



**PUBLIC UTILITIES
REVENUE BOND OVERSIGHT COMMITTEE
CONTRACTING WORKING GROUP
CITY AND COUNTY OF SAN FRANCISCO
AGENDA**

**Public Utilities Commission Building
525 Golden Gate Ave., 5th Floor, Baden Room
San Francisco, CA 94102**

March 18, 2013 - 9:00 AM

Special Meeting

If a quorum of the Public Utilities Revenue Bond Oversight Committee (RBOC) members is present, the chair will hold a Special meeting of the RBOC to discuss items on this Contracting Working Group Agenda.

1. Call to Order and Roll Call

John Ummel, Chair
Kevin Cheng
Holly Kaufman

- 2. Public Comment:** Members of the public may address the Revenue Bond Oversight Committee Contracting Working Group on matters that are within the RBOC's jurisdiction, but not on today's agenda. (No Action)
- 3. Comments on Preliminary Draft: RBOC Evaluation of WSIP by RW Block Consulting, Inc., (CS-254).** (Discussion and Action) (Attachment)
- 4. Approval of RBOC Contracting Working Group Minutes of October 1, 2012.** (Discussion and Action) (Attachment)
- 5. Future Agenda Items/Meeting Dates.** (Discussion and Action)
- 6. Adjournment**

Agenda Item Information

Each item on the agenda may include: 1) Department or Agency cover letter and/or report; 2) Public correspondence; 3) Other explanatory documents. For more information concerning agendas, minutes, and meeting information, such as these document, please contact RBOC Committee Clerk, City Hall, 1 Dr. Carlton B. Goodlett Place, Room 244, San Francisco, CA 94102 – (415) 554-5184.

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Public Comment

Public Comment will be taken before or during the Committee's consideration of each agenda item. Speakers may address the Committee for up to three minutes on that item. During General Public Comment, members of the public may address the Committee on matters that are within the Committee's jurisdiction and are not on the agenda.

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REVENUE BOND OVERSIGHT COMMITTEE WSIP PROGRAM

**RBOC Evaluation of the Water System Improvement Program (WSIP)
CS-254**

“Preliminary Draft Report – Not for Release or Public Distribution”

DISCLAIMER: This is a preliminary work product and has not been edited nor finalized or authorized for distribution. RWBC reserves the right to modify contents contained herein which may result in modification of calculations, results, recommendations, conclusions, or other data, all of which may have material changes.

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EXECUTIVE SUMMARY

R.W. Block Consulting, Inc. (RWBC) was engaged by the San Francisco’s Revenue Bond Oversight Committee (RBOC) to perform two tasks as follows:

TASK A – perform an estimate at completion (EAC) and schedule at completion (SAC) analysis for five projects within the WSIP. The primary objective of this task is to evaluate whether the current methodology used by the WSIP program team provides realistic and reliable projections. The outcome of TASK A is our assessment of the likelihood each of the five projects evaluated will be completed within forecast EAC and SAC parameters. RWBC was provided four possible scenarios under which to provide our assessment of each project as follows:

1. Highly Likely – the consultant believes there is a 90% or greater likelihood that the projects/program will be completed on time and within budget.
2. Very Likely – same as above except 80-90%
3. Somewhat Likely – same as above except 70-80%
4. Unlikely – same as above except below 70%

TASK B – is an evaluation of WSIP program delivery costs, defined a soft-costs or non-construction costs to include project and program management, planning, engineering, environmental review and permitting, and construction management. The outcome of TASK B is our observations and recommendations associated with forecast soft costs to complete the WSIP.

RESULTS TASK A:

Figure 1, below provides the results of our WSIP project review. The subsequent sections of this report that follow expand on the methodology and approach used to evaluate each project.

Figure 1 - WSIP Project Reviewed

WSIP Project Ref.	Project Name	Confidence Level
CUW37401	Calaveras Dam Replacement (CDR)	Unlikely (below 70%)
CUW35901	New Irvington Tunnel	Very Likely (80-90%)
CUW36801	BDPL Reliability Upgrade Tunnel	Highly Likely (90% or higher)
CUW36701	HTWT Long Term Improvements (HTWT)	Somewhat Likely (70-80%)
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	Somewhat Likely (70-80%)

Although our recommendations may not reflect that all projects will be completed on-time and within budget with a 90% of higher confidence level, we have found that the WSIP program team has overcome very difficult challenges on all the projects evaluated and found the program and project staff to be working diligently to ensure the realization of positive outcomes for the WSIP. Steps taken to mitigate cost creep include use of formalized processes and procedures to review and proactively evaluate potential additional cost and time requests and use of trends to forecast costs/time. Subsequent sections of this report highlight that we have found all WSIP project/program teams to be technically sound and were found to have a full understanding of the technical requirements and activities needed to complete the work.

RESULTS TASK B:

The task of ramping down a program of the size and complexity of the WSIP can be a daunting task as multiple completing interests must be dealt simultaneously: completion of complex projects where material unforeseen conditions have been encountered, management of contractor performance, while also gathering and reporting project, region and program-wide information, all while ensuring that budgetary parameters are maintained.

We recommend the following actions be considered

1. Evaluate possibility to reduce soft costs by eliminating the regional program management function
2. Re-evaluate CDR and HTWT projected staffing levels for opportunities to reduce costs through use of SFPUC staff and by reduction in overall staffing levels.
3. As a benchmark to the existing staffing model, consider development of a soft cost staffing model that is bottoms up using actual costs for each staff. The staffing models provided used an annual budgetary threshold against which an annual full time equivalent (FTE) cost (\$282,000/year) was applied to extract the number of FTEs needed in a given year. This approach does not address the need for an FTE or role to be performed by the FTE in the context of the project or program. A bottoms-up detailed staffing model is recommended as a better way to demonstrate resource usage to be used in conjunction with actual labor costs. The proposed staffing plan does improve on the ratio of construction to soft costs. For the five projects evaluated (Figure 1) the forecast



ratio of construction to soft costs is 71% better than the historical rated achieved through December 2012.

4. Evaluate the monthly program management effort to reconcile all project expenditures to CMIS versus a less frequent reconciliation offset by reduction of program management staff needed to perform this function monthly.

The sections that follow expand on these recommendations and provide supporting data used to develop our conclusions.

We would like to acknowledge the WSIP program and project management teams who were at all times professional, courteous, and provided expedited replies to all of our requests for information. RWBC was further provided full access to their CMIS system and all data contained therein.

We appreciate the opportunity to prepare this report as the final deliverable under procurement CS-254, RBOC Evaluation of the Water System Improvement Program (WSIP).

R. W. Block Consulting, Inc.

REPORT ORGANIZATION:

Although the material evaluated and the analysis performed is very technical in nature, RWBC prepared this report using language that is straight-forward so that readers with no specific technical background may understand the general concepts presented. There are some limitations to this approach given that certain topics must incorporate a technical subject matter. Under such conditions we attempted to balance the need for technical specificity with the need to reach the widest audience.

The **BACKGROUND** section of this report provides information summarizing overall state of the WSIP program, the manner under which the scope of engagement was developed, and a general overview of RWBC's tasks.

Following the **BACKGROUND** section is a narrative outlining RWBC's **APPROACH AND WORKPLAN** to perform the work that resulted in our evaluation of EAC and SAC for the five projects assigned as well as WSIP soft costs. This section aims to expand on the **BACKGROUND** section and provide a reader not familiar with the WSIP with a general understanding of the concepts discussed.

There are several sections pertaining to **METHODOLOGIES** used to evaluate various aspects of each project's performance. The purpose of these sections is to provide a general background of each methodology and parameter evaluated.

The technical analysis and observations on estimate at completion (EAC)/schedule at completion (SAC) are segregated by for r project evaluated. The sections containing the project evaluation provide general overview of the project, RWBC's assessment of the unique features of each project, , as well as detailed calculations on throughput, project criticality, cost realization rate (CRR) and time realization rate (TRR), our independent estimate of budget and time exposure (EAC) and (SAC) supporting our conclusions and observations. Each project evaluation is included as of **TASK A – EAC / SAC ANALYSIS**

Evaluation of WSIP soft costs are contained under the section titled **TASK B – WSIP PROGRAM DELIVERY COSTS**. This section contains background information the activities performed to evaluate WSIP program delivery costs as well as the analyses and calculations in support of our observations and recommendations. Additional exhibits are provided at the end of the report which provide detailed data calculations, analyzes, listing of l documents reviewed, and related data.

BACKGROUND

The San Francisco's Revenue Bond Oversight Committee (RBOC) is charged with confirming that proceeds from revenue bonds that support the San Francisco's Public Utility Commission's (FPUC) Water, Power, and Wastewater Enterprise infrastructure improvements are being implemented in a professional and cost effective manner. Currently, the RBOC is focused on reviewing the SFPUC's delivery of the \$4.6 billion Water System Improvement Program (WSIP). As of September 29, 2012, the approved WSIP program budget totaled \$4.5857 billion of which \$2.427 billion has been expended (52.9%)¹. Of this total current approved WSIP program, \$2.1976 billion is budgeted for construction of which \$1.301 billion has been expended (59.2%)².

As a result of recommendations made to the RBOC by Dr. William Ibbs (Ibbs Consulting) and an SFPUC Independent Review Panel, RBOC engaged RWBC to perform two tasks. The first task is an analysis of EAC and SAC for five large water infrastructure projects as shown in Table 1, below. The EAC and SAC evaluation is contained under the section titled "Task A", to coincide with the scope contained in the procurement that resulted in this effort³.

Table 1 - Projects included in EAC/SAC analysis

WSIP Project Ref.	Project Name	Budget (Million) ⁴
CUW37401	Calaveras Dam Replacement	\$415.638
CUW35901	New Irvington Tunnel	319.925
CUW36801	BDPL Reliability Upgrade Tunnel	307.081
CUW36701	HTWTP Long Term Improvements	276.896
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	164.722

The EAC/SAC analysis for these five projects entailed a review of existing work conditions, performing project site visits, interviews with project and program management staff, and applicable EAC/SAC project data as further detailed in subsequent sections of this report. The ultimate objective of this task is to answer two fundamental questions:

1. Does the current EAC/SAC methodology provide realistic, sound, and reliable projections?

¹ WSIP Regional Projects Quarterly Cost Report, 1st Quarter/Fiscal Year 2012-2013 (Table 3.1, Program Cost Summary)

² WSIP Regional Projects Quarterly Cost Report 1st Quarter/Fiscal year 2012-2013 (Table 3.1, Program Cost Summary)

³ RWBC's project scope is included in request for proposal (RFP) CS-254: RBOC Evaluation of the Water System Improvement Program (WSIP)

⁴ WSIP Regional Projects Quarterly Cost Report Section 5 Project Performance Summary

2. What is the confidence level that the program will be completed within the currently approved WSIP schedule and cost?

In addressing the above questions, RWBC will determine the likelihood that the five selected projects will finish as forecast by SFPUC's program management/project management/construction management teams. A four (4) rating scale is to be used by RWBC in performing the assessment of each project based on the information reviewed and analysis performed:

- Highly Likely – the consultant believes there is a 90% or greater likelihood that the projects/program will be completed on time and within budget.
- Very Likely – same as above except 80-90%
- Somewhat Likely – same as above except 70-80%
- Unlikely – same as above except below 70%

The second task performed under this engagement is an evaluation of WSIP program delivery costs, defined as soft costs or non-construction related costs to include project and program management, planning, engineering, environmental review and permitting, and construction management. Given the stage of the program, RWBC focused this analysis on program, project, and construction management costs, as they comprise the material portion of soft costs. The evaluation of WSIP soft costs will be referenced in this report as Task B, to coincide with the scope contained in the procurement that resulted in this effort.⁵

