,500,000	$10,500,000
92	Tower Fabrication: Welding issues	$10,000,000		$30,000,000	40%	60%	$10,000,000	$13,500,000
79	Tower Installation: Fit-up issues excluding base alignment	$10,000,000		$25,000,000	40%	60%	$8,750,000	$8,750,000
80	Tower Installation: Welding issues	$10,000,000		$30,000,000	20%	60%	$8,000,000	$8,000,000
69	OBG Working Drawings: East End Complexity Challenges (Excludes Fabrication)	$4,000,000		$8,000,000	80%	100%	$5,400,000	$6,750,000
52	Painting: OBG issues during fabrication	$4,000,000		$11,000,000	60%	80%	$5,250,000	$4,900,000
81	OBG & Cross Beam Installation: Welding Issues in the Field	$5,000,000		$10,000,000	20%	60%	$3,000,000	$3,000,000
82	OBG & Cross Beam Installation: Deck Lift Fit-up Issues	$5,000,000		$10,000,000	20%	60%	$3,000,000	$3,000,000
73	Cable Engineering: Geometry challenges - Theoretical Modeling	$2,000,000		$10,000,000	40%	60%	$3,000,000	$3,000,000
45	Tower Installation: Base fit-up and alignment issues	$1,000,000		$10,000,000	40%	60%	$2,750,000	$2,750,000
64	Escalation: Operating Cost Volatility	$1,000,000		$10,000,000	40%	60%	$2,750,000	$2,750,000
25	OBG Installation: Deck and Hinge Pipe Beams integration with Skyway (Excludes Shear Key)	$1,000,000		$8,000,000	40%	60%	$2,250,000	$2,250,000
84	OBG Installation: MEP issues	$1,000,000		$5,000,000	60%	80%	$2,100,000	$2,100,000
99	Cable Field Installation: Installation of Parallel Wire Strand (PWS)	$4,000,000		$10,000,000	20%	40%	$2,100,000	$600,000
68	Erection Methods: Contractor chooses erection methods which ultimately may not be acceptable.	$1,000,000		$10,000,000	20%	40%	$1,650,000	$1,650,000
86	Tower Working Drawings: Submittals and review	$500,000		$5,000,000	40%	60%	$1,375,000	$1,375,000
88	Cable Engineering: Working Drawing Issues associated with Review and Approval	$500,000		$5,000,000	40%	60%	$1,375,000	$1,375,000

Self-Anchor Suspension - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50%Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous
46	OBG Installation: Fit-up problems due to shear keys fabricated separately from box and shortening not happening as planned.	$1,000,000		$3,000,000	40%	60%	$1,000,000	$1,000,000
58	Escalation: Claims due to currency exchange rate fluctuations	$1,000,000		$5,000,000	20%	40%	$900,000	$900,000
21	Forgings and Castings: Conflicts or differing opinions	$1,000,000		$5,000,000	20%	40%	$900,000	$1,500,000
75	Cable Field Installation: Issues with Load Transfer	$500,000		$5,000,000	20%	40%	$825,000	$825,000
77	Sole Source Procurement: Issues with sole source items excluding Cable and Cable Wrapping (S-Wire)	$500,000		$5,000,000	20%	40%	$825,000	$2,475,000
32	Environmental: Unforeseen events	$2,000,000		$12,000,000	0%	20%	$700,000	$3,500,000
78	Painting: OBG issues in field	$500,000		$2,000,000	40%	60%	$625,000	$375,000
95	Painting: Tower issues during fabrication	$500,000		$2,000,000	40%	60%	$625,000	$625,000
96	Painting: Tower issues in field	$500,000		$2,000,000	40%	60%	$625,000	$625,000
97	Painting: Cable issues in field	$500,000		$2,000,000	40%	60%	$625,000	$625,000
37	Traveler System Redesign - Potential for Delays due to Design Complexities	$300,000		$1,500,000	40%	60%	$450,000	
27	Weather: Delays to epoxy AC operations	$0		$3,000,000	20%	40%	$450,000	$750,000
51	Shipping: Potential damage to structures during transport	$1,000,000		$2,000,000	20%	40%	$450,000	$450,000
90	Permits: Waterway	$1,000,000		$7,000,000	0%	20%	$400,000	$1,200,000
74	Cable Field Installation: Installation of Temporary Works	$500,000		$2,000,000	20%	40%	$375,000	$375,000
100	Cable Field Installation: Cable Wrapping and Cable Bands	$500,000		$2,000,000	20%	40%	$375,000	$375,000
106	Pipe Beam Fabrication - Hinge K	$1,000,000		$3,000,000	0%	20%	$200,000	$200,000
103	Temporary Tower: Install	$500,000		$2,000,000	0%	20%	$125,000	$125,000
35	Cable Procurement: Fabrication or delivery of cable	$500,000		$2,000,000	0%	20%	$125,000	$275,000
23	W2: Construction issues with saddles	$10,000		$2,000,000	0%	20%	$100,000	$100,000
70	East End (OBG) Fabrication: Competition for shop space and resources with other contracts.				40%	60%		
71	OBG Fabrication: Machinery breakdown				40%	60%		
49	Tower Fabrication: Machinery breakdown				60%	80%		

Self-Anchor Suspension - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range Low	Cost Range Most Likely	Cost Range High	Probability Low	Probability High	50%Probable Cost Current	50%Probable Cost Previous
98	Cable Procurement: Wrapping Wire (S-Wire)				40%	60%		
104	Variations of Vessel Transporation Times				0%	20%		
						46 Risks - Total Risk Cost:	**$314,283,000**	
NOPCs								
57	NOPC 6: Hinge Pipe Beam submittal approval caused a delay	$0		$1,800,000	20%	40%	$270,000	$270,000
63	NOPC 7 Escalation cost for NOPC 1 issues	$0		$1,000,000	30%	70%	$250,000	$250,000
107	NOPC #11 - QA Samples of Threaded Fasteners	$100,000	$400,000	$1,000,000	10%	60%	$175,000	$175,000
108	NOPC #12 - State Sales Tax Increase							
						4 NOPCs - Total NOPC Cost:	**$695,000**	
CCOs								
108	CCO - Global Resolution of Fabrication Issues in China - Excludes East End	$20,000,000	$55,000,000	$60,000,000	100%	100%	$45,000,000	
26	Miscellaneous admin/technical CCOs	$0	$39,760,000	$82,880,000	100%	100%	$39,760,000	$39,760,000
111	Extra Work Required to Develop Shop Drawings (Excludes the East End)	$5,000,000		$17,000,000	100%	100%	$11,000,000	$11,000,000
112	Additional Compensation for Drafting East End Shop Drawings	$4,500,000		$15,000,000	100%	100%	$9,750,000	$9,750,000
109	CCO #89 - Revised Acceptance Criteria for Welding	$1,000,000		$15,000,000	100%	100%	$8,000,000	$8,000,000
110	Variations of the agreed Values of the Change Orders listed in Appendix "A" in CCO #108	$0		$10,800,000	100%	100%	$5,400,000	$5,400,000
67	Cost variation of CCO 77 - Green Tag	$1,000,000		$5,000,000	100%	100%	$3,000,000	$3,000,000
68	Cost variation on CCO 24 - Traveler Redesign	$1,000,000	$2,000,000	$3,500,000	100%	100%	$2,167,000	$3,000,000
54	Various potential CCOs identified on Contract Change Request log	$0	$1,300,000	$3,900,000	100%	100%	$1,733,000	$1,733,000
						9 CCOs - Total CCO Cost:	**$125,810,000**	

Self-Anchor Suspension - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50%Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous

Subtotals	Risks:	$314,283,000
	NOPCs:	$695,000
	CCOs:	$125,810,000
50% Probable Risk Management Cost		$440,788,000

YBI Detour - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range Low	Cost Range Most Likely	Cost Range High	Probability Low	Probability High	50%Probable Cost Current	50%Probable Cost Previous
Risks								
39	Demolition of the existing structure is more complex then envisioned.	$2,500,000	$6,250,000	$10,000,000	40%	60%	$3,125,000	$3,125,000
9	Geotech Differing Site Condition.	$2,000,000	$3,000,000	$4,000,000	20%	40%	$900,000	$900,000
55	Third party restrictions (excluding Coastguard access requirements).	$0	$1,500,000	$2,000,000	40%	60%	$583,000	$583,000
20	Conflicts or differing opinions over welding causes delay to the project or increased costs.	$1,000,000		$2,500,000	0%	20%	$175,000	$175,000
68	Price escalation on materials for future CCO work	$0	$270,000	$540,000	20%	40%	$81,000	$81,000
21	Environmental restrictions, particularly sound limitations, cause delay or additional cost.	$0	$25,000	$50,000	20%	40%	$8,000	$8,000
28	Delay in construction beyond anticipated completion date in the Strategy Document (Dec 2010).				0%	1%		
						7 Risks - Total Risk Cost:	**$4,872,000**	
NOPCs								
70	State Sales Tax Increase April 2009	$75,000	$100,000	$200,000	0%	100%	$62,000	$62,000
32	NOPC 18- Claim for subcontractor overhead not included in TRO.	$0	$0	$400,000	20%	40%	$40,000	$40,000
						2 NOPCs - Total NOPC Cost:	**$102,000**	
CCOs								
33	Miscellaneous CCOs	$0	$5,000,000	$10,000,000	100%	100%	$5,000,000	$5,400,000
59	Direct Cost variance of ETI from the current Implementation Strategy.	$0	$5,000,000	$10,000,000	100%	100%	$5,000,000	$5,000,000
60	Direct cost variance of the Advanced YBI Structures from the current Implementation Strategy.	$0	$1,500,000	$3,000,000	100%	100%	$1,500,000	$1,500,000
61	Cost variance of various Administrative issues over the current Implementation Strategy.	$0	$1,000,000	$3,000,000	100%	100%	$1,333,000	$1,333,000
56	Direct cost variance of New Viaduct from the current Implementation Strategy.	$0	$1,000,000	$3,000,000	100%	100%	$1,333,000	$2,000,000
58	Direct cost variance of WTI Phase 2 from the current Implementation Strategy.	$0	$1,000,000	$3,000,000	100%	100%	$1,333,000	$2,333,000

YBI Detour - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50%Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous
55.1	Additional Stairway Access to USCG	$0	$500,000	$1,000,000	100%	100%	$500,000	$500,000
57	Direct cost variance of WTI Phase 1 from current Implementation Strategy.	$0	$250,000	$500,000	100%	100%	$250,000	$250,000
						8 CCOs - Total CCO Cost:	$16,249,000	

Subtotals	Risks:	$4,872,000
	NOPCs:	$102,000
	CCOs:	$16,249,000
50% Probable Risk Management Cost		$21,223,000

YBI#1 Mainline Structures - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range			Probability		50%Probable Cost	
		Low	Most Likely	High	Low	High	Current	Previous
Risks								
40	Construction delay of YBI1 by SAS after YBITS 1 award	$15,000,000	$18,000,000	$22,000,000	100%	100%	$18,333,000	$4,275,000
41	Gap in Construction due to early award of YBITS 1 contract	$8,000,000	$9,000,000	$10,000,000	100%	100%	$9,000,000	$1,680,000
24	Delay in Construction (TRO+)	$4,300,000	$5,200,000	$6,000,000	100%	100%	$5,167,000	$4,433,000
22	Unstable slopes around structure excavations or stability design issues.	$5,000,000	$5,000,000	$10,000,000	40%	60%	$3,333,000	$3,333,000
32	Conflicts between electrical, mechanical, and structural elements	$2,000,000		$6,000,000	60%	80%	$2,800,000	$1,750,000
42	Addenda items not incorporated before bid open and are added later as a CCO.	$200,000	$5,000,000	$10,000,000	40%	60%	$2,533,000	$2,533,000
7	A differing site condition (includes man-buried objects, utilities, and hazardous materials).	$1,000,000		$5,000,000	60%	80%	$2,100,000	$2,100,000
44	Yet-to-be-approved addenda Items expected to be added to the Estimate	$1,347,280		$2,694,560	90%	100%	$1,920,000	$7,502,000
28	Construction impacts public traffic on local roads more than provided for in the contract.	$200,000		$5,000,000	60%	80%	$1,820,000	$1,820,000
30	SSD advance work is different than shown on the YBI plans	$1,000,000		$5,000,000	40%	60%	$1,500,000	$1,500,000
6	Department not reviewing working drawings in a timely manner.	$1,000,000		$3,000,000	40%	60%	$1,000,000	$1,000,000
23	Unforeseen environmental issues.	$1,000,000		$5,000,000	20%	40%	$900,000	$900,000
9	Construction noise exceeding permit with Coast Guard	$0	$1,000,000	$3,000,000	40%	60%	$667,000	$400,000
27	Construction impacts public traffic on mainline more than provided for in the contract.	$200,000		$1,000,000	20%	40%	$180,000	$180,000
34	Potential for damage to new duct bank portion constructed by SSD contractor.	$500,000		$3,000,000	0%	20%	$175,000	$175,000
26	A utility line to be relocated by others is not relocated in time or encounters a differing site condition	$200,000	$200,000	$1,000,000	20%	40%	$140,000	$140,000
13	YBI expansion joint design could be changed at advertise or after award.	$0	$400,000	$1,000,000	20%	40%	$140,000	$140,000
35	Creep and shrinkage on the YBI structure takes longer than the contract specified time.	$200,000		$1,000,000	0%	20%	$60,000	$60,000

YBI#1 Mainline Structures - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range Low	Cost Range Most Likely	Cost Range High	Probability Low	Probability High	50%Probable Cost Current	50%Probable Cost Previous
8	Conflicts or differing opinions over welding.	$0	$0	$200,000	0%	20%	$7,000	$7,000
						19 Risks - Total Risk Cost:	**$51,775,000**	
CCOs								
1000	Miscellaneous administrative/technical CCOs	$0	$8,200,000	$16,400,000	100%	100%	$8,200,000	$7,140,000
						1 CCOs - Total CCO Cost:	**$8,200,000**	

Subtotals	**Risks:**	**$51,775,000**
	NOPCs:	**$0**
	CCOs:	**$8,200,000**
50% Probable Risk Management Cost		**$59,975,000**

YBI#2 Post Traffic Switch - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range Low	Cost Range Most Likely	Cost Range High	Probability Low	Probability High	50%Probable Cost Current	50%Probable Cost Previous
Risks								
31	Demolition of SSD structure could impact USCG property or new structure.	$5,000,000		$10,000,000	80%	100%	$6,750,000	$6,750,000
38	Scope Increase	$5,000,000		$10,000,000	60%	80%	$5,250,000	
24	Delay in Construction (TRO+)	$360,000		$2,160,000	99%	100%	$1,260,000	$1,260,000
35	Addenda items not incorporated before bid open and are added later as a CCO.	$100,000	$1,000,000	$2,500,000	40%	60%	$600,000	$600,000
10	Construction negatively impacts public traffic more than provided for in the contract.	$200,000		$2,000,000	40%	60%	$550,000	$550,000
22	Unstable slopes around structure excavations or stability design issues.	$500,000		$1,000,000	40%	60%	$375,000	$375,000
23	Unforeseen environmental issues.	$500,000		$1,000,000	40%	60%	$375,000	$375,000
26	An unforeseen utility line that may need to be relocated by others is not relocated in time or encounters a differing site condition	$500,000		$1,000,000	40%	60%	$375,000	$375,000
7	A differing site condition (includes utilities and hazardous materials) excluding utilities relocated by others.	$500,000		$1,000,000	40%	60%	$375,000	$375,000
30	Scope growth due to change in USCG desires	$200,000	$500,000	$750,000	40%	60%	$242,000	$242,000
9	Construction noise exceeding license with Coast Guard	$500,000		$1,000,000	20%	40%	$225,000	$225,000
36	Conflicts between electrical, mechanical, and structural elements	$200,000		$1,000,000	20%	40%	$180,000	$180,000
6	Department not reviewing working drawings in a timely manner.	$200,000		$500,000	20%	40%	$105,000	$105,000
37	Conflicts between YBITS2 plans and the YBITS1 as-built conditions.	$500,000		$1,000,000	0%	20%	$75,000	$75,000
32	YBI2 design cannot be finalized until the YBID as-builts (relating to the demolition) are complete.	$500,000		$1,000,000	0%	20%	$75,000	$75,000
14	Design is not complete at RTL date.	$0		$735,000	0%	20%	$37,000	$37,000
34	Changes to expansion joints design	$0		$500,000	0%	20%	$25,000	$25,000
8	Conflicts or differing opinions over welding.	$0	$0	$200,000	0%	20%	$7,000	$7,000
						18 Risks - Total Risk Cost:	**$16,881,000**	

YBI#2 Post Traffic Switch - Quantitative Analysis

Quarter ending September 30, 2009

ID #	Title	Cost Range Low	Cost Range Most Likely	Cost Range High	Probability Low	Probability High	50%Probable Cost Current	50%Probable Cost Previous
CCOs								
1000	Miscellaneous admin/technical CCOs	$0	$1,716,000	$3,432,000	100%	100%	$1,716,000	$1,716,000
						1 CCOs - Total CCO Cost:	**$1,716,000**	

Subtotals	**Risks:**	**$16,881,000**
	NOPCs:	**$0**
	CCOs:	**$1,716,000**
50% Probable Risk Management Cost		**$18,597,000**

Capital Outlay Support - Quantitative Analysis

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending: **September 30, 2009**

***Cost Differential is measured from Current COS Budget**

Contract	ID #	Code	TREND/RISK EVENT	Probability of occurrence	Range Estimate: Optimistic	Range Estimate: Most Likely ($M)	Range Estimate: Pessimistic	50% Probable Cost Differential* ($M)
GLOBAL	GLO-1	g	FY 06-07 Department Overhead Rate	100%	$3.9	$3.9	$3.9	$3.9
GLOBAL	GLO-2	g	FY 07 - 08 Department Overhead rate	100%	$3.3	$3.3	$3.3	$3.3
GLOBAL	GLO-7	g	FY 08-09 Department Overhead rate	100%	($1.8)	($1.8)	($1.8)	($1.8)
GLOBAL	GLO-7.1	g	FY 09-10 Department Overhead rate	100%	-10%	($1.3)	10%	($1.3)
GLOBAL	GLO-2.1	g	Department OH rate after June 2010	100%	-$3.6	$1.9	$8.6	$2.3
GLOBAL	GLO-3	g	FY 06-07 State wage variation	100%	$1.6	$1.6	$1.6	$1.6
GLOBAL	GLO-4	g	FY 07-08 State wage variation	100%	$4.3	$4.3	$4.3	$4.3
GLOBAL	GLO-5	g	FY 08-09 State wage variation	100%	$6.9	$6.9	$6.9	$6.9
GLOBAL	GLO -5.1	g	FY 09-10 State wage variation	100%	-10%	$5.7	10%	$5.7
GLOBAL	GLO-6	g	Impact of previous rate increases on budget remaining after Jun 2010	100%	-10%	$22.1	10%	$22.1
GLOBAL	GLO-6.1	g	Variation in State & A/E salary increases after June 2010	100%	-100%	$1.2	200%	$1.6
GLOBAL	GLO-8	g	Reduction for West Approach, R/SR & Misc Project Expense Impacts	100%	0%	($5.7)	0%	($5.7)
PROGRAM	PRO-1	c	Increase in COS cost for modifying MEP systems and/or	100%	-20%	$1.8	20%	$1.8
PROGRAM	PRO-2	c	Incorporation of light pipe into new bridge. - Ref: CO risk #35	10%	-15%	$1.5	15%	$0.2
PROGRAM	PRO-3	c	Incorporation of BASE system into new bridge (needed by CHP) - Ref.: CO risk #33	90%	-15%	$0.9	15%	$0.8
PROGRAM	PRO-4	c	Cost of cross delays between projects Ref.:Corridor risk #1, 45					$0.0
PROGRAM	PRO-5	c	Secondary access to USCG facilities. Ref.: CO risk #41	50%	-50%	$2.8	50%	$1.4
PROGRAM	PRO-6	c	Coordination of W/B opening. Ref.: CO Risk #46	50%	-25%	$1.0	25%	$0.5
PROGRAM	PRO-7	c	Redesign of Traffic Operating System. Ref.: CO Risk #47	100%	-33%	$1.5	33%	$1.5
PROGRAM	PRO-8	c	Architectural/Aesthetic Modifications- Ref.: CO Risk #48	90%	-25%	$1.0	50%	$1.0
PROGRAM	PRO-9	c	SFCTA Ramps on YBI - Ref. CO Risk #34	10%	-20%	$8.0	30%	$0.8
SKYWAY	SKY-01	r	Final Savings from budgeted amount	100%	0%	($2.7)	0%	-$2.7
SKYWAY	SKY - 01.1		FOIA Support Costs	100%	-15%	$0.2	15%	$0.2
SAS	SAS 18.2	p	Cost of additional A/E staff assigned to China	100%	-10%	$1.8	20%	$1.9
SAS	SAS -22.3	p	Design Insurance Extension	100%	0%	$4.0	0%	$4.0
SAS	SAS-01	s	12 month extension of Contract Time by Addenda 5 & 7	100%	-10%	$18.0	20%	$18.6
SAS	SAS-02	s	12 month extension of Contract Time by Addenda 5 & 7	100%	-20%	$42.0	20%	$42.0
SAS	SAS-02.1	s	CRIP Contract Time extension	100%	-20%	$4.8	20%	$4.8
SAS	SAS-06	p	Increase in overseas travel & living expenses for **State** personnel during fabrication operations Ref. CO Risk 11 (partial), 28, 38, 39, 40	100%	-10%	$4.0	20%	$4.1
SAS	SAS-08	r	Transfer of work from State to Consultant - Ref.: SAS CO Risk# 9 & 10, 44	70%	-20%	$3.3	10%	$2.2
SAS	SAS-09	s	Schedule delays resulting from complexity of work - Ref.: SAS CO Risk# 1, 9 Excludes overseas METS effort covered under SAS - 18.3	100%	$76.0	$94.6	$113.0	$94.5
SAS	SAS-10	r	Additional resource needs due to complexity of work - Ref.: SAS CO Risk# 2000, 72, 105	100%	-10%	$9.0	20%	$9.3
SAS	SAS-15	p	Additional Technical Consultant contracts for work in China	50%	-25%	$3.0	10%	$1.4
SAS	SAS-16	p	Overseas expenses - In Country support personnel	100%	-25%	$0.3	25%	$0.3
SAS	SAS-17	p	Overseas travel & living expenses - Tax Equalization Ref. CO Risk 28, 40	10%	-15%	$1.4	5%	$0.1
SAS	SAS-18	p	**METS** overseas travel & living expenses during fabrication operations that are in excess of deduction specified in Contract Specifications ($3.58M). Ref. CO Risk 11 (partial), 28, 38, 39, 40	100%	-10%	$13.2	20%	$13.7
SAS	SAS-18.1	p	Design & construction **consultant staff** overseas expenses.	100%	-10%	$3.0	20%	$3.1
SAS	SAS-18.3	p	Overseas Fabrication Delay	100%	$18.2	$24.2	$31.2	$24.5
SAS	SAS-19	r	Productivity loss or additional resources to handle submittal	70%	-10%	$1.5	25%	$1.1
SAS	SAS-20	r	Redesign of traveler rail, dynamic brakes & anti-skew device	100%	0%	$0.2	20%	$0.2
SAS	SAS-21	p	Visa restrictions in China	90%	-15%	$0.2	15%	$0.2
SAS	SAS-21	r	Cost to mitigate inadequate contractor quality control. Ref.: CO risk #56	100%	-10%	$4.2	20%	$4.3
SAS	SAS-23	r	Design of temp. support following load transfer. Ref: CO Risk #110	10%	-10%	$5.7	20%	$0.6
SAS	SAS-24	r	Additional METS personnel in US	100%	-10%	$1.0	25%	$1.1
SAS	SAS-25	p	Incentive program for design services. Ref.: Item 3a, Minutes of 8/7/09 TBPOC meeting (Included in package for 9/2/09 meeting)	10%	-10%	$1.0	50%	$0.1
SSD	SSD-02	s	Construction pacing with corridor schedule Ref.; CCO 24, proposed CCO 42	100%	-25%	($7.2)	25%	-$7.2
SSD	SSD-04	p	Design of east Tie- In Ref.: CO risk# 40	100%	-10%	$14.6	20%	$15.1
SSD	SSD-09	r	Design & monitoring of additional environmental mitigation measures. Ref.: CO Risk# 21	30%	-25%	$0.5	25%	$0.2
SSD	SSD-12	s	Construction delays other than CO#24 & pacing. Ref.: CO Risk#28, 64, 91, S2	100%	-10%	$12.0	20%	$12.4
SSD	SSD-12.1	s	Additional potential delays beyond Dec 10, 2010. Ref CO	0%	$0.0	$1.0	$2.3	$0.0
YBITS	YBI -05	p	Additional cost to split project into 3 contracts	100%	-20%	$7.3	15%	$7.2
YBITS	YBI#1-01	s	Delay in Construction - Ref.: CO risk#24	100%	$4.4	$6.0	$6.8	$5.7
YBITS	YBI#1-01.1	s	Impact of additional SAS delays	100%	-30%	$1.8	33%	$1.8
YBITS	YBI#1-01.2	r	Cost of gap in YBITS 1 current schedule	100%	-10%	$8.8	10%	$8.8
YBITS	YBI#1-01.3	s	Delay risks from SAS increase the gap	100%	$8.4	$12.0	$16.8	$12.4

Capital Outlay Support - Quantitative Analysis

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending: **September 30, 2009**

***Cost Differential is measured from Current COS Budget**

Contract	ID #	Code	TREND/RISK EVENT	Probability of occurrence	Range Estimate: Optimistic	Range Estimate: Most Likely ($M)	Range Estimate: Pessimistic	50% Probable Cost Differential* ($M)
YBITS	YBI#1-02	r	Additional resources to investigate differing site conditions - Ref.: CO risk# 7, 30	70%	-25%	$0.4	25%	$0.3
YBITS	YBI#1-04	r	Insufficient resources for timely review of contractor submittals Ref.: CO Risk# 6	50%	-30%	$0.3	30%	$0.2
YBITS	YBI#1-06	r	Conflict between SSD advance work and YBI plans - Footings may not be built to accept YBI design. Ref. also CO risk# 30	50%	-20%	$0.5	20%	$0.3
YBITS	YBI#1-08	r	Electrical/mechanical conflicts with structural elements result	50%	-10%	$0.2	25%	$0.1
YBITS	YBI#1-09	r	design/investigations for ductbank repairs. Ref.: CO Risk# 34	10%	-50%	$0.2	50%	$0.0
YBITS	YBI#1-11	p	Impact of new ramps proposed by SFCTA	90%	-20%	$1.3	5%	$1.1
YBITS	YBI#1-12	r	Additional shop drawing costs. Ref.: TBPOC meeting 6/4/09 Item 3a, Para 4.c.1	100%	-10%	$1.0	10%	$1.0
YBITS	YBI#2-01	s	Delay in Construction - Ref.: CO risk# 24	100%	-67%	$2.4	100%	$2.7
YBITS	YBI#2-03	r	Additional resources to investigate differing site conditions - Ref.: CO risk# 7	85%	-25%	$0.4	25%	$0.3
YBITS	YBI#2-05	r	Scope growth required by USCG - Ref.: CO Risk# 30	20%	-25%	$1.5	25%	$0.3
YBITS	YBI#2-06	s	Delay in listing contract for bid. Ref. CO Risk#14	30%	-25%	$1.0	25%	$0.3
YBITS	YBI#2-07	r	YBI design scope growth to coordinate with West tie-in design - Ref.: CO Risk# 32	10%	-50%	$0.5	50%	$0.1
YBITS	YBI#2-10	r	Cost to study and/or retain experts to evaluate demolition	90%	-15%	$0.3	25%	$0.3
YBITS	YBI#2-09	r	Change in design standards	100%	-10%	$0.2	10%	$0.2
YBITS	YBI#2-11	r	Incorporation of YBI #1 as builts into design Ref.: CO Risk #32, 37	10%	-15%	$0.3	15%	$0.0
YBITS	YBI#2-12	r	Scope Growth Ref.: CO Risk# 38	100%	-10%	$0.8	25%	$0.8
E2T1	E2T1-01	r	Final Savings from budgeted amount	100%	0%	($4.1)	0%	-$4.1
OTD PARENT	OTD-01	r	OTD Split	100%	-10%	$8.5	10%	$8.5
NAVY CABLE	OTD- K6	r	Final Savings from budgeted amount	100%	0%	($2.5)	0%	-$2.5
OTD WESTBOUND	OTD - L14	r	Estimated cost at completion	N/A	0%	$0.0	0%	$0.0
OTD WESTBOUND	OTD-L3	s	Additional delays during construction. Ref.: CO Risk# 23	80%	-10%	($2.0)	10%	-$1.6
OTD WESTBOUND	OTD-L3.1	s	Approved Time Extensions	100%	-10%	$4.2	10%	$4.2
OTD WESTBOUND	OTD-L5	r	Differing site conditions requiring additional research, investigation & design. Ref.: CO Risks 18, 4, 5,33, 32	60%	-30%	$0.5	30%	$0.3
OTD WESTBOUND	OTD-L6	r	Environmental mitigation measures Ref.: CO Risk# 24	30%	-30%	$0.5	30%	$0.2
OTD WESTBOUND	OTD-L9	r	Constructability issues with misaligned pipe beams, deck alignment - Ref.: CO Risk# 20, 21	30%	-20%	$0.5	20%	$0.2
OTD EASTBOUND	OTD-M1	s	Escalation for delayed start due to extended SAS schedule	85%	-10%	$0.5	15%	$0.4
OTD EASTBOUND	OTD -M1.1	s	Delays in switching W/B traffic will also delay demo of ext'g OTD structure, delaying project completion	0%	-30%	$1.0	30%	$0.0
OTD EASTBOUND	OTD-M2	s	Delays during construction Ref: CO Risk# 2	100%	-40%	$1.9	60%	$2.0
OTD EASTBOUND	OTD-M2.2	s	Schedule accelleration costs - Ref.: CO Risk #3	70%	-20%	$2.3	20%	$1.6
OTD EASTBOUND	OTD-M3	r	Support for resolving different site conditions Ref.: CO Risk# 4, 5, 9	50%	-25%	$0.5	25%	$0.3
OTD EASTBOUND	OTD-M5	r	Investigations related to additional Hazardous materials. Ref. CO Risk# 18	50%	-25%	$0.3	25%	$0.1
OTD EASTBOUND	OTD-M6	r	Change in design standards	100%	-10%	$0.2	10%	$0.2
OTD EASTBOUND	OTD-M7	s	Extended design participation due to later RTL date. Ref.: CO Risk# 10	10%	-25%	$0.5	25%	$0.1
OTD EASTBOUND	OTD-M8	r	Potential closure of bridge to all traffic Ref: CO Risk# 7	70%	-20%	$0.3	20%	$0.2
OTD EASTBOUND	OTD - M9	r	Scope increase Ref CO Risk 25	70%	-10%	$0.3	25%	$0.2
STORMWATER	SPW-07	r	Burn rate analysis	100%	-10%	($0.3)	10%	-$0.3
DEMOLITION	DEM-01	s	Escalation for delayed contract start due to SAS schedule extension	80%	-15%	$2.4	15%	$1.9
DEMOLITION	DEM-02	r	Bottoms Up Estimate Revision to AB 144 Budget	75%	10%	($46.6)	-25%	-$33.2
W. APPROACH	WA-04	s	Completion Schedule	100%	-10%	(3.0)	10%	-$3.0
								$320.3

Corridor Program - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
Risks										
1		**No recovery of SAS schedule**	Moderate	Very High	$80,000,000 180	180	$120,000,000 180	High days	None	Jon Tapping
	Description:	Recovery opportunities identified and incorporated into the Q3 2009 Corridor Schedule and/or the SAS contractor are not realized.								
	Assumptions / Current Status:	The recovery opportunities are assumed to be realized in the Corridor Schedule used for schedule risk analysis of contracts. The impacts of SAS are included in the contract risk registers. In early 2009 the SAS contractor presented a recovery plan to the TBPOC that recovered one year. Additional delays have occured since that time and some opportunities may not be realized.								
	Rationale:	Assume OTD2 will be paced to SAS contract status. YBITS1 TRO+ cost: 180 days @ $ 35-45K per day = $6-8M SAS TRO+ cost: 180 days @ $250-400K per day = $45-80M COS cost: 6 months @ $ 5 M per month = $30 M.								
	Description of Impacts:	Causes additional TRO+ delay cost to YBITS 1 and SAS, and adds time to COS costs of these contracts. Delays follow on contracts (YBITS 2, OTD 2 and Demolition) adding escalation and COS costs.								
	Response Actions:	Recover SAS schedule delays. Partner and open discussions with the SAS contractor on means and methods to develop a joint schedule for planning purposes.								
42		**Escalation of unawarded contracts due to delays**	Moderate	Very High	$60,000,000	$90,000,000	$120,000,000	None	None	Rein Lemberg
	Description:	A delay arising from the SAS schedule could affect the cost of the unawarded contracts (YBI 2, OTD 2 and Existing Bridge Demolition).								
	Assumptions / Current Status:	YBI 2, OTD 2 and Existing Bridge Demolition contracts are estimated according to the Approved corridor schedule. Escalation assumed at 5% per year per Department standard.								
	Rationale:	Assuming SAS recovery, potential delays range from 19 to 27 months. Escalation range: 5,6,8% the top numbers from AGC forecast (as in #43). Use simulation to combine. Result is $70-130M. SAS delay increased by 7.5 months between ABF's May and August updates.								
	Description of Impacts:	Unawarded contracts estimated at $400 million would be at risk of increased cost due to escalation.								
	Response Actions:	Recover SAS schedule.								
17		**Cost of MEP Systems increases due to scope changes and problems during systems testing**	Very High	High	$25,000,000 0	$33,000,000	$50,000,000 60	Very Low days	None	Saeed Shahmirzai
	Description:	Electrical hookups are one of the last elements of the bridge work. The final electrical and mechanical systems integration work must be completed before opening to traffic. The contractor doing MEP systems integration could find problems with previous work of other contractors.								
	Assumptions / Current Status:	This does not include scope of light pipe and BASE items. It has yet to be decided which contractor will verify that the entire East Span MEP system works properly. Capital cost estimates may not cover the full scope of MEP systems because of changes to scope of existing contracts. Scope for MEP system testing across the whole bridge is expected in Winter 2009. System testing could find problems that must be corrected. Bridge opening could be delayed by uncertainty about how much of the TOS will be required. Currently do not have a TOS design.								
	Rationale:	This is an additional contingency for fixing problems above those discovered on the individual contracts. It is to cover risks over and above the $10.5MI in SAS and $900k in OTD2 for MEP risks and it covers cost of work deleted from the Skyway & OTD1 Projects. The MEP coordinator estimates that the procurement of the Light Poles will cost approx $17M and the cost of integration work (excluding BASE work) is $16.5M. The schedule impact is very low assuming that this work can be done early and will not effect corridor delivery. Cost of delays to future contracts is covered in risk #1.								
	Description of Impacts:	Bridge cannot be opened to traffic without adequate lighting and other traffic controls being operable. Could affect opening Westbound to traffic.								
	Response Actions:	Task force has assigned an MEP coordinator/integrator who is assembling a team. Planning to consolidate the systems testing. Working on an implementation plan. 65% submittal has been reviewed. First CCO to SAS planned for end of year.								
43		**Higher Escalation Rate for unawarded contracts**	Low	Moderate	$10,000,000	$20,000,000	$40,000,000	None	None	Rein Lemberg
	Description:	The escalation rate could be higher than the standard 5% used in developing the estimates of the unawarded contracts. Price of construction materials and commodity costs are forecast to rise beyond 2009.								
	Assumptions / Current Status:	AGC forecasts 6-8% rate beyond 2009. Caltrans estimates use 5% per year.								
	Rationale:	Escalation rate: 5%,6%,8% for 4 years (to mid-point of construction). Simulation result: $10,20,40M								
	Description of Impacts:	Unawarded contracts current estimate is $400 million, with mid-point of construction in mid-2012 (4 years out). Mid-point of construction is not changed in this risk (it is covered by risk #42).								

Corridor Program - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
15		**Additional costs and possible delays arising from renewal of permits.**	High	Low	$5,000,000		$10,000,000	None	None	Stefan Galvez-Abadia
	Description:	The BCDC permit expires in 2010. There may be some delays in the renewal process or due to additional requirements being imposed by the agencies. Impact is mainly to cost.								
	Assumptions / Current Status:	Individual projects are tracking their permits. Counting on program management to ensure that permits are renewed on time. SAS is covering water and marine access. Demo contract may have issues with noise, lead paint, etc. NOAA and IHA have raised concerns. Updated permit could impact demolition of existing bridge and pile-driving from YBI to SAS Tower.								
	Rationale:	May require bubble curtains and other costs to meet permit conditions. Probability raised to high because terms of original permit are likely to change.								
	Response Actions:	Renew permits on time.								
49		**Additional work on Skyway**	Very High	Very Low	$3,000,000		$5,000,000	None	None	Rich Foley
	Description:	This item covers all of the work that remains on the Skyway, including items to make it conform in appearance to the rest of the bridge.								
	Assumptions / Current Status:	Cost uncertainty is the only issue.								
	Rationale:	Work is identified but cost is uncertain. Estimate from Rob Kobal.								
48		**Corridor clean-up**	Very High	Very Low	$2,000,000		$6,000,000	None	None	Rich Foley
	Description:	Work to make the corridor uniform in appearance.								
51		**State material tax increase for unawarded contracts.**	Very High	Very Low	$2,000,000		$3,000,000	None	None	Jon Tapping
	Description:	State material tax increase increases cost of unawarded contracts.								
	Assumptions / Current Status:	The effect of the tax increase is not in the estimates of the unawarded contracts.								
	Rationale:	Estimated at $3K-$5K per million of contract value. Assumes 30-50% of contract value is materials cost and 1% tax increase.								
50		**State material tax increase**	Low	Low	$5,000,000		$8,000,000	None	None	Jon Tapping
	Description:	State material tax increase could add cost to ongoing contracts.								
	Assumptions / Current Status:	Contractors are claiming compensation. Legislation may possibly exempt contractors, or Department may get a favorable ruling from DRB.								
	Rationale:	Estimated for SAS, OTD1 and YBID. 25% likelihood.								
46		**Coordination of WB opening activities.**	Moderate	Very Low	$2,000,000		$4,000,000	None	None	Alec Melkonians
	Description:	Activities leading to Westbound opening are not coordinated among 3 contractors (SAS, OTD2, YBITS). Possibility of a full weekend bridge closure to grind, repave and restripe.								
	Rationale:	Cost is for coordination. Weekend closure cost is in OTD2 register.								
	Response Actions:	Check how much time required, whether night time closure would be enough time.								
40		**YBITS #2: Removal of Temporary Structures on USCG Property**	Moderate	Very Low	$0		$5,000,000	None	None	Limor Rozmarin
	Description:	Some piles may not be removed according to license with USCG. May have to compensate the USCG or remove to extra depth.								
	Assumptions / Current Status:	License with USCG requires 100% removal of all structures.								
	Rationale:	No change								

Corridor Program - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Description of Impacts:	Cost impact only.								
	Response Actions:	Negotiating with USCG								
18		**SSD: Impacts to public traffic.**	Moderate	Very Low	$0		$5,000,000	None	None	Patrick Treacy
	Description:	The detour structure features a lower speed configuration due to the geometry, increasing the potential for traffic accidents. Potential for increased maintenance costs or liability due to traffic accidents until traffic is off the detour.								
	Assumptions / Current Status:	This risk commences upon traffic switch to the detour and lasts until traffic is off the detour. Assuming such maintenance will be performed by the YBITS1 contractor.								
	Rationale:	No change								
	Description of Impacts:	Additional maintenance costs to repair damage caused by traffic accidents.								
	Response Actions:	Allocate funds from program. CCO to YBITS1 contractor as required.								
21		**Advance temporary access to the bike path to coincide with EB bridge opening to traffic.**	High	Very Low	$1,000,000 0	$1,500,000	$2,000,000	Very Low 60 days	None	Patrick Treacy
	Description:	Department is asked to develop alternate temporary bike path routing for advanced access, resulting in design changes to YBITS contracts 1 and 2 and OTD 2.								
	Assumptions / Current Status:	Portions of the bike path at OTD cannot be constructed until EB traffic is moved to the new bridge. Bike path portions at YBI cannot be constructed until removal of the SSD structure and existing pier E1. No decision to advance bike path access at this time.								
	Rationale:	Current estimate update of bike path items. $750K opening bike path on Oakland side; $400K for YBI.								
	Description of Impacts:	Cost impact for design and costs of resequencing construction.								
	Response Actions:	Department has investigated alternate routings. CST has made recommendation.								
29		**Tugboat prevailing wage differential for water taxi work.**	High	Very Low	$0	$1,000,000	$3,000,000	None	None	Patrick Treacy
	Description:	The Dept of Industrial Relations might issue a ruling that determines that prevailing wages are required for water taxi operators on all Toll projects.								
	Assumptions / Current Status:	Response to bidder enquiry on SAS confirmed that water taxi work was not covered under the new DIR determination. Any enforcement of prevailing wages for this work would likely be subject to claim.								
	Rationale:	No change. Risk considers exposure on all past and present Toll Program projects (14 in total) that had work involving marine tugboats. Maximum exposure is based on prevailing wages being required on all marine (all barge work both internal and from outside facilities and all water taxi) work, on all the projects and is very conservative. 01/01/08: Risk is reduced to reflect the proposed $5.7 million settlement with the Master, Mates and Pilots union on all projects thru 12/31/07. 04/01/08: Risk is reduced to reflect the distribution of funds from the Skyway to cover TBSRA portion of the wage settlement. 10/01/08: Risk is reduced to just cover the potential cost of paying prevailing wage for water taxi work on on-going and future Toll program projects.								
	Description of Impacts:	Directs costs of the difference between the workers regular wage (Master, Mates and Pilots union rates) and the directed prevailing wage for Operating Engineer (Heavy & Highway Work) Group 2: Licensed Construction Work Boat Operator, on-site and Operating Engineer (Heavy & Highway Work) Group 6: Deck Engineer.								
	Response Actions:	Caltrans Legal is working with DIR to represent the Departments position on this issue.								
37		**Skyway maintenance**	Moderate	Very Low	$500,000		$1,000,000	None	None	Rich Foley
	Description:	Maintenance during use by SAS, accidents, electrical systems for 5 years								
	Assumptions / Current Status:	SAS contractor responsible for repairing any damage.								
	Rationale:	Cost is for clean-up, etc. after SAS contractor vacates the Skyway.								
41		**Additional Access to USCG on YBI.**	Moderate	Very Low	$0		$1,000,000	None	None	Patrick Treacy
	Description:	May have to build and maintain an additional access to USCG, other than Macalla Road, during construction on YBI. May also need additional parking.								
	Assumptions / Current Status:	Additional access roadway will not be built. One stairway is included in the SSD contract. May need an additional stairway and parking by the West Tie-in area. Have 2 CCOs in the YBID log: #195 for stairway ($800K) and #182 for parking ($300K)								
	Rationale:	Cost for additional stairway and parking by the West Tie-in area is in YBID CCO log. May have additional costs arise in YBITS contracts.								

Corridor Program - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
13		**Department could become liable for a reportable mishap or OSHA action.**	Very Low	Very Low	$0 0 days		$5,000,000 60 days	Very Low	None	Patrick Treacy
	Description:	Although the contractor is responsible for safety on the project, the Department may be named in legal action resulting from a possible reportable mishap or an OSHA action.								
	Assumptions / Current Status:	The Department has established policies and procedures to miminize such liability. OSHA has visited the site. Insurance broker is performing safety walk-throughs.								
	Rationale:	No change								
	Response Actions:	Partnership with OSHA has started; preliminary meetings have been held.								
20		**OPPORTUNITY** **WEST APPROACH: Sale of Excess right-of-way parcels**	Very High	Very Low	$-15,000,000	$-13,600,000	$-12,000,000	None	None	Mark Shindler
	Description:	The project is at present occupying parcels of land in and around the work area and using that land to stage construction. Once the project is complete this land will be freed up and be available for Real Estate sale.								
	Assumptions / Current Status:	The land has been valued at approximately $18M a few years ago. Eventually the proceeds from the sale should return to the program. The proceeds from the sale will be available to the program for future construction costs.								
	Rationale:	Estimates for parcels and apartments were revised to reflect current market. Parcels at $12.4M; apartments at $1.2M.								
52		**Potential Cost Saving on YBITS 1Bid**	Very High	Very Low	$-67,000,000	$-50,000,000	$-33,000,000	None	None	Rein Lemberg
	Description:	Cost Risk Analysis of the YBITS 1 cost estimate results in potential saving from the 3rd quarter YBITS 1 cost in the BATA monthly report.								
	Rationale:	3rd Quarter YBITS 1 cost reported at $223 million (TBPOC report). Cost risk analysis result ranges from 156 to 190 million with a most likely of 173 million. Saving range: -67M, -50M, -33M								
47		**Delay by Traffic Operating System**	Moderate	None	0		180 days	Low	None	Saeed Shahmirzai
	Description:	Bridge opening could be delayed by uncertainty about how much of the TOS will be required.								
	Assumptions / Current Status:	Money is not an issue. Currently do not have a TOS design.								
	Response Actions:	Meeting is scheduled in next weeks to discuss TOS design.								

OTD1 Westbound - RISK REGISTER

Quarter ending September 30, 2009

Risks

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
54		**Contractor Claims for Early Completion Delay**	Moderate	Moderate	$0		$4,400,000	None	None	Amer Bata
53		**Requested design changes/improvements**	High	Moderate	$500,000	$1,000,000	$2,000,000	None	None	Amer Bata
20		**Problems with deck alignment matching Skyway or problems with the pipe beam interface with Skyway**	Low	Moderate	$600,000 0		$3,000,000 30 days	Low	Very Low	Mehran Ardakanian
52		**Design conflicts between electrical, mechanical and structural elements may be discovered during ISDs preparation or during construction**	Moderate	Low	$500,000 10		$1,000,000 30 days	Low	None	Mehran Ardakanian
24		**Unforeseen Environmental Issues**	Low	Moderate	$200,000 0		$1,000,000 30 days	Low	Very Low	Ben Ghafghazi

54 — Contractor Claims for Early Completion Delay

Description: The contractor may claim delays to early completion. Although the schedule currently indicates project completion prior to the contract completion date (i.e. float), the contractor indicated that it intends to pursue compensation for deferred time CCOs, as well as for any future impacts to early completion by the department.

Assumptions / Current Status: Future impacts may include time and/or acceleration costs for drilling holes in the pipe beams.

Rationale: Probability is moderate since analysis and negotiations are likely to reduce the Department's exposure. Cost estimate is for 80 days at a TRO/TRO+ rate of $55K per day.

Description of Impacts: Added cost.

Response Actions: Perform schedule analysis to determine the Department's responsibility.
Negotiate a settlement with the contractor.

53 — Requested design changes/improvements

Description: Design changes may be requested by varies parties during construction. These changes may include additional work and/or contracted work modifications, to incorporate latest designs or to improve on existing designs and specifications.

Assumptions / Current Status: 9/17/09: The end-of-job Safety and Maintenance Review may result in a punchlist of items to be revised.

Description of Impacts: Added costs or delays.

Response Actions: No changes will be allowed unless it is determined that public safety may be impacted.
Use existing contingency to cover CCO costs.

20 — Problems with deck alignment matching Skyway or problems with the pipe beam interface with Skyway

Description: OTD deck and pipe beam line and grade must match Skyway. Survey stakes could be off, the Skyway portion could settle, or the OTD could settle or have a grade bust.

Assumptions / Current Status: Assume surveys will check multiple hubs. Skyway portion sits on temporary support towers.
9/12/08: The construction sequence of hinge E has been revised. The temporary supports have changed from falsework to temporary tower. The seismic joints design has changed; joints will be constructed by OTD2 contract. Skyway release test has been performed in August 2008.

Rationale: 6/19/09: Cost reduced by half since Westbound deck alignment is complete, with no added costs. The Eastbound structure is under construction.

Response Actions: Skyway sits on temporary towers. Both contracts to use same survey benchmarks. Incorporated skyway as-builts into plans plus a note "contractor to field verify"
6/20/08: Change in the construction sequence of hinge E. Change of the temporary support of OTD.
12/9/08: CCO #61 was issued to provide for additional monitoring.

52 — Design conflicts between electrical, mechanical and structural elements may be discovered during ISDs preparation or during construction

Description: Integrated Shop Drawings (ISDs) are required from the contractor at highly congested areas of Westbound (WB) frame 2 and Eastbound (EB) frame 1 to help identify conflicts of electrical, mechanical and/or structural elements. Conflict resolution has taken longer than anticipated for WB Frame 1.

Assumptions / Current Status: 6/19/09: All ISDs have been approved. Electrical routing CCO is upcoming.

Rationale: Based on WB Frame 1 experience.
6/19/09: Risk to be retired when CCO information becomes available.
9/17/09: High end cost reduced. Remaining allowance to cover pending and forthcoming CCOs (possibly from electrical subs) and for potential remaining force account work to implement changes.

Description of Impacts: Added review costs, possible added capital costs to implement changes after contract award, and delay to the project schedule.

Response Actions: 11/03/08: Begin ISDs preparation for Frame 2 WB and Frame 1 EB immediately. Direct contractor to add resources. Implement an expedited review process for conflict resolution, involving face-to-face meeting between contractor (or sub) and design team members.
12/9/08: Anticipate a supplemental to CCO #75 to cover added costs.

24 — Unforeseen Environmental Issues

Description: The contract provides for some protection of eelgrass, birds and mammals, if measures to protect fish do not succeed or if bird nesting, marine mammals or a herring spawn interferes with the work, delays and the resultant costs could occur. Includes added SWPPP costs.

OTD1 Westbound - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Assumptions / Current Status:	It is assumed that sufficient funds are allocated to pay for contract specified extra work items. 3/3/09: Goose fence has been installed (CCO 95). Additional costs for shore bird habitat are covered under CCO #92. 9/17/09: Potential additional costs of SWPPP during the upcoming rainy season, as well as during the trestle removal.								
	Response Actions:	Full time staff located at pier 7 are assigned to address SFOBB environmental issues in the field. CT works closely with the Contractor develop a suitable environmental monitoring plans. Staff walking job site on a daily basis. Caltrans works closely with contractor to communicate issues and attend weekly staff and contractor meetings. Additional SWPPP personnel has been added by the department and by the contractor.								
4		**Buried Man-Made Objects and Differing Site Conditions**	Low	Low	$200,000 0		$500,000 0 days	Low	Low	Ben Ghafghazi
	Description:	Differing site conditions at any foundation can cause delays and increase costs (Does not include utilities or existing structure). It is known that buried manmade objects (rock dike) are in the vicinity of the pile work, but it is unknown and very difficult to determine to what extent the problem exists.								
	Assumptions / Current Status:	9/17/09: Remaining work includes excavating for the EB detour.								
	Rationale:	Cost is in addition to $800K supplemental funds already allocated. Project is now 80% complete with no major occurrences to date. 9/17/09: Probability and cost lowered due to successful completion of the ductbank trenching and other Labor Day Weekend work.								
	Response Actions:	1.) Supplemental funds ($800k) has been allocated for buried manmade objects. CCO #25 written for $200k to-date. 2.) Exploratory borings have been performed at each pier. Plans show anticipated rock dike locations. 3.) Spec payment clauses tell contractor to anticipate rock dike. 4.) Make sure contractor has equipment ready in advance to deal with known obstructions. 5.) Trenching across all 5 lanes of Eastbound instead of the jack-and-bore operation has been performed.								
18		**Conflicts with unknown utilities.**	Low	Low	$125,000 0		$500,000 0 days	Low	Very Low	Ben Ghafghazi
	Description:	It is possible that not all lines have been located, particularly CT utility lines. When an unknown line is encountered it is difficult to determine if it's abandoned. Stormwater contract encountered numerous utilities.								
	Assumptions / Current Status:	To date there has been a search of records and notification to all utility companies of the upcoming work. Site has been investigated using a triple frequency line locator and potholing high conflict areas. Unknown utilities have been encountered and conflicts resolved quickly. 3/3/09: All the foundations have been completed with no significant findings. The mole substation foundation is complete. 9/17/09: Remaining work includes shallow excavation for the EB Detour.								
	Rationale:	Considers Caltrans utilities (Stormwater project has encountered such). Cost is on top of $125k supplemental funds already allocated. 6/19/09: Probability and cost reduced. EB Detour work remains.								
	Response Actions:	1) Potholing has been done and information incorporated into plans. 2) Contractor has equipment on site that can be employed if unknown utilities are encountered 3) Utility company contact list has been provided to RE. 4) Incorporated lessons learned from Stormwater contract.								
12		**Construction impacts public traffic more than provided for in the contract.**	Low	Low	$0 0		$500,000 0 days	Very Low	Very Low	Ben Ghafghazi
	Description:	Contractor could impact traffic or keep lanes closed for periods longer than currently anticipated.								
	Assumptions / Current Status:	Lane closure and other traffic specifications are in the contract. Project stakeholders have been advised of contract requirements.								
	Rationale:	9/17/09: Costs reduced due to the successful completion of Labor Day weekend work. Potential partial lane closure to install the mole-substation roof.								
	Response Actions:	Traffic handling specs implemented in contract. Public outreach office has been established to keep public informed of upcoming closures. Damage clause to be enforced by construction.								
37		**Contractor's Work Impacts Known Utilities**	Low	Very Low	$0 0	$0	$500,000 0 days	Low	Very Low	Ben Ghafghazi
	Description:	Contractor could damage existing known utilities or existence of utilities could result in a change to contractor's means and methods.								
	Assumptions / Current Status:	Contractor has submitted NOPC #1 due to PG&E gas line ($200K), which was settled by CCOs #55 and #56 (for ~$100K). An AT&T fiber optic line identified as abandoned on the plans was actually "live" and has been relocated. The relocation was done by AT&T at no cost to CT. 6/19/09: Remaining work includes the EB detour road.								
	Rationale:	9/17/09: Cost impact have been lowered due to work progress.								
	Description of Impacts:	Could increase costs or delay the schedule.								

OTD1 Westbound - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Response Actions:	1) Known utility locations shown on plans. 2) Provide contractor with as-built of existing utilities. 3) Relocated numerous utilities in advance of starting contract.								
11		**Conflicts or differing opinions over welding.**	Very Low	Very Low	$0 0		$200,000 0	Low days	Very Low	Mehran Ardakanian
	Description:	Historically there has been differing opinions during construction over interpretation and enforcement of welding requirements.								
	Assumptions / Current Status:	6/20/08: All WQCP's have been approved. Over 100 Non-Conformance Reports issued and resolved; most are minor in nature. 3/3/09: All production piles are complete. Bike path rails will be welded.								
	Rationale:	Probability decreased to low due to success of working with different shops and meeting schedules to date. 9/12/08: Schedule impact has been reduced to 0, as most welding work is complete. No change to cost estimate at this point as steel fabricators tend to file claims late. 3/3/09: Probability and cost impacts have been reduced to very low due to small remaining welding scope (bike path rail).								
	Response Actions:	Review contractors welding plans and proactively monitor progress. Hold regular weekly meetings championed by Mehran Ardakanian with METS, design, and construction to resolve communication issues.								
23		**Construction Delay (TRO+)**	Very Low	None				None	None	Mike Stone
	Description:	This risk item captures the cumulative cost of a delay due to any of the other risk items occurring.								
	Assumptions / Current Status:	3/3/09: Contractor is about 4 months behind the baseline schedule but is still forecasting completion of the WB scope ahead of the 1/1/2010 date committed to the SAS contractor. The contractor is also forecasting contract completion about 3 months late. There is no corridor schedule impact based on the current forecasts. There is some non-compensible time and some CT-owned time associated with the delays, which were granted. Designated Portion of work (Westbound) has been extended from 6/1/09 to early 10/09. Contract Work milestone has been extended from 3/12/2010 to late 5/2010. The contractor's current projection is to complete both the DP and contract work in advance of the current adjusted contract dates.								
	Rationale:	No significant delay risk remains according to Q3 2009 schedule risk analysis.								
	Description of Impacts:	Indirect costs associated with occurrence of any of identified risks causing a construction delay.								
	Response Actions:	1) The contract was structured so that designated portion of work (WB structure and roadway) is to be completed in advance of the commitment to SAS contractor. 2) The contract was bid A+B to further accelerate completion, and the awarded contractor bid two months ahead of specified maximum number of days. 3) The schedule is actively managed and any occurring risks will be addressed to minimize the impact on contract time.								
CCOs										
1000		**Miscellaneous Future CCOs**			$0	$2,670,000	$5,340,000			Amer Bata
	Description:	Accounts for future CCOs, including quantity busts, not specifically called out on the registers. The most likely value is 4% of work remaining, based on history of all construction contracts.								
	Rationale:	12/12/08: Contract Items + State Furnished Materials total $185.43M per June 30, 2008 Budget Balance Beam. Contract 64% complete per 12/12/08 weekly construction bulletin. Most likely=.04*(1-.64)*185.43M. 3/3/09: No further reduction, to leave a sufficient allowance for project close-out.								
92	**Environment**	**Shore bird habitat**			$300,000		$700,000			Rajesh Oberoi
	Description:	Change the location of the rip-rap shore bird habitat from 60 ft. to 200 ft. from the shore.								
	Rationale:	12/08: Bay Cities raw estimate of $140,000 has been submitted to MCM and is under review. This cost is likely to include equipment only, and the environmental agency's review may add additional costs. 3/3/09: Proposed habitat constructibility is under discussions with BCDC due to potential impact on the eelgrass beds. 7/6/09: Cost increased to account for possible environmental mitigation actions that may be required from the department.								