APPROACH AND WORKPLAN TO ACCOMPLISH TASK A AND TASK B

RWBC's overall approach to performing Task A and Task B entailed a process of discovery, data gathering, and evaluation for each project to be analyzed as follows. The discovery phase commenced with the preparation of a detailed work plan presented to the WSIP program management team and RBOC members at our kick off meeting which occurred on October 30, 2012. Outcomes of the kick-off meeting included an initial detailed document request to gather background information on cost, schedule, and applicable contractual information for the five projects to be analyzed under Task A and soft costs under Task B. Additionally, the kick off meeting served as the medium through which we scheduled our site

⁵ RWBC's project scope is included in request for proposal (RFP) CS-254: RBOC Evaluation of the Water System Improvement Program (WSIP)

visits and project management interviews. Site visits for all five projects evaluated were conducted between December 3, 2013 and December 14, 2013. Another key parameter which was agreed by all engagement participants was to use September 30, 2012 (data date), as the project data date from which forecast data for EAC/SAC would be evaluated. Not having an agreed-upon data date would have made the performance of this engagement infeasible. Agreement on a data date is critical for analysis as a moving data date creates severe complications when performing forecast evaluations. Where possible, RWBC has used date after the data date to make the analysis as current as possible. The data gathering phase of our work entailed the extraction of data from the WSIP CMIS system, the web-based project management system housing project information. This phase also entailed the review of project documentation provided including applications for payments, change orders, trends, risks, and contracts. Interactions occurred between the WSIP program management team and RWBC where additional data or clarifications were required. The final part of our work entailed the analysis of the data to answer the questions to be answered by RWBC for Task A and Task B. A key aspect of the data analysis phase was the development of a methodology that would provide data to answer questions pertaining to the likelihood that the five projects analyzed would finish as forecasted (cost and schedule). Of importance to RWBC was the development of a quantitative approach to evaluating EAC and SAC using project data. A detailed explanation of our Cost and Time Realization Rate (CRR & TRR), throughput, and other methodologies is provided in subsequent sections of this report.

Our specific approach to evaluating EAC/SAC for each of the five projects was comprised of the following activities:

1. Review applications for payment to determine how the work is being financially administered, review financial project cost information for major activities, and review billings on approved change orders
2. Perform a physical site visit to validate that, in general, major elements of the work have progressed in a manner consistent with that shown in the applications for payment and as reported by the program team. Note that the purpose of the site visit was not to conduct a detailed site inspection or perform an independent measurement of quantities, an effort not included in this engagement.
3. Interview project management and construction management staff to understand project specific dynamics, features, or other data that provides context on financial values reported.



At each project site, we also interviewed staff responsible for preparing and updating trends in the CMIS to evaluate standardization of trend input and use.

4. Review sample set of construction change orders for general contract compliance to validate that required financial information exists in support of approved costs and adherence to program procedures. As proposed, RWBC reviewed a random sample comprising of 50% of the value of approved change orders for each project.
5. Detailed evaluation of trends included in project cost reports and within CMIS. RWBC extracted the entire population of trend information for each project contained in CMIS
6. Applied various methodologies including CRR/TRR, throughput, criticality, to evaluate budget and time performance and forecast to completion.
7. Application of additional project information providing context to CRR/TRR
8. Development of recommendation on RWBC's evaluation whether each project will be finished on time and within budget.

To perform our analysis of WSIP soft costs we gathered a wide range of information including staffing plans (historical and planned), project spend information, and detailed project level staffing plans. We also evaluated the program management structure (project, regional, program wide) to identify potential areas of soft cost reduction as well as SFPUC's available resources to perform program management functions. Once we reviewed this information we evaluated the projects remaining to be completed to ascertain the complexity of work as well as the nature of the project teaming relations, recognizing that projects where there may be strained relations typically require additional oversight and management to resolve issues and ensure completion of the work. Finally, we provide recommendations on potential actions that could be taken to reduce soft costs as further detailed in the

COST REALIZATION RATE (CRR) AND TIME REALIZATION RATE (TRR) METHODOLOGIES FOR ANALYSING FORECAST PERFORMANCE

The WSIP program management team uses standardized methodology for forecasting costs and time at completion. As it pertains to costs, the general form for calculating final cost at completion (FAC) is as follows. FAC is the equivalent for EAC. The formula terms were kept as FAC to match the terminology used by the program management team.

EQUATION 1:

$$FAC = \text{Original Contract Value} + \text{Approved and Pending Change Orders} + \text{Potential Change Orders} + \text{Trends}$$

From a cost definition perspective each of the elements (working from the Original Contract Value moving right to Trends) represents a decreasing level of cost definition. The original contract value is a contractually defined term which has been executed with both time and cost performance parameters and is a very well defined cost element of the work. Similarly approved change orders are contractually binding work elements that modify the terms and conditions of the base agreement and may reflect any modification to scope and/or contract terms and conditions⁶. A pending change order represents a defined cost but where negotiations are not yet complete and the work is not yet approved by all parties or certified or certified by City Controller. These costs are defined but not formally approved. The final element of EQUATION 1 is trends. Trends represent potential cost impacts and may have varying degrees of definition, but are generally not fully defined. The cost/time definition of trends may be in the form of an order of magnitude (ROM) estimate, management's arbitrary estimate of what the potential cost may be worth, or preliminary pricing provided by the general contractor. As defined in the WSIP's policies and procedures⁷, trends are "any expected deviation from approved schedule or contract amount, which is not yet a potential change... Trends may result from the following: issues that are identified and tracked in CMIS; analysis of the rate of expenditure of unit price items or allowance items versus progress; quality issues. In short anything that is occurring that is not yet a potential change that the project CM believes has a high probability of becoming a change to the contract amount or schedule." In EQUATION 1, trends are the least defined cost category and the category with the highest

⁶ A change order may increase or decrease the contract time and/or cost, or modify contract terms and conditions.

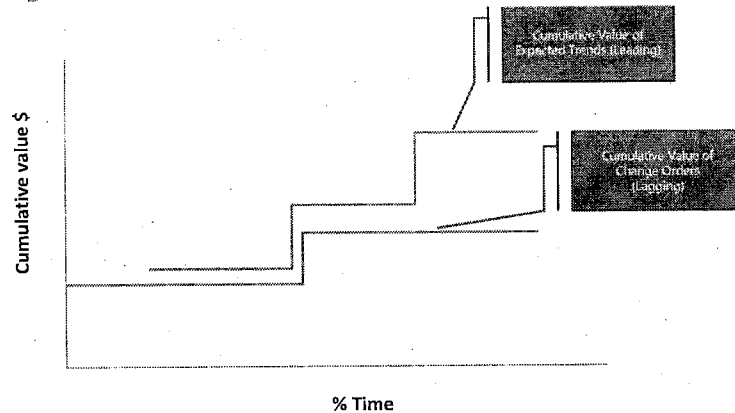
⁷ WSIP Procedure #20 – Monthly Project Construction Progress Reports

rate of variability. The FAC value is compared to approved budgets and contingencies to test whether enough funds are available to pay for all forecast costs.

The evaluation of trends and EAC then becomes a marginal analysis of those elements which have the highest variability given that all the remaining elements are approved or pending approval and are well defined. Given this feature, RWBC developed a quantitative approach to test the accuracy of trends in forecasting future costs. This approach compares the cumulative expected value of trends compared to the cumulative value of approved changes over time.

Given that trends are leading indicators of potential costs, it would follow that under a theoretical case the cumulative value of expected trends over time, when graphically shown, would be a step function leading realized costs (change orders)⁸ as shown in Figure 2, below.

Figure 2 - Theoretical plot of cumulative trends versus cumulative change orders



Using this approach we extracted change order data (date, amount) and trend data (trend value, probability of occurring, date) for each of the five projects evaluated. We converted these values to cumulative values under a normalized project time scale (conversion of time expended to 100% basis). A metric was then developed for evaluating cost (similar analysis as for time). The metric is termed the Cost realization Rate (CRR) is reflects the ratio between the cumulative value of approved changes divided by the cumulative value of expected trends as shown in EQUATION 2, below

⁸ Exceptions may occur if trends represent scope reductions or credits which would, however the general concept is to highlight the fact that a trend is a leading indicator while an approved change order is a lagging indicator

EQUATION 2:

$$CRR = (\text{Cumulative Value of Approved Change Orders}) / (\text{Cumulative Value of Expected Trends})$$

A CRR ratio of 1.0 is considered to be the uniform condition where forecast costs and realized costs are the same. A CRR ratio less than 1.0 is considered to be a conservative condition as realized costs (approved change orders) are less than forecast costs (trends). A CRR greater than 1.0 means that realized costs are higher than forecast costs (non-conservative conditions). Note that the key element to preparing CRR (and TRR) is the creation of a common time scale to allow for both of these data points to be plotted concurrently: RWBC created a common percent-based timescale as the common thread on which both trends and approved change orders can be plotted. We also note that in preparing CRR and TRR there are project-specific conditions that must be understood to provide context to the data including variability in how trends are prepared by each project team, how the data is reflected in CMIS, and the project team's method for reporting on cost (and time forecasts). Several adjustments or notes are provided where there are extenuating circumstances that may warrant an adjustment to the CRR (or TRR).

Using this approach a wide range of analyses can be performed including creation of a weighted CRR portfolio value based on construction value; test of CRR trends (is CRR remaining flat or moving in a certain direction over time?), or evaluation of CRR swings to understand the nature of manifestation of events at the project level (lag in change order processing or large unforeseen condition for example). The CRR can be applied to FAC to test, based on the specific project team's experience, whether a premium or credit should be expected based on the CRR value through the date analyzed. The CRR captures the specific attributes of each project team: how they capture information, the management experience used in assigning probabilities to an event occurring, in short it is a metric that captures the specific behaviors of the project management team in forecasting costs.

Using a similar approach we calculate the Time Realization Rate (TRR) as shown in EQUATION 2A:

EQUATION 2A:

$$TRR = (\text{Cumulative Value of Approved Time Extensions}) / (\text{Cumulative Value of Time Identified In Trends})$$

A TRR ratio of 1.0 is considered to be the uniform condition where forecast costs and realized costs are the same. A TRR ratio less than 1.0 is considered to be a conservative condition as realized costs (approved change orders) are less than forecast costs (trends). A TRR greater than 1.0 means that realized costs are higher than forecast costs (non-conservative conditions).

THROUGHPUT METHODOLOGY FOR EVALUATING WORK IN PLACE PERFORMANCE

As used in this report, throughput measures the rate at which work in put in place compared to the rate at which the performance period is consumed. Throughput analysis is another mechanism used to evaluate whether work is being performed at a rate that is adequate to achieve completion within the performance period. For this report we define throughput as set forth in EQUATION 3

$$\text{EQUATION 3: } \textit{Throughput} = \frac{\textit{Percent Work In Place}}{\textit{Percent Time Expended}}$$

EQUATION 3 is further expanded as follows:

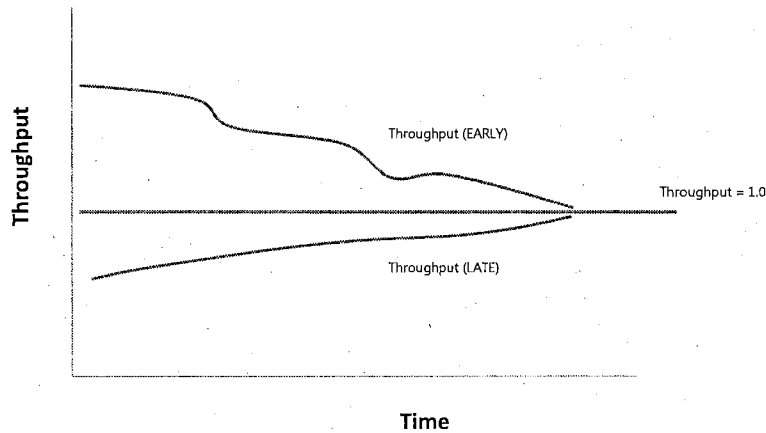
$$\text{EQUATION 3A: } \textit{Throughput} = \left[\frac{\textit{Percent Construction Expended}^9}{\textit{Current Construction Contract Value}} \right] / \left[\frac{\textit{Data Date-Notice to Proceed}}{\textit{Final Completion-Notice-to-Proceed}} \right]$$

A throughput value of 1.0 would mean that work is being accomplished at the same rate that the performance period is consumed, a uniform condition. A throughput value less than 1.0 means that time is being expended faster than the work is being put into place. Meanwhile a throughput value greater than 1.0 shows that the rate at which work is accomplished is greater than the rate at which time is consumed. It is recognized that project throughput performance works more like an S-curve with a higher value of throughput towards the end of the project. To incorporate this feature we evaluate the throughput performance for a defined period using planned (late and early) versus actual performance values as bookends of acceptable performance. Ultimately, when all work is completed the work in place and time will both be 100% resulting in a throughput equaling 1.0¹⁰.