OTD2 Eastbound - RISK REGISTER

Quarter ending September 30, 2009

Risks

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
3	ProjectMgmt	**Current Estimate Not Consistent with Proposed Project Schedule**	High	Very High	$5,000,000		$10,000,000	None	Moderate	Jaime Gutierrez
	Description:	Caltrans' current estimate is not consistent with the proposed schedule for EB. If the schedule is accepted (compressing the time between WB and EB traffic openings from one year to seven months, which may require double shifts and 7-day work weeks), Caltrans' estimate will increase.								
	Assumptions / Current Status:	4/09: This risk item has been reclassified as a project risk (formerly program).								
	Rationale:	The proposed schedule may require double shifts and 7-day work weeks. 9/17/09: An incentive spec will be drafted. Incentive cost is not yet reflected in the estimate and is carried by this risk.								
	Description of Impacts:	Increased project costs or proposed schedule not met.								
	Response Actions:	3/09: Include a milestone with a $ incentive in the SSP. 6/19/09: The OTD1 cellular concrete operation was monitored, to evaluate the feasibility of compressing the schedule. Concrete placement rate was acceptable. The operation's schedule should be monitored to evaluate potential weather impacts.								
2		**Construction Delay (TRO+)**	Very High	High	$2,300,000 0	$3,500,000 90	$4,500,000 170 days	High	None	Mike Stone
	Description:	This risk item captures the cumulative cost of a delay due to any of the other risk items occurring.								
	Rationale:	Assume pacing to SAS status. Delay range: 80,140,220 based on schedule risk analysis. TRO+ range: 25-30K per day Pro-rate factor: 0.8-1.0								
	Description of Impacts:	Indirect costs associated with occurrence of any of identified risks causing a construction delay.								
	Response Actions:	Pace start to SAS contract status.								
25		**Scope Increase**	High	High	$1,000,000		$5,000,000	None	Low	Jaime Gutierrez
	Description:	The project scope is still evolving and miscellaneous design changes are to be expected.								
	Assumptions / Current Status:	9/17/09: Currently under consideration is the continuation of the bike path railing to the landing, roughly estimated at $600K. The 95% design package and estimate will be circulated in Nov. 2009.								
	Description of Impacts:	Added costs.								
	Response Actions:	Finalize design and update estimate.								
7		**Construction impacts public traffic more than provided for in the contract.**	High	High	$500,000 0		$5,000,000 0 days	Low	Very Low	Alec Melkonians
	Description:	Contractor could impact traffic or keep lanes closed for periods longer than currently anticipated. Additional closures of the EB bridge could further impact public traffic.								
	Assumptions / Current Status:	9/17/09: A full bridge closure is under evaluation. The Westbound (WB) bridge may require closure prior to switching traffic onto the new WB structure, to ensure that the grinding, OGAC work, and pavement delineation can be completed without impacting safety. An Eastbound (EB) bridge closure may be required to allow for the safe demolition of the existing WB structure where it crosses over live EB traffic. A demolition contractor has been given as-builts, and a cost estimate as well as a determination whether a closure is needed are expected shortly.								
	Rationale:	This contract makes final traffic switches to new bridge in coordination with SAS and YBITS contracts. 9/17/09: probability increased as a full-bridge closure is under evaluation.								
	Response Actions:	TMP needs to be developed and approved. Apply lessons learned from West Approach and SSD.								
16		**Electrical/Mechanical System connections adjacent to existing contracts may require extra work.**	High	Moderate	$500,000 30		$2,000,000 60 days	Moderate	Moderate	Saeed Shahmirzai
	Description:	Electrical/Mechanical systems may not interface properly.								
	Assumptions / Current Status:	6/12/08: Supplemental funds will be allocated to electric work. SCADA is expected to be included in a separate MEP contract. 3/3/09: OTD2 will perform its own electrical work.								
	Rationale:	Cost impact moderate at this time anticipating a concurrent electrical contract. Scope impact "none" as assumed all energizing, testing, etc. will be part of separate concurrent electrical contract. 6/08: schedule impact has changed to moderate since electrical work on OTD2 is less complex.								
	Description of Impacts:	Additional work would be required by the contractor.								

OTD2 Eastbound - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Response Actions:	Include As-Builts from adjacent contracts into OTD2. Coordinate with other contractors during installation. Team established to determine MEP scope and contracting methodology OTD1 CCOs are being incorporated into the OTD2 plans (6/19/09). Perform ISDs during design.								
5		**Difficulties removing the existing structure, including lead removal issues.**	Moderate	Moderate	$500,000 30		$2,000,000 60 days	Moderate	Low	Hasan El-Natur
	Description:	Problems with removal of the existing structure, including lead paint could occur.								
	Response Actions:	Incorporate lessons learned regarding noting existing conditions or lead removal, if any, from SSD and Carquinez demolitions at a future time. Contract specs inform contractor of lead containment issues and known structure conditions and provide supplemental funds to cover any discovered.								
8		**Increased cost due to environmental impacts.**	High	Moderate	$500,000 0	$750,000	$1,000,000 30 days	Low	Very Low	Stefan Galvez-Abadia
	Description:	The contract provides for some protection of birds and mammals, if measures to protect do not succeed or if bird nesting interferes with the work, delays and the resultant costs could occur. This risk also accounts for potential environmental mitigation actions that may be required by BCDC for dust control during the demo, as well as for more stringent SWPPP requirements as experienced on OTD1.								
	Assumptions / Current Status:	Full time staff located at pier 7 are assigned to address SFOBB environmental issues in the field. It is assumed that CT will work closely with the Contractor develop a suitable environmental monitoring plans and that sufficient funds are allocated to pay for contract specified extra work items.								
	Description of Impacts:	Environmental agencies may impose additional mitigation measures resulting in added costs.								
	Response Actions:	Include lessons learned to date in the Contract. Meet with Contractor at construction kick off meeting to discuss expectations and future plans. Conduct field reviews. 6/12/08: monitor site for bird nesting prior to NTP to avoid delays to start of work.								
4		**A differing site condition (excluding existing utilities and bridge structure, and additional hazardous materials).** **This issue is only in relation to EB abutment and Roadway.**	Moderate	Low	$200,000 30		$500,000 60 days	Moderate	Low	Saba Mohan
	Description:	Differing site conditions at any foundation, new utility, or other construction location can cause delays and increase costs. It is known that buried man-made objects are in the vicinity of the pile work, but it is unknown and very difficult to determine to what extent the problem exists. Possible groundwater infiltration is different than expected.								
	Assumptions / Current Status:	The only contract pile work is away from known locations of rip rap and rock dike. DSC's in any excavation area should be easily and cheaply dealt with. This issue is only in relation to EB abutment and roadway. Hazardous materials are covered by risk #18, issues with the existing bridge structure are covered by risk #5, and utilities are covered by risk #9)								
	Response Actions:	3/3/09: Supplemental funds of $300,000 have been allocated.								
9		**Conflict with any existing utilities.**	Moderate	Low	$200,000 0		$500,000 0 days	Low	Very Low	Gabriel Tcruz
	Description:	All known utility owners have been contacted and all known lines have been addressed. It is possible that not all lines have been located and it would be difficult to determine if they are abandoned.								
	Assumptions / Current Status:	Most utilities will have been relocated for OTD2 by OTD1.								
	Rationale:	Based on OTD1 experience.								
	Response Actions:	To date there has been a search of records and notification to all utility companies of the upcoming work. Site has been investigated using a triple frequency line locator and potholing high conflict areas. Know utilities will have been relocated and it is likely that OTD 1 will find and deal with any unknowns.								
18		**Additional Hazardous Material Removal**	Moderate	Low	$200,000 0		$500,000 30 days	Low	None	Gabriel Tcruz
	Description:	Hazardous material in addition to what is anticipated requires removal increasing costs and/or causing delay.								
	Rationale:	BOE exemption was not granted for OTD1.								
	Description of Impacts:	6/12/08: Additional disposal costs or taxes may be encountered.								
	Response Actions:	Monitor OTD1 operations. 3/3/09: Soil testing for the parking lot is planned. 6/19/09: Spec addresses Board Of Equalization (BOE) exemption (included in the 65% design package). 9/17/09: Soil testing of the median between the Eastbound and Westbound is planned for Q4 2009.								
20		**Design conflicts between electrical, mechanical and structural elements may be discovered during ISDs preparation or during construction**	Moderate	Low	$200,000 0		$500,000 30 days	Low	None	Ade Akinsanya
	Description:	Integrated Shop Drawings (ISDs) are required from the contractor at highly congested areas to help identify conflicts of electrical, mechanical and/or structural elements. Conflict resolution may take longer than expected.								

OTD2 Eastbound - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Rationale:	6/23/09: Probability reduced to moderate due to conflict resolution based on OTD1 lessons learned.								
	Description of Impacts:	Added review costs, possible added capital costs to implement changes after contract award, and delay to the project schedule.								
	Response Actions:	Add a Special Provision requirement to begin the ISD process as First Order of Work. 12/11/08: plan to prepare ISDs by design, prior to PS&E (or by addenda). 6/23/09: Lessons learned from OTD1 are being incorporated into the plans. Drafting staff is currently working on YBITS1 ISDs. In order to meet current OTD2 PS&E schedule, ISDs must be completed by October '09 (a 2-3 months process).								
23	RightOfWay	**Access to Bike path temporary parking lot**	Low	Low	$200,000	$250,000	$600,000	Low	None	Jaime Gutierrez
	Description:	Right of Entry to the former Oakland Army Base - which leads to the temporary parking lot area - has been obtained, to perform Materials and Environmental testings and to fix the access road. Pending on the testing results, a license from the Army to construct and use the road will be obtained.								
	Assumptions / Current Status:	3/24/09: A 90-day "right of entry" has been granted to the department for testing purpose only.								
	Rationale:	6/19/09: Probability increased to "low" as District Environmental is out of budget to perform the soil testing this fiscal year. A request to extend the right of entry until the end of the year has been sent.								
	Description of Impacts:	Possible delays if right of way is not granted in time (e.g. shuttle costs); added costs if hazardous materials are discovered late and not incorporated into the plans and specifications.								
	Response Actions:	Access is being negotiated with the Army.								
19		**Changes to expansion joints design**	Low	Low	$0 0		$500,000 30 days	Low	None	Ade Akinsanya
	Description:	Changes to the expansion joints design due to design revolution and/or fabrication difficulties. Changes could affect RTL date or require a CCO.								
	Assumptions / Current Status:	Formerly covered by program risk #19. 6/19/09: OTD1 joints (F and E) to be added to the estimate.								
	Response Actions:	Lessons from Carquinez are being incorporated. Design continues to be studied for compatibility. Monitor joint design and incorporate cost and schedule impacts.								
6		**Working Drawings Review and RFI Response Time**	Low	Low	$0 30		$500,000 60 days	Moderate	Very Low	Amer Bata
	Description:	The Department historically has taken a long time to review working drawings and respond to RFI's. Some working drawings are expected to be on the critical path . Significant daily costs could occur if Department does not meet it's contractually obligated review times.								
	Assumptions / Current Status:	This risk is low because it is assumed that sufficient staff and submittal review resources will be supplied to the RE during construction and contract specified review times will not be unrealistically shortened in the contract without corresponding resource support.								
	Response Actions:	Monitor baseline and look-ahead schedules after award to forecast staffing needs and expected workload. Evaluate early contract start.								
10		**Contract documents not complete at RTL date (mid-2010)**	Very Low	Low	$0 0		$500,000 30 days	Low	Very Low	Gabriel Tcruz
	Description:	The contract plans, specifications, and estimates need to be completed. If the RTL date is missed, delay to the project timeline resulting in escalation of estimated cost of the contract could occur.								
	Assumptions / Current Status:	Work is proceeding to deliver well before required PS&E date. 6/19/09: PS&E package completion was changed from June 2009 to January 2010 (7 mos. prior to advertising) to avoid shelving the plans.								
11		**Problems with deck alignment matching EB frame 1 constructed by OTD1**	Very Low	Very Low	$0 0		$200,000 30 days	Low	Very Low	Amer Bata
	Description:	OTD deck line and grade must match the adjacent new work. Survey stakes could be off, the new bridge portion could settle, or the OTD 2 could settle or have a grade bust.								
	Assumptions / Current Status:	Assume surveys will check multiple hubs. The work is all cast in place so is low risk and relatively easy to adjust if detected in time. 6/19/09: The OTD1 westbound structure had no issues matching Skyway.								
	Response Actions:	Both contracts to use same survey benchmarks. Review Skyway and OTD1 as-built surveys to compare with current plans. As-Built conditions will be confirmed and incorporated into OTD2 contract prior to RTL.								
24		**(Program) - Program: Perform Skyway remaining work items.**	Moderate	None				None	None	Jaime Gutierrez
	Description:	OTD2 may perform the Skyway remaining work items (such as removing the temporary crossover bridge and the structural details that could not be completed due to its presence - bridge rail, polyester concrete, luminare supports).								
	Assumptions / Current Status:	Management decision regarding which project will perform the work is required. 6/19/09: Risk classified as program until OTD2 scope of Skyway remaining work is finalized.								

OTD2 Eastbound - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Rationale:	This is a placeholder until management decision is made.								
	Description of Impacts:	Added scope and cost.								
	Response Actions:	Add to OTD2 estimate.								

CCOs

1000		**Miscellaneous Future CCOs**			$0	$2,167,000	$4,334,000			Amer Bata
	Description:	Accounts for future CCOs, including quantity busts, not specifically called out on the registers. The most likely value is 4% of work remaining, based on history of all construction contracts.								
	Rationale:	9/16/08: Contract Items + State Furnished Materials total $54.18M per June 30, 2008 Budget Balance Beam. Most likely=0.04*$54.18M.								

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

Risks

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
1		**Schedule: Potential delay during construction**	Very High	Very High	$78,000,000 410	$123,000,000 540	$175,000,000 670	Very High days	None	Rein Lemberg

Description: This item captures the potential cost of a delay due to any of the risk items occurring. Delay ranges are based on the schedule risk analysis results and are measured from the Approved Schedule milestones.

Assumptions / Current Status: The joint Caltrans/ABF schedule team has not yet produced a schedule.
Contractor's August 2009 schedule update shows Phase 3 completion in the 3rd quarter of 2014, about 13 months behind revised contract date (approved+150 days). The schedule risk team has incorporated recovery opportunities into the schedule used for risk analysis. TRO+ rate is revised based on analysis of ABF's costs. Risk 1.1 is retired because the TRO+ uncertainty in now in this risk.

Rationale: Delay is measured from Approved Schedule + 150 days
The delay range based on schedule risk analysis and ABF August 2009 schedule update. The delay range is measured from the current revised contract date (Approved date + 150 days).
Risk analysis schedule incorporates about 6+ months of potential recovery.
TRO+ range: 250-400K per day
Pro-rate factor: 0.4,0.7,1.0
Delay cost is net of the 120 days of TRO in CCO #108.

Response Actions: A joint Caltrans/ABF schedule team is to produce a schedule by March 1st.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
105	China	**Fabrication: East End (Lifts 12 - 14)**	Very High	Very High	$50,000,000 120		$100,000,000 180	High days	None	Peter Siegenthaler

Description: Conflicts and issues identified though 3D modeling and shop drawing development may impact the start of fabrication and increase fabrication durations.

Assumptions / Current Status: Shop Drawings are underway. When they are done the team will be able to better evaluate impacts. The expected number of Shop Drawing has doubled from what was originally planned. The number is segments in a lift have increased from three (3) to six (6). ABF has reported that fabrication times for these elements will need to be increased. Lift 12 increased form 6 to 9 months. Lift 13 increased from 6 to 14 months. Lift 14 increased from 6 to 13 months. These increased durations, if not mitigated, could impact the schedule. No change to this item as shop drawings are still in development and durations have not been reassessed - and won't be until next quarter (4th).

Rationale: No change from last Quarter as shop drawings are still in development and fabrications durations have not been reassessed.

Description of Impacts: Impacts could include delays to the start of fabrication, disruptions to the fabrication of other elements as well as the potential for additional/extra work beyond what was originally contemplated thereby increasing the amount of time needed to fabricate these elements.

Response Actions: Expedite resolutions identified in Risk Item #69. Efforts are underway to expedite shop drawing approval however this item addresses fabrication.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
94	China	**Tower Fabrication: Fit-up issues**	Moderate	High	$30,000,000 80		$50,000,000 150	Moderate days	Low	Peter Siegenthaler

Description: Design includes areas of intricate steel assembly with demanding welding, dimensional control, painting and fit-up requirements. Problems could arise that may take time and cost to resolve.

Assumptions / Current Status: Trial Assembly will begin next quarter and machining is expected to occur in the 3rd Quarter. Dimensional verification that was expected to occur in fabrication will occur in fit-up. May increase complexity but this was the fabricators means and methods.

Work has begun.

Rationale: Dimensional Verification that was to expected to occur during welding will now occur during fit-up. Rework may be required at an inopportune time that could increase cost and impact schedule.

Description of Impacts: Delays to the schedule resulting from difficult fit-up and/or modifications necessary to achieve fit-up.

Response Actions: Department has constructed models and has identified conflicts, for which CCOs are issued.

Team China is on-site to resolve potential problems as they may arise. Issues related to milling machine constraints has been resolved.

Trial assembly will be done in the vertical position and not the horizontal position as originally planed. This better reflects how these elements will be erected in the field.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
93	China	**OBG & Cross Beam Fabrication: Fit-up issues (Excludes East End)**	Moderate	High	$20,000,000 60		$50,000,000 120	Moderate days	Low	Peter Siegenthaler

Description: Design includes areas of intricate steel assembly with demanding dimensional and control fit-up requirements. Problems could arise that may take time and cost to resolve.

Assumptions / Current Status: Trial assembly at ZPMC in China began this quarter. Cross Beams are anticipated to be difficult to fit-up; plans to install them in the field have yet to be finalized. Beams may fir but fit up in the fabrications facility is anticipated to be easier than in the field.

Rationale: Holes sizes increased to allow greater tolerance for fit-up.

Response Actions: Department has constructed models and has identified conflicts, for which CCOs are issued.
Team China is on-site to resolve potential problems as they may arise. Trial Assembly includes more items than those required by contract

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
91	China	**OBG Fabrication: Welding issues - Excludes East End**	High	Moderate	$10,000,000 120		$20,000,000 180 days	High	Moderate	Peter Siegenthaler

Description: Potential problems during overseas fabrication due to miscommunication, working drawing interpretation, fabrication issues, etc.

Assumptions / Current Status: The work contemplated under this risk item is well underway; however this work has taken longer than anticipated. Negotiations are underway to address them. CCO Risk items 108 was established to address this. Risks for going forward will be reduced and the cost differential will be added to risk Item #107 to address this uncertainty.

Welding issues have recently come to light. Investigations are underway. Preliminary indications are that they relate to diligence of the welder and not the flaw of any particular procedure or misinterpretation of the code. No change to this item do to this as increases for this are offset by reductions due to % complete.

Rationale: The first shipment has yet to leave ZPMC and is expected to leave mid-October at the earliest. Issues sited above may push this out.
Green Tag CCO #77. Work continues to progress. First shipment expected in August 2009.

Description of Impacts: Delays to schedule and increased fabrication costs.

Response Actions: Team China Fabrication Focus Team is monitoring, has taken mitigation steps and has identified further potential mitigation actions. East End has been separated from this risk and its Risk Item established.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
92	China	**Tower Fabrication: Welding issues**	Moderate	Moderate	$10,000,000 120		$30,000,000 180 days	High	Moderate	Peter Siegenthaler

Description: Potential problems during overseas fabrication due to miscommunication, working drawing interpretation, fabrication issues, etc.

Assumptions / Current Status: Operations began this quarter. ZPMC has six (6) rotisseries for fabrication and are expected to go to eight (8). Evaluate next quarter. Work this going slower than anticipated but it is anticipated that this is the result of "working out the kinks" and that work will progress more quickly as time goes on. Weld quality is considered to be very good and beyond expectation. Lift 5 of the tower (tower Head) is a complex portion of the structure. Tight spacing along with additional elements such as Saddles, grillage, utilities, etc will make fabrication difficult.

Rationale: Concerns with regard to preheating of plates do not materialize.

Operations have begun although not as quickly as scheduled. There seems to be some pacing of this work to finish OBG Lift for shipment. Recovery as a result may be difficult.

Risks reduced to reflect work complete to date.

Description of Impacts: Delays in fabrication could delay delivery. Department could be held responsible for the additional fabrication time at the facility.

Response Actions: Team China Fabrication Focus Team is monitoring, has taken mitigation steps and has identified further potential mitigation actions. ZPMC has increased the number of rotisseries. Risk response to reduce fit lugs will only be undertaken in Lifts 4 & 5; less than what was expected previously.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
79		**Tower Installation: Fit-up issues excluding base alignment**	Moderate	Moderate	$10,000,000 60		$25,000,000 120 days	Moderate	Low	Rick Morrow

Description: Design includes areas of intricate steel assembly with effects such as difficult welding, painting and fitting pieces together within tolerances. Much of the field assembly is of very large pieces which complicates handling and assembly.

Assumptions / Current Status: None of this work has commenced. Trial Assembly of each lift will be performed in the vertical position and not the horizontal position.

Rationale: Re-assess when closer to commencing field erection.

Response Actions: Tower fabrication process includes vertical (previously horizontal) trial assembly of a lift, and vertical trial assembly of each pair of lifts. Successful trial assembly in China will reduce risks during installation.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
80		**Tower Installation: Welding issues**	Moderate	Moderate	$10,000,000 60		$30,000,000 120 days	Low	Low	Rick Morrow

Description: Design includes areas of intricate steel assembly with effects such as difficult welding, painting and fitting pieces together within tolerances. Much of the field assembly is of very large pieces which complicates handling and assembly.

Assumptions / Current Status: None of this work has commenced. The tower base and top have difficult welding.

Rationale: Re-assess when closer to commencing field erection.

Response Actions: Continue to review contractor submittals and work with contractor to stream line procedures.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
69		**OBG Working Drawings: East End Complexity Challenges (Excludes Fabrication)**	Very High	Low	$4,000,000 120		$8,000,000 180 days	High	None	Rick Morrow

Description: Lifts 13 and 14 of the OBG are a very complex area in which to detail the steel. The area is on a curve, superelevated, has anchorage, kinks, and hinge pipe beams. Hard to visualize and detail. Potential exists for errors and oversights if not done correctly.

Assumptions / Current Status: Fabrication issues are covered under Risk Item #105. Shop Drawings are not able submitted in a manner sufficient to maintain ZPMC's fabrication schedule without additional means. At this time there is a projected four (4) month gap in fabrication. ABF, Candraft and the Department are all working together to speed up shop drawing development and approval.

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Rationale:	3D Modeling has identified conflicts. Resolution has delayed shop drawings.								
	Description of Impacts:	If not completed in synch with fabrication schedule, it could impact the SAS schedule.								
	Response Actions:	Representatives of the Department, TYLin and ABF will all be co-locating in Vancouver Canada to stream line the shop drawing development and approval. A contract change order is contemplated to provide incentives and address extra work required to minimize the time needed submit approved drawings to ZPMC. All parties including ZPMC in Vancouver to streamline process.								
52	China	**Painting: OBG issues during fabrication**	High	Low	$4,000,000 60		$11,000,000 120	Moderate days	Moderate	Peter Siegenthaler
	Description:	Paint application is sensitive to environment and application processes. Significant components: box								
	Assumptions / Current Status:	ZPMC has fabricated a new paint shop. Capacity appears to be one OBG lift at a time. Paint Shop has been audited and accepted. Lifts 13 and 14 won't fit shop. Work has begun but there are many punchlist items.								
	Rationale:	Work may be performed outside. Temporary covers may be required to meet schedule.								
	Response Actions:	Incorporated lessons learned from other Toll bridge contracts into the SAS contract. Perform Quality Assurance on contractor operations. Team China proposes the construction of a temporary structure to control the environment so that work can be performed unencumbered by weather. Repainting is required in areas that were modified to address fit-up issues will be required. This work may need to happen outside. As welding completes there may be may be queue to get into in the painting facility. Team China is exploring the option of using the paint facility used for non-contract work however SAS work will need to compete with the work ZPMC performs for other contracts. - - Attempts by Team China to implement the cover have been unsuccessful as it appears that both ZPMC and AFB are uninterested.								
73		**Cable Engineering: Geometry challenges - Theoretical Modeling**	Moderate	Low	$2,000,000 60		$10,000,000 180	Moderate days	Very Low	Rick Morrow
	Description:	The 3D cable path is extremely unique. Bridge camber is dependent on Contractor's chosen fabrication and construction methods. Contractor must calculate camber and cable path, a very complex calculation. Potential exists for conflicts in interpretation, errors, or poor assumptions resulting in rework of drawings or construction delays. Risk also arises if loads from the adjacent structures at the hinges at load transfer are different than anticipated.								
	Assumptions / Current Status:	Much of the control and responsibility for camber is assigned to the contractor by the contract. Contractor not planning to do alternate camber method at this time. Contractor is asking for costs due to differences in contract with the information handout-see NOPC 5- risk ID #55. The cable compaction and cable band friction tests have been conducted. Compaction test has been approved. Axial Camber has been decided. Plans for cable mockup have been abandoned. CERM Team has recently presented 2 more recommendations. Department/Contractor to explore.								
	Description of Impacts:	Fine tuning after erection could turn into a long iterative process.								
	Response Actions:	Cable engineering and focused technical risk management teams have been formed and meet regularly. Expect that a greater understanding of risks by mid-2009 and throughout the year. Contractor is proceeding with Stage 3 weight control but this may need to be modified as a result of the resolution of Lift 13 and 14 complexities. Impacts are expected to be minor if at all. The Cable Erection Risk Management (CERM) team meets regularly (Next mtg June/July, 2009) to discuss issues and incorporate lessons learned from other projects. The lengths of anchor rods have been increased to provided greater tolerance.								
81		**OBG & Cross Beam Installation: Welding Issues in the Field**	Moderate	Low	$5,000,000 60		$10,000,000 120	Low days	Low	Rick Morrow
	Description:	Field assembly is of very large pieces and includes complicated handling and assembly. Sections are welded together after fit-up and complications could arise as a result of different interpretations of welding requirements, difficulty in obtaining a satisfactory weld procedure.								
	Assumptions / Current Status:	None of this work has commenced.								
	Rationale:	Re-assess when closer to commencing field erection.								
	Response Actions:	Erection Plans expected this week. Department and the Contractor are discussing options to weld multiple joints with the introduction of stresses with the hope that welding can occur concurrently.								
82		**OBG & Cross Beam Installation: Deck Lift Fit-up Issues**	Moderate	Low	$5,000,000 60		$10,000,000 120	Low days	Low	Rick Morrow
	Description:	Much of the field assembly is of very large pieces which complicates handling and assembly. Lifting and maneuvering these sections in the field will be cumbersome.								
	Assumptions / Current Status:	None of this work has commenced.								
	Rationale:	Re-assess when closer to commencing field erection.								
	Response Actions:	Trial fit-up in China prior to delivery. Plans for the supports for the crossbeams are still under consideration.								
64		**Escalation: Operating Cost Volatility**	Moderate	Low	$1,000,000		$10,000,000	None	None	Jon Tapping
	Description:	Increases in energy and other costs could affect operating costs.								

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Assumptions / Current Status:	Equipment costs generally makeup 20% of a project's overall cost and operating costs/fuel costs are approximately 20% of the equipment costs. Therefore 4% of the remaining project budget is assumed to be for operating costs.								
	Rationale:	Operating cost estimated at 4% of $994 million remaining project budget=$40M. Optimistic: no increase in view of prices declining to levels at bid time. Pessimistic: 6% per year for 5 years ~ 15M.								
	Response Actions:	Monitor fuel and other energy prices.								
45		**Tower Installation: Base fit-up and alignment issues**	Moderate	Low	$1,000,000		$10,000,000	Low	Very Low	Rick Morrow
					20		60 days			
	Description:	T1 tower must fit over bolts sticking up from the footing installed by E2/T1 contract. Survey could be off, rods or matching holes could be out of tolerance in location or alignment.								
	Assumptions / Current Status:	Base plate fabrication has begun. Delivery expected with 2rd shipment of OBG elements.								
	Description of Impacts:	Rework in the base plate to obtain fit-up extend durations and impacts subsequent operations.								
	Response Actions:	SAS Tower Focus Team is monitoring, has taken mitigation steps and identified potential additional mitigation. A template was built on the E2/T1 contract and sent to China. Team China/ZPMC will built an additional template that will more accurately reflect fabrication and erection methods. Delivery of this template is expected to arrive with the 1st shipment of permanent works. Tolerances in base plate holes have been increased.								
25		**OBG Installation: Deck and Hinge Pipe Beams integration with Skyway (Excludes Shear Key)**	Moderate	Low	$1,000,000		$8,000,000	Low	Very Low	Rick Morrow
					20		60 days			
	Description:	Deck and pipe beam line and grade must match Skyway. E2/T1 footing locations must be right. Survey stakes could be off, the Skyway portion could settle, or the SAS could settle or have a grade bust. YBITS will have to conform to SAS.								
	Assumptions / Current Status:	Skyway Hinge was lowered and allowed to stand free. Deflections weren't as much as anticipated. Adjustments/Corrections will need to address this.								
	Rationale:	Lowered to address the assumed reduced risk as a result of implementing CCO #106.								
	Response Actions:	Multiple surveys to check alignments. Survey the Skyway superstructure in-situ and after lowering into place. Department is in the process of implementing a change order to lower the Hinge "A" of the Skyway to validate design assumptions on deflections and lateral drift of that cantilever.								
99		**Cable Field Installation: Installation of Parallel Wire Strand (PWS)**	Low	Low	$4,000,000		$10,000,000	Low	None	Rick Morrow
					20		60 days			
	Description:	Installation of the cable is complex, due to three dimensional geometry. Potential for miscommunication and installation delays.								
	Assumptions / Current Status:	ABF planning a mock up for the cable installation. Testing was performed. Much was learned. Additional exercises will need to be developed and implemented in order for this operation to go as smoothly as planned.								
	Rationale:	No change.								
	Response Actions:	Cable Focus Team is monitoring, has taken mitigation steps and identified potential further mitigation actions.								
84		**OBG Installation: MEP issues**	High	Low	$1,000,000		$5,000,000	Low	Moderate	Gary Pursell
					20		60 days			
	Description:	Mechanical, electrical, plumbing (MEP) drawings on the contract plans are more schematic than detailed. Some details such as bridge security items are not detailed on the contract plans. The contractor must finalize penetrations and support structures on the structural drawings.								
	Assumptions / Current Status:	Reviews of shop drawings with respect to MEP have not found any major conflicts yet. Aesthetics is driving some changes to hide MEP components. MEP Shop drawings are essentially complete. MEP on the main cable may conflict with the wrapping machine. Issue just brought to light but may require MEP to be installed after wrapping and not before. This work is not yet detailed in the contractor's CPM Schedule.								
	Description of Impacts:	Incomplete MEP details by either the Department or the Contractor could delay shop drawings or increase rework on structural elements. Cutting in the field to accommodate a missed detail could be more costly, and result in delay claims.								
	Response Actions:	Team China will verify the shop drawings are accurate for MEP. Penetration locations will be added to assembly drawings. ZPMC will cut penetrations per approved plans.								
68		**Erection Methods: Contractor chooses erection methods which ultimately may not be acceptable.**	Low	Low	$1,000,000		$10,000,000	Moderate	Very Low	Rick Morrow
					60		120 days			
	Description:	Means and methods are typically the responsibility of the Contractor, however certain elements such as the weight control procedure have special provisions.								
	Assumptions / Current Status:	Preliminary erection plans for tower and box have been approved as noted. Excludes NOPC #5. Final Plan is expected in the first month of the 3nd Quarter.								
	Rationale:	No change								
	Response Actions:	Erection procedure is required early.								

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
86		**Tower Working Drawings: Submittals and review**	Moderate	Low	$500,000		$5,000,000	Low	Very Low	Gary Pursell
					60		120	days		

Description: Late submittals could cause the submittal process to become critical to the schedule, or result in a surge in the number of submittals which could be difficult for timely review by the Department. The Contractor (particularly ZPMC) may wish to make changes to shop drawings and/or fabrication procedures after initial Department approval, requiring additional effort by the Department and possible delay.

Assumptions / Current Status: Tower grillage remains and is expected to be complicated

Response Actions: Monitor the submittal schedule. Quick review turn around by the Department to mitigate a late submittal. CCO 19 waives PE stamp requirement for designated submittals for a credit, to remove contractor's delays. Tower Head is considered complicated. Team at the initial stages of investigation.

88		**Cable Engineering: Working Drawing Issues associated with Review and Approval**	Moderate	Low	$500,000		$5,000,000	Moderate	Very Low	Gary Pursell
					60		120	days		

Description: Contractor may claim delay costs if the Department or external reviewers do not meet contractually obligated review times or if design/constructibility issues arise that prevent approval of drawings.

Assumptions / Current Status: At present submittals are not on the critical path.

Response Actions: Continue to monitor submittal schedule. Dedicated "expediter" person assigned to manage PMIV and critical submittals. The Cable Engineering Risk Management (CERM) Team meet to discuss and resolve challenges. Department and ABF personnel meet on a bi-weekly basis. The Department has directed ABF to fabricate alternative cable brackets. Mockup for cable band bends to simulate the turn at the West End

46		**OBG Installation: Fit-up problems due to shear keys fabricated separately from box and shortening not happening as planned.**	Moderate	Low	$1,000,000		$3,000,000	Low	None	Rick Morrow
					30		60	days		

Description: Steel sections of the bridge fabricated at separate locations may require rework to fit correctly. Contractor is also drilling bolt holes based on the theoretical locations. The impacts of this issue are primarily the contractors responsibility.

Response Actions: Monitor fabrication processes. Establish tolerances. Axial camber has been finalized. Refine computer models.

21		**Forgings and Castings: Conflicts or differing opinions**	Low	Low	$1,000,000		$5,000,000	Low	Low	Rick Morrow
					20		40	days		

Description: Could have disputes or differing opinions over interpretation and enforcement of contract requirements for tower cable saddles, E2 shear key, bearings, cable bands, cable and suspender anchorages, W2 deviation and jacking saddles.

Assumptions / Current Status: Issues arising from Japan Steel Works (tower cable saddles). Most Fabricators have been approved. More than half of the castings done in Japan and Korea have been completed. Machining remains. Prototypes for elements to be cast in England have been cast.Some delays have occurred but assement has not been reached as to responsibility.

Rationale: No change.

Response Actions: Add QA staff to fabrication shops. Bring in experts for additional QA guidance if necessary. Team China is considering shipping some of these elements to ZPMC in China for trial assembly not considered in the original contact.

58		**Escalation: Claims due to currency exchange rate fluctuations**	Low	Low	$1,000,000		$5,000,000	None	None	Gary Pursell

Description: The value of US dollar against foreign currency has been dropping significantly. A foreign subcontractor to be paid in US dollars could stop work if it feels it is not being paid enough. The Contractor could demand more money from the Department.

Assumptions / Current Status: This risk excludes currency exchange rate changes by governments, which would fall under Force Majeure provisions of the contracts. Currently, Chinese Yuan/US$ exchange rate is down about 15% since May 2006. The dollar has stabilized and these issues are no longer as urgent as they were in the past. This issue will most likely be captured in change orders to resolve prior fabrication issues (Risk Items #106 & 107)

Rationale: Quantified based on estimated ZPMC contract. Estimate $30M for the first two years and another $30M if extended 2 more years.

Response Actions: Contractually this is a Contractor issue. The Contractor has some financial hedging in place.
The Department needs to minimize change orders to avoid paying higher than bid price for the changes.

75		**Cable Field Installation: Issues with Load Transfer**	Low	Low	$500,000		$5,000,000	Moderate	None	Rick Morrow
					20		120	days		

Description: Installation of the cable is complex, due to three dimensional geometry. Includes "tuning of the harp" once initial load transfer occurs. Potential for miscommunication and installation delays.

Assumptions / Current Status: Cable Focus Team and Cable Erection Risk Management Team have incorporated lessons learned from similar bridges and applied them to this bridge.

Rationale: No change.

Description of Impacts: Extra work may be required to ensure that load transfer has been done properly and that no sections see stresses that are higher than allowable. May impact schedule.

Response Actions: Cable Focus Team is monitoring, has taken mitigation steps and identified potential further mitigation actions. Actual plate thickness will be verified in China to obtain more accurate information on the actual weights of the lifts. This information will be used to increase the accuracy of the model. Parametric studies have been performed to define tolerances. Allowances have been given for shims.

Investigating the possibility of doing load transfer with only hlaf of suspenders installed.

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
77		**Sole Source Procurement: Issues with sole source items excluding Cable and Cable Wrapping (S-Wire)**	Low	Low	$500,000 60		$5,000,000 120	Moderate days	Moderate	Gary Pursell
	Description:	Historically, sole source items have been a source of either delays and/or extra costs. This contract has an unusually long duration. Materials specified may not be the same model available when eventually needed, companies could go out of business, issues outside the sole source agreement could be found to be the Department's responsibility.								
	Assumptions / Current Status:	ABF continues to have contracting (insurance/bonding) and timing issues with various sole sources. Aggregate suppliers provided in the contract ore unable to supply the project - Alternates have been identified.								
	Description of Impacts:	Affects PMIV, epoxy AC, shear links, bearing lubrication (3 suppliers), SCADA.								
	Response Actions:	Monitor list of sole source items and find out from contractor if this an issue.								
32		**Environmental: Unforeseen events**	Very Low	Low	$2,000,000 20		$12,000,000 60	Low days	Very Low	Stefan Galvez-Abadia
	Description:	The contract provides for some protection of plants, birds, mammals and cultural resources. If measures to protect fish do not succeed or if bird nesting, marine mammals or a herring spawn interferes with the work, delays and the resultant costs could occur.								
	Assumptions / Current Status:	CT is working closely with the Contractor on environmental monitoring plans. Temporaryworks in water are almost complete. Acceleration required to extend permit with original terms. Negotiations with NOAA ongoing. Permanent Piles are complete. Team reluctant tolower risk at this time as several permits may require renewal and terms and conditions may differ. This could increase costs or require other types of accelerations to extend the permits. This is part of a program risk but brought in here as it could impact temporary trestle operations.								
	Rationale:	NOAA has requested a meeting to discuss new information that may impact construction operations								
	Description of Impacts:	Additional mitigation or construction constraints.								
	Response Actions:	Full time staff located at pier 7 are assigned to address SFOBB environmental and cultural issues in the field. Conduct field reviews weekly. CCO#102 issued to accelerate temporary tower pile driving so as to maintain current permit requirements.								
78		**Painting: OBG issues in field**	Moderate	Low	$500,000 60		$2,000,000 120	Moderate days	Moderate	Rick Morrow
	Description:	Paint application is sensitive to environment and application processes. Significant components: box, tower, cable, cable banding								
	Response Actions:	Incorporated lessons learned from other Toll bridge contracts into the SAS contract. Perform Quality Assurance on contractor operations.								
95	China	**Painting: Tower issues during fabrication**	Moderate	Low	$500,000 60		$2,000,000 120	Moderate days	Moderate	Peter Siegenthaler
	Description:	Paint application is sensitive to environment and application processes.								
	Assumptions / Current Status:	ZPMC has fabricated a new paint shop. Capacity appears to be one OBG segment and one Tower shaft at one time.								
	Rationale:	No change								
	Response Actions:	Incorporated lessons learned from other Toll bridge contracts into the SAS contract. Perform Quality Assurance on contractor operations. Team China is exploring the option of using the paint facility used for non-contract work however SAS work will need to compete with the work ZPMC performs for other contracts.								
96		**Painting: Tower issues in field**	Moderate	Low	$500,000 60		$2,000,000 120	Moderate days	Moderate	Rick Morrow
	Description:	Paint application is sensitive to environment and application processes.								
	Response Actions:	Incorporated lessons learned from other Toll bridge contracts into the SAS contract. Perform Quality Assurance on contractor operations.								
97		**Painting: Cable issues in field**	Moderate	Low	$500,000 60		$2,000,000 120	Moderate days	Moderate	Rick Morrow
	Description:	Paint application is sensitive to environment and application processes.								
	Response Actions:	Incorporated lessons learned from other Toll bridge contracts into the SAS contract. Perform Quality Assurance on contractor operations.								
27		**Weather: Delays to epoxy AC operations**	Low	Low	$0 0		$3,000,000 20	Very Low days	Moderate	Gary Pursell

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
		Description: Because of limits on the materials and operation, there is approximately only a several month window that the epoxy AC can be constructed without significant environmental controls. Tents or other measures may be needed to permit the epoxy AC operation to be done, in the window or not. It is unclear what measures the contractor's bid price includes. **Assumptions / Current Status:** Baseline schedule has a note that weather is an issue for this operation. **Rationale:** No change **Description of Impacts:** If there is a delay due to the Department, and if the epoxy AC is shown to be in this window on the baseline schedule, the Department could be forced to accept specification changes or pay for extra measures to allow for timely construction. **Response Actions:** Review for accuracy the window of time for construction. Options should this operation be impacted include but are not limited to: relax specifications, pay for additional equipment. Engineers are determined to not let this impact bridge opening.								
37		**Traveler System Redesign - Potential for Delays due to Design Complexities**	Moderate	Very Low	$300,000 0		$1,500,000 20	Very Low days	None	Rick Morrow
		Description: The Traveler system (includes redesign of the traveler rail, the dynamic brakes and anti-skew device) was to be redesigned by Addendum 8, but is still not complete and the scope has grown. There are many interested parties, some confusion, and design now will not be complete for some time, which could escalate into a delay to the Contractor, on top of cost of changes. **Assumptions / Current Status:** Cost is currently carried by CCO 24. No risk cost at this time pending further evaluation of risk item. At this time there is no delay to the critical path as a result of this issue. Float continues to decrease. This risk Item is left here to address the risks associated with contract time while the CCO 24 item addresses risk associated with the value of the change order. **Rationale:** Change Order (Supplements 0 and 1) have been issued (not signed) however shop drawings need to be developed and agreements made to finalize. **Response Actions:** Current point person: Rick Magenti. Construction personnel are performing Quality Control on the Design Drawings.								
51		**Shipping: Potential damage to structures during transport**	Low	Low	$1,000,000 60		$2,000,000 120	Moderate days	None	Rick Morrow
		Description: Fabricated sections must be transported across the ocean. The sections could be damaged if not properly supported. Severe weather and loss off the ship is considered force majeur. This is primarily a Contractor risk. **Assumptions / Current Status:** This is primarily a Contractor risk. **Rationale:** Revised Cost Risk and Time Impacts to reflect. Greater chance that minor fixes will be required. Probability of a ship loss is small. Delays in shipping due to weather included in another risk item. **Response Actions:** Incorporated lessons learned from Carquinez into the SAS contract. Contract requires transportation plan signed by a Naval Architect from the Contractor as well as other provisions to protect the fabricated pieces. Department to review for acceptability only. Voyage specific plans are to be developed								
90		**Permits: Waterway**	Very Low	Low	$1,000,000 0		$7,000,000 20	Very Low days	Very Low	Gary Pursell
		Description: Coast Guard, Army Corps of Engineers and Bar Pilots could require revisions to work plans not contemplated in contract documents. Disagreements on permit interpretations. **Assumptions / Current Status:** To date relations with Coast Guard and Army Corps of Engineers has been cooperative. Vessels are just starting to enter the bay. Erection has yet ot begin. **Rationale:** Department has continued to maintain relationships with partners. **Description of Impacts:** Extra work to modify plans and potentially time impacts. **Response Actions:** Continue to maintain relations with agencies.								
74		**Cable Field Installation: Installation of Temporary Works**	Low	Low	$500,000 20		$2,000,000 60	Low days	None	Rick Morrow
		Description: Installation of the temporary work that enable cable erection is complex, due to three dimensional geometry. Potential for mis-communication and installation delays. **Rationale:** No change. **Description of Impacts:** Delays to schedule and/or cable erection due to rework or extra work required to place temporary working in the correct location. **Response Actions:** Cable Focus Team is monitoring, has taken mitigation steps and identified potential further mitigation actions. Falsework @ W2 will be lowered so that it can be used as a platform for this work.								
100		**Cable Field Installation: Cable Wrapping and Cable Bands**	Low	Low	$500,000 20		$2,000,000 60	Low days	None	Rick Morrow
		Description: Wrapping the cable after installation and compaction. Potential for miscommunication and installation delays.								

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Assumptions / Current Status:	Partial resolution of S-Wire issues allow contractor to procure samples. These samples will be used to design the machine that will wrap the cable.								
	Rationale:	No change.								
	Description of Impacts:	Extra work may be required to resolve issues associated with wrapping and machine design/procurement. May effect schedule								
	Response Actions:	Cable Focus Team is monitoring, has taken mitigation steps and identified potential further mitigation actions. Attempts are being made to minimize splices. Team looking into challengs in wrapping the cable in tight areas near anchorages, the size and number of wrapping machine.								
106		**Pipe Beam Fabrication - Hinge K**	Very Low	Low	$1,000,000		$3,000,000	None	None	Rick Morrow
	Description:	Pipe Beam fabrication could take longer than anticipated.								
	Assumptions / Current Status:	Fabrication is ongoing although progress is slower than anticipated or scheduled. Still a great deal of float on the item.								
	Description of Impacts:	PIpe Beams are needed to tie the SAS to the YBITS bridges. Delays to both projects could result.								
	Response Actions:	Monitor Progress and incorporate lessons learned from Skyway Hinge Pipe Beams								
103		**Temporary Tower: Install**	Very Low	Low	$500,000 20		$2,000,000 60	Low days	Very Low	Rick Morrow
	Description:	Fabrications and Erection issues such as fitup issues welding code interpretation on the temporary tower may lead to rework or schedule delays.								
	Assumptions / Current Status:	Erection underway.								
	Rationale:	New Risk Item								
35		**Cable Procurement: Fabrication or delivery of cable**	Very Low	Low	$500,000 20		$2,000,000 60	Low days	None	Rick Morrow
	Description:	Fabrication of the cable is complex. There is potential for birdcaging when put on rolls for transport.								
	Assumptions / Current Status:	Evaluate in Summer of 2009 (most likely 3rd quarter)								
	Rationale:	Fabrications has begun and no issues so far. Unraveling tests were successful								
	Description of Impacts:	Potential for mis-communication, delays, travel logistics.								
	Response Actions:	Efforts are underway to calculate the exact lenght of the cable. Depends on several factors.								
23		**W2: Construction issues with saddles**	Very Low	Low	$10,000 0		$2,000,000 20	Very Low days	None	Rick Morrow
	Description:	Work at W2 is very complex with potential for items to conflict with each other. The Contractor's schedule shows numerous items at this location to be the near critical path.								
	Assumptions / Current Status:	Adjusted area for contractor's use at W2 &W3 to coordinate SAS and SSD work schedules. Allowed changes to cap beam to take the pipe beam off the critical path (CCO 15). CCO 46 issued address Macalloy issues.								
	Rationale:	Risk Reduced as a result of most of the work being completed. Tiedown installation remains.								
	Description of Impacts:	Most of W2 is constructed. Saddles remain								
49	China	**Tower Fabrication: Machinery breakdown**	High	None				None	None	Peter Siegenthaler
	Description:	Equipment used in fabrication could break down and delay work. This is primarily a contractor risk but could affect the contract schedule.								
	Rationale:	No change								
	Response Actions:	Team China is monitoring fabrication processes.								
104		**Variations of Vessel Transporation Times**	Very Low	None				None	None	Mike Stone

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Description:	Vessels departing from China may arrive later than scheduled as a result of weather.								
	Assumptions / Current Status:	This risk is a schedule risk only.								
	Description of Impacts:	Delays to the Schedule								
98		**Cable Procurement: Wrapping Wire (S-Wire)**	Moderate	None	60		120	Moderate days	None	Rick Morrow
	Description:	Samples of S-Wire were procured later than anticipated. Although delivery of the production wire is not expected to be an issue, there could be a time impacts as a result of not getting samples earlier. Samples were to be utilized in developing parameters for the wrapping machine. Design of the wrapping machines has been delayed but is now underway. Wrapping wire is a sole source item.								
	Assumptions / Current Status:	The current issue is the S-wire sole source price from Nippon Steel being higher than specified, as yet unresolved. Change Order #97 written to address purchase of S-Wire and to address escalation and sole source issues. Machines to wrap the wire in the field still need to be designed and built. Sample spools of S-Wire were procured by the CERM team. CERM team has made recommendation(s) for wrapping machines								
	Rationale:	Issue is happening. CCO #97 issued to address. CCO #97 was issued to address procurement of the wire however there may still be time impacts as a result of not being able to procure samples in a timely manner.								
	Description of Impacts:	Potential for mis-communication, delays, travel logistics. Samples of S-Wire were procured later than anticipated. Although delivery of the production wire is not expected to be an issue, there could be a time impacts as a result of not getting samples earlier. Samples were to be utilized in developing parameters for the wrapping machine. Design of the wrapping machines has been delayed but is now underway.								
	Response Actions:	As a result of implementing Change Order #97, issues related to procurement of S-Wire can be reduced. The main concern now is time impacts associated with the time taken to resolve issues resulting in the change								
70	**China**	**East End (OBG) Fabrication: Competition for shop space and resources with other contracts.**	Moderate	None				None	None	Peter Siegenthaler
	Description:	Shop space is limited and other projects may take up space needed for this contract should acceleration or delays occur. This is primarily a contractor responsibility but can affect the work and/or schedule.								
	Assumptions / Current Status:	Yet to be a problem. May impact ability to recover schedule. Investigating the practicality of utilizing alternate fabrication facilities to assist in schedule recovery. Opportunity may have already passed. May roll into proposed settlement change order. Therefore no time or money attributed here.								
	Rationale:	No change								
	Description of Impacts:	Delays to fabrication or inability to expedite work to recover time lost in schedule.								
	Response Actions:	Team China monitors fabrication processes.								
71	**China**	**OBG Fabrication: Machinery breakdown**	Moderate	None	20		60	Low days	None	Peter Siegenthaler
	Description:	Equipment used in fabrication could break down and delay work. This is primarily a contractor risk but could affect the contract schedule.								
	Assumptions / Current Status:	Considered to be a schedule risk only although event could limit or exclude accereration opportunities.								
	Rationale:	Schedule Risk changed to low and the Probability reduced to Moderate.								
	Response Actions:	Team China is monitoring fabrication processes. Explore the option of utilizing additional fabricators should event occur.								

NOPCs

57		**NOPC 6: Hinge Pipe Beam submittal approval caused a delay**			$0		$1,800,000			Rick Morrow
					0		0	days		
	Description:	The fabrication contractor is citing delays to his operations at his fabrication shop due to Department's performance in review of submittals. Alternative Material requests may be an issue as well.								
	Response Actions:	The Department does not agree. The Contractor has not followed up the initial NOPC with the required detailed supplemental. As a result the Department has issued a letter stating this is a closed matter.								
63		**NOPC 7 Escalation cost for NOPC 1 issues**			$0		$1,000,000			Gary Pursell
	Description:	Could not buy the equipment associated with NOPC 1								
	Rationale:	Contractor may drop due to reductions in anticipated escallation.								
107		**NOPC #11 - QA Samples of Threaded Fasteners**			$100,000	$400,000	$1,000,000			Gary Pursell

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Most Likely	High	Time Impact	Scope Impact	Owner
	Description:	The Contractor contends that they are not required to provided samples of threaded fasteners to the Deparrtment for Quality Assurance Testing. The Department is of the opinion that the contract is clear and these samples are to be provided and cost included in the Items of Work.								
	Response Actions:	Quality Assurance Testing needs to be performed. Issue is whether or not the Department needs to pay for it of if it was included in the contract. The Constractor and the Department are persuing the issue throught contractual dispute resolution means. Issue may be heard by the Dispute Review Board.								
108		**NOPC #12 - State Sales Tax Increase**								Gary Pursell
	Description:	The State of California increase sales tax by one percentage point. Contractor is requesting compensation for this increase and contending that they could not have known about it or budgeted for it. The Department disagrees. This is a Statewide issue and effects many projects not only on the corridor but outside the Toll Program as well.								
	Rationale:	Quantitative Data was intentionally left blank and this issue is covered in the Corridor Risk Analysis.								
	Response Actions:	Members of the Legislature have proposed bills that would address this issue for ongoing projects								
CCOs										
108		**CCO - Global Resolution of Fabrication Issues in China - Excludes East End**			$20,000,000	$55,000,000	$60,000,000			Rich Foley
	Description:	Change Order 108S0 has been issued however this is only one of what is expected to be several change orders that will be issued to address this resolution. Only addresses things known prior to May 20, 2009. 108S0 - Acceleration incentives, direct cost down payment for pending CCO's, indirect costs for 4 month impact. 108S1 - expected to close out contract time extensions 108S2 - expected to close out direct and indirect costs								
	Rationale:	This Item captures the preliminary estimates for the proposed supplements to this change order. This change addresses ZPMC and ABF. Talks so far have been silent on other subcontractors and the inpacts that this change will have on future work.								
26		**Miscellaneous admin/technical CCOs**			$0	$39,760,000	$82,880,000			Gary Pursell
	Description:	Accounts for miscellaneous ccos, including quantity busts, not specifically called out on the registers. The most likely value is 4% of contract value, based on history of all construction contracts. It is reassessed and reduced as work progresses.								
	Rationale:	Work is 29% complete per weekly newsletter 6/27/08 =.04*$1.4B*(1-.29) = $39,760,000								
111		**Extra Work Required to Develop Shop Drawings (Excludes the East End)**			$5,000,000		$17,000,000			Rick Morrow
	Description:	Shop Drawing development has taken longer and required more resources to develop. May get Rolled into CCO #108 and it's supplements and may be included in the resolution of various outstanding change orders								
	Rationale:	Costs are for the drafting subcontractor and do not include impacts related to delays to shop drawing development and/or approval to the project as a whole or at the fabrication facility.								
112		**Additional Compensation for Drafting East End Shop Drawings**			$4,500,000		$15,000,000			Gary Pursell
					150		300 days			
	Description:	The Department is contemplating a change order that will provide additional compensation to the Contractor's drafting firm to compensate them for the extra work required to develop approved shop drawings for the East End of the Orthotropic Box Girder (OBG) Lifts 12 - 14.								
109		**CCO #89 - Revised Acceptance Criteria for Welding**			$1,000,000		$15,000,000			Rich Foley
	Description:	Provides a revised acceptance criteria for welds. This change order addresses most of the issues related tack welds in China but it is anticipated that there will still be disputed costs related to inefficiencies, rework prior to the issuance of the change order and rework required to meet the new criteria. At this time, it is too early to assess the Department's exposure on this item or where the costs will be addressed. Options are a supplement to this change or to roll up in CCO #108 assuming exposure is sufficient								
	Rationale:	At this time ABF/ZMPC are of the opinion that the Department has impacted operations in China. While this Change Order provides a new acceptance criteria it does not address inefficiencies in the plant between when this issue was identified and resolved. In addition this change order may not resolve all disputes but just the number of welds.								
110		**Variations of the agreed Values of the Change Orders listed in Appendix "A" in CCO #108**			$0		$10,800,000			Gary Pursell

Self-Anchor Suspension - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Description:	Contract Change Order #108 provides partial compensations for a series of change orders. The affected change orders are listing in Appendix "A". The partial compensation provided is approximately 50% of the total requested by the Contractor. This Item accounts for that potential increase on the values of these change orders as this is not accounted for in the Contract Change Order Log.								
	Rationale:	The pending change orders, RFCO's and NOPC's listed in Appendix "A" will eventually be resolved and subsequent change orders issued. In the case of the NOPC's and RFCO's the issue may be retired as the contractor may agree that no compensation is warranted. In CCO #108 the Department paid %50 of ABF's estimated value of everything on the list. Some changes will be issued for values greater and some less than the estimated value contained in Appendix A as such there will need to be a reconciliation between the values actually paid and what was estimated. This Item assumes that the Department will not pay less than 50% on average nor will it pay more than what ABF has already asked. The change order log captures these changes but the amounts in the log represent the 50% value. This item represents the uncertainty in obtaining resolution in the amounts shown on the change order log.								
67		**Cost variation of CCO 77 - Green Tag**			$1,000,000		$5,000,000			Gary Pursell
	Description:	The $5 million for CCO 77 may be insufficient. It could range from $8-20 million.								
	Rationale:	Supplement #1 has been issued. Now the total cost of the change to date is $12,098,201.00. A second supplement may be required to close out this change order.								
68		**Cost variation on CCO 24 - Traveler Redesign**			$1,000,000	$2,000,000	$3,500,000			Gary Pursell
	Description:	Potential cost variation on CCO 24 above and beyond the $1.5M listed on the CCO Log. The CCO Log estimates $1.5M for this change (includes Supplements 0 & 1). Revised cost estimates indicate that the costs will be greater. At present the estimate is $3.25M and that may increase upon review and pricing by ABF and their sub-contractors.								
	Rationale:	Design is complete and drawings submitted to the contractor. Additional changes to the design may be required as a result of this. Pessimistic has been reduced as a result of the completed design and cost estimate provided by the Designers.								
54		**Various potential CCOs identified on Contract Change Request log**			$0	$1,300,000	$3,900,000			Gary Pursell
	Description:	Contract Change Request (CCR) log identifies a number of potential changes. Not all items may result in a change, and the potential cost of all open items are combined in this risk item.								
	Rationale:	CCR list gives an order of magnitude of $2.6M, but several entries are blank. To account for cost uncertainty, the most likely value is assumed as half of the $2.6M, and pessimistic is 1.5 times.								

YBI#1 Mainline Structures - RISK REGISTER

Quarter ending September 30, 2009

Risks

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
40		**Construction delay of YBI1 by SAS after YBITS 1 award**	Very High	Very High	$15,000,000 330	$18,000,000 450	$22,000,000 590	Very High days	None	Mike Stone

Description: The YBITS bid documents state that the YBI Transition Structure contractor will be able to proceed to completing frame 2 without interruption after completing the work to DP-1. the current DP1 date is based on the original SAS contract date for completion of SAS Phase 1. That is, SAS Phase 1 will complete at the same time as DP-1.
After award of the YBITS 1 contract, progress of the SAS and YBITS 1 contracts may diverge. Due to varying progress for the SAS and YBITS 1 contracts, the YBITS contractor is ready to complete the Hinge K closure and SAS is not ready to turn over the required area to the YBITS contractor, due to YBITS contractor performance or an SAS delay that occurs after contract award. The last 12 meters of the WB and EB Frame 2 structure cannot be completed and stressed and must remain on falsework for an extended duration.

Assumptions / Current Status: This risk item covers delays to Hinge K area turnover that may arise after YBITS1 contract award. Risk #40 covers costs and delays that may arise from the early award of YBITS1 contract. Risk 24 covers delay costs associated with the YBITS 1 work.
6/10/09: Bid open date has been changed to Dec. 15, 2009, to better align the project start date with the SAS and YBID schedules; the number of days has been reduced proportionally, to avoid impact on corridor schedule.
9/2009: Areas for contractor's Use have been modified and availability dates adjusted to conform to the YBIDs completion schedule.