⁹ Percent construction expended including retainage.

¹⁰ Extenuating circumstances may occur where projects that are late in completion and for which time has not been approved may result in end conditions where throughput is not 1.0. However, such cases would yield results that would fall outside the defined bookends and would contain explanations for such results.

Figure 3 - Theoretical throughput curves (Early, Late, and Normalized)



METHODOLOGY FOR EVALUATION OF PROJECT CRITICALITY AND SCHEDULE

Each project within the WSIP is contractually required to have the general contractor prepare a project schedule using the critical path method (CPM). The CPM method is a scheduling technique developed in the 1950's by Morgan R. Walker of Dupont and James E. Kelley, Jr. of Remington Rand. The key feature of a CPM schedule is the identification of the project's critical path, which is defined as the longest path of planned activities covering the project's performance period within which any activity delay will result in a day-for-day delay to the end date of the entire project. A critical path activity is any activity on the critical path. The criticality of a project is defined as the number of activities on the critical path compared to the total value of activities in the project's schedule. This measure is important as the higher the number of activities on the critical path, the higher the probability that such activity may be impacted and cause a delay to the project: or viewed from a different perspective, the less flexibility the project implementation team has in re-sequencing activities to maintain an end date. We measured the criticality of a project in the following manner:

EQUATION 4:

$$Project\ Criticality = (Number\ of\ Critical\ Path\ Activities) / (Total\ Open\ Activities)$$

TASK A: Examine the Process for Forecasting Cost Estimate at Completion (EAC) and Schedule at Completion (SAC)

This section is divided into subsections containing a project-by-project analysis for the five projects evaluated, overall conclusions, findings, and recommendations associated with each project. The last part of this section compiles all project EAC/SAC analysis into top level observations which are reflected in the EXECUTIVE SUMMARY.

The analysis for each project is comprised of a general background section providing general project information, any unique characteristics of each project, observations captured during site visits and project team interviews, throughput analysis, project criticality analysis, CRR/TRR, and an independent evaluation of budget versus forecast cost to completion. Based on these analysis we provide our recommendation on the likelihood that a project may finish as forecast by the WSIP program team.

PROJECT ANALYSIS: Calaveras Dam Replacement (CUW37401)

PROJECT SCOPE

The Calaveras Dam Replacement project (CDR) is a project to replace the original dam which is seismically unsafe with a new 210-foot high earth and rock fill dam designed to accommodate a maximum credible earthquake on the Calaveras Fault. The new dam will be constructed immediately downstream of the existing dam and have a crest length of 1,210 feet, a base thickness of 1,180 feet, and a crest thickness of 80 feet. The total volume of the dam will be approximately 2.8 million cubic yards. A new spillway, stilling basin, and intake tower/shaft are also part of this project. The drain line and three adits from the existing facility will be connected to the new shaft. The existing dam will largely remain in place but will be modified to accommodate the construction and operation of the new replacement dam. The replacement dam will restore the original reservoir capacity, and it will be designed such that it can be raised to accommodate potential reservoir enlargement in the future. Additionally the Alameda Creek Diversion Dam (ACDD), which diverts water from Alameda Creek to Calaveras Reservoir, will be modified with a new flow bypass tunnel and valve to allow for downstream flows below the ACDD. The bypass flows at ACDD, together with flow releases from new low-flow capacity valves installed at the base of the replacement Calaveras Dam, will provide water downstream of these facilities to support native aquatic resources and future population of steelhead trout that are being restored to the Alameda Creek Watershed.

CHARACTERISTICS OF PROJECT:

CDR is technically a very difficult project. For example, the movement of 2.8 million cubic yards is rendered very challenging when introducing constrained site conditions, fill material that contains naturally occurring asbestos (NOA), and coordination of work with multiple environmental regulating agencies, each with significant influence in their ability to impact work activities. Over 1 million cubic yards of excavated will have to be 'double handled'; schedule delays required the project team to work with regulatory agencies to amend existing permits to accommodate for changes and delays associated protected species found on site and maintenance of environmental fencing, present but a few of the challenges the project team has to overcome when performing the work.

PROJECT STATUS AS OF SEPTEMBER 30, 2012 (DATA DATE):

The original base bid for construction totaling \$259,571,850 was awarded to Dragados USA, Inc/Flat Iron/Sukut Construction, Inc, Joint Venture. As of the data date there were 29 approved change orders with a total value of \$20,059,881.85 and additional time totaling 69 days, extending the project end date from August 13, 2015 to October 21, 2015 (Ref.). As of September 2012 the project was 26.29% completed (\$74,974,499 earned against a contract value totaling \$278,594,731.85). In June 2012 there was a significant unforeseen site condition encountered on the project pertaining to geologic conditions on the left side of the valley (looking downstream from the existing dam). This condition is located at a critical point in the construction of the new dam. Previous geotechnical testing performed during the planning and design phase did not reveal conditions which were encountered. Between June and September 2012, a large ancient landside was found to underlie the northern half of the left side of the valley.

Figure 4, below, shows the location of the encountered condition.¹¹

Figure 4 - Schematic Cross-Section of Observation Hill¹²

¹¹ November 7, 2012 SFPUC Memorandum

¹² November 7, 2012 SFPUC Memorandum (graphic)

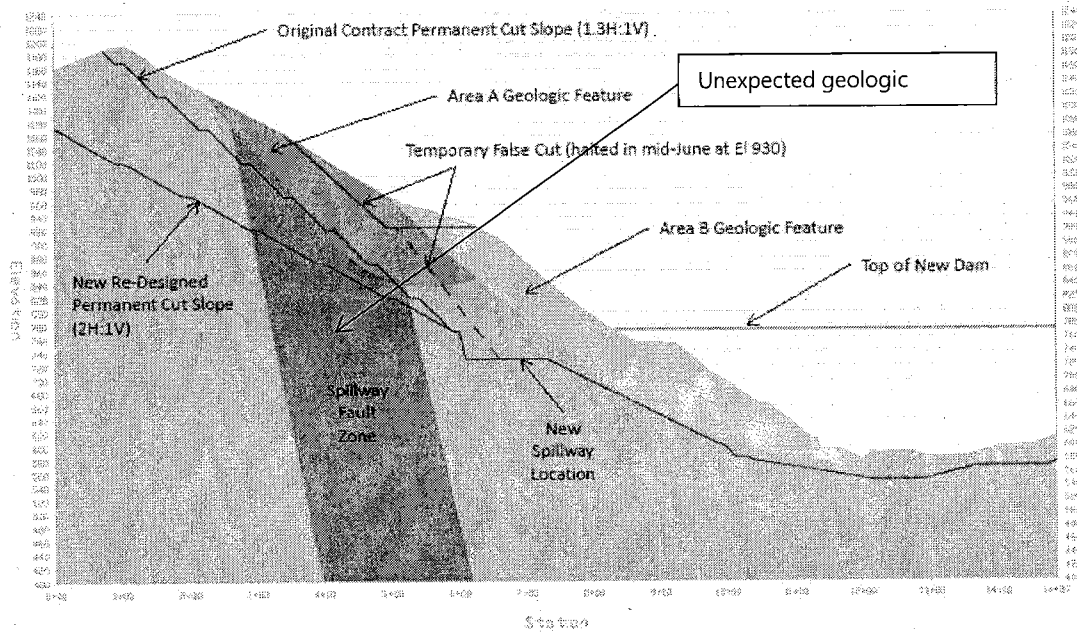
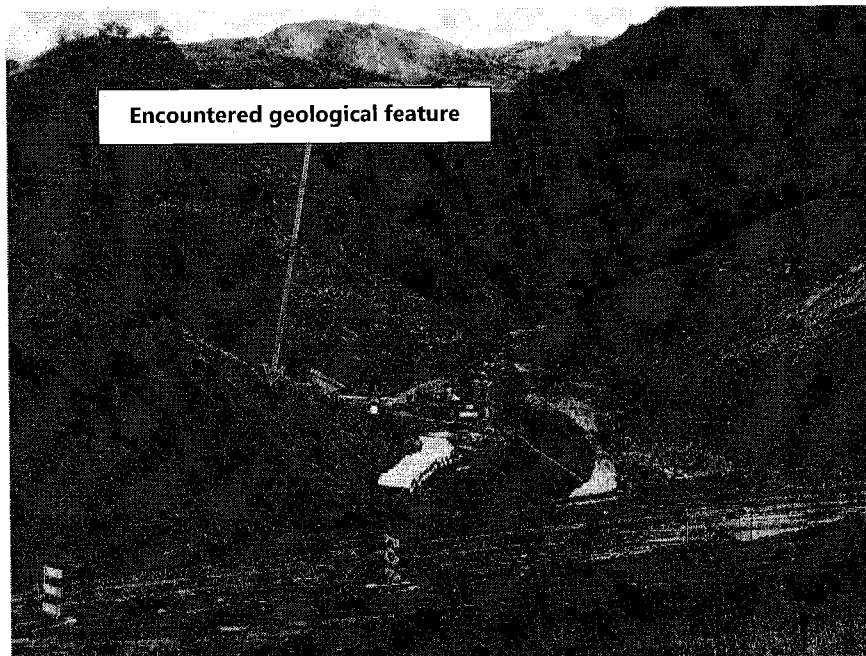


Figure 5 - Field photograph of encountered condition



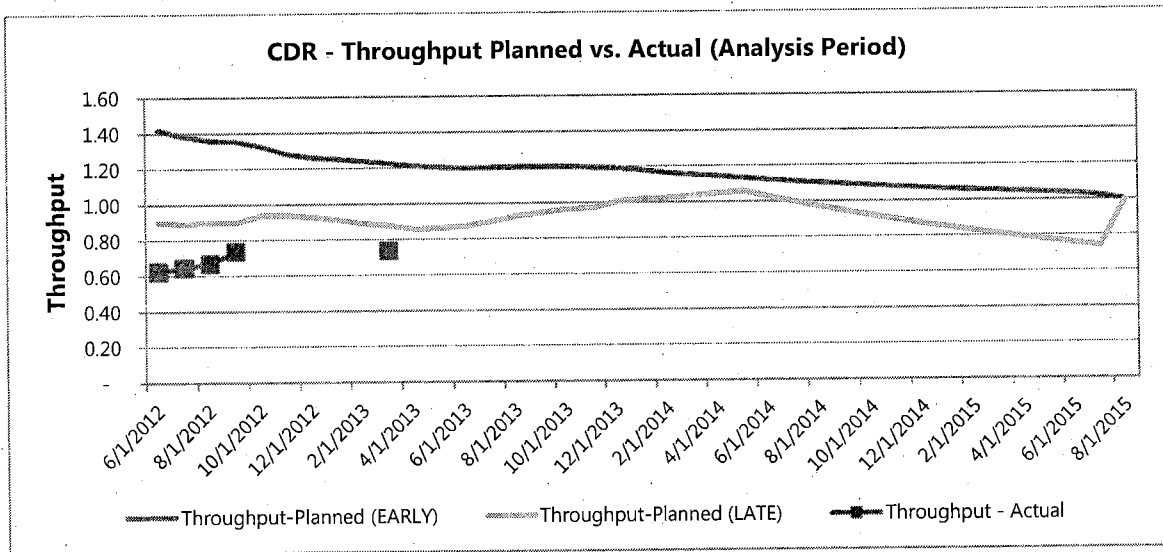
The initial estimated cost for addressing this uncovered condition totals \$133 million and a 25 month time extension to the project. The estimated amount is comprised of existing unit prices, new unit prices, acceleration, and general conditions costs. Additional costs are expected for soft costs and a re-baseline of project contingency will be needed, given that this project is only 26% complete and there are ample

opportunities to encounter additional costs. As of February 2013, the project team and the general contractor still have not agreed on elements of this change including the appropriate value of general conditions, lump sum work, or work to be performed under existing unit prices and new unit prices.

THROUGHPUT ANALYSIS CDR:

As described earlier in this report, RWBC evaluated the actual throughput achieved through the data date of September 30, 2012 and compared this value to the planned throughput under early and late start dates. The early and late throughput curves provide book ends against which actual performance is measured. It is important to note that a throughput curve based on early dates would assume that work in place is achieved at a rate faster than that at which time is consumed, while the inverse condition holds true for a throughput curve based on late dates. As shown in Figure 6¹³, actual performance to date falls below the late date throughput condition. Factors attributing to work not being placed at rates required to achieve contract performance periods at this time are primarily driven by the encountered geologic feature which slowed work activities significantly during June-November 2012. As of the end of February 2013, throughput for the project remained somewhat flat at 0.73¹⁴.

Figure 6 - CDR Planned Vs. Actual Throughput



¹³ Early and late date data extracted from WSIP Report "Planned vs. Actual Progress Performance, CUW37401: Calaveras Dam Replacement, September 25, 2012."

¹⁴ In calculation of throughput, the \$133M/761 day impact was not included in the calculation given the variability of resulting pricing at the end of negotiations.

PROJECT CRITICALITY ANALYSIS CDR:

As already indicated in the throughput analysis, work, as of the data date of September 30, 2012, is not progressing at rates initially planned. RWBC's analysis of CDR project schedules is also consistent with this trend as there was a material increase to activities on the critical path from 25% in June 2012 to 35% in September 2012. The more activities on the critical path the higher the probability for an impact to an activity that will impact the end date of the project. Contributing factors to this increase in schedule criticality are driven by the resolution of excavation/fill activities to mitigate naturally occurring asbestos (NOA) in soil being handled on the project, encountered geological condition, and environmental mitigation activities.

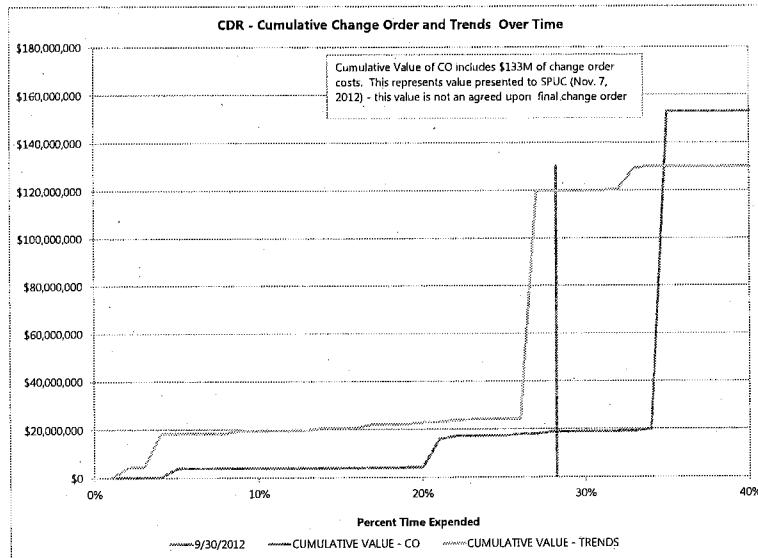
Table 2 - CDR project criticality analysis

Data Date	Total Activities	Open Activities	Critical Activities	% Critical	Period Change % Critical
	(A)	(B)	(C)	(D)=(C)/(B)	(E)
July 2012	3221	2338	583	25%	n/a
August 2012	3693	2747	736	27%	7%
September 2012	3652	2576	900	35%	30%

CRR ANALYSIS FOR CDR:

Underlying data used to calculate CRR values is contained in EXHIBIT 1 and EXHIBIT 2. The current CRR for CDR is 1.18, meaning the actual costs realized on this project exceed forecast trends. A decision was made by RWBC to include trend 00044 (the unexpected geologic condition) as an approved change with a value of \$133 million and a time extension of 25 months (761 days) as an approved change. We fully recognize that this trend has not formally been approved as a change order; however, it is a trend that is currently being negotiated with the contractor and for which initial work authorizations for portions of the work have been authorized under change orders #25, #26, and #27, and presented to oversight committees as a forthcoming change. It is our opinion that not including this information as a change order would not be reflective of actual project conditions. As shown in Figure 7 the cumulative value of trends is acting as the leading indicator while approved changes are the lagging indicator. The vertical line is the data-date line inserted for reference.

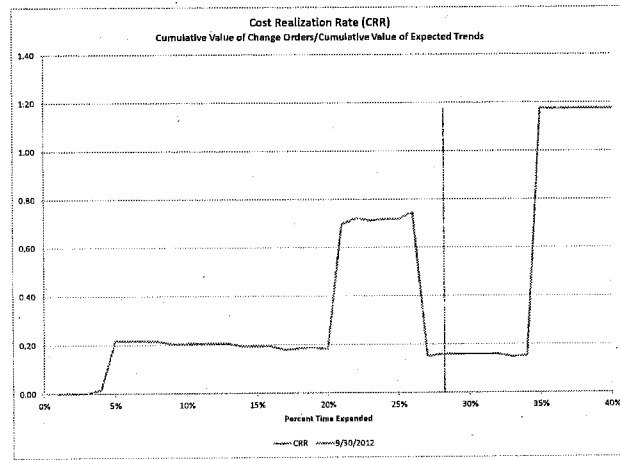
Figure 7 - CDR Cumulative Trends vs. Cumulative Change Orders



Another feature to be noted is the time-lag in conversion of trends to change orders¹⁵. One of the features shown in Figure 7 is there is a material period of time in the conversion of trends to change orders. Contributing factors include the complex nature of the work and the size of the proposed changes (e.g. Trend 00044-encountered geological condition). Using EQUATION 2, RWBC calculated the resulting CRR data for CDR as shown in Figure 8. The step functions prior to the introduction of costs associated with the unforeseen geological condition reflect a conservative cost forecasting methodology given CRR was less than 1.0.

¹⁵ A trend may not necessarily result in a change order. Conversely a change order may not have an associated trend. However if trends are to be used as the leading indicator of cost, we would not expect to have a material volume of change orders without trends

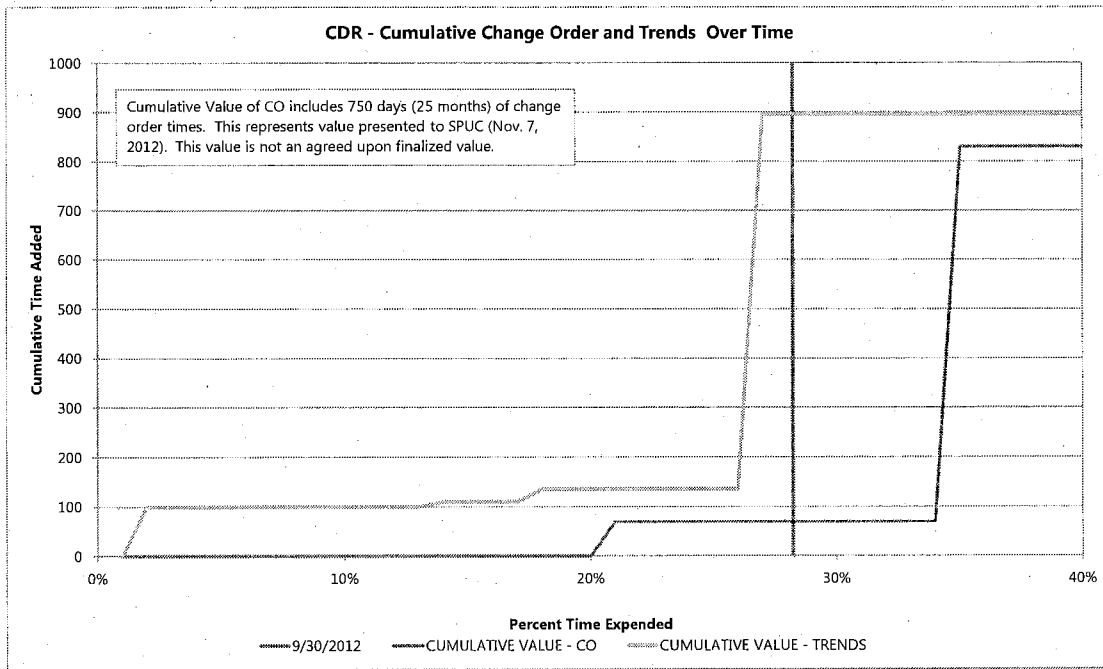
Figure 8 - CRR for CDR



TRR ANALYSIS FOR CDR:

As shown in EXHIBITS 1 and 2, there was also time associated with trends and approved change orders. Through change order 29 there were 69 days of time added to the base contract. To ensure reflecting most current project performance and consistent with CRR calculations, RWBC included the proposed 25-month extension in the approved change order time approval. Similar to the data used in calculating the CRR, we believe that including this information more accurately reflects project conditions, yet fully recognize that this is not yet an approved change. In calculating the TRR RWBC first plotted the approved time extensions identified under trends and through approved change orders, as shown in Figure 9, below.

Figure 9 - Cumulative time analysis (Trends vs. Change Orders)



The TRR for CDR is 0.93, as there were trends, aside from that pertaining to the encountered geological feature that included time for which a change order not been approved.

OVERALL OBSERVATIONS CDR:

This section provides our overall observations based on our review of this project as well as the basis for EAC and SAC analysis.

1. We found that the project team is technically competent and has a thorough understanding of the project technical and construction requirements. The joint venture general contractor appears to be working in a cooperative manner with the project team. We do note that this is the first time the joint venture team has worked together.
2. The encountered geological condition, presented as a \$133 million issue and contains a wide range of work elements, most notably: use of existing unit prices, introduction of new unit prices, lump sum costs, and general conditions costs. The 25 month time extension is comprised of two components (1) that pertaining to addressing the encountered conditions; (2) additional time to address other current and not-yet encountered conditions. We note that even if a change order is executed and agreed to by all parties there may be additional costs under the following conditions (a) overruns in unit prices [very difficult to ascertain actual quantities at this time]; (b)



availability of assumed borrow material as planned and with the required quality; and/or (c) environmental mitigation activities do not mitigate potential environmental issues that could impact the work. We also note that the \$133M budget does not include soft costs or environmental impacts, which are material values that will need to be added to the total impact of costs.