Rationale: Based on Q3 schedule risk analysis, isolating SAS risks impacting YBI1.
Range of delay: 330, 450, 590
TRO+ range: $35-45K/day
100% compensible

Description of Impacts: The department may be liable for additional costs due to extended falsework rental, TRO, and other associated delay costs.

Response Actions: Liquidated damages are included in SAS contract for late Phase 1 completion.
Monitor contractor schedules and adjust YBITS contract bid opening and/or milestones minimize risk.
Add supplemental funds to pay for delay.
12/5/08: Add contract terms that allow suspension of the work. Award the work and delay start.
3/9/09: The falsework will be enhanced to allow for the extended duration (to be included in Addendum #6).
6/10/09: A bid item to buy Frame 2 falsework may be included in addendum #6 to mitigate long-term rental costs.
9/2009: It has been determined that the falsework will be rented and that a bid item to purchase the falsework will not be included in the bid documents. If a significant delay occurs the YBITS 1 contract could be terminated after completion of DP1 and remaining work completed by emergency contract, director's order or other contracting means. After the YBITS 1 contract award establish and joint Caltrans/YBITS contractor/SAS contractor team to investigate means of completing Frame 2 prior to SAS Phase 1 completion. The identified mitigating SAS actions should be vetted with the SAS contractor to incorporate into the SAS schedule if valid.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
41		**Gap in Construction due to early award of YBITS 1 contract**	Very High	High	$8,000,000 220	$9,000,000 220	$10,000,000 220	Very High days	None	Mike Stone

Description: The YBITS bid documents state that the YBI Transition Structure contractor will be able to proceed to completing frame 2 without interruption after completing the work to DP-1. the current DP1 date is based on the original SAS contract date for completion of SAS Phase 1. That is, SAS Phase 1 will complete at the same time as DP-1.
The current SAS contractor schedule does not support this assumption, forecasting a 17 month delay to the Phase 1 completion. The CST and Risk Team have identified potential mitigating actions that may reduce the delay to approximately 11 months. These mitigations are included in the schedule risk analysis resulting in a 320 day gap between YBITS DP1 and SAS Phase 1.

Assumptions / Current Status: Addendum #4 adjusted bid opening to Dec. 15, 2009. Fieldwork is scheduled to start in August 2010 for the western portion of the structure and 12/2010 for the eastern portion (Frame 2), after YBID completes demolition and W5 respectively. 9/2009: YBITS 1 construction delays (Risk 24) for DP1 would be concurrent with the delays identified in Risk 40 and/or Risk 41. Delay costs associated with DP1 are accounted for in Risk 40 and 41.

Rationale: 220 days at $35-45K per day (TRO+), all compensible.

Description of Impacts: The department may be liable for additional costs due to extended falsework rental, TRO, and other associated delay costs.

Response Actions: Investigate options to close the "gap" including delaying bid opening and/or delaying start of work after award and/or extending the contract DP 1 duration.
Accept the gap and provide supplemental funds to pay for the delay.
The identified mitigating SAS actions should be vetted with the SAS contractor to incorporate into the SAS schedule if valid.
If a significant delay occurs the YBITS 1 contract could be terminated after completion of DP1 and remaining work completed by emergency contract, director's order or other contracting means.
After the YBITS 1 contract award establish and joint Caltrans/YBITS contractor/SAS contractor team to investigate means of completing Frame 2 prior to SAS Phase 1 completion.

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
24		**Delay in Construction (TRO+)**	Very High	High	$4,300,000 110	$5,200,000 150	$6,000,000 170	High days	None	Mike Stone

Description: This item captures the cost of a delay due to construction risks, in isolation without inclusion of the "gap" for completion of WB Frame 2 and Hinge KW resulting from not pacing the YBITS 1 contract bid opening to SAS current status and forecast and from impacts due to SAS delays after YBITS 1 award. This item only covers delays after the turnover or the Hinge K area to the YBITS 1 contractor.

Assumptions / Current Status: It is assumed that YBITS 1 construction delays to DP1 work will be concurrent with delays due the SAS. Therefore, the associated delay costs are included in Risks 40 and 41.

Rationale: Delay range: 110, 150, 170 based on Q3 schedule risk analysis.
TRO+ range: 35-45K per day
Pro-rate factor: 0.8-1.0

Description of Impacts: It takes longer to complete the DP2 (WB Ready) and DP3 (EB ready) work delaying traffic openings. The Department will be liable for the delay costs

YBI#1 Mainline Structures - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Response Actions:	Some YBI foundations advanced into SSD contract. A study was done to see if the 90 day requirement to allow creep and shrinkage to occur before constructing the closure pour can be reduced. 6/08: the waiting period has been reduced to 75 days. Offering an incentive tied to availability to traffic to speed up construction. The Department has prepared ISD's and incorporated identified changes into the plans. Most have been done prior to Bid Opening, some have to be issued by CCO. The contractor is required to complete ISD's and select other submittals early in the contract prior to start of field work. Team with the contractor to coordinate the work and to perform corridor value analysis.								
22		**Unstable slopes around structure excavations or stability design issues.**	Moderate	High	$5,000,000 30	$5,000,000	$10,000,000 90	Moderate days	Low	Bill Casey
	Description:	Very steep slopes are part of the terrain. Slopes around structure excavations could become unstable. Professional opinions over stability design issues could differ between the Department and the contractor.								
	Assumptions / Current Status:	6/10/09: Risk to be monitored and managed during construction.								
	Response Actions:	Contractually, the Contractor will be responsible for slope stability around his excavations. The South-South Detour contract has a slope monitoring program in place for an adjacent area of the slope and lessons learned from analysis of that program are expected to be used (such as shotcrete slopes, soil-cement backfill). 9/9/08: The specs call for the contractor's excavation plans to be approved before work begins. Soil borings completed by SSD. Results to be included in the contractor information handout. 12/9/08: Slope monitoring spec in in place.								
32		**Conflicts between electrical, mechanical, and structural elements**	High	Moderate	$2,000,000 7		$6,000,000 30	Low days	Low	Saeed Shahmirzai
	Description:	Past projects have had electrical/mechanical conflicts with structural elements, due in part to the two elements designed by different design firms. Conflicts between structural elements and other structural elements may also be encountered (such as between rebar and post-tension ducts). ISDs are developed by the Department to resolve conflicts before the project is awarded. If ISDs are not 100% complete, the contractor may claim that the Department has not demonstrated that the plans are constructible.								
	Assumptions / Current Status:	9/22/09: ISDs and revised plan sheets to be included in addendum #7 and #8. ISDs process will continue past addendum #8 deadline if additional funds are allocated.								
	Rationale:	3/9/09: Risk allowance is for issues that may remain after ISD preparation mitigation action is complete. 9/22/09: Cost range increased since ISDs will not be 100% complete by the time addendum #8 is issued. Conflicts that remain will be resolved by issuing CCOs, resulting higher costs. Conflicts between structural-structural elements are also covered by this risk.								
	Description of Impacts:	Added costs to implement plan changes, especially if discovered during construction. Resolution includes non-standard rebar spacing, which is more time consuming and expensive to construct.								
	Response Actions:	PB has submitted comments on plans indicating a detailed review. Comments have been incorporated. Brought in an Mechanical-Electrical-Plumbing "integrator" to deliver. 3/9/09: Performing ISDs as part of design, to reduce the likelihood of conflicts. ISD specifications have been drafted to require the contractor to perform ISDs that include its own proprietary work methods, as first order of work. Specs and revised plans are to be included in an addendum. ISDs will be discussed with the contractor at the pre-construction meeting. A working drawing campus will be set, to expedite resolution of conflicts and submittals approval.								
42		**Addenda items not incorporated before bid open and are added later as a CCO.**	Moderate	High	$200,000 7	$5,000,000	$10,000,000 30	Low days	Low	Steve Hulsebus
	Description:	Several necessary changes to the contract plans and specifications have been identified and are planned to be issued by addenda. Also, bidder inquiries closer to bid open date may result in changes that have not been identified so far. If these addenda items are not incorporated in time, they will be added later as a CCO, potentially resulting in higher costs.								
	Assumptions / Current Status:	The project was advertised on 8/11/2008 with a bid open date of 1/13/09. 6/10/09: Addendum 4 delayed bid opening to December 15, 2009, allowing additional time to incorporate necessary addenda. 9/22/09: The last addendum planned is #8, to be approved by TBPOC on 11/2 and published 11/16/09. DVBE reporting spec is being developed, and SSD experience indicates that epoxy coating to joints may be necessary. City of SF ramps specs and plans are ready to be included in addendum #8 if Co-Op agreements are signed on time.								
	Rationale:	12/5/08: Increased cost estimate based on past projects experience with items that were not included in the bid and were given early in the project as a CCO.								
	Response Actions:	Delay bid opening. Expedite addenda preparation and approvals. 6/10/09: Management to set addenda review priorities and coordinate publication schedules with DOE. Provide additional personnel.								
7		**A differing site condition (includes man-buried objects, utilities, and hazardous materials).**	High	Moderate	$1,000,000 30		$5,000,000 90	Moderate days	Moderate	Bob Zandipour
	Description:	Differing site conditions at any foundation, utility, or other existing structure location can cause delays and increase costs.								
	Assumptions / Current Status:	A thorough foundation investigation has been completed. The area within this project has steep terrain, was a Navy base and is a Native American burial ground. There have been multiple previous contracts in the vicinity to address the known issues and they have identified numerous DSCs. Much has been learned and documented.								
	Rationale:	There has been a history of encountering unknown items on the island despite intensive investigation. 6/10/09: Cost is on top of $3.1M supplemental funds.								

YBI#1 Mainline Structures - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Response Actions:	Potholing done for footings and utilities, no further potholing is anticipated. 13 of the foundations(bents 3-7) and the duct bank were advanced to the SSD contract. Old building foundations drawings have been found; need to study and use to look in the field. Used ground penetrating radar to look for subsurface conditions in new footing locations; results incorporated into the information handout. Geotech performed additional soil borings in the slope, as part of SSD contract. 3/9/09: Soil borings results were included in addendum #2. 6/10/09: Supplemental funds allocated.								
44		**Yet-to-be-approved addenda Items expected to be added to the Estimate**	Very High	Moderate	$1,347,280		$2,694,560	None	Low	Bob Zandipour
	Description:	This is an allowance for yet-to-be-approved addenda items (addenda 7 & 8) that will be added to the Basic Engineering Estimating System (BEES). Once the BEES is updated, this allowance will be retired from the risk register.								
	Rationale:	Addendum #7 items = $658,630 Addendum #8 items - $688,650 Total $1,347,280 (low) High end is twice the most likely value, to account for cost variability and any addenda items that do not have a cost estimate as of 10/1/09.								
28		**Construction impacts public traffic on local roads more than provided for in the contract.**	High	Moderate	$200,000 0		$5,000,000 30 days	Low	Low	Bob Zandipour
	Description:	Contractor could impact traffic or keep lanes of local roads closed for periods longer than currently anticipated. Macalla road is being significantly altered near the Substation.								
	Assumptions / Current Status:	Lane closure and other traffic specifications are in the contract. Project stakeholders have been advised of contract requirements. 9/9/08: Lessons learned from SSD project indicate that the following may need to be performed by YBI#1 contract: 1) rebuild Macalla Rd. if damaged, 2) fix potholes, 3) restripe Macalla Rd., 4) trim trees, 5) repair retaining wall if hit, 6) add a daily shuttle from bus station to USCG base to reduce no. of vehicles on YBI (if current daily shuttle from TI to base proves effective). 12/5/08: 7) Ferry personnel is needed. 3/9/09: 8) SF PD personnel for event weekends.								
	Rationale:	12/5/08: Cost is on top of $500k supplemental funds allocated for "maintain local roads". 6/10/09: increased high end cost to account for the costs of local roads rehabilitation work and for additional measures that may be needed to maintain traffic on the island.								
	Response Actions:	Monitor work plans and anticipated traffic closures during construction. Coast Guard license language will be added to the specs (in addition to handout). 12/5/08: Supplemental funds have been allocated. 6/10/09: Local roads maintenance item will be included in addendum #5.								
30		**SSD advance work is different than shown on the YBI plans**	Moderate	Moderate	$1,000,000 30		$5,000,000 90 days	Moderate	Low	Bill Casey
	Description:	SSD advance work on YBI column rebar and footings could be in the wrong place for YBI superstructure. Contractor may not have the latest set of as-builts/ integrated shop drawings.								
	Assumptions / Current Status:	Note: this risk is a result of a corridor risk response constructing (advancing) the YBI footings in another contract. 9/9/08: an addendum will be issued only if changes are made in the field. As-builts are expected to be available after bid opening.								
	Rationale:	9/9/08: Probability decreased from high to moderate due to the field work progressing according to plans and the possible delay of bid opening.								
	Response Actions:	SSD will construct ISD models of all advance footings, column, and bent cap rebar. 6/10/09: ISDs have been included in the informational handout). Make SSD as-builts available to contractor as soon as they are completed. 12/5/08: Spec to point to ISDs. 9/22/09: All advance work ISDs have been included in the information handout.								
6		**Department not reviewing working drawings in a timely manner.**	Moderate	Moderate	$1,000,000 30		$3,000,000 180 days	High	Very Low	Deanna Vilcheck
	Description:	Historically, the Department has taken a long time to review working drawings and respond to RFI's. The State budget crisis and the recent decision to reduce Capital Outlay Support (COS) costs may affect the levels of review staff available to the RE during construction. Some working drawings are expected to be on the critical path.								
	Assumptions / Current Status:	6/10/09: The Working Drawing Campus spec is under management review.								
	Rationale:	6/10/09: Probability and cost range increased to reflect concerns over the effects of the state deficit and the recent reductions in Capital Outlay Support on staffing levels.								
	Description of Impacts:	Higher fabrication costs may be incurred to expedite items; items fabricated "at-risk" may need to be discarded. Significant daily costs could occur if Department does not meet it's contractually obligated review times.								
	Response Actions:	Current schedule is to award this contract 6 to 9 months ahead of field work. Design is performing its own ISDs to identify conflicts and revise plan sheets (to be included in addendum #7). SSD is doing ISDs, and changes identified have been included in the YBITS1 information handout, reducing potential for conflicts during construction. A bid item for a Working Drawing Campus may be added by addendum #6. Supplemental work funds were allocated for a Working drawing Campus. Specs require the contractor to submit ISDs and work drawings before start of field work. Require a working drawing submittal schedule from contractor. 6/10/09: Bring in a champion to manage the sumbittal process. Make sure the JV is resourced appropriately.								

YBI#1 Mainline Structures - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
23		**Unforeseen environmental issues.**	Low	Moderate	$1,000,000 30		$5,000,000 90 days	Moderate	Very Low	Stefan Galvez-Abadia
	Description:	The contract provides for some protection of plants, birds, mammals and cultural resources. If measures to protect bird nesting or marine mammals interferes with the work, delays and the resultant costs could occur. Additional SWPPP measures may also be required.								
	Assumptions / Current Status:	Full time staff located at pier 7 are assigned to address SFOBB environmental and cultural issues in the field. It is assumed that CT will work closely with the Contractor develop a suitable environmental monitoring plans and that sufficient funds are allocated to pay for contract specified extra work items. 3/9/09: Most marine work will be completed before this project starts. The site is close to BCDC jurisdiction, and a BCDC amendment may be needed, depending on the contractor's means and methods.								
	Response Actions:	Meet with Contractor at construction kick off meeting to discuss expectations and future plans. Conduct weekly field reviews. Several previous contracts have been performed to find and relocate areas affected by the new bridge work to mitigate impacts to this contract. 12/5/08: Field work is scheduled to begin in May 2010. Weekly monitoring of the site are performed and nesting (which begins in early spring) will be prevented.								
9		**Construction noise exceeding permit with Coast Guard**	Moderate	Moderate	$0 0	$1,000,000	$3,000,000 30 days	Low	Low	Bob Zandipour
	Description:	The permit with the Coast Guard (USCG) provides some noise limitations due to the proximity of barracks, however construction is inherently noisy. If there is excessive construction or traffic noise, the Coast Guard could try to stop work or otherwise penalize the Department.								
	Assumptions / Current Status:	Contract specifications have been drafted to provide limits on the Contractor. 9/22/09: The USCG is more sensitive to noise now that the detour is open to traffic. The new USCG license has been included in addendum #5. Changes from previous agreement include pile driving from noon to 7pm and implementation of additional noise mitigation measures (such as adding acoustical absorption material). Pile driving restriction is not expected to impact the operation, as it is off the critical path.								
	Rationale:	9/22/09: Probability increased to reflect recent USCG concerns about noise.								
	Response Actions:	Monitored W3 construction, noise levels within permitted limits. Monitor SSD WTI phase 1 noise to determine impacts on the barracks and have meet regularly with the USCG. Continue to monitor noise and meet with USCG to discuss the noisier work operations. Language of the USCG license has been put in the contract specifications. 9/22/09: Supplemental funds have been added for "mitigation work for USCG."								
27		**Construction impacts public traffic on mainline more than provided for in the contract.**	Low	Low	$200,000 0		$1,000,000 30 days	Low	Very Low	Bob Zandipour
	Description:	Partial bridge closures (lane closures) of 4-8 hours on mainline are anticipated for work to attach the new transition structure, including the traffic switch. YBITS1 contract may do all of the Westbound striping. Contractor could impact traffic or keep lanes closed for periods longer than currently anticipated and are provided for in the contract. Closures of the whole bridge could impact toll revenue earmarked for repayment of financing bonds. Requires coordination with OTD and SAS.								
	Assumptions / Current Status:	9/22/09: OTD2 may require a full-bridge closure for WB opening, of which the YBITS1 contractor may be able to take advantage.								
	Response Actions:	Traffic handling specs in contract. Project stakeholders have been advised of contract requirements. Public outreach office has been established to keep public informed of upcoming closures. SSD redesign of WTI phase 1 reduced amount of closure time necessary for WB traffic switch and eliminated need for temporary supports in the permanent mainline traffic lanes. Plan to allow lane closures after traffic opening with incentive. 3/9/09: $80K supplemental funds for COZEEP have been allocated.								
34		**Potential for damage to new duct bank portion constructed by SSD contractor.**	Very Low	Moderate	$500,000 30		$3,000,000 90 days	Very Low	Moderate	Bob Zandipour
	Description:	Advancing of a portion of the ductbank into the SSD puts the completed ductbank in the way of work on YBITS. The Contractor will have to take extra measures to protect. Affects locations of heavy equipment and falsework.								
	Rationale:	This is a risk allowance for potential department's responsibility to damage. 6/10/08: probability and schedule impact changed from low to very low.								
	Response Actions:	Show the completed ductbank on the plans with specified maximum allowable loads. Potential loads on the structure were calculated. Added supplemental funds.								
13		**YBI expansion joint design could be changed at advertise or after award.**	Low	Low	$0 0	$400,000	$1,000,000 30 days	Low	Low	Ade Akinsanya
	Description:	The YBI joints are complex. This design requires consensus between many parties and this design is critical. In service testing could identify more changes and even further changes could occur to accommodate YBI particular construction details. Changes could require a CCO.								
	Assumptions / Current Status:	9/9/08: Tests at Carquinez have been completed. Plans were reviewed and no changes are anticipated unless conflicts arise. 9/22/09: Skid resistant material will be added to the steel surfaces based on the YBI Detour experience.								
	Rationale:	9/9/08: probability lowered from Moderate to Low as no design changes are anticipated.								
	Response Actions:	A design is complete, lessons from Carquinez have been incorporated. Design was studied for compatibility with the YBI design (champion is Ric Magenti). Met June 2007, including Maintenence, and agreed to go forward with "Caltrans Seismic Joint." Moffit/Nichol is reviewing design, revised plans have been included in the PS&E.								
26		**A utility line to be relocated by others is not relocated in time or encounters a differing site condition**	Low	Low	$200,000 30	$200,000	$1,000,000 90 days	Moderate	Very Low	Bob Zandipour
	Description:	Some utility work is being performed by others, on their own schedule. This schedule could be shifted or the utilities could run into their own differing site conditions.								

YBI#1 Mainline Structures - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
	Assumptions / Current Status:	Gas line is small and is not a high risk line, CT could do the work to relocate. The Department will relocate utilities and the City of SF make the connections of water and gas lines during contract to minimize street repairs. Can't relocate now due to other conflicting work. 9/29/08: Scope includes the relocation of Macalla Road along with the area utilities and construct W9 foundation.								
	Response Actions:	Close coordination with City of SF. Monitor schedule to ensure request for the lines to be moved occurs in time. Spec has requirements for Contractor to notify the Department ahead of need for work.								
35		**Creep and shrinkage on the YBI structure takes longer than the contract specified time.**	Very Low	Low	$200,000 7		$1,000,000 30 days	Low	None	Mike Whiteside
	Description:	It is critical for the rate of significant creep and shrinkage to be reduced to an assumed level in design criteria before the closure pour with SAS is constructed so as to avoid transferring loads greater than the design accounts for. If too much load is transfered, the SAS suspenders could be unloaded and the hinge pipe beam would have to be redesigned.								
	Assumptions / Current Status:	see also program risk								
	Rationale:	It is thought that 90 days is sufficient for the rate to drop to an acceptable level. 6/08: the waiting period has been reduced to 75 days.								
	Description of Impacts:	YBI contractor would be directed to wait before pouring the closure pour.								
	Response Actions:	Contract requirements to test have been adjusted to specify a lower shrinkage rate. 9/9/08: OTD1 Hinge E testing demonstrated that creep and shrinkage can be accurately predicted given the information mandated by the contract specifications. The contractor is required to submit the mix design and testing results early in the YBI contract, to allow early prediction. Should the information indicate that 75 day requirement may not be met, corrective action can be taken early.								
8		**Conflicts or differing opinions over welding.**	Very Low	Very Low	$0 0	$0	$200,000 0 days	Very Low	Very Low	Rob Kobal
	Description:	Historically there has been differing opinions during construction over interpretation and enforcement of welding requirements.								
	Assumptions / Current Status:	This risk would probably only occur on pile welding on this project, there is not much welding expected.								
33		**(Program) - PROGRAM: City of SF redesign of ramps adds costs or delay contract**	Moderate	None				None	High	Steve Hulsebus
	Description:	SF TIDA has been approved to incorporate new on/off ramps. TIDA may not get project study done sufficiently ahead of advertise or may require additional design of the bridge to accommodate, causing delay and increasing cost.								
	Assumptions / Current Status:	Program risk, therefore no costs at the contract level at this time. Latest SFCTA schedule for YBI ramps shows PS&E is 10/2010, awarded and approved 5/2012. 3/08: risk resurrected to reflect concern over this issue. 6/08: meetings with the city of SF are ongoing.								
	Rationale:	program risk, therefore no costs at the contract level at this time.								
	Description of Impacts:	Delay and increased cost.								
	Response Actions:	POC has specified that there would be no delay to seismic safety. 12/5/08: Risk responses tracked at the program level.								

CCOs

1000		**Miscellaneous administrative/technical CCOs**			$0	$8,200,000	$16,400,000			Not Assigned
	Description:	Accounts for minor ccos, including quantity busts, not specifically called out on the registers. The most likely value is 4% of work remaining, based on history of all construction contracts.								
	Rationale:	10/1/09: Current contract items + SFM value is $205,662,393 per August 31, 2009 BEES (includes addenda 1 through 6). Most likely=4%*$205M=$8.2M.								

YBI#2 Post Traffic Switch - RISK REGISTER

Quarter ending September 30, 2009

Risks

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
31		**Demolition of SSD structure could impact USCG property or new structure.**	Very High	Very High	$5,000,000 30		$10,000,000 90 days	Moderate	Very Low	Amando Vito
	Description:	Detour structure is located in close proximity to the US Coast Guard (USCG) road and demolition could affect traffic and personnel. 9/9/08: USCG license places limits on noise levels and on local road closures. Around-the-clock demo operation will minimize impact on Macalla road, but will conflict with noise restrictions. 12/5/08: Demolition of Spans 48 and 49 by the goat slope requires road closure beyond what is permitted by the license; other spans can be demolished by diverting the traffic.								
	Assumptions / Current Status:	12/5/08: The plan is to get "power weekends" when the road is closed to traffic and pieces brought to the ground)								
	Rationale:	9/9/08: The current demo estimate is based on historical data. Probability changed from very low to very high, and cost impact from moderate to very high, reflecting the uncertainty of the demolition planning outcome.								
	Description of Impacts:	9/9/08: With the current USCG license, parts of the detour cannot be demolished.								
	Response Actions:	Contract will specify constraints on demolition. Department to thoroughly review demolition plans. Review lessons learned from demolition of existing structure. 9/9/08: A champion - Amando Vito - has been assigned. A Detour Demolition Plan focus team will be established (consisting of USCG, Caltrans Right of Way, and other stakeholders). The current USCG permit is to be re-negotiated. A demo expert (such as Silverado or Mammoet) may be retained to develop scenarios. Lessons learned from the detour construction to be applied. 3/9/09: Plans to be established by Q3 2010.								
38		**Scope Increase**	High	Very High	$5,000,000		$10,000,000	None	None	Bob Zandipour
	Description:	The project scope is expected to evolve over the next 2-3 years.								
	Assumptions / Current Status:	9/22/09: Items currently in design include bike path access to the bike path landing, and additional retaining walls.								
	Description of Impacts:	Added costs.								
24		**Delay in Construction (TRO+)**	Very High	High	$360,000 30		$2,160,000 180 days	High	None	Mike Stone
	Description:	This item captures the cost of a delay due to any of the other risk items occurring.								
	Rationale:	Assumes delay costs $12K per day (TRO+). Delay range is an estimate by the project team.								
35		**Addenda items not incorporated before bid open and are added later as a CCO.**	Moderate	High	$100,000 0	$1,000,000	$2,500,000 7 days	Very Low	None	Amando Vito
	Description:	The contract plans may need to be revised to reflect changes to adjacent contracts and to accommodate the City of San Francisco ramps. If addenda items are not incorporated in time, they will be added later as a CCO, potentially resulting in higher costs.								
	Assumptions / Current Status:	9/22/09: City of SF Ramps environmental documents are expected to be signed in April 2010.								
	Rationale:	Assumes that with the far-off bid opening date there is sufficient time to include most addenda items.								
	Response Actions:	Delay bid opening. Expedite addenda preparation and approvals.								
10		**Construction negatively impacts public traffic more than provided for in the contract.**	Moderate	High	$200,000 0		$2,000,000 30 days	Low	Very Low	Amando Vito
	Description:	Contractor could impact traffic or keep lanes of the local roads and mainline 80 closed for periods longer than currently anticipated. South South detour must be demolished and south side of viaduct must be rebuilt.								
	Assumptions / Current Status:	Lane closure and other traffic specifications are in the contract. Project stakeholders have been advised of contract requirements. 9/9/08: Issues arising from the detour demolition are covered by risk #31.								
	Rationale:	12/5/08: Accounts for possible paving of Macalla Rd. (top to bottom), as well as other local roads.								
	Response Actions:	Monitor work plans and anticipated traffic closures during construction. Aggressive public information effort has been established. Monitor progress of similar activity on previous contracts. South South Detour tie in designs were taken over by the Department to reduce impact to the final configuration. 12/5/08: Finalize scope to pave local roads and add to estimate. 9/9/08: Supplemental funds have been allocated to the repaving of Macalla Road, if needed.								