3. The encountered geological condition occurred early in the project (less than 30% complete). Given that the CDR is a technically difficult project with a constrained site (access, environmental, NOA, etc.) it would be imprudent to assume that there will not be any other changes aside from that already experienced or forecast. Even with a competent project team actively identifying and managing forecast trends, it is reasonable to expect that additional changed conditions will be encountered. Given this condition we projected budgetary performance using a 10% contingency based on forecast construction costs as shown below.
4. Using CRR and our contingency forecast, we project that the overall remaining budgetary requirement is \$67.9M above current budget approvals of \$574.5M. This projected value applies the project team's forecast for all project elements with the addition of CRR performance, and in this case, our estimate of what a reasonable construction contingency would be given the project requirements and stage of the work (35% complete as of Feb 2013). This value is being used as a data point to determine our recommendation on the likelihood CDR will finish on time and within budget. Figure 10 contains a summary of the calculations used to reach the overall budget forecast.

Figure 10 - CDR Projected Budget (RWBC)

Element	Amount	Reference/Comments
Current Construction Contract value	\$ 280,707,564	(Feb. 23, 2013 Contract Summary)
Potential changes	\$ 112,331,216	
Trends	26,017,074	Potential CO's included in CRR given there are material differences between owner and contractor pricing. (Feb. 23, 2013 Contract Summary)
CRR @1.18 (applied to Trends)	4,683,073	
Subtotal Construction:	423,738,927	
Contingency:	42,373,893	Recommended project contingency (10%)
Total Construction	\$ 466,112,820	

Project Budget:		
Project Management	\$ 13,878,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Planning	6,035,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Environmental	16,039,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Design	22,469,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Bid & Award	705,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction Management	74,080,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction	466,112,820	From above
Closeout	1,242,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
TOTAL Forecast	\$ 600,560,820	

Current Approved Budget:	532,638,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
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Variance Forecast vs. Current Approved Budget:	(67,922,820)	Forecast requirement based on CRR/Trends/Soft Costs
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OVERALL RECOMMENDATION:

Based on our review of CDR as detailed in the preceding section, we believe that it is unlikely that this project will be completed within the current budget and time. We would note that this conclusion is the result of very significant unforeseen condition, expected additional changes to be expected given the project is only 35% completed (February 2013), the potential for additional costs in performing the change resulting from trend 00044, as described in more detail in the preceding sections, and the fact that throughput is materially below both early and late date thresholds. Even with a 25 month time extension there are significant opportunities for time overruns including potential impacts associated with actual conditions when addressing the encountered geological condition; inability to access borrow sites as planned; and other associated impacts. We also believe that the impacts, regardless of severity, would be significantly worse had it not been for the project team working to mitigate issues and identify workarounds very technically challenging issues.

PROJECT ANALYSIS: Crystal Springs/San Andreas Transmission Upgrade (CUW37101)

PROJECT SCOPE:

The Crystal Springs/ San Andreas (CSSA) Transmission System is a series of inlet and outlet structures, pipelines and pumping facilities that move water from the Crystal Springs Reservoirs north to San Andreas Lake and the Harry Tracy Water Treatment Plant, and then into the water distribution pipelines. This system ensures that the Peninsula's emergency and supplemental water supply can be quickly moved into the water pipes leading to our taps. The construction contract for CSSA was awarded to Kiewit Infrastructure West with a NTP date of December 1, 2012. The project area (including all construction, staging, and access areas) covers approximately 135 acres and is comprised of seven distinct project components running approximately 7.6 miles across the Peninsula Watershed. The project includes upgrades to the water transmission pipeline adjacent to the Sawyer Camp Trail, the outlet structures at Crystal Springs and San Andreas reservoirs, the Upper Crystal Springs Dam culverts, and the construction of a new Crystal Springs Pump Station. The project consists of improvements to facilities necessary to transport water from Upper Crystal Springs Reservoir, through the lower Crystal Springs Reservoir to San Andreas Reservoir, and ultimately, to the Harry Tracy Water Treatment Plant (HTWTP) Raw Water Pump Station. Specifically, improvements will be made to the Upper Crystal Springs Dam discharge culverts, the Lower Crystal Springs outlet structures, the Crystal Springs Pump Station (CSPS), the Crystal Springs/San Andreas Pipeline, and the San Andreas outlet structures¹⁶.

CHARACTERISTICS OF PROJECT:

Unique features of this project include underwater construction at Lower Crystal Springs Reservoir and San Andreas Lake where multiple differing site conditions have been found from planned conditions. Work at these underwater locations require divers working at depths of 110' in depth. This project is also located in an environmentally sensitive area (protection of wildlife and water quality during construction). This project is a large yet disparate project site, with 7 distinct locations comprising 135 acres over 7.6 miles across the Peninsula Watershed. Another project feature is the fact that the general contractor staff outnumber project management/construction management staff by a ratio of 2:1 by our estimates based on interviews during our site visit. Issues have been found with the underwater structures and differing site conditions. Given the disparate nature of the work, this project can be thought of a seven disparate sites that have to be managed as a whole. In addition, this project requires multiple phased shutdowns which have interdependencies on other projects in the WSIP.

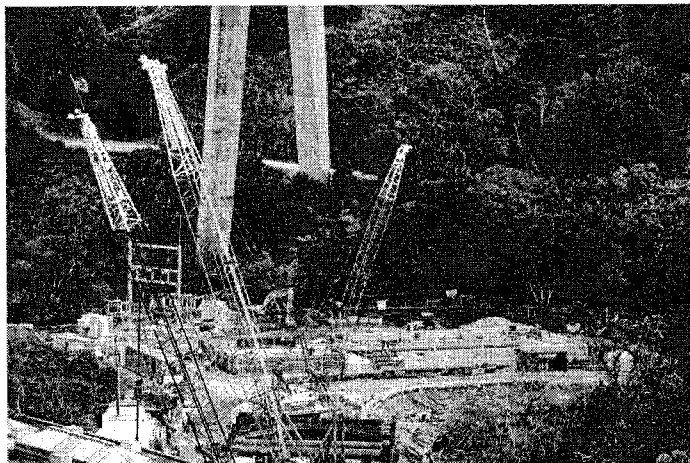
¹⁶ WSIP Quarter Report, June 2012 and site visit on December 6, 2012.

Project records show there is a large volume of project correspondence pertaining to progress on the project, requests for recovery schedules, and a very high number of Requests for Information (RFIs) (1085 ea). The number of RFIs on this project is the highest of the five projects reviewed. In and of itself RFI volume may be indicative of poor design (e.g. hence high number of questions), a general contractor attempting to structure a position on the project, or other condition. Regardless of the merit of an RFI, each RFI has to be reviewed and responded to, which consumes construction management project staff. We found that the contractor team and construction/project management team were working in a somewhat strained relationship.

PROJECT STATUS AS OF SEPTEMBER 30, 2012 (DATA DATE):

On September 7, 2010 the construction contract for this project was executed with Kiewit Infrastructure West, Inc. (Kiewit) for a value of \$99,763,000. A notice-to-proceed was awarded on December 1, 2010

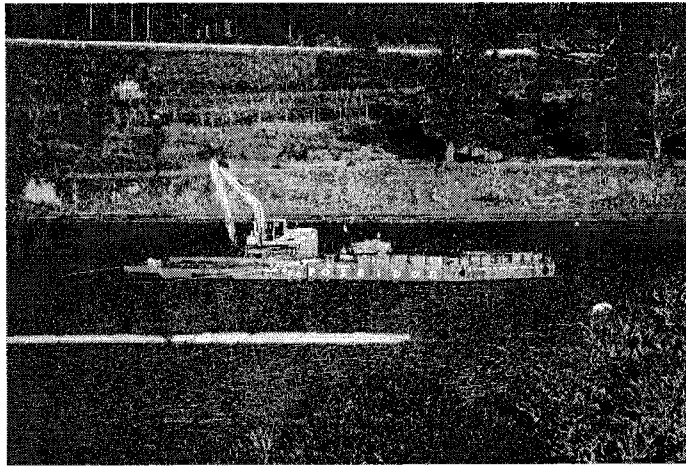
Figure 11 - CSSA Project Site



with a 920 day construction period ending on August 6, 2013. To date a total of 90 change orders have been approved with an aggregate value of \$4,067,499.39 (EXHIBIT 3) with no additional time added to the project. This project is in construction and is 49.5% complete as of the September 30, 2012 data date. Construction was in progress at both the Lower Crystal Springs Reservoir and San Andreas Lake. Barges, cranes and other equipment were visible at the project site with divers still working on the outlet structures, tunnels and pipes that move water from the reservoirs to the Harry Tracy Water Treatment Plant. Work was also observed on the new Crystal Springs Pump Station and on seismic improvements to the water pipeline that runs adjacent to Sawyer Camp Trail. Short intervals of trail closure are necessary to complete the work. Given the environmental sensitivity of the Peninsula Watershed, the project team is

carefully focused on protecting species and water quality. The Crystal Springs Reservoir System serves as the emergency water supply for over one million people in San Mateo and San Francisco Counties. Based on our site visit December 6, 2012, we concur with the project progress reported to date¹⁷. As of December 31, 2012 the project was 66% complete.

Figure 12 - CSSA Project Site - marine construction



THROUGHPUT ANALYSIS CSSA:

RWBC evaluated the actual throughput achieved on the CSSA project through the data date of September 30, 2012 and compared this value to the planned throughput under early and late start dates. We provided an additional data point as of December 31, 2012. Figure 12, below, shows that actual performance to date follows the late date throughput condition, yet within acceptable levels. We do note, however, that actual throughput performance has not yet increased and remains steady around 0.80. Factors attributing to work not being placed at improving throughput rates includes delays to the outfall structures given unforeseen conditions encountered, general contractor generation of high volume of RFIs (1085 as of 12/31/12 – the highest volume of all projects evaluated, see Figure 14, below), requirements to re-sequence the work/issuance of recovery schedules; and resolution of unforeseen conditions in a marine environment.

¹⁷ Site visit did not entail a detailed inspection of field installed quantities but to gather sense whether reported progress to date reflected actual project conditions.

Figure 13 - Throughput analysis CSSA

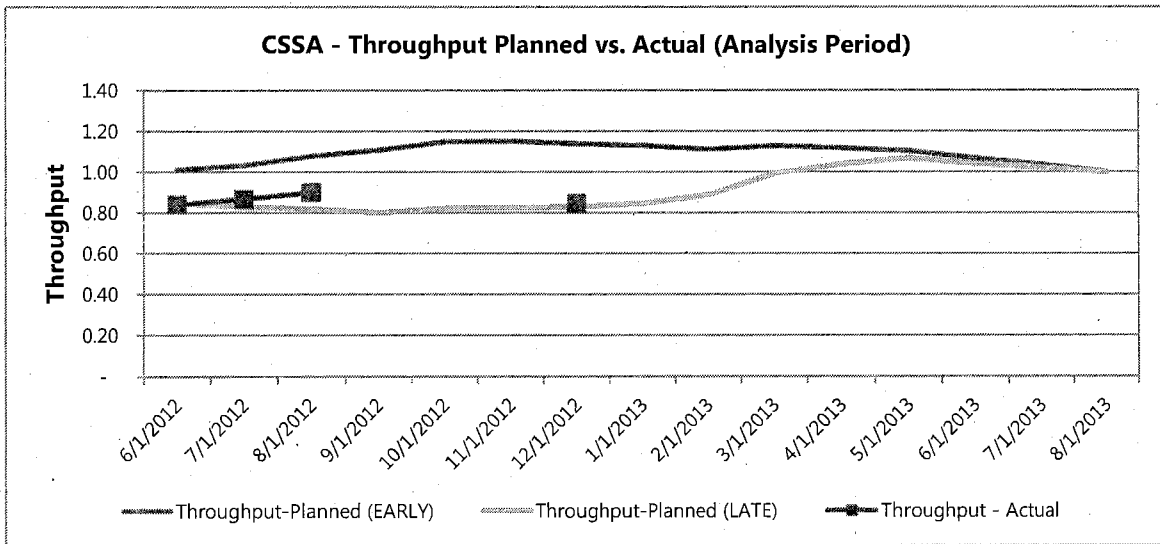


Figure 14 - RFIs CSSA

Period	RFI (EA)
June 2012	785
September 2012	180
December 2012	120
Total thru 12/31/12	1085

PROJECT CRITICALITY ANALYSIS CSSA:

As shown in Figure 13, the throughput performance on the CSSA project is within the acceptable early and late boundaries, however the project performance remains flat, still trending on the late start throughput boundary. This trend highlights the fact that to maintain existing project performance completion dates there will need to be a materially increased in productivity on a project site that is not conducive to high production work (multiple constrained locations in a geographic disparate area for example). The criticality of the project also reflects this trend as near half (45%) of open activities on the project are on the critical path as shown Figure 15, below. We also note the rate at which this criticality is increase (28% between July – August 2012 and 13% between August – September 2012).

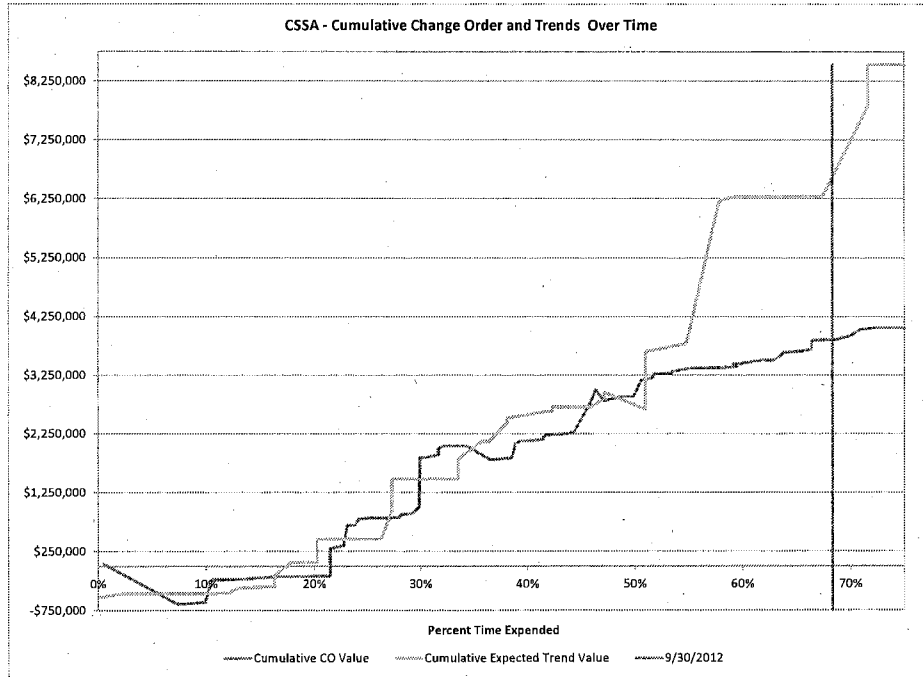
Figure 15 - CSSA Project Criticality Analysis

Data Date	Total Activities	Open Activities	Critical Activities	% Critical	Period Change % Critical
	(A)	(B)	(C)	(D)=(C)/(B)	(E)
July 2012	2734	969	302	31%	n/a
August 2012	2762	829	331	40%	28%
September 2012	2788	796	360	45%	13%

CRR ANALYSIS FOR CSSA:

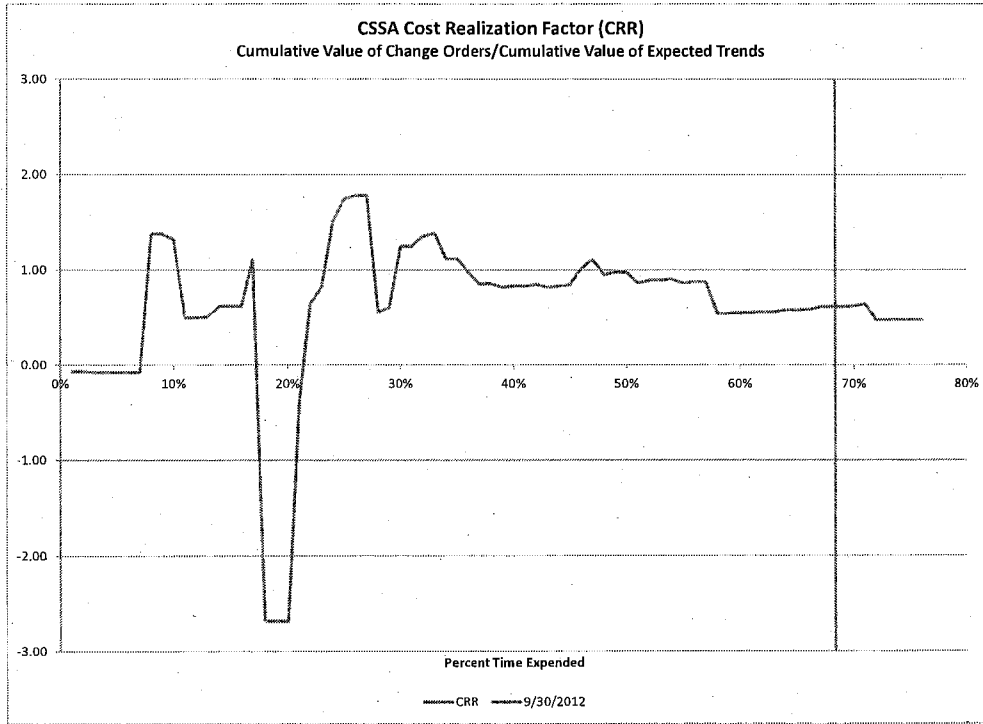
Similarly to CDR, the underlying data used to generate CSSA's CRR is contained in EXHIBITS 3 and 4, respectively. As shown in Figure 15, below, through April/May of 2012 (roughly 50% of time expended) the cumulative value of trends closely followed that for the cumulative value of change orders. From April/May 2012 through the project data date (September 30, 2012) and through the last trend captured (December 13, 2012), there is a bifurcation where the cumulative value of trends is increasing at a rate much faster than change orders being approved. Based on the trend information reviewed, the bifurcation starting at 50% is driven by trends associated with culvert stabilization, phasing adjustments, re-sequencing of work and potential acceleration. We believe a driving reason is that there are elements which the project team and contractor cannot readily come to agreement. This observation is based on interviews performed at the project site, the number of RFIs and nature of RFIs, and the fact that for 50% of the project performance period there rate at which trends were realized into change orders almost reflected the theoretical case shown in Figure 2.

Figure 16 - CSSA Cumulative change order and trends over time



The CRR for CSSA, through December 13, 2012, is 0.48 as compared to the CRR of the data date (September 30, 2012) which was 0.56. As shown in Figure 17 and explained in the preceding section, the decreasing CRR is driven by what appear to be unresolved pricing items. We note that this project has already 90 approved change orders, the highest value of changes to date, as well as 1085 RFIs, the highest value of request for information submitted by the general contractor. Given the bifurcation and the materiality of this bifurcation we will use performance through 50% of the project which we believe is reflective of future budgetary performance, once the backlog of potential changes is cleared (CRR = 0.98). We also note that as of the February 26, 2013 data date, the total aggregate value of trends reflected on the WSIP CSSA project summary report has increased to \$16,279,451.

Figure 17 - CSSA CRR



TRR ANALYSIS FOR CSSA:

The TRR for CSSA is 0 as there have been no time extensions approved through construction change orders. Conversely, there is a total of 180 days shown on trends. While performing our site visit on December 6, 2012, we discussed the fact that there were multiple recovery schedules previously submitted or under review. The underlying issue discussed being a difference of opinion on the entitlement for time between the contractor and the construction management team. We expect that although no trends show additional time, that time will be most likely added to the project. Factors for this conclusion include the project criticality, high value of time forecast under trends and the bifurcation in forecast impacts versus actual time approvals.

OVERALL OBSERVATIONS CDR:

This section provides our overall observations based on our review of this project as well as the basis for EAC and SAC analysis.



1. We found that the project team is technically competent and has an accurate understanding of the project technical and construction requirements. The general contractor and construction management team appear to have a strained relationship. Symptoms include very high level of project correspondence and tone of such, high number of RFI's, and based on field observations of project team meeting and interviews with project and contractor staff.
2. 45% of the open activities are on the critical path which provides the contractor ample changes to impact the critical path on a wide range of activities. Coupled by the fact that throughput is 0.80 (at the edge of late throughput performance) and a project side/type of work that does not lend itself to high levels of acceleration (without significant cost), creates a situation where many activities and production rates have to be executed exactly right for the project to be completed on time and on budget.
3. The bifurcation between trends and realized changes is a material change to project performance. For the first half of the project (Figure 15), the project team realized exemplarity rate of conversion between forecast trends and approved change orders (CRR = 0.98). This performance has decreased to a CRR of 0.56. We believe there are important challenges preventing resolution of these trends (which may include recovery schedules and/or accelerations (working multiple sites at once).
4. Using the CRR, we project that the overall budget shortfall of \$18.7M above the currently approved budget of \$164.7M. This projected value applies the project team's forecast for all project elements with the application of CRR performance to the current value of trends, plus our recommended value of contingency based on project performance to date (66% complete yet 45% of open activities on critical path and a sharp increase to the value of trends).
5. Given the criticality of the project, the fact that there have been more than one recovery schedule required to be submitted by the general contractor, and trends that show 180 days of potential time impacts, we believe that a material change to project time should be expected. As February 26, 2013 the total forecast time exposure increased from 180 to 434 days (52 days for potential change orders and the balance, totaling 382 days, in trends).

Figure 18 - CSSA Budget Forecast

Element	Amount	Reference/Comments
Current Construction Contract value	\$ 103,580,514	(Feb. 26, 2013 Contract Summary)
Pending and Potential changes	6,870,934	(Feb. 26, 2013 Contract Summary)
Trends	16,279,451	(Feb. 26, 2013 Contract Summary)
CRR @ 0.98 (applied to Trends)	(325,589)	
Subtotal Construction:	126,405,310	
Contingency:	6,320,266	Recommended project contingency (5%)
Total Construction	\$ 132,725,576	

Project Budget:		
Project Management	\$ 5,709,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Planning	3,985,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Environmental	3,945,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
ROW	56,000	
Design	11,380,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Bid & Award	942,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction Management	23,669,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction	132,725,576	From above
Closeout	456,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
TOTAL Forecast	\$ 182,867,576	

Current Approved Budget:	164,722,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
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Variance Forecast vs. Current Approved Budget:	(18,145,576)	Forecast requirement based on CRR/Trends/Soft Costs
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OVERALL RECOMMENDATION:

Based on our review of CSSA s detailed in the preceding section, we believe that it is somewhat likely that this project will finish on time and within budget. Reasons behind this conclusion include the high level of project criticality, a projected budget overrun of \$18.1M (see figure above) a work site and nature of work that is not conducive to high degree of acceleration or productivity increases, coupled with lower than planned productivity (throughput) levels realized to date. Further pressuring this project are budgetary constraints and the need to ensure adequate contingencies are in place to complete the work as required.