YBI#2 Post Traffic Switch - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
22		**Unstable slopes around structure excavations or stability design issues.**	Moderate	Moderate	$500,000 30		$1,000,000 90	Moderate days	Low	Bill Casey
	Description:	Very steep slopes are part of the terrain. There could be disputes over stability design issues.								
	Assumptions / Current Status:	6/10/09: Risk to be monitored and managed during construction.								
	Response Actions:	Many conditions or events will have occurred or been discovered during the South-South Detour and YBI #1 contracts. SSD has a monitoring program and some analysis of its portion of the slope is expected. Some portions of the slope have been shotcreted. Advancing footing work into the SSD contract provides time to mitigate any risks that remain for the YBI #2 contract. 9/9/08: Geotech completed additional soil borings in the area, as part of SSD contract. 12/5/08: Results to be included in the information handout for YBI#1 and YBI#2.								
23		**Unforeseen environmental issues.**	Moderate	Moderate	$500,000 0		$1,000,000 30	Low days	Very Low	Stefan Galvez-Abadia
	Description:	The contract provides for some protection of plants, birds, mammals and cultural resources (this contract does not expect much in water work-no permanent structure, possible trestle). If bird nesting interferes with the work, delays and the resultant costs could occur. Additional costs may be incurred due to stringent SWPPP requirements.								
	Assumptions / Current Status:	Full time staff located at pier 7 are assigned to address SFOBB environmental and cultural issues in the field. It is assumed that CT will work closely with the Contractor develop a suitable environmental monitoring plans and that sufficient funds are allocated to pay for contract specified extra work items.								
	Response Actions:	Meet with Contractor at construction kick off meeting to discuss expectations and future plans. Conduct field reviews. Several previous contracts have been performed to find and relocate areas affected by the new bridge work to mitigate impacts to this contract. 12/5/08: The site is continuously monitored for nesting.								
7		**A differing site condition (includes utilities and hazardous materials) excluding utilities relocated by others.**	Moderate	Moderate	$500,000 30		$1,000,000 90	Moderate days	Moderate	Amando Vito
	Description:	Differing site conditions (DSCs) at any foundation, utility, or other existing structure location can cause delays and increase costs.								
	Assumptions / Current Status:	The area within this project has steep terrain, was a Navy base and is a Native American burial ground. There have been multiple previous contracts in the vicinity to address the known issues and they have identified numerous DSCs. Much has been learned and documented however it is still likely that there will be more. Ground Penetrating Radar study performed primarily focused on YBI 1 work areas. 6/10/09: Scope of work included one column and an abutment.								
	Rationale:	Excavation work scope magnitude is lower than YBI 1, but some work is inside Coast Guard base. Advanced work not perceived as significant to warrant change to cost risk at this time.								
	Response Actions:	A thorough foundation investigation has been completed. Many conditions or events will have occurred or been discovered during the South-South Detour and YBI #1 contracts. Advancing footing work into the SSD contract provides time to mitigate any risks that remain for the YBI #2 contract. 9/17/08: Some Geotechnical borings were done on the Goat-hill area. The results will be included in the information handout for YBI#1 and YBI#2. 6/10/09: Supplemental funds will be allocated.								
26		**An unforeseen utility line that may need to be relocated by others is not relocated in time or encounters a differing site condition**	Moderate	Moderate	$500,000 30		$1,000,000 90	Moderate days	Very Low	Amando Vito
	Description:	Separate risk from #7 because this utility work may need to be performed by others, on their own schedule. This schedule could be shifted or the work could run into their own differing site conditions.								
	Assumptions / Current Status:	Potholing completed early 2007, analysis has not indicated anything that needs to be relocated.								
	Rationale:	This contract has more impact to coast guard facilities than YBI 1. Potholing to be done. 9/9/08: probability increased from low to moderate, to reflect SSD experience encountering water, sewer, and drainage lines.								
	Description of Impacts:	Possible construction delays.								
	Response Actions:	Performed more potholing. 6/08: ongoing coordination with the utility companies, City of SF, and USCG. Some utilities have already been marked.								
30		**Scope growth due to change in USCG desires**	Moderate	Low	$200,000 0	$500,000	$750,000 0	Very Low days	Very Low	Amando Vito
	Description:	Coast Guard (USCG) may have a change in staff that may want to revise the terms of the agreements. Operations of the base must not be detrimentally impacted by the SFOBB project.								
	Assumptions / Current Status:	A change in USCG planning staff occurred late 2006, a subsequent meeting with USCG has not resulted in indications that they want significant changes. Communication with USCG is ongoing. 9/22/09: A staircase and a parking lot restoration may be required.								
	Rationale:	3/9/09: Increased probability and cost as this is the last project on the Yerba Buena Island, and the USCG may make final requests.								
	Response Actions:	Meet with USCG when a change occurs.								

YBI#2 Post Traffic Switch - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
9		**Construction noise exceeding license with Coast Guard**	Low	Moderate	$500,000	0	$1,000,000	Low 30 days	Low	Amando Vito
36		**Conflicts between electrical, mechanical, and structural elements**	Low	Moderate	$200,000	7	$1,000,000	Low 30 days	None	Saeed Shahmirzai
6		**Department not reviewing working drawings in a timely manner.**	Low	Low	$200,000	7	$500,000	Low 30 days	Very Low	Rob Kobal
37		**Conflicts between YBITS2 plans and the YBITS1 as-built conditions.**	Very Low	Moderate	$500,000	0	$1,000,000	Very Low 7 days	Very Low	Bill Casey
32		**YBI2 design cannot be finalized until the YBID as-builts (relating to the demolition) are complete.**	Very Low	Moderate	$500,000	0	$1,000,000	Very Low 7 days	Very Low	Mike Whiteside

9

Description: The license with the US Coast Guard (USCG) provides some noise limitations due to the proximity of barracks, however construction is inherently noisy. If there is excessive construction or traffic noise, the Coast Guard could try to stop work or otherwise penalize the Department.

Assumptions / Current Status: 9/9/08: Issues arising from the demolition of SSD are covered under risk #31.
3/9/09: Note - USCG license to be renewed in 2011.

Description of Impacts: The Coast Guard could try to stop work or otherwise penalize the Department. USCG could ask Department to relocate USCG staff.

Response Actions: USCG license terms will be a part of the specifications.
Supplemental funds will be added.

36

Description: Past projects have had electrical/mechanical conflicts with structural elements due in part to the two elements designed by different design firms. Structural elements may also conflict with other structural elements.

Assumptions / Current Status: 6/10/09: Scope includes fewer utilities than other projects.

Rationale: Cost estimate likely to change based on the experience with YBITS1 ISDs.

Response Actions: Brought in an Mechanical-Electrical-Plumbing "integrator" to deliver.
3/9/09: ISDs are planned to be done as part of design, to reduce the likelihood of conflicts. ISD specifications will be drafted to require the contractor to perform ISDs that include its own proprietary work methods, as first order of work. ISDs will be discussed with the contractor at the pre-construction meeting. Lessons learned from ISDs performed for YBITS1 will be incorporated.

6

Description: The Department historically has taken a long time to review working drawings and respond to RFI's. Some working drawings are expected to be on the critical path. Significant daily costs could occur if Department does not meet it's contractually obligated review times.

Assumptions / Current Status: It is assumed that sufficient staff and submittal review resources will be supplied to the RE during construction and contract specified review times will not be unrealistically shortened in the contract without corresponding resource support.
3/9/09: The department has been instructed to cut back on COS.
6/10/09: Monitor earlier projects' experience.

Rationale: This risk probability is low because it is assumed that sufficient staff and submittal review resources will be supplied to the RE during construction and contract specified review times will not be unrealistically shortened in the contract without corresponding resource support.

Response Actions: Could incorporate campus concept, not planned at this time due to expected small working drawing load. Provide resources to ensure reviews per contract terms. 12/5/08: Performe ISDs during design. 3/9/09: Lessons learned from YBITS1 ISDs to be incorporated.

37

Description: YBITS2 connects to the YBITS1 structure, whose as-built conditions may differ from the plans. A CCO may be required to include the as-builts and/or to make adjustments during construction.

Rationale: 6/10/09: Very low probability due to far PS&E date (March 2011).

Description of Impacts: Additional costs and delay.

Response Actions: Construction to provide as-builts when complete. Design personnel to visit YBITS1 site during construction, conduct coordination meetings with the construction team, and obtain copies of CCOs, to incorporate as many changes as possible into the YBITS2 plans.

32

Description: YBI2 may need additional contract scope to finalize demolition. YBI Detour (YBID) as-builts relating to the demolition of SSD are needed to hand to bidders.

Assumptions / Current Status: Traffic switch to YBID was made in September 2009; need as-builts by late 2010 to allow inclusion in advertised contract.

Description of Impacts: Could impact target PS&E, but not the corridor schedule.
May be additional capital cost due to unknown design scope.
Retrofit design can change.
Bidder uncertainty about scope of the demolition.

Response Actions: The corridor schedule is being paced and the PS&E date will be adjusted as necessary. Original YBITS Contract scope has been split to mitigate potential delay risks.
Construction to provide as-builts when complete. Structures to provide design plans, when completed.
12/5/08: Design personnel to visit SSD site, conduct coordination meetings with SSD construction team, and obtain copies of CCOs.

YBI#2 Post Traffic Switch - RISK REGISTER

Quarter ending September 30, 2009

ID #	Category		Probability of Event Occurring	Cost Impact	Cost/Delay Range Low	Cost/Delay Range Most Likely	Cost/Delay Range High	Time Impact	Scope Impact	Owner
14		**Design is not complete at RTL date.**	Very Low	Low	$0 0		$735,000 180	High days	Low	Amando Vito
	Description:	The contract plans have not been fully revised to meet the current conditions of the contract split, advanced work, and changes to SAS. If the RTL date is missed, delay to the project time line resulting in escalation of estimated cost of the contract could occur.								
	Assumptions / Current Status:	Low probability for now because the required RTL date for advertise is significantly far off. Many of the changes have been identified, only final detailing is required. Work is proceeding to try to complete design well ahead of RTL. Advertise late 2011 or early 2012.								
	Rationale:	Assumes high of 6 month design delay, 5% escalation/year on a $58.8M project(per balance beam-total contract). =58.8*0.05*0.5/2 9/9/08: Probability decreased from low to very low due to the progress of design work and the far off RTL date.								
	Response Actions:	Assigned Project Engineer to deliver PS&E early. Target PS&E date has been shifted to March 2011 to reflect realistic need (3/9/09). The corridor schedule is being paced to work on design at an appropriate time; monitor progress of corridor projects (3/9/09). If need becomes apparent, could assign additional designers to complete the project design. Original YBITS Contract scope has been split to mitigate potential delay risks.								
34		**Changes to expansion joints design**	Very Low	Low	$0 0		$500,000 30	Very Low days	None	Mike Whiteside
	Description:	Changes to expansion joints design due to design revolution and/or fabrication difficulties. Changes could affect RTL date or require a CCO.								
	Assumptions / Current Status:	Formerly covered by program risk #19.								
	Rationale:	9/9/08: pessimistic cost estimate has been reduced from $1M to $0.5M since the project has fewer joints than others and RTL date is far off.								
	Response Actions:	Lessons from Carquinez are being incorporated. Design continues to be studied for compatibility. Monitor joint design and incorporate cost and schedule impacts.								
8		**Conflicts or differing opinions over welding.**	Very Low	Very Low	$0 0	$0	$200,000 0	Very Low days	Very Low	Rob Kobal
	Description:	Historically there has been differing opinions during construction over interpretation and enforcement of welding requirements.								
	Assumptions / Current Status:	This risk would probably only occur on pile welding on this project, there is not much welding expected.								
	Rationale:	Not much welding expected								
33		**(Program) - PROGRAM: City of SF redesign of ramps adds costs or delay contract**	Moderate	None				None	None	Steve Hulsebus
	Description:	City of SF agencies may request new YBI ramps into SFOBB project. Additional cost and potential delays to add ramp work, and potential changes to bridge design to accommodate future ramps.								
	Assumptions / Current Status:	Assume it would take a TBPOC decision for funding to come out of Toll Bridge funds. But the City could find other funding and TBPOC could decide construction to be a part of the SFOBB east span retrofit to mitigate contractor congestion. PS&E is 12/2010, and award in 3/2012.								
	Description of Impacts:	Potential for additional structural changes to the YBITS structure.								
	Response Actions:	TBPOC letter to City pending declaring that ramps project shall have no impact on corridor cost and schedule.								

CCOs

1000		**Miscellaneous admin/technical CCOs**			$0	$1,716,000	$3,432,000			Not Assigned
	Description:	Accounts for minor ccos, including quantity busts, not specifically called out on the registers. The most likely value is 4% of work remaining, based on history of all construction contracts.								
	Rationale:	9/9/08: Current contract items + SFM value is approximately $42.9M per June 30, 2008 BBB. Most likely=.04*42.9M								

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
GLOBAL (All Contracts)												
Active	GLO-1	4/20/06	g	FY 06-07 Department Overhead Rate	Caltrans' O.H. rate was 37.54% in FY 2004 - 2005 when the AB144 budget was prepared, and the July 2005 forecast assumed that the O.H. rate would remain constant for the duration of program. In actuality, the rate is adjusted annually. For FY 06/07, the rate is 48.79%, an increase of 8.18% in the PY cost basis	FHWA Approval of O.H. rate/ Caltrans Finance Dept memorandum	100%	$3.9	$3.9	$3.9	$3.9	Actual = $51.68M; OH increase = $51.68M - ($51.68M/1.4879*1.3754) = $3.9 M
Active	GLO-2	6/22/06	g	FY 07 - 08 Department Overhead rate	The overhead rate for FY 07-08 is 44.7% - an increase of 5.21% over the baseline AB 144 PY cost basis.	Finance Dept memorandum stating new rate	100%	$3.3	$3.3	$3.3	$3.3	Actual FY 07-08 PY expended: 330.75PY or $58.87M. OH increase = (58.87M- $58.87M/1.447*1.3754)= $3.32M
Active	GLO-7	7/21/2008		FY 08-09 Department Overhead rate	The proposed overhead rate for FY 08-09 is 33.12% - a decrease of 3.2% over the baseline AB 144 PY cost basis.		100%	($1.8)	($1.8)	($1.8)	($1.8)	Actual PY expended is $53.06M. Decrease = $53.06M - $53.06M/1.331*1.3754 = ($1.77M)
NEW	GLO-7.1	7/21/2008		FY 09-10 Department Overhead rate	The proposed overhead rate for FY 09-10 is 33.47% - a decrease of 2.96% over the baseline AB 144 PY cost basis.		100%	-10%	($1.3)	10%	($1.3)	Estimated PY expense is $43.8M . OH decrease = $43.8M- $43.8M/1.3347*1.3754 = -$1.36M
UPDATED	GLO-2.1	5/7/07	g	Department OH rate after June 2010	Overhead rates are reset each year by the Finance Department. For this analysis, the O.H. rate after FY 09-10 is assumed to to be 40% through 2014 for the duration of the Program, but may vary from 33% to 47%.	Finance Dept memorandum stating new rate	100%	-$3.6	$1.9	$8.6	$2.3	Estimated budget remaining Jul 10 = $123M including rate changes thru FY 09-10. Estimated PY budget remaining Jul '10 = 85%* $123M = $105M. OH variation = 33% ($105M/1.3754*1.33-$105M) = -$3.6M. Most likely 40% ($105M/1.3754*1.4-$105M = $1.9M, High - 48.8% (($105M/1.3754*1.488-$105M = 8.6M)
Active	GLO-3	4/20/06	g	FY 06-07 State wage variation	Aggregate increases under collective bargaining agreements are generally based on the CPI-U which has averaged under 3%/yr over the past 10 years. However, the latest labor negotiations provide for increases between 7% and 12.5% in FY 06-07.This risk assess impact on FY 06-07 only.	Enactment of FY 06-07 State budget; Dept directives on new rates	100%	$1.6	$1.6	$1.6	$1.6	Actual rate increse is $8,006/PY over FY 05-06 PS$ rate of $99,950/PY . Increase over baseline rate is $5,007/PY or 4.86%. Rate change impact on FY 06-07 budget only = 313.75 actual PY expended *$5,007 = $1.58M
Active	GLO-4	6/30/06	g	FY 07-08 State wage variation	The CBA provides for additional increases in FY 07-08 between 11% and 14% for engineering staff with smaller increases anticipated for administrative personnel. This risk assesses the cumulative impact of current & prior years' increases in excess of that originally planned for.	Enactment of FY 07-08 State budget; Dept directives on new rates	100%	$4.3	$4.3	$4.3	$4.3	Actal PS$rate of $119,054 exceeds baseline rate of $106,037 by $13,057/PY. Actual PY expended = 330.75*$13,057 = $4.3M
Active	GLO-5	6/21/06	g	FY 08-09 State wage variation	FY 08-09 increase includes remaining portion set forth in CBA	Enactment of FY 08-09 budget	100%	$6.9	$6.9	$6.9	$6.9	Actual PS$ rate of $132,381/PY exceeds baseline rate of $109,218 by $23,163/PY. Impact = actual PY 300*$23.1k =$6.9M
NEW	GLO -5.1	7/29/2008	g	FY 09-10 State wage variation	PY budget for FYE Jun 10 will be subject to previous wage rate increses.		100%	-10%	$5.7	10%	$5.7	PS$ rate of $136,352/PY exceeds baseline rate of $112,495 by $23,857/PY. Impact = estimated 240 PY *$23.85k =$5.7M
UPDATED	GLO-6	7/29/09	g	Impact of previous rate increases on budget remaining after Jun 2010	PY budget remaining after Jun 2010 will be subject to previous wage increases		100%	-10%	$22.1	10%	$22.1	Estimated budget remaining incl rate adjustments up to Jun 09 = $123M. At Estimated PY/PYE ratio of 85% for remaining work, PY budget = $105. This budget is subject to cumulative previous wage rate increases of 21.2% =$22.1 M
UPDATED	GLO-6.1	7/29/09	g	Variation in State & A/E salary increases after June 2010	Future salary adjustments assume increases between 3% and 6% (0% less to 3% more than originally assumed rate. Most likely 1%)		100%	-100%	$1.2	200%	$1.6	Estimated budget remaining end of June 2010 = $1,456M - $1,226 - FY 09-10 est $125M = $105M. 1% Increase = $1.25

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
UPDATED	GLO-8	1/29/09	g	Reduction for West Approach, R/SR & Misc Project Expense Impacts	Net global impacts reduced because the W. Approach & Richmond/San Rafael projects were completed within their AB 144 budgets despite OH and salary increases. Savings from COS underrruns would have been larger had rate impacts been added to their budgets.		100%	0%	($5.7)	0%	-$5.7	
CORRIDOR PROGRAM												
UPDATED	PRO-1	6/29/07	c	Increase in COS cost for modifying MEP systems and/or centralizing MEP systems integration for corridor - Ref: Corridor Program Risk# 17	Program may require professional systems integration services to pull together the MEP systems installed under various corridor contracts		100%	-20%	$1.8	20%	$1.8	COS cost estimated at 10% of CO est $17.5M (excludes procurement cost of light poles) = $1.8M
UPDATED	PRO-2	10/3/07	c	Incorporation of light pipe into new bridge. - Ref: CO risk #35	Provisions already made in the current design and construction of bridge. Installation may be under new, separate contract requiring additional resources to package and administer		10%	-15%	$1.5	15%	$0.2	Infrastructure in place. Assume 5% to complete design & manage contract. 05%*$31M
Active	PRO-3	10/3/07	c	Incorporation of BASE system into new bridge (needed by CHP) - Ref.: CO risk #33	Cost of design, procurement and installation coordination of surveillance cameras and systems		90%	-15%	$0.9	15%	$0.8	Cost will be to design & manage separate contract. Assume COS cost to be 5% of estimated CO cost because most CO $ are for equipment & infrastructure already in place; i.e. 5%*$18M = $0.9M
Active	PRO-4	6/25/08	c	Cost of cross delays between projects Ref.:Corridor risk #1, 45	Delays resulting from one or more projects can cause delays in others. This risk assesses the impact on COS costs that result from delays to individual projects that are in excess of what is already anticipated and accounted for in each project.						$0.0	Included with individual projects
Active	PRO-5	6/30/08	c	Secondary access to USCG facilities. Ref.: CO risk #41	Cost to design & implement 40 ft. high retaining walls at YBI		50%	-50%	$2.8	50%	$1.4	Estimated CO cost ~$28M. COS est 10% for design. Implementation integrated with YBI#2
Active	PRO-6	6/24/09	c	Coordination of W/B opening. Ref.: CO Risk #46	Opening of W/B lanes to traffic may require a weekend closure, and will likely be accompanied with public outreach efforts requiring additional COS costs.		50%	-25%	$1.0	25%	$0.5	
Active	PRO-7	6/24/09	c	Redesign of Traffic Operating System. Ref.: CO Risk #47			100%	-33%	$1.5	33%	$1.5	
Active	PRO-8	7/8/09	c	Architectural/Aesthetic Modifications- Ref.: CO Risk #48	Design efforts may be required to enhance visual appeal of the Corridor		90%	-25%	$1.0	50%	$1.0	
Active	PRO-9	78/09	c	SFCTA Ramps on YBI - Ref. CO Risk #34	To accommodate anticipated development of YBI and TI, SFCTA has proposed construction of additional ramps on YBI. These ramps may be constructed and managed under the YBITS #2 package. Although it is expected that the cost of managing the work will be reimbursed by SFCTA, this risk considers the possibility that the Dept may not receive the funds.		10%	-20%	$8.0	30%	$0.8	Const cost of ramps assumed at $80 M. Additional CM cost estimated at 10% of CO or $8M -
SKYWAY												
UPDATED - actuals thru 8/09	SKY-01	4/20/06	r	Final Savings from budgeted amount	Work Complete. Some ROW work continues		100%	0%	($2.7)	0%	($2.7)	Expenditure thru Aug '09 = $181.03M. EAC - Use $181.0M. Difference from Current App'd budget= $181.0M-$181M = $0.0M. Savings = Allocation of global impacts $2.7M - $0.0M = $2.7M.
NEW	SKY - 01.1	8/18/09	r	FOIA Support Costs	EA is being reopened to provide support ressponse to FOIA documentation request		100%	-15%	$0.2	15%	$0.2	Effort estimated at 3 personnel x 4 months = 1 PY
SAS												
Active	SAS 18.2	6/11/18	p	Cost of additional A/E staff assigned to China	A/E design & const staff in China beyond anticipated normal staffing needs - would otherwise have been reviewing shop drawings or not be assigned to project.		100%	-10%	$1.8	20%	$1.9	Assume 30% of TY Lin staff of 6-8 and 100% of LAN staff of 2 are added personnel - use 4ea * $230k/yr = $1.8M

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
Active	SAS -22.3	12/29/08	p	Design Insurance Extension	TY lin has negotiated and paid all premiums ($4M) to maintain insurance coverage. If State agrees to reimburse cost, State's share of premium would be maximum of $4M.		100%	0%	$4.0	0%	$4.0	
Active	SAS-01	4/20/06	s	12 month extension of Contract Time by Addenda 5 & 7	Bid Addenda 5 &7 extended the contract schedule 12 months. **Dept. staff** assignments will have to be extended correspondingly. Budgets will also be subject to additional escalation	Event has occurred, but Contractor has stated an intent to finish earlier. Triggered by Dept agreement with contractor's schedule updates consistently showing completion 12 months beyond AB 144 scheduled date.	100%	-10%	$18.0	20%	$18.6	Jul 08-Nov 08 expenditures average $1.5M/Mo. Use same for extension = $1.5*12 = $18M
Active	SAS-02	5/26/06	s	12 month extension of Contract Time by Addenda 5 & 7	Bid Addenda 5 &7 extended the contract schedule 12 months primarily to give contractor additional time to prepare shop drawings. **Consultant support personnel** assignments will have to be extended correspondingly. Budgets will also be subject to additional escalation	Event has occurred, but Contractor has stated an intent to finish earlier. Triggered by Dept agreement with contractor's schedule updates consistently showing completion 12 months beyond AB 144 scheduled date.	100%	-20%	$42.0	20%	$42.0	No. of submittals increased as well as extent of inspections in China. Jan 08 - Jun 08 expenditures average $3.7 M/Mo. Use $3.5M/mo for extension = $42M
Active	SAS-02.1	7/24/07	s	CRIP Contract Time extension	CCO# 10 for CRIP submittal also provides for a 30 day non compensable extension of Contract Time. However, Dept. will still need to staff the project for the additional 30 days, thus incurring additional expense.	Event has occurred	100%	-20%	$4.8	20%	$4.8	Based on average expenditures Jul - Nov 2008
Active	SAS-06	4/20/06	p	Increase in overseas travel & living expenses for **State** personnel during fabrication operations Ref. CO Risk 11 (partial), 28, 38, 39, 40	Some travel was originally anticipated, and an allowance was provided for under SFM. This risk estimates the cost of travel & living expenses above what was anticipated. Current plans call for 15 - 20 State staff to be assigned to overseas fab locations, returning each year for home trips. Also calls for frequent travel by management, design & METS personnel not assigned to overseas long term. Cost of lodging reimbursed under SFM, this exposure is for airfare and M&IE only. Effort concentrated during steel procurement & fabrication, a period of 2.5 years starting Jul 2007.	Travel authorization State employees	100%	-10%	$4.0	20%	$4.1	From detail worksheet
Active	SAS-08	5/23/06	r	Transfer of work from State to Consultant - Ref.: SAS CO Risk# 9 & 10, 44	If State is unable to assign enough staff for the Project, some work will have to be transferred to consultant staff resulting in higher expenses.	Issuance of new task orders/change orders to A/E firms increasing budget, issuance of RFP's for new work on project	70%	-20%	$3.3	10%	$2.2	Planned personnel requirement for FY 08-09 is 105 PY for the project. Assume an average of 100 in future years. Assume also that about 10% or 10 PY may not be available for the duration of the project -6 years. Rate differential is $ (230K - 175K)) = $55 k/PY.* 10PY*6yrs= $3.3M
UPDATED	SAS-09	5/23/06	s	Schedule delays resulting from complexity of work - Ref.: SAS CO Risk# 1, 9 Excludes overseas METS effort covered under SAS - 18.3	Complex arrangements and intricate installation details of steel structures could lead to delays due to 1) insufficient resources being employed to prepare/review submittals, 2) constructability issues, 3) differing interpretations of contract documents.	Schedule Updates	100%	$76.0	$94.6	$113.0	$94.5	Work is skewed towards completing Phase 2 which encompasses construction of all structural work. Including corridor risk of cross project delays, delay estimated at 530 -660 - 790 days beyond App's contract date with 30 day CRIP extension (17.7 mo - 22 mo - 26.3 mo). Cost of delay estimated at monthly expenditure rate of approx. $6.2M - $1.87M for Overseas METS =$4.3M *17.7Mo = $76M, $4.3M*22Mo = $94.6M, $4.3M*26.3mo = $113M
Active	SAS-10	6/22/06	r	Additional resource needs due to complexity of work - Ref.: SAS CO Risk# 2000, 72, 105	Complexity of work could generate far more RFI's and re-submittals than anticipated, requiring additional state and/or A/E resources to field responses in a timely manner	When occurs	100%	-10%	$9.0	20%	$9.3	Based on budget request for FY 09-10
Active	SAS-15	9/6/06	p	Additional Technical Consultant contracts for work in China	State may need to retain local consultants in China to assist in the oversight of steel fabrication.		50%	-25%	$3.0	10%	$1.4	

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
Active	SAS-16	9/6/06	p	Overseas expenses - In Country support personnel	State will likely require local personnel in China to support scheduling & other technical functions.		100%	-25%	$0.3	25%	$0.3	Assume 1-2 support personnel. Will likely get from China offices of US A/E.
Active	SAS-17	9/6/2006	p	Overseas travel & living expenses - Tax Equalization Ref. CO Risk 28, 40	Expenses paid to State personnel on longer assignments overseas may be taxable under certain conditions, depending on assignment terms and length of assignment. Tax assumed at 35% combined federal & State.		10%	-15%	$1.4	5%	$0.1	35% of SAS-06 = $35%*$4M = $1.4M. Assume tax equalization for lodging for State personnel paid under SFM
Active	SAS-18	1/2/07	p	**METS** overseas travel & living expenses during fabrication operations that are in excess of deduction specified in Contract Specifications ($3.58M). Ref. CO Risk 11 (partial), 28, 38, 39, 40		Consultant proposal for work, Approval of Task Order	100%	-10%	$13.2	20%	$13.7	From detail worksheet - China 40, Japan 3, Korea 2, UK 1
Active	SAS-18.1	9/12/07	p	Design & construction **consultant staff** overseas expenses.	Some construction & TY Lin consultant staff are already overseas and more may be needed to expedite resolution of technical issues. Currently approx 6 - 8 TY Lin staff rotate every 2 weeks (plans are to locate 2 of them F/T in China)+ 2 LAN are assigned F/T + 1 scheduler from Ch2m Hill.		100%	-10%	$3.0	20%	$3.1	Assume 10 PYE for 2 years. Est. cost = $150K*10*2yrs = $3.0M
UPDATED	SAS-18.3	7/9/09	p	Overseas Fabrication Delay	Design & logistical complexities will likely cause delays in completing fabrication. This will require a longer METS presence in China.		100%	$18.2	$24.2	$31.2	$24.5	Delay estimated at 11.3 - 15.2 - 19.3 months from July 2010 for OBG and 6.9 - 8.9 - 11.6 mo from 6/2010 for tower. Overseas labor & living costs approx $1.87M/mo. Risk =: 7*1.87= $13.1M; $1.87M * 9mo = $16.8M , $1.87M * 11.6= $21.6M for both OBG & Tower. Approx 15 personnel drop off after tower is fabricated, reducing monthly expense to approx $1.2M/mo. Add 4.3Mo *$1.2M/mo = $5.1M,; $1.2M * 6.2mo = $7.4M; $1.2M * 8 mo = $9.6M. Total exposure = $18.2M - $24.2M - $31.2M
Active	SAS-19	3/28/07	r	Productivity loss or additional resources to handle submittal surge. Ref.: SAS CO Risk# 33	Surge of submittals expected late March, 2007. TY Lin may need to increase staffing temporarily to handle surge if schedule is to be maintained. Loss of productivity may occur if OT is expended instead of adding staff, and is assumed to equal cost of temp. staff increase		70%	-10%	$1.5	25%	$1.1	
Active	SAS-20	6/13/07	r	Redesign of traveler rail, dynamic brakes & anti-skew device Ref.: CO Risk# 37	Cost of redesign		100%	0%	$0.2	20%	$0.2	Assume 0.5 PYE level of effort pending further definition.
Active	SAS-21	6/6/07	p	Visa restrictions in China	Staff will have to travel out of China every 90 days for short trips to comply with visa requirements.		90%	-15%	$0.2	15%	$0.2	Assume 1 trip to Hong Kong @ $1,500/trip * 3 per year * 20 personnel = $90k/yr * 2 .5 yrs = $225k (One additionl trip/yr is back to the US for "home leave")
Active	SAS-21	3/18/08	r	Cost to mitigate inadequate contractor quality control. Ref.: CO risk #56	Fabricator not being proactive in identifying quality deficiencies. Dept. has needed to increase inspection and design review staff to identify & address weld quality issues		100%	-10%	$4.2	20%	$4.3	QC effort estimated at 6 PYE/year = $350k*6 = $2.1M/yr *2 yrs
Active	SAS-23	4/7/09	r	Design of temp. support following load transfer. Ref: CO Risk #110	There is a short period of time after load transfer where the structure will not be supported by falsework and shear keys aren't yet installed. There could be unacceptable loads absorbed by the tower should acts of nature occur during this time, and additional temp supports may be required.		10%	-10%	$5.7	20%	$0.6	CO costs estimated at $50 - $100M. Design estimated at 7.5% of $75M = $5.7M