PROJECT ANALYSIS: Harry Tracy Water Treatment Plant (HTWT) (WD2596)

PROJECT SCOPE HTWT:

The Harry Tracy Water Treatment Plant (HTWT), in conjunction with the Crystal Springs Reservoir System (Upper and Lower Crystal Springs Reservoirs) and San Andreas Lake, serves as the emergency back-up and supplementary water supply system for the entire San Francisco Peninsula. This project is to improve delivery reliability and provide seismic upgrades at this regional water treatment plant to achieve a sustained capacity of 140 million gallons per day (mgd) for at least 60 days, and to provide 140 (mgd) within 24 hours following a seismic event on the San Andreas Fault. The sustainable capacity would be provided through the addition of filters, upgrades to various systems, and seismic retrofits of critical process units. The project consists of: seismic and hydraulic improvements in various treatment units and includes expansion of the filtration process capacity by adding five new filters. In addition, a new 11 million gallon Treated Water Reservoir will be built to replace the existing two treated water reservoirs. The project also includes improvements to the sludge handling and washwater systems and provides a new additional washwater tank to enhance the plant's performance. Additional improvements are also planned for the electrical system including a new substation, switchgear, and motor control center. The project also includes improvement to key valves and pipelines conveying the raw water supply to the Plant and treated water to the distribution system¹⁸.

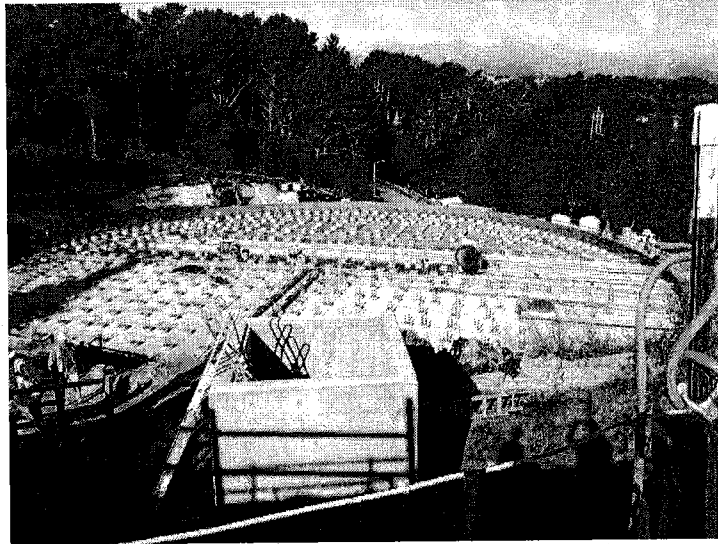
PROJECT STATUS AS OF DATA DATE (SEPTEMBER 30, 2012)¹⁹:

Construction for the HTWT project was awarded to Kiewit Infrastructure West, Co. for funds totaling \$174,197,000 and a construction period of 1445 days (starting on March 16, 2011 and ending on February 27, 2015). Through December 18, 2012 there were 59 approved change orders with an aggregate value of \$1,896,511.48. As of February 25, 2013, this project was shown as 35% completed. Major activities under construction included work on the 11 million gallon treated water reservoir, preparation for the planned shutdown, power installation, support of excavation (SOE) from East Chemical Storage Area and New High Rate Clarifiers, Operations Building renovations, underground foundations and electrical work, along with geotechnical investigation and foundation design for the Washwater tanks, and tunnel for 84" pipeline. The project worksite is unique in that it is a physically constrained site. The construction management team best summed the work site as 'performing very complex surgery on a patient that is awake'.

¹⁸ SFPUC Project Description – Quarterly Report 2012 (June 2012)

¹⁹ Where applicable we provide information subsequent to the agreed upon data date of September 30, 2012

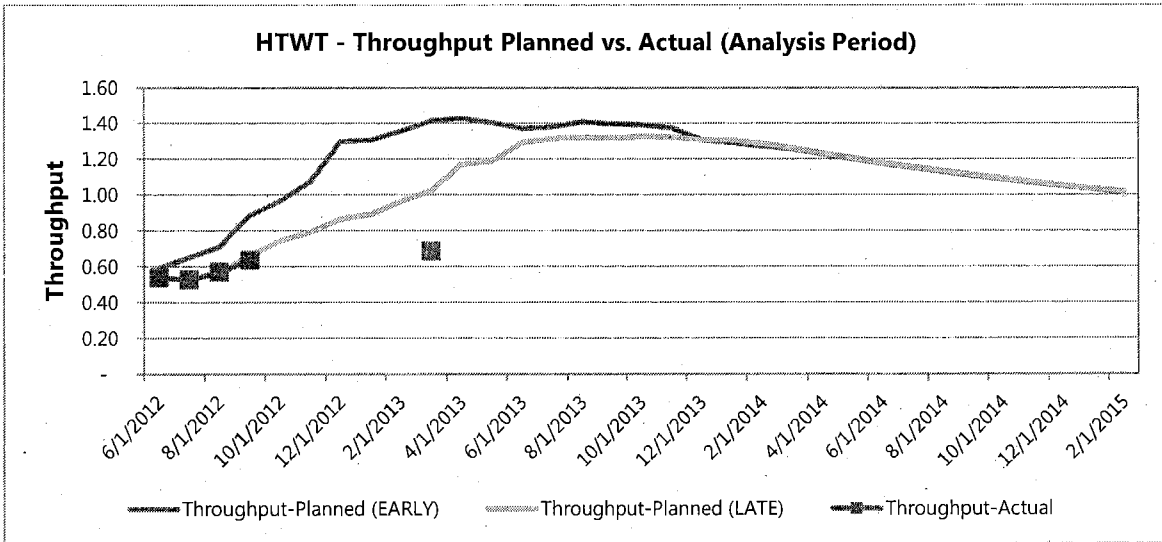
Figure 19 - HTWT Project Site



THROUGHPUT ANALYSIS HTWT:

RWBC evaluated the actual throughput achieved on the HTWT project through the data date of September 30, 2012 and compared this value to the planned throughput under early and late start dates. We provided an additional data point as of February 25, 2013. **Figure 12**, below, shows the results of our throughput analysis which shows that actual performance to date follows the late date throughput condition, however as of February 26, 2013, throughput performance has fallen significantly below planned levels (Planned (EARLY) = 1.41, Planned (LATE) = 1.02, ACTUAL = 0.69). Viewed from a different perspective, as of February 2013 50% of the project time remains but 66% of the work has yet to be completed. The accompanying project criticality analysis is consistent with lower than planned throughput performance to date.

Figure 20 - HTWT Throughput Analysis



PROJECT CRITICALITY ANALYSIS HWTW:

As shown in Figure 20, the throughput performance on the HTWT project was within the late throughput boundary but has subsequently fallen materially below this threshold (Figure 20). This trend highlights the fact that to maintain existing project performance completion dates there will need to be a significant increase in productivity (throughput) on a very constrained site and for which a significant shutdown must be adequately managed. However, the project analysis shows that only 9% of the non-completed activities are on the critical path. As shown in Figure 20, below, 70% of the total activities are either in progress or not complete, which follows the low percent of work in place accomplished to date.

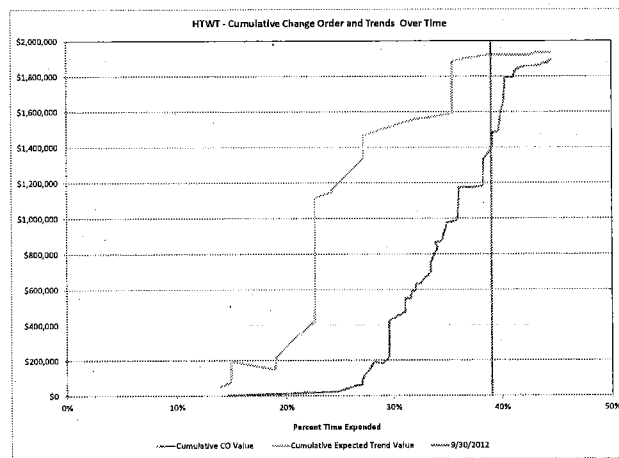
Figure 21 - HTWT Criticality Analysis

Data Date	Total Activities	Open Activities	Critical Activities	% Critical	Period Change % Critical
	(A)	(B)	(C)	(D)=(C)/(B)	(E)
July 2012	4884	3373	310	9%	n/a
August 2012	4916	3256	369	11%	23%
September 2012	4922	3162	282	9%	-21%

CRR ANALYSIS FOR HTWT:

EXHIBITS 5 and 6, respectively provide a detailed listing of all approved change orders and trends through December 2012. As shown in Figure 22 below, there is a convergence of trend and change order realization just past the data date of September 30, 2012. The CRR for HTWT is 0.62 through the data date and 0.98 through December 18, 2012. We note that the cumulative extracted from CMIS through December 2012 totals \$1.9M while that reported in February 2013 is \$9.4M.

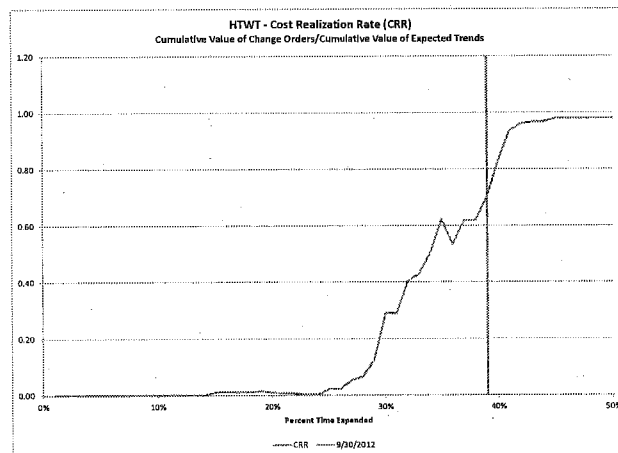
Figure 22 - HTWT Change orders and trends over time



TRR ANALYSIS FOR HTWT:

The TRR for HWTW is 0 as there were 20 days trended (Trend #16, 40 days x 50% probability) yet no time

Figure 23 - CRR for HTWT



has been approved on this project through change orders. Even through the February 26, 2013 Project Summary report, there is no additional time being forecast on the project. We caution that other factors

may be at play, such as a potential dispute over existing productivity rates and the reasons thereof, as only 34% of the project is complete yet 50% of the time has been expended.

OVERALL OBSERVATIONS HTWT:

This section provides our overall observations based on our review of this project as well as the basis for EAC and SAC analysis.

1. We found that the project team is technically competent and has an accurate understanding of the project technical and construction requirements. The general contractor and construction management team appear to have a somewhat strained relationship. On this project we noted the second highest levels of RFIs of all five projects studied as shown in Figure 24 (Highest value of RFIs on CSSA at 1085 EA).

Figure 24 - HWTW RFI

Period	RFI (EA)
June 2012	556
September 2012	121
December 2012	79
Total thru 12/31/12	756

2. Only 9% of open activities are on the critical path, yet we caution that 70% of total project activities are still open.
3. A TRR of 0 coupled with low throughput achieved to date creates a potential scenario where the need for time to be extended becomes increasingly important to the contractor as increasing throughput rates to complete the work will have to be materially higher than the rates achieved thus far on the project²⁰.
4. Using the CRR, we project that the overall remaining budget remaining is \$0.12M above the current budget approval of \$276.7M. This projected value applies the project team's forecast for all project elements with the application of CRR performance to the current value of trends, plus our recommended value of contingency based on project performance to date.

²⁰ Throughput required would be 1.32 (66% to complete/50% remaining time) vs. highest throughput achieved to date of 0.69; a 93% increase in throughput.