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
Active	SAS-24	6/29/09	r	Additional METS personnel in US	Additional METS personnel may be needed to test/inspect structure erection & construction		100%	-10%	$1.0	25%	$1.1	Assume 4 PYE reassigned from YBID fabrication in Arizona
NEW	SAS-25	9/1/09	p	Incentive program for design services. Ref.: Item 3a, Minutes of 8/7/09 TBPOC meeting (Included in package for 9/2/09 meeting)	Potential financial incentives that may be offered to TY Lin JV to expedite completion of work on East end of OBG deck (Lifts 13 & 14)		10%	-10%	$1.0	50%	$0.1	
YBI DETOUR												
UPDATED - actuals thru 8/09	SSD-02	4/20/06	s	Construction pacing with corridor schedule Ref.; CCO 24, proposed CCO 42	Goal is to minimize time that traffic is on SSD for reasons of traffic flow and safety. Corridor schedules indicate construction complete Dec 2009 Personnel assignments will need to be extended by 30 months from June 2007 to Dec 2009	FY 07-08 budget is more than remaining budget after accounting for close out expenditures.	100%	-25%	($7.2)	25%	-$7.2	For purposes of estimating overall project risk, assume all increases to AB 144 budget is for pacing. Expenditures thru 8/09 = ($69.85M - $13.28M for TY Lin tie in expenses 2/07 - 8/09 =$56.57M). Av. Expense rate less TY Lin from 3/09 to 8/09= $1.5M/mo. Est. CM expenses thru 10/09 = $56.57M + $1.5M*2Mo = $59.6M. Reduce staff for balance of work to $1.2M/mo. Est. cost thru 12/31/2009 = $59.6M + $1.2M*2mo. = $62.0M. + 1M for closeout = $63M - $4.2M allocation of global risk. Effective net increase = $63M - $4.2M- Current App'd Budget $66M = -$7.2M.
UPDATED - actuals thru 8/09	SSD-04	4/24/06	p	Design of east Tie- In Ref.: CO risk# 40	Design of East and West tie - ins unacceptable as proposed. Design of East tie in deleted from contractor's scope, and given to TY Lin. (See SSD-10 for West Tie In)	Preparation of Change Order, TBPOC agenda	100%	-10%	$14.6	20%	$15.1	Expenditures thru 8/09 = $13.275M. Add remaining D-59 FY 09-10 est($1.9M - $0.58M = $1.32M) . Total = $13.27M + $1.32M = $14.6M.
Active	SSD-09	6/26/06	r	Design & monitoring of additional environmental mitigation measures. Ref.: CO Risk# 21	Unforeseen requirements for additional sound monitoring or abatement may require design and monitoring in excess of that planned	Complaint from BCDC or USCG	30%	-25%	$0.5	25%	$0.2	
Active	SSD-12	12/20/06	s	Construction delays other than CO#24 & pacing. Ref.: CO Risk#28, 64, 91, S2	**Update: CO 91 extends completion date to Dec 10, 2010**.		100%	-10%	$12.0	20%	$12.4	Use av monthly rate of $1M from 1/1/2010 to 11210/2010
UPDATED	SSD-12.1	10/9/08	s	Additional potential delays beyond Dec 10, 2010. Ref CO Risk# 28	**Update: Q3 risk analysis shows no significant risk of delay**. Contractor's schedule and indicated progress suggests completion could be further delayed to November 2010. Additional delays estimated to range from **20-60-100** days (Jun - Aug - Sep, 2010)	Schedule Updates	0%	$0.0	$1.0	$2.3	$0.0	
YBI TRANSITION STRUCTURE												
Active	YBI -05	5/2/07	p	Additional cost to split project into 3 contracts	The project has been split into 3 contracts. Some foundation work has been transferred to the SSD contract, and scope adjusted for more extensive electrical/mechanical work. This risk estimates the net impact of scope adjustments and includes effort required to design and manage the additional contracts.	TBPOC approval of Split, budget remaining FY ending 2010	100%	-20%	$7.3	15%	$7.2	From Detailed Split worksheet
YBITS #1												
UPDATED	YBI#1-01	6/22/06	s	Delay in Construction - Ref.: CO risk#24	Update: Estimate of delay revised to 110 - 150 - 170 days.	Schedule updates	100%	$4.4	$6.0	$6.8	$5.7	Cost/Mo approx $1.2 M * 5 Mo
UPDATED	YBI#1-01.1	1/21/09	s	Impact of additional SAS delays	SAS delays in excess of current schedule forecast will delay award of bid package leading to higher escalation cost. If delay occurs after contract awarded, impact will be higher		100%	-30%	$1.8	33%	$1.8	Estimate revised to 335- 465 - 615 days. (11 - 15.5 - 20.5 months). Use escation of 3%/yr. Escalation cost = $60M*0.03*1.25 yr = $2.25M
NEW	YBI#1-01.2	10/8/09	s	Cost of gap in YBITS 1 current schedule	The difference between SAS Phase 1 in the Corridor Schedule and DP-1 in the YBITS 1 bid documents is 220 days. This risk covers the cost of this gap.		100%	-10%	$8.8	10%	$8.8	Gap is 220 days = 7.3 mo @ $1.2M/mo

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
NEW	YBI#1-01.3	12/11/09	s	Delay risks from SAS increase the gap	SAS schedule risks can increase the gap beyond 220 days.		100%	$8.4	$12.0	$16.8	$12.4	SAS impact on delay estimated at 330-450-590 days partially offset by estimated delays in YBI 31-01. Net impact is 210-300-420 or 7 Mo - 10 Mo - 14 Mo @$1.2 M/mo
Active	YBI#1-02	6/22/06	r	Additional resources to investigate differing site conditions - Ref.: CO risk# 7, 30	Presence of unknown utilities and/or discovery of cultural artifacts may require additional resources to research, investigate and mitigate. Also, YBI advance footings may be built differently than shown in YBI documents	If encountered	70%	-25%	$0.4	25%	$0.3	Assume 1 PY + 1 PYE
Active	YBI#1-04	6/22/06	r	Insufficient resources for timely review of contractor submittals Ref.: CO Risk# 6	If Dept. is unable to provide enough State resources in a timely manner some of the work may have to be transferred to A/E.	Task Order to A/E	50%	-30%	$0.3	30%	$0.2	Assume 5% of CO budget is for design const. admin - 2% by Dept & 3% by A/E'st, and 20% of Dept. scope is transferred to A/E. Cost affected = .02*$215M*.2 = $0.86M Differential = $230k/180k = 27.8%*$0.86M = $0.24M Use $0.3M
Active	YBI#1-06	12/20/06	r	Conflict between SSD advance work and YBI plans - Footings may not be built to accept YBI design. Ref. also CO risk# 30	Mitigation may require additional design efforts by YBI design team		50%	-20%	$0.5	20%	$0.3	
Active	YBI#1-08	3/29/07	r	Electrical/mechanical conflicts with structural elements result in increased cost or delay - Ref.: CO Risk# 32	PB may incur additional expense to coordinate/ resolve conflicts		50%	-10%	$0.2	25%	$0.1	Assume 0.5 PYE
Active	YBI#1-09	6/21/07	r	design/investigations for ductbank repairs. Ref.: CO Risk# 34	Additional resources to develop workarounds for potential damage to duct bank constructed under SSD contract.		10%	-50%	$0.2	50%	$0.0	
Active	YBI#1-11	8/28/07	p	Impact of new ramps proposed by SFCTA	To accommodate anticipated development of YBI and TI, SFCTA has proposed construction of additional ramps on YBI. Current proposals for the W/B off ramp potentially have significant visual and structural impacts on the YBI structure, particularly near Hinge K, requiring additional analysis. There is also a potential for schedule impacts		90%	-20%	$1.3	5%	$1.1	May require design changes estimated at 8% of exposure in CO register $15.75M. Risk = 0.08*$15.75M = $1.26M
Active	YBI#1-12	6/23/09	r	Additional shop drawing costs. Ref.: TBPOC meeting 6/4/09 Item 3a, Para 4.c.1	To preserve schedule, additional effort will be required to prepare ISDs.		100%	-10%	$1.0	10%	$1.0	
YBITS #2												
Active	YBI#2-01	6/22/06	s	Delay in Construction - Ref.: CO risk# 24	Delay in completion of the project estimated at between 30 and 180 days.	Schedule updates	100%	-67%	$2.4	100%	$2.7	Cost/Mo approx $0.8 M
Active	YBI#2-03	6/22/06	r	Additional resources to investigate differing site conditions - Ref.: CO risk# 7	Presence of unknown utilities and/or discovery of cultural artifacts may require additional resources to research, investigate and mitigate	If encountered	85%	-25%	$0.4	25%	$0.3	Assume 1 PY + 1 PYE
Active	YBI#2-05	6/22/06	r	Scope growth required by USCG - Ref.: CO Risk# 30	Additional resources to design and manage changed scope - e.g. utilities, surface roadways, ramps	Memorandum of Understanding	20%	-25%	$1.5	25%	$0.3	
Active	YBI#2-06	12/19/06	s	Delay in listing contract for bid. Ref. CO Risk#14	Contract scope not yet fully defined, leading to the possibility that preparation of PSE documents could be delayed by 0-180 days; most likely 90 days		30%	-25%	$1.0	25%	$0.3	Cost of escalation plus additional design work
Active	YBI#2-07	12/20/06	r	YBI design scope growth to coordinate with West tie-in design - Ref.: CO Risk# 32	YBI scope cannot be finalized until tie in design is completed. YBI design may require some changes.	Completion of tie in design	10%	-50%	$0.5	50%	$0.1	Estimated cost to complete remaining design is $3 mil. Assume 50% level of effort for additional work
Active	YBI#2-10	9/22/08	r	Cost to study and/or retain experts to evaluate demolition plans for SSD (Ref.: CO risk# 31)	Coast Guard permit does not currently allow for demolition of structure and permit will have to be revised. Altrnative demolition plans & scenarios will likely be required.		90%	-15%	$0.3	25%	$0.3	

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
Active	YBI#2-09	6/25/08	r	Change in design standards	Project designed per 2004 standard plans in metric units. Current 2006 standard plans are in English units, and changes will need to be incoroporated into plan documents, requiring use of unanticipated additional personnel		100%	-10%	$0.2	10%	$0.2	Estimate of 1 PY
Active	YBI#2-11	6/24/09	r	Incorporation of YBI #1 as builts into design Ref.: CO Risk #32, 37	Cost of unanticipated field work by design personnel to gather as built data for incorporation into design plans		10%	-15%	$0.3	15%	$0.0	Assume 4 personnel * 3 mo = 1 PYE
NEW	YBI#2-12	9/28/09	r	Scope Growth Ref.: CO Risk# 38	Cost of resources to address additional scope such as bike path landing, retaining walls etc		100%	-10%	$0.8	25%	$0.8	Assume 15% of estimated CO cost of $5.2M
E2-T1 FOUNDATIONS												
UPDATED - actuals thru 8/09	E2T1-01	4/20/06	r	Final Savings from budgeted amount	Work Complete.		100%	0%	($4.1)	0%	($4.1)	Expenditure to Aug 2009 = $28.37M. Use $28.4M. Savings from Current App'd Budget = $31-$28.4 = $2.6M. Add to savings allocated global impact ($1.5M). Total = $4.1M.
OTD PARENT												
Active	OTD-01	5/24/06	r	OTD Split	Splitting project into 4 separate contracts will require additional resources to manage		100%	-10%	$8.5	10%	$8.5	Impact of Split forecasted in Quarterly Report, but not included in Current App'd Budget.
SUBMARINE CABLE												
Active	OTD- K6	6/14/07	r	Final Savings from budgeted amount	Work Complete		100%	0%	($2.5)	0%	-$2.5	All work completed. Cost thru 8/09 = $0.874M Difference from proposed budget = $3M - $.87M = $2.13M. Add allocation of global risk ($0.4M) Total difference = $2.5M
OTD 1 (WESTBOUND)												
UPDATED	OTD - L14	1/10/08	r	Estimated cost at completion	This risk for tracking purposes only		N/A	0%	$0.0	0%	$0.0	**Update 9/09: Av. monthly expenditures = $1.55M**. Completion of designated portion of work is 9/24/09. Cost thru 8/09 = $37.988M. + 1mo*$1.55M/mo to 9/09 = $39.5M. Assume $1M/mo for balance of work thru 3/2010 = $6M+ $1M for closeout = $46.5M
UPDATED	OTD-L3	4/26/06	s	Additional delays during construction. Ref.: CO Risk# 23	**Update: 3rd Quarter risk assessment indicates earlier completion in March 2010.** Estimated to be 0 - 30 - 90 days	Schedule updates showing a delay	80%	-10%	($2.0)	10%	($1.6)	Av expected monthly expense $1M foe non- designated portion of work. * 2 mo savings
UPDATED - av rate increases 50k/mo	OTD-L3.1	12/30/08	s	Approved Time Extensions	CO# 75 extends completion time by 169 days. W/B completion schedule now 9/24/09 vs. 6/2/09 (4 mo. Delay), All work 5/13/2010 vs 11/9/2009 (6 mo delay)		100%	-10%	$4.2	10%	$4.2	Av monthly expenditures Jan 2009 - Aug 2009 :$1.55M Cost of delay = $1.55M*4Mo = $6.2M for W/B + $1 M/mo * 2 mo for rest = $8.2 M. Less savings from shorter schedule bid (780 days-650 days for W/B = 4Mo* $1M/mo av for CM only W/B&E/B = $4M. Net impact = $8.2M-$4M = $4.2M
Active	OTD-L5	6/26/06	r	Differing site conditions requiring additional research, investigation & design. Ref.: CO Risks 18, 4, 5,33, 32	A substantial amount of investigations have been performed, and supplemental capital outlay funds have been set aside to address potential exposure. This risk is to account for resources that may be needed to carry out even more investigations and research	When occurs	60%	-30%	$0.5	30%	$0.3	2% of monthly expense of $1M over 2 years
Active	OTD-L6	6/26/06	r	Environmental mitigation measures Ref.: CO Risk# 24	Environmental monitoring may necessitate the development of plans for additional mitigation measures	If occurs	30%	-30%	$0.5	30%	$0.2	
Active	OTD-L9	12/21/06	r	Constructability issues with misaligned pipe beams, deck alignment - Ref.: CO Risk# 20, 21	Additional design resources to develop solutions to the constructability issues	When occurs	30%	-20%	$0.5	20%	$0.2	
OTD 2 (EASTBOUND)												

CAPITAL OUTLAY SUPPORT (COS) - RISK REGISTER

Code	Risk stems from:
g	Global issues
s	Schedule issues
r	Resource issues
p	Contract-specific issues

Quarter Ending September 30, 2009

STATUS	ID #	DATE OPENED	Code	TREND/RISK EVENT	DESCRIPTION OF TREND/RISK	TRIGGER	Probability of occurrence	Estimated Range: Optimistic	Estimated Range: Most Likely	Estimated Range: Pessimistic	Probable Cost ($M)*	COMMENTS
Active	OTD-M1	4/1/06	s	Escalation for delayed start due to extended SAS schedule	Addition of 12 months to SAS schedule delays start of Eastbound OTD by 12 months also, resulting in 12 months of additional escalation	Completion dates in SAS progress schedules	85%	-10%	$0.5	15%	$0.4	Escalation of COS budget of $15.9 M @ 3% per year from Oct 2010 to Oct 2011
Placeholder	OTD -M1.1	9/30/08	s	Delays in switching W/B traffic will also delay demo of ext'g OTD structure, delaying project completion	**PLACEHOLDER** - Delays of up to 24 mo. resulting in added escalation costs		0%	-30%	$1.0	30%	$0.0	Escalation of COS budget of $15.9 M @ 3% per year
UPDATED	OTD-M2	6/26/06	s	Delays during construction Ref: CO Risk# 2	**Update: Delay revised to 80 - 140 - 220 days.**	Schedule updates showing delay	100%	-40%	$1.9	60%	$2.0	Av monthly expense $400k in 2012 dollars
UPDATED	OTD-M2.2	6/24/09	s	Schedule accelleration costs - Ref.: CO Risk #3	If 2nd. shift is required, and/or a 7 day/ week schedule is adopted, additional costs will be incurred for OT and resources		70%	-20%	$2.3	20%	$1.6	asume Av 2nd. Shift cost = 60% of normal. Cost/Mo = $250k * 7 months = $ 1.75M . Add 20% of monthly cost for OT (7 dys/wk) = 80k * 7 mo = $0.6M. Total = $2.3M
Active	OTD-M3	6/27/06	r	Support for resolving different site conditions Ref.: CO Risk# 4, 5, 9	Additional resources may be required to address resolution of unforeseen conditions. Assumes need for 2 State and 2 A/E personnel for 6 months	When occurs	50%	-25%	$0.5	25%	$0.3	
Active	OTD-M5	6/21/07	r	Investigations related to additional Hazardous materials. Ref. CO Risk# 18	If hazardous materials in addition to those currently anticipated are encountered, they will need to be characterized.		50%	-25%	$0.3	25%	$0.1	Assume 1 PYE level of effort
Active	OTD-M6	6/25/08	r	Change in design standards	Project designed per 2004 standard plans in metric units. Current 2006 standard plans are in English units, and changes will need to be incoroporated into plan documents, requiring use of unanticipated additional personnel		100%	-10%	$0.2	10%	$0.2	Estimate of 1 PY
Active	OTD-M7	1/21/09	s	Extended design participation due to later RTL date. Ref.: CO Risk# 10	Design resources will be need to assigned for a longer than necessary duration to avoid shelving plans. Will likely lead to inefficiencies.		10%	-25%	$0.5	25%	$0.1	
NEW	OTD-M8	9/28/09	r	Potential closure of bridge to all traffic Ref: CO Risk# 7	PR costs incurred to publicize closure + cost of resources during closure.		70%	-20%	$0.3	20%	$0.2	
NEW	OTD - M9	9/28/09	r	Scope increase Ref CO Risk 25	Cost to address potential scope increases.		70%	-10%	$0.3	25%	$0.2	15% of CO estimate $2.1M = $0.3 M
STORMWATER TREATMENT												
UPDATED	SPW-07	6/19/07	r	Burn rate analysis	Work complete. Plant establishment continues for 1 year thru 12/08		100%	-10%	($0.3)	10%	-$0.3	Expenditures to 8/09 = $8.096M. Use $8.1M. Reduce by $0.4M for allocation of global risk. Net change = - $0.3M
DEMOLITION OF EXISTING BRIDGE												
Active	DEM-01	5/24/06	s	Escalation for delayed contract start due to SAS schedule extension	Contract extension for the SAS delays start of the demolition contract by 12 months, resulting in 1 year of additional escalation	Substantial completion of SAS construction	80%	-15%	$2.4	15%	$1.9	Re-visit when timing of E/B seismic safety is better defined
Active	DEM-02	5/24/06	r	Bottoms Up Estimate Revision to AB 144 Budget	In early 2005, the Dept. carried out a review of the effort required to complete the program, and developed a bottoms up estimate. This estimate showed that the Demolition project would likely require fewer resources than anticipated in the AB 144 budget. Comparisons with the demolition of the Carquinez bridge support the forecast of fewer resources	FY 13-14 COS budget request	75%	10%	($46.6)	-25%	-$33.2	Re-visit when timing of E/B seismic safety is better defined
WEST APPROACH												
UPDATED - actuals	WA-04	12/14/07	s	Completion Schedule	Update 9/2009: Project complete except for landscaping. Only closeout costs being incurred		100%	-10%	(3.0)	10%	(3.0)	Cost thru 8/09 = $116.53M. Add $0.5M for landscaping = $117.03. Use $117M. Savings from appr'd budget = $120M-$117M = 3M.
							50% Probable COS Cost Differential*				**$320.3**	

* Cost Differential is measured from Current COS Budget

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC)

DATE: January 15, 2010

FR: Andrew Fremier, Deputy Director, BATA

RE: Agenda No. - 1b

Item- Progress Reports
Draft TBSRP Fourth Quarter 2009 Project Progress and Financial Update/ Annual Progress Report 2009

Recommendation:
For Information Only

Cost:
N/A

Schedule Impacts:
N/A

Discussion:
Attached are Appendices A1 and B which reflect proposed revisions to the TBPOC-approved budget and the 4th Quarter 2009 forecasts for the contracts and the Program (changes are highlighted in green), for incorporation in the final version of the report. The proposed revisions establish budgets for individual contracts in the YBITS and OTD segments, and also transfer approximately $70 million in savings from the YBITS Capital Outlay to the Program Contingency based on the recent low bid. A number of minor contract level Capital Outlay Support (COS) changes are also proposed to maintain sufficient budget coverage for actual expenditures. There is no net change to the overall Program COS budget.

Attachment(s):
1. Appendix A1, Toll Bridge Seismic Retrofit Program, AB 144/SB 66 Baseline Budget and Forecasts for the 4thQuarter 2009
2. Appendix B, TBSRP – SFOBB East Span Only, AB 144/SB 66 Baseline Budget and Forecasts for the 4thQuarter 2009

Toll Bridge Seismic Retrofit Program

AB 144/SB 66 Baseline Budget and Forecasts for the 4th Quarter 2009

(Dollars in millions)

Bridge		AB 144/SB 66 Baseline	TBPOC Approved Budget	TBPOC Approved Budget Proposed	2nd Quarter 2009 Forecast (50% RMC)	3rd Quarter 2009 Forecast (50% RMC)	4th Quarter 2009 Forecast (50% RMC)	Cost variance	Forecast variance (4th Q09 - 3rd Q09)
Benicia-Martinez									
	Capital Outlay Support	$38.14	$38.14	$38.14	$38.1	$38.1	$38.1		
	Capital Outlay	$139.69	$139.69	$139.69	$139.7	$139.7	$139.7		
	Total	$177.83	$177.83	$177.83	$177.8	$177.8	$177.8		
Carquinez									
	Capital Outlay Support	$28.67	$28.67	$28.67	$28.7	$28.7	$28.7		
	Capital Outlay	$85.46	$85.46	$85.46	$85.5	$85.5	$85.5		
	Total	$114.13	$114.13	$114.13	$114.2	$114.2	$114.2		
San Mateo-Hayward									
	Capital Outlay Support	$28.14	$28.14	$28.14	$28.1	$28.1	$28.1		
	Capital Outlay	$135.37	$135.37	$135.37	$135.4	$135.4	$135.4		
	Total	$163.51	$163.51	$163.51	$163.5	$163.5	$163.5		
Vincent Thomas									
	Capital Outlay Support	$16.42	$16.42	$16.42	$16.4	$16.4	$16.4		
	Capital Outlay	$42.09	$42.09	$42.09	$42.1	$42.1	$42.1		
	Total	$58.51	$58.51	$58.51	$58.5	$58.5	$58.5		
San Diego-Coronado									
	Capital Outlay Support	$33.50	$33.50	$33.50	$33.5	$33.5	$33.5		
	Capital Outlay	$70.02	$70.02	$70.02	$70.0	$70.0	$70.0		
	Total	$103.52	$103.52	$103.52	$103.5	$103.5	$103.5		
Richmond-San Rafael									
	Capital Outlay Support	$134.00	$127.00	$127.00	$127.0	$127.0	$127.0		
	Capital Outlay	$698.00	$689.50	$689.50	$689.5	$689.5	$689.5		
	Richmond-San Rafael Project Reserves	$82.00							
	Total	$914.00	$816.50	$816.50	$816.5	$816.5	$816.5		
West Span Retrofit									
	Capital Outlay Support	$75.00	$75.00	$75.00	$75.0	$75.0	$75.0		
	Capital Outlay	$232.90	$232.90	$232.90	$232.9	$232.9	$232.9		
	Total	$307.90	$307.90	$307.90	$307.9	$307.9	$307.9		
West Approach									
	Capital Outlay Support	$120.00	$120.00	$117.00	$117.0	$117.0	$117.0	$0.0	$0.0
	Capital Outlay	$309.00	$350.70	$350.70	$340.7	$338.1	$338.1	($12.6)	$0.0
	Total	$429.00	$470.70	$467.70	$457.7	$455.1	$455.1	($12.6)	$0.0
SFOBB East Span									
	Capital Outlay Support	$959.30	$959.30	$959.30	$1,203.1	$1,203.1	$1,242.5	$283.2	$39.4
	Capital Outlay	$4,492.19	$4,761.60	$4,695.95	$5,109.1	$5,041.1	$5,061.4	$365.5	$20.3
	Other Budgeted Capital	$35.11	$31.81	$31.81	$7.7	$7.7	$7.7	($24.1)	$0.0
	Total	$5,486.60	$5,752.71	$5,687.06	$6,319.9	$6,251.9	$6,311.6	$624.5	$59.7
	Program Indirect	$30.00	$30.00	$30.00	$30.0	$30.0	$30.0	$0.0	$0.0
	Subtotal Capital Outlay Support	$1,463.17	$1,456.17	$1,453.17	$1,696.9	$1,696.9	$1,736.3	$283.2	$39.4
	Subtotal Capital Outlay	$6,321.83	$6,539.14	$6,473.49	$6,852.6	$6,782.0	$6,802.3	$328.8	$20.3
	Subtotal Toll Seismic Retrofit	$7,785.00	$7,995.31	$7,926.66	$8,549.5	$8,478.9	$8,538.6	$612.0	$59.7
	Net Programmatic Risks				$49.8	$165.4	$98.0	$98.0	($67.4)
	Program Contingency	$900.00	$689.69	$758.34	$85.7	$40.7	$48.3	($710.0)	$7.6
	Total Toll Seismic Retrofit Program	$8,685.00	$8,685.00	$8,685.00	$8,685.0	$8,685.0	$8,685.0		

Draft Budget and Forecast for 4th Q 2009

Notes:

* Budget for Richmond-San Rafael Bridge includes $16.9 million of deck joint rehabilitation work that considered to be eligible for seismic retrofit program funding.
(Due to the rounding of numbers, the totals above are show within $0.02).

Toll Bridge Seismic Retrofit Program - SFOBB East Span Only
AB 144/SB 66 Baseline Budget and Forecasts for 4th Quarter 2009

(Dollars in millions)

East Span Contract		AB 144/SB 66 Baseline	TBPOC Current Approved Budget	TBPOC Current Approved Budget Proposed	3rd Quarter 2009 Forecast (50% RMC)	4th Quarter 2009 Forecast (50% RMC)
SFOBB East Span -Skyway						
	Capital Outlay Support	$197.00	$181.00	$181.20	$181.1	$181.2
	Capital Outlay	$1,293.00	$1,254.10	$1,254.10	$1,254.1	$1,254.1
	Total	$1,490.00	$1,435.10	$1,435.30	$1,435.2	$1,435.3
SFOBB East Span -SAS- Superstructure						
	Capital Outlay Support	$214.63	$214.63	$214.63	$412.9	$453.1
	Capital Outlay	$1,753.72	$1,753.72	$1,753.72	$2,014.1	$2,051.1
	Total	$1,968.35	$1,968.35	$1,968.35	$2,427.0	$2,504.2
SFOBB East Span -SAS- W2 Foundations						
	Capital Outlay Support	$10.00	$10.00	$9.20	$10.0	$9.2
	Capital Outlay	$26.40	$26.40	$26.40	$26.4	$26.4
	Total	$36.40	$36.40	$35.60	$36.4	$35.6
SFOBB East Span -SAS- E2/T1 Foundations						
	Capital Outlay Support	$52.50	$31.00	$28.40	$28.6	$28.4
	Capital Outlay	$313.51	$280.90	$280.90	$280.9	$280.9
	Total	$366.01	$311.90	$309.30	$309.5	$309.3
YBI/SAS (Archeology)						
	Capital Outlay Support	$1.08	$1.08	$1.08	$1.1	$1.1
	Capital Outlay	$1.06	$1.06	$1.06	$1.1	$1.1
	Total	$2.14	$2.14	$2.14	$2.2	$2.2
YBI - USCG Rd Relocation						
	Capital Outlay Support	$3.00	$3.00	$3.00	$3.0	$3.0
	Capital Outlay	$3.00	$3.00	$3.00	$3.0	$3.0
	Total	$6.00	$6.00	$6.00	$6.0	$6.0
YBI - Substation & Viaduct						
	Capital Outlay Support	$6.50	$6.50	$6.50	$6.5	$6.5
	Capital Outlay	$11.60	$11.60	$11.60	$11.6	$11.6
	Total	$18.10	$18.10	$18.10	$18.1	$18.1
YBI Detour						
	Capital Outlay Support	$29.50	$66.00	$84.50	$85.5	$90.7
	Capital Outlay	$131.92	$492.80	$492.80	$504.0	$486.2
	Total	$161.42	$558.80	$577.30	$589.5	$576.9
YBI - Transition Structures (Total, including the following split contracts and prior-to-split expenditures)						
	Capital Outlay Support	$78.65	$78.65	$78.15	$105.5	$106.6
	Capital Outlay	$299.36	$276.10	$206.30	$285.9	$291.3
	Total	$378.01	$354.75	$284.45	$391.4	$397.9
YBI- Transition Structures Contract No. 1						
	Capital Outlay Support			$45.05	$65.1	$65.1
	Capital Outlay			$144.00	$223.2	$228.6
	Total			$189.05	$288.3	$293.7
YBI- Transition Structures Contract No. 2						
	Capital Outlay Support			$16.00	$23.4	$24.4
	Capital Outlay			$59.00	$59.4	$59.4
	Total			$75.00	$82.8	$83.8
YBI- Transition Structures Contract No. 3 - Landscape						
	Capital Outlay Support			$1.00	$1.0	$1.0
	Capital Outlay			$3.30	$3.3	$3.3
	Total			$4.30	$4.3	$4.3
Oakland Touchdown (Total, including the following split contracts and prior-to-split expenditures)						
	Capital Outlay Support	$74.40	$74.40	$85.22	$95.3	$95.2
	Capital Outlay	$283.80	$283.80	$288.00	$289.0	$284.7
	Total	$358.20	$358.20	$373.22	$384.3	$379.9
Oakland Touchdown Contract No. 1						
	Capital Outlay Support		$49.90	$45.52	$50.4	$47.3
	Capital Outlay		$226.50	$212.00	$211.0	$211.7
	Total		$276.40	$257.52	$261.4	$259.0
Oakland Touchdown Contract No. 2						
	Capital Outlay Support			$15.80	$20.5	$23.5

Draft Budget and Forecast for 4th Q 2009

Toll Bridge Seismic Retrofit Program - SFOBB East Span Only
AB 144/SB 66 Baseline Budget and Forecasts for 4th Quarter 2009

(Dollars in millions)

East Span Contract		AB 144/SB 66 Baseline	TBPOC Current Approved Budget	TBPOC Current Approved Budget Proposed	3rd Quarter 2009 Forecast (50% RMC)	4th Quarter 2009 Forecast (50% RMC)
	Capital Outlay			$62.00	$64.0	$59.0
	Total			$77.80	$84.5	$82.5
Oakland Touchdown Contract - Electrical Systems						
	Capital Outlay Support			$1.40	$1.5	$1.5
	Capital Outlay			$4.40	$4.4	$4.4
	Total			$5.80	$5.9	$5.9
Oakland Touchdown Contract - Navy Cable [1]						
	Capital Outlay Support			$0.90	$0.9	$0.9
	Capital Outlay			$9.60	$9.6	$9.6
	Total			$10.50	$10.5	$10.5
Oakland Geofill						
	Capital Outlay Support	$2.47	$2.47	$2.47	$2.5	$2.5
	Capital Outlay	$8.21	$8.21	$8.21	$8.2	$8.2
	Total	$10.68	$10.68	$10.68	$10.7	$10.7
Pile Installation Demonstration Project						
	Capital Outlay Support	$1.79	$1.79	$1.79	$1.8	$1.8
	Capital Outlay	$9.25	$9.25	$9.25	$9.2	$9.2
	Total	$11.04	$11.04	$11.04	$11.0	$11.0
Existing Bridge Demolition						
	Capital Outlay Support	$79.72	$79.72	$60.90	$60.0	$60.9
	Capital Outlay	$239.15	$239.15	$239.10	$232.1	$232.1
	Total	$318.87	$318.87	$300.00	$292.1	$293.0
Stormwater Treatment Measures						
	Capital Outlay Support	$6.00	$8.00	$8.20	$8.2	$8.2
	Capital Outlay	$15.00	$18.30	$18.30	$18.3	$18.3
	Total	$21.00	$26.30	$26.50	$26.5	$26.5
Right-of-way and Environmental Mitigation						
	Capital Outlay Support	$0.00	$0.00	$0.00	$0.0	$0.0
	Capital Outlay	$72.40	$72.40	$72.40	$72.4	$72.4
	Total	$72.40	$72.40	$72.40	$72.4	$72.4
Sunk Cost - Existing East Span Retrofit						
	Capital Outlay Support	$39.46	$39.46	$39.46	$39.5	$39.5
	Capital Outlay	$30.81	$30.81	$30.81	$30.8	$30.8
	Total	$70.27	$70.27	$70.27	$70.3	$70.3
Environmental Phase (Expended)						
	Capital Outlay Support	$97.70	$97.70	$97.70	$97.7	$97.7
Project Expenditures, Pre-splits						
	Capital Outlay Support	$44.90	$44.90	$44.90	$44.9	$44.9
Non-project Specific Costs						
	Capital Outlay Support	$20.00	$19.00	$12.00	$19.0	$12.0
Subtotal East Span Capital Outlay Support		$959.30	$959.30	$959.30	$1,203.1	$1,242.5
Subtotal East Span Capital Outlay and Sunk Costs		$4,492.19	$4,761.60	$4,695.95	$5,041.1	$5,061.4
Other Budgeted Capital		$35.11	$31.81	$31.81	$7.7	$7.7
Total SFOBB East Span		**$5,486.60**	**$5,752.71**	**$5,687.05**	**$6,251.9**	**$6,311.6**

[1] Current contract allotment to install two submarine electrical cables is $11.5 million. Additional non-program funding to support this allocation beyond the $9.6 million of available programs funds has been made available by the Treasure Island Development Authority.

(Due to the rounding of numbers, the totals above are shown within $0.02).

Draft Budget and Forecast for 4th Q 2009

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC) **DATE:** January 15, 2010

FR: Tony Anziano, Program Manager, CT / J. Tapping, SFOBB Project Risk Management Coordinator, CT

RE: Agenda No. - 2

Item- CCO 108 Supplemental Changes to Tower Incentives

Recommendation:
For Information Only

Cost:
N/A

Schedule Impacts:
N/A

Discussion:
For TBPOC discussion, attached are the following:

1. Draft CCO 108, S2
2. Copy of e-mail from A. Fremier dated January 15, 2010, Tony Anziano dated January 14, 2010, and S. Maller dated January 13, 2010

Attachment(s):

1. Draft CCO 108, S2
2. Copy of e-mail from A. Fremier dated January 15, 2010, Tony Anziano dated January 14, 2010, and S. Maller dated January 13, 2010

CONTRACT CHANGE ORDER

Change Requested by: Engineer

CCO: 108 Suppl. No. 2 Contract No. 04 – 0120F4 Road SF-80-13.2/13.9 **FED. AID LOC.:**

To: **AMERICAN BRIDGE/FLUOR ENTERPRISES INC A JOINT VENTURE**

You are directed to make the following changes from the plans and specifications or do the following described work not included in the plans and specifications for this contract. ***NOTE: This change order is not effective u***

DRAFT

CCO 108S2 -- 01-15-10 JRT

Description of work to be done, estimate of quantities and prices to be paid. (S
account.) Unless otherwise stated, rates for rental of equipment cover only su
This last percentage shown is the net accumulated increase or decrease from
time.

Adjustment of Compensation at Force Account

The third paragraph of "Item 1 – Modification of CCO 108S0 Provisions" of CCO 108S1 is hereby deleted in its entirety and replaced with the following:

For each and every day that Shipment 3 (Tower Lift 1) departs the ZPMC fabrication facility before May 28, 2010, the Contractor will receive an incentive payment of $250,000.00 per day. The total incentive payment shall not exceed $10,250,000.00.

Net Change of Adjustment of Compensation at Force Account……<$2,000,000.00>

Adjustment of Compensation at Agreed Lump Sum

The Contractor agrees to accept the sum of $2,000,000.00 as full compensation associated with 1) retaining key resources and maintaining current production levels through the Chinese New Year and 2) dedicating the availability of two paint work shops for Tower Lift 1 work.

Adjustment of Compensation at Agreed Lump Sum……$2,000,000.00

Except as provided herein, no additional compensation will be provided for this change, including, but not limited to, costs associated with acceleration efforts, shift premium time, and inefficiencies.

Estimated Cost: Increase Decrease ☐ $0.00

By reason of this order the time of completion will be adjusted as follows:

Submitted by

Signature **Resident Engineer** **Date**

Approval Recommended by

Signature **Supervising Bridge Engineer** **Date**

Engineer Approval by

Signature **Principal Transportation Engineer** **Date**

We the undersigned contractor, have given careful consideration to the change proposed and agree, if this proposal is approved, that we will provide all equipment, furnish the materials, except as otherwise be noted above, and perform all services necessary for the work above specified, and will accept as full payment therefor the prices shown above.

NOTE: If you, the contractor, do not sign acceptance of this order, your attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.

Contractor Acceptance by

Signature (Print name and title) **Date**

>>> Andrew Fremier 1/15/2010 10:19 >>>
I thought I'd screen Ms. Rhinehart from the staff conversation.

While I do believe the boat has sailed on a disincentive for 108, I like the general structure of the CCO for acceleration of 13,14. Remember, this "renegotiation" is really, Steve and Luffy not really talking about the terms correctly. Not a full blown re up.

I also like and understand the need for a lump sum payment at no risk to really get the Contractor focused and moving.

So, in general I am supportive of the CCO concept as written w/ generally minor modifications:

1. OK with $2mil recognizes desire to lock in to key resources/hold production levels.
2. and avail of paint shops.
3. Don't like reference to Vert fit up, recommend we stay away from means and methods.
4. Suggest keeping 10m or 10.250 and shorten roll back date to May 28-29, 2010, which is keeping roughly the 40-41 days and 250k/day. So, full $10.25 if leaves China By April 17, reduce by $250k for next 41 days to zero.
5. Need to understand what ZPMC is seeing from Contractor.
6. Keep disincentive in our tool box for 13, 14.

Andrew B. Fremier
Deputy Executive Director, Operations, MTC/BATA
(510) 817-5840

>>> Tony Anziano <tony_anziano@dot.ca.gov> 1/14/2010 12:20 >>>
Stephen

Based on the discussion at the PMT, I already asked Jon Tapping to start a discussion about CCO108s2, including your request for a disincentive. Jon has already raised this with ABF and has received a VERY clear response - they will not consider a disincentive. Do you still want Jon to ask about an additional pre-4/17 incentive in light of this?

Tony

Tony Anziano
Toll Bridge Program Manager
State of California
Department of Transportation
325 Burma Road
Oakland, CA 94607

415-310-4507

Stephen Maller/HQ/Caltrans/CAGov
01/13/2010 06:16 PM

To: tony.anziano@dot.ca.gov, "Andrew Fremier" <afremier@mtc.ca.gov>
cc: stephen_maller@dot.ca.gov, Jon Tapping/HQ/Caltrans/CAGov, Bimla Rhinehart/HQ/Caltrans/CAGov
Subject: Re: Fw: TBPOC Jan 19 Conference

Call(Document link: Tony Anziano)

Tony and Andy,

Bimla and I reviewed ABF's proposed restructure of the tower incentive in CCO 108 and concluded that it comes up short. Paying ABF an up-front $2,000,000 lump sum payment and not being guaranteed that the tower will be delivered early is not acceptable. Stretching the window to 55 days is not acceptable either. Plus we need a real disincentive to flush out a schedule that will stick. On top of all this, if we are really interested in motivating ABF to accelerate we need to put up some real money to back up our talk.

We propose the following CCO language for PMT consideration:

> Upon the departure of shipment 3 (tower lift 1) from the ZPMC fabrication facility on April 17, 2010, the contractor shall receive a lump sum payment of $12,300,000. The payment will be reduced $300,000 per day for each and every day the shipment departs after April 17, 2010 until the lump sum is exhausted on May 28, 2010.
>
> For each and every day shipment 3 (tower lift 1) departs the ZPMC fabrication facility after May 28, 2010, the contractor shall pay the State of California the sum of $300,000 per day as a disincentive payment. The total disincentive payment shall not exceed $9,900,000.
>
> For each and every day shipment 3 (tower lift 1) departs the ZPMC fabrication facility before April 17, 2010, the contractor shall receive the April 17 lump sum payment of $12,300,000 plus an incentive payment of $500,000 per day. The total lump sum and incentive payments shall not exceed $22,300,000.
>
> If, after execution of this CCO, the State of California delays fabrication of tower lift 1, the trigger dates for the payments referred to above will be extended to the extent of such delays.

I changed the $12,250,000 used in CCO 108S1 to $12,300,000 to make the math work correctly.

Stephen

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC)

DATE: January 15, 2010

FR: Bart Ney, PIO

RE: Agenda No. - 3

Item- China Communications Plan

Recommendation:
For Information Only

Cost:
N/A

Schedule Impacts:
N/A

Discussion:
The draft China Steel Arrival Communications Plan is attached that reflects a scaled-down arrival event for a simple media availability.

The PIO team plans to send an advisory and draft a press release but these would be sent as the ship arrives or after, not before. The PIO will work directly with AB/F to determine the best way to allow media to capture the ship.

Attachment(s):
Self-Anchored Suspension Span (SAS) Chinese Steel Arrival Communication Plan

DRAFT

SELF – ANCHORED SUSPENSION SPAN (SAS) CHINESE STEEL ARRIVAL COMMUNICATION PLAN

This plan outlines a strategy for communicating with media, elected officials and other stakeholders to highlight the arrival of the first permanent steel sections of the Self-Anchored Suspension Span, as well as to answer expected questions about project schedule and product quality. The plan includes detailed talking points, outreach scope and communication prior to the ship's arrival, media activity when the first ship arrives, and continuing outreach activity through the erection of the first deck section.

SECTION ONE

1.0 BACKGROUND

The seismic retrofit of the Eastern Span of the San Francisco Oakland Bay Bridge was segregated into 16 different contracts because of the effort's massive size and complexity. This separation allowed for prime construction contractors to obtain the bonding necessary to execute the individual contracts. It also allowed more potential subcontractors to be involved with the various projects. Even with splitting the East Span replacement the larger jobs required prime contractors to form joint ventures in order to perform the work. Although the East Span Skyway had Federal funding associated with it and thus held a "Buy America" stipulation on steel fabrication, the latter projects do not contain any Federal funding and allow for global involvement with steel works.

California Assembly Bill 144 signed by Governor Arnold Schwarzenegger in July of 2005 formed the Toll Bridge Program Oversight Committee (TBPOC) which consists of The California Department of Transportation (Caltrans), the Bay Area Toll Authority (BATA) and the California Transportation Commission (CTC) to manage the seismic retrofit projects for the San Francisco – Oakland Bay Bridge. This bill also legislated that a signature span would be built for the seismic replacement of the eastern side of the Bay Bridge.

Through a previous public process managed by the Metropolitan Transportation Commission (MTC) a Self-Anchored Suspension Span (SAS) type bridge was chosen to be the signature element connecting a Skyway bridge to the approach at Yerba Buena Island (YBI). The SAS would be the largest of its bridge type ever constructed and will feature a central tower and one main cable that wraps around supports on YBI and anchors on the eastern end of the structure.

American Bridge (which was the constructor of the original Bay Bridge in the 1930's) and Fluor Enterprises formed a joint venture (AB/F) and won the contract to build the SAS. AB/F then chose the Shanghai based Zenhua Port Machine Company (ZPMC) to fabricate the steel deck sections and tower of the bridge. Subsequently Caltrans and AB/F established a presence at the ZPMC facilities in China to perform QA and QC work during fabrication. ZPMC and AB/F are responsible for Quality Control and Caltrans inspectors provide Quality Assurance. This layered approach is an industry standard and has worked well on the SAS project.

Due to the complexity and magnitude of the project some delays were experienced during fabrication. Caltrans and its partner agencies in the TBPOC worked swiftly with AB/F and ZPMC to identify problems and implement solutions so that the fabrication process would continue. Critical issues were resolved and all parties are working together to identify opportunities to regain some of the time lost while improvements were made.

On December 29, 2009 the first shipment of Chinese fabricated steel deck sections for the Self Anchored Suspension portion of the new Bay Bridge left ZPMC's Changxing Island docks on the Yangtze River near Shanghai China bound for San Francisco. The trip is estimated to take 3 to 4 weeks. When the shipment arrives in the United States media interest is expected to be high. This shipment also marks the beginning of work on erection for the SAS Bridge, a process that is expected to garner world wide attention.

SECTION TWO

2.0 COMMUNICATIONS PLAN SCOPE AND SCHEDULE

This communications plan addresses activities that will take place prior to, during and after the arrival of the steel shipment containing the first permanent sections to be erected for the SAS superstructure.

2.1 OUTREACH METHODOLOGY

Working with Caltrans Construction and contractor American Bridge/Fluor Enterprises A Joint Venture (AB/F) the Bay Bridge Public Information Team will track the progress of the ZPMC steel transport ship as it crosses the Pacific Ocean. Once the ship arrives outside of the San Francisco gateway the PIO team will facilitate media interest and create a media availability around the arrival of the transport ship. Following the event PIO staff will continue to update the Bay Bridge website and provide information to partnering agencies on the progress of unloading the steel.

2.2 MEDIA ADVISORY

PIO will track the ship's progress by staying in communication with construction and the contractor. An Advisory will be sent out to the media contact list once the ship has arrived. (See Section 4 for related materials)

2.3 MEDIA AVAILABILITY

Media will be invited to the Bay Bridge PIO at Pier 7 for a briefing provided by the Bay Bridge Public Information Officer. The briefing will include facts on the steel shipment and a visual presentation by the Bay Bridge PIO on how the segments that are arriving will be erected. The PIO will work with AB/F to allow the media a location to film the ship. Safety gear and instructions will be provided to credentialed media as needed depending on available access.

2.4 PRESS RELEASE

A Press Release will be issued at the media event and posted online on the day of the event. (See Section 4 for related Materials)

2.5 VISUAL DOCUMENTATION PLAN

The arrival of the ship will be documented by the Bay Bridge documentary team with videography and still photography. Shooters will be positioned at strategic points around the bay to insure that the best angles are covered. If the ship traverses the Golden Gate in darkness this effort will be scaled back and possibly held off for another shipment to get the visuals during daylight hours.

Videography

Videographers will position themselves at key locations such as the Marin Headlands, on the Golden Gate Bridge and at Crissy Field in San Francisco to capture the transport ship coming through the Golden Gate. This will be done in the same fashion as for the arrival of the Shear Leg Barge in 2009. Broadcast quality video clips will be posted to the project's Micro Website in the Media Bar section for immediate use by the press.

Photography

Still Photographers will position themselves similar to videographers and work together to obtain their shots. Print quality picture files will be posted to the project's Website in the Media Bar for immediate download and use by the press.

2.6 WEBSITE

Baybridgeinfo.org will maintain a header that will allow for an immediate link to the micro website focused on the SAS bridge steel arrival. The homepage will remain devoted to the overall seismic retrofit projects but will be designed to make it easy to get to more information about the transport ship's arrival.

2.7 SAS MICRO WEBSITE

Immediately linked from Baybridgeinfo.org and 511.org the SAS micro website is the public's central location for up to date information on the transport ship's arrival. All information relative to this story will be posted here.

Media Bar

The Media Bar will be updated with broadcast quality photos and video that are easily incorporated into press stories. This allows for the best possible coverage and reduces the need to take reporters and cameras into the construction zone. The Bay Bridge Documentary team will work with AB/F to determine where footage can be taken.

Social Media

The Bay Bridge Project Twitter feed will be located on the Micro Website as well for easy reference. Videos related to the arrival will be posted on the Bay Bridge YouTube channel as well as the project's multi-media site baybridge360.org

2.8 SPOKESPERSON

Bay Bridge Public Information Officer Bart Ney will handle media inquiries related to the project and this specific event. When the Bay Bridge Public Information Officer is not available the Toll Bridge Program Director Tony Anziano and the Department's Deputy Director of External Affairs Mark DeSio decide on who will speak on behalf of the project.

2.9 COMMUNICATIONS PLAN MODIFICATIONS

Modifications and additions may be made to this plan as needed by representatives of the TBPOC agencies and will be vetted through the Bay Bridge Communications Partnership Team (CPT) and Caltrans Deputy Director of External Affairs.

SECTION THREE

3.0 MESSAGING TALKING POINTS

Sections 3.1 through 3.4 are draft statements that may be used in messaging for the media event. Section 3.5 refers to creating a FAQ with more detailed responses to direct questions that is currently being developed.

3.1 MAJOR MILESTONE ACHIEVED

On December 29, 2009 the first permanent steel sections of the world's largest Self-Anchored Suspension Bridge were shipped from Shanghai, China to the San Francisco Bay.

The challenge to fabricate these first massive sections has been met through close collaboration and teamwork between ZPMC the fabricator, AB/F the prime contractor and Caltrans the owner along with its TBPOC partner agencies BATA and CTC.

The milestone of having these first sections arrive here on the bay means that within a short time the most visually exciting parts of erecting this span can begin and we are that much closer to completing the overall structure and achieving our seismic safety goals for the bridge.

As erection of the SAS superstructure begins in 2010 the project website baybridgeinfo.org will be providing ongoing documentation of the effort including webcam views, still photography and videography of history in the making.

3.2 SAS STEEL FABRICATOR SELECTION

Although nearly 77% of the steel for the East Span comes from fabricators right here in the United States, the new Bay Bridge will be a World Class Structure that is truly using talent and resources from all over the globe.

Fabricators from England, Norway, Canada, Japan, Korea and China are all contributing to the effort to complete the new Bay Bridge.

The Zenhua Port Machinery Company (ZPMC) which recently changed its name to the Shanghai Zhenhua Heavy Industry Company reflecting its ever growing product line of impressive steel structures was chosen as the fabricator for the SAS deck and tower sections because of their capabilities and capacity to do the work.

3.3 FABRICATION CHALLENGES MET

As one might expect building an architectural icon that is at the cutting edge of seismic technology that will be the largest bridge of its type has its challenges. During fabrication of the steel that is arriving here today many challenges have been met.

Complex shop drawings needed to fabricate the bridge are now going through a streamlined process in Vancouver Canada.

When issues with welds were found Caltrans, AB/F and ZPMC moved swiftly together to make repairs, improve the welding process and implement changes that completely addressed and resolved the issues.

The TBPOC agencies, AB/F and ZPMC jointly agree that quality is the priority for the Bay Bridge Self-Anchored Suspension Span. The finest engineering and inspection resources available have been marshaled in Shanghai as part of the Bay Bridge team. This team is insuring that fabrication issues are resolved in China before bridge sections are shipped to the USA.

3.4 PROJECT SCHEDULE

The first steel shipment is slightly over a year later than its first estimated time of arrival. While project team members are working to implement ideas that will regain some of this time, the overall project schedule has not changed because the schedule milestone for steel delivery is with the later steel shipments and not directly associated with the first shipment.

Opportunities still exist to recapture lost schedule time before more time critical shipments are needed to arrive on site.

The Project team including steel fabricator ZPMC, prime contractor AB/F and Caltrans focused on insuring that fabrication processes met with stringent guidelines for the first elements of the bridge that were built. Improvements were made and now several shipments are scheduled to arrive throughout 2010 and 2011.

The current project schedule still shows that the bridge is expected to open in late 2013. The Bay Bridge contractors, fabricators and owners are working together diligently to meet that date.

3.5 FREQUENTLY ASKED QUESTIONS (FAQ)

The Bay Bridge PIO will continue to work with the CPT and prime contractor AB/F to develop a FAQ list before the media event is held.

SECTION FOUR

4.0 RELATED MATERIALS

Draft versions of the intended Media Advisory and Press Release are included in this section. These versions will be edited and revised before being distributed.

4.1 MEDIA ADVISORY

DRAFT

For Immediate Release
Jan. XX, 2010
510-286-7167

Contact:
Bay Bridge PIO –

ARRIVAL OF FIRST SELF-ANCHORED SUSPENSION SPAN SECTIONS FOR NEW BAY BRIDGE

WHO: The Toll Bridge Program Oversight Committee (TBPOC) consists of the California Department of Transportation (Caltrans), the Bay Area Toll Authority (BATA) and the California Transportation Commission (CTC).

WHAT: Access will be provided to the media view the first deck sections for the San Francisco-Oakland Bay Bridge's Self-Anchored Suspension Span to arrive in the Bay Area. Media will be invited to a brief presentation given by Bay Bridge spokesman Bart Ney with facts on the steel and how it will be put in place. This first shipment includes eight deck sections, as well as cross beams that will connect the span's east- and westbound decks. The steel in the shipment weighs more than 5,500 tons.

WHEN: Tuesday, Jan. 19, 2010 at XX P.M.

WHERE: Bay Bridge Public Information Office
311 Burma Road
Oakland, CA 94607

Media should arrive dressed to visit a construction site, including wearing work boots. Caltrans will provide safety equipment. Credentialed media should arrive no later than XX p.m. to receive equipment and instructions before boarding the crew boat.

###

4.2 PRESS RELEASE

DRAFT

FOR IMMEDIATE RELEASE CONTACT: Public Information Office: (510) 286-7167

PRESS RELEASE

MASSIVE DECK SECTIONS FOR BAY BRIDGE'S SELF-ANCHORED SUSPENSION SPAN ARRIVE

More Than 5,500 Tons of Steel for New Iconic East Span

Oakland, Jan. 19, 2010… The first of 28 immense deck sections for the San Francisco-Oakland Bay Bridge's new Self-Anchored Suspension Span (SAS) arrived in the San Francisco Bay today after a trans-Pacific voyage. The SAS is the most iconic element of the bridge's new East Span.

The eight deck sections, and several cross beams that will link the span's east- and westbound decks, weigh more than 5,500 tons. These first sections will be used to build the western end of the SAS. Future shipments will include sections of the span's single 525-foot-tall tower.

The sections set sail on a 738-foot-long ship from Zhenhua Heavy Industry Co., LTD (ZPMC) in Shanghai, China on Dec. 30, 2009. Massive fasteners that are welded to the ship held the enormous deck sections, which were stacked two deep and enveloped in tarps to protect them from the rough winter seas during the nearly three-week voyage.

The sections will be lifted onto temporary steel supports by the 400- by 100-foot shear leg crane barge, dubbed the Left Coast Lifter, which arrived in the Bay Area in March 2009. The crane's boom weighs 992 tons, and is 328 feet long. The crane can lift up to 1,873 tons; watching the crane barge lift these first sections, which weigh XXX, will be an amazing spectacle to behold. The crane barge has already been busy at work erecting the temporary steel that will initially support the SAS.

For the next few weeks, the steel will undergo a series of inspections. Once the deck sections have passed customs and other inspections, a barge will transfer them to the work site. Erection of the deck sections is expected to begin in mid-February, which will mark a major milestone of the iconic span that will transform the Bay and bring another world-class bridge to the region.

# # #

SECTION FIVE

5.0 FUTURE SAS ERECTION MEDIA RELATIONS

Prior to being lifted into place, the newly arrived SAS sections will require approximately one month to undergo Customs inspection, to ensure no damage occurred during transit, and to perform punch list items that were intended to be performed in the Bay Area. During this time the PIO will use the baybridgeinfo.org Web site and social media to update the public on the work being done and on the anticipated dates for moving SAS sections to the work site. Specific talking points for the post-arrival outreach will be developed by the Bay Bridge PIO.

Once SAS sections have been barged out to the work site, the PIO will host a media event with Google for technology media, showcasing how the SAS construction will be featured on Google Earth. The PIO is also expected to hold a media event (for both local and national media) when the first OBG section is lifted into place.

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC)

DATE: January 15, 2010

FR: Program Management Team (PMT)

RE: Agenda No. - 4

Item- TBPOC Invite Letter to Mr. Kang

Recommendation:
APPROVAL

Cost:
N/A

Schedule Impacts:
N/A

Discussion:
Attached, for TBPOC approval, is a suggested letter to Mr. Kang inviting him to the Bay Area to visit the Bay Bridge East Span project.

Attachment(s):
Invite Ltr to Mr. Kang

TOLL BRIDGE PROGRAM
OVERSIGHT COMMITTEE

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

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

January 14, 2010

Mr. Kang Xuezeng
President and Chief Executive Officer
Shanghai Zhenhua Heavy Industry Co., Ltd. (ZPMC)
3470 Pu Dong Road (S)
Shanghai 200125
People's Republic of China

Dear Mr. Kang:

On behalf of the entire Toll Bridge Program Oversight Committee, I extend to you my congratulations on your recent appointment as the new President and Chief Executive Officer of ZPMC. As we prepare for the arrival of the first shipment of fabricated steel bridge segments from your Changxing Island facility to San Francisco Bay, it is with great pleasure that I invite you to join us in California — at any time that may be convenient for you — to tour the site of the new East Span of the San Francisco-Oakland Bay Bridge.

The partnership between ZPMC, American Bridge/Fluor and the people of California is quite literally making history. It is the self-anchored suspension portion of the new East Span that will bestow world-class status on the bridge. We take tremendous pride in all that has been achieved to date on this monumental project, and we look forward to working in partnership with you in the coming months to complete the world's largest self-anchored suspension bridge.

It would be a tremendous honor for us to have you visit the Bay Bridge East Span project and to show you the spectacular construction site. Please feel free to contact me or my staff at any time to arrange for a thorough tour. In addition to the address above, you are welcome to contact me by telephone at 510.817.5810 or by e-mail at sheminger@mtc.ca.gov. We hope to see you soon in beautiful California.

Sincerely,

Steve Heminger
TBPOC Chair
Executive Director, Bay Area Toll Authority