Figure 25 - HTWT Program Budget

Element	Amount	Reference/Comments
Current Construction Contract value	\$ 175,293,309	(Feb. 26, 2013 Contract Summary)
Pending and Potential changes	717,872	(Feb. 26, 2013 Contract Summary)
Trends	9,444,435	(Feb. 26, 2013 Contract Summary)
CRR @ 0.98 (applied to Trends)	(188,889)	
Subtotal Construction:	185,266,727	
Contingency:	13,895,005	Recommended project contingency (7.5%)
Total Construction	\$ 199,161,732	
Project Budget:		
Project Management	\$ 11,028,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Planning	4,816,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Environmental	1,862,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Design	19,533,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Bid & Award	1,041,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction Management	38,728,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction	199,161,732	From above
Closeout	855,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
TOTAL Forecast	\$ 277,024,732	
Current Approved Budget:	276,896,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Variance Forecast vs. Current Approved Budget:	(128,732)	Forecast requirement based on CRR/Trends/Soft Costs

OVERALL RECOMMENDATION:

Based on our review of HWTW detailed in the preceding section, we believe that it is somewhat likely that this project will finish on time and within budget. Had throughput performance to date been higher (0.8-1.0) we would have treated the slight projected budget overrun as acceptable (0.12M projected overrun). However the 0.69 actual throughput achieved to date is materially lower than the early and late thresholds of planned throughput ranging between 1.41 and 1.02, respectively. Further, we note that this is a very restricted site for which it is very expensive for a general contractor to significantly increase productivity without incurring significant costs.

PROJECT ANALYSIS: New Irvington Tunnel (NIT) (CUW35901)

PROJECT SCOPE NIT:

The NIT project is comprised of a new tunnel being constructed adjacent to the existing tunnel between the Sunol Valley south of Highway I-680 and Fremont, California. The new tunnel will provide a seismically-designed connection between water supplies from the Sierra Nevada Mountains and the Alameda Watershed to Bay Area water distribution systems. Not only does it provide a seismically sound alternative to the existing tunnel, the new tunnel will allow the SFPUC to take the existing tunnel out of service for much needed maintenance and repair. The NIT consists of an 18,300-foot long tunnel in a horseshoe shape with excavated dimensions of approximately 12 feet by 14 feet. The new tunnel alignment runs parallel and just south of the existing tunnel. The final tunnel lining will be slip-formed concrete, resulting in a finished diameter of about 9 feet. Steel liner segments will also be used at low cover areas near the portals and beneath Interstate 680, and where it intersects inactive fault zones or in location of poor ground conditions. Additional security related site improvements will be made at the existing Alameda West Portal and Irvington Portal²¹.

PROJECT STATUS AS OF DATA DATE (SEPTEMBER 30, 2012)²²:

On July 1, 2010 the construction contract was executed with Southland/Tutor Perini-JV for a base contract amount of \$226,657,700. The construction period started on August 26, 2010 and had an original contract duration of 1390 days, resulting in a planned end date of June 15, 2014. Through the data date there was \$12,405,390.25 of approved changes which also included 257 day of time added to the project. The project was 65% completed as of the data date of September 30, 2012. Through December 3, 2012 there were 72 change orders approved with an aggregate value of \$18,119,356.01. As of January 1, 2013 the project is 71.7% completed.

Beginning on November 5, 2012 through January 11, 2013 New Irvington Tunnel Crews will be working 24/7 at the Irvington Portal to complete the last of the planned connections between the new tunnel and the Bay Division Pipelines. The much longer 14,400-foot Alameda West-Vargas tunnel segment is currently being excavated and is expected to hole through in fall 2013. After that 102-inch diameter steel pipe will also be installed and welded together inside of the tunnel. A total 18,660 feet of welded steel pipe will be installed in the new tunnel. The pipes are the final liner of the New Irvington Tunnel, through which the pristine drinking water from Hetch Hetchy Reservoir will flow to the San

²¹ 01 WSIP JUN12 Regional Qtrly Rpt 4 Web data date 6/30/2012

²² Where applicable we provide information subsequent to the agreed upon data date of September 30, 2012

Francisco Bay Area. As of December 2012, excavation activities are progressing well at the two headings between Thomas Shaft and Alameda West Portal despite continued challenging ground conditions. As of December 25, 2012, the length of excavated tunnel totals 13,905 ft, which represents 74% of NIT's total length. Significant reduction in groundwater in the probe holes in both headings required less extensive drilling and grouting to reduce the groundwater inflows. Based on the current production rates, hole through in the second and final segment of NIT is expected by mid-2013.

Unique characteristics of this project is that it is one of the few project in the US to be mined using traditional mining methods (drill-blast vs. tunnel boring machine) which presented several challenges including identification and training of qualified labor. This project was also re-classified from a non-gassy to a gassy tunnel, which resulted in a material change to the project. Other challenges encountered during the project include higher than anticipated dewatering requirements and differing rock conditions. Based on our site visit, we found that the project team was very competent, clearly understood the technical requirements of the work and had developed a strong teaming relationship with the general contractor. The project team used sophisticated data analysis to evaluate actual conditions encountered on the project²³. Figure 26 highlights the type of information and data analysis used by the project team to track performance and use as tools to identify potential impacts in the execution of the work.

²³ In fairness to the other projects evaluated, tunnel projects do lend themselves to linear data analysis given the linear nature of the work.

Figure 26 - NIT graphical data analysis

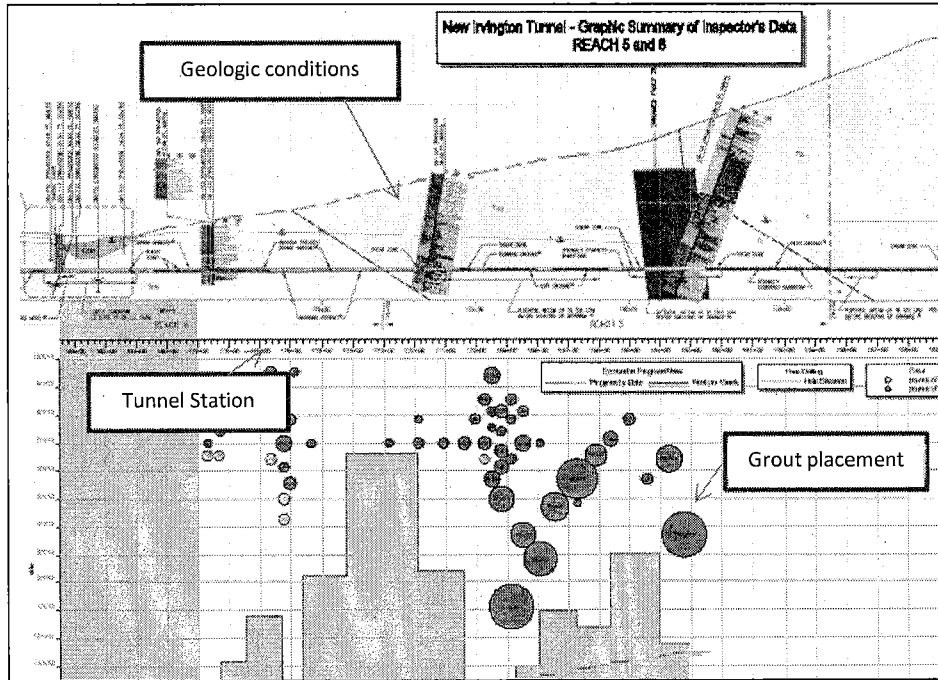
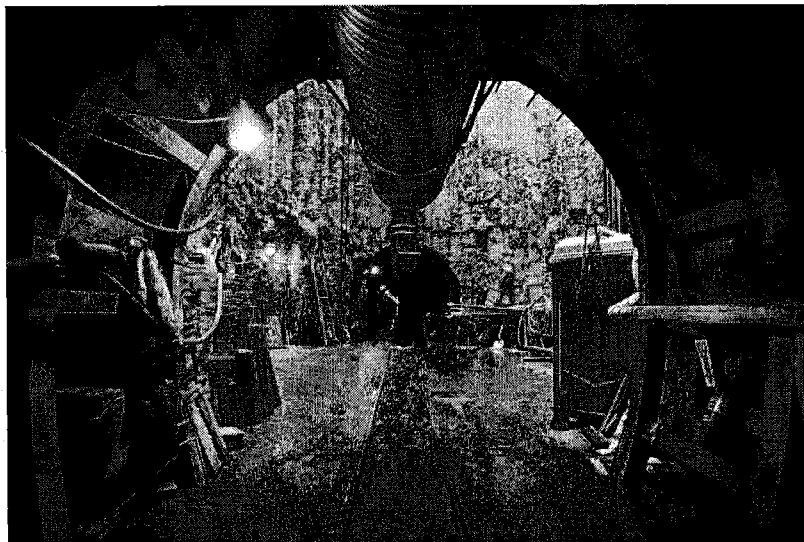


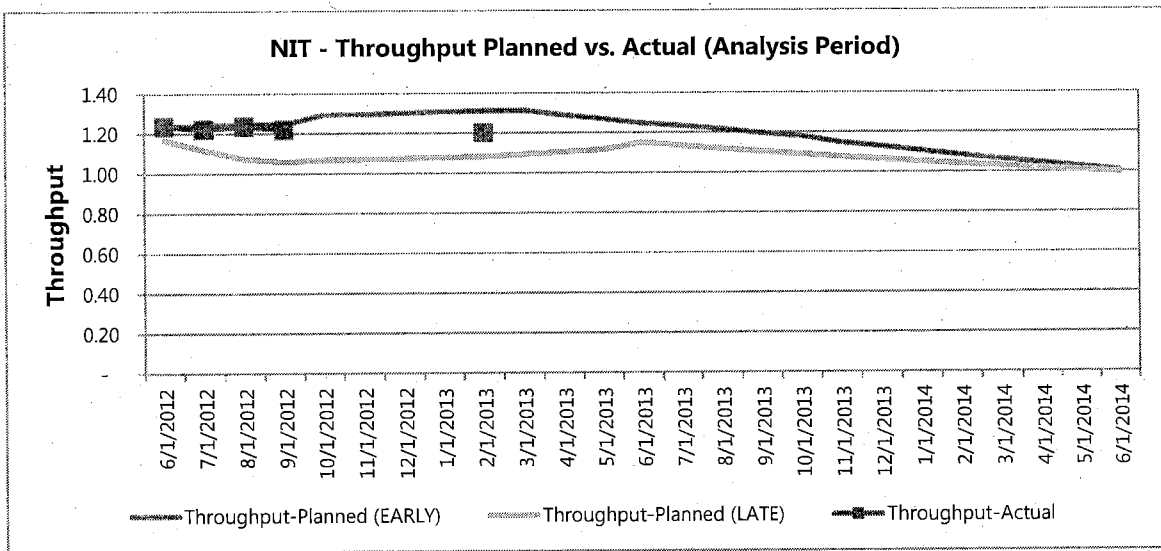
Figure 27 - NIT tunnel



THROUGHPUT ANALYSIS NIT:

RWBC evaluated the actual throughput achieved on the NIT project through the data date of September 30, 2012 and compared this value to the planned throughput under early and late start dates. We provided an additional data point as of February 25, 2013. Figure 26, below, shows the results of our throughput analysis which shows that actual performance to date is well within the required rates to meet overall project schedule requirements. As of September 30, 2012 throughput for NIT was 1.22 (compared to early and late throughput rates [boundary conditions] of 1.25 and 1.06, respectively).

Figure 28 - Throughput analysis NIT



PROJECT CRITICALITY ANALYSIS NIT:

The project schedule analysis shows that only 12.3% of the non-completed activities are on the critical path. As shown in Figure 29, below, 72% of the total activities are completed which is consistent with the reported project progress.

Figure 29 - NIT Project schedule analysis

Data Date	Total Activities	Open Activities	Critical Activities	% Critical	Period Change % Critical
	(A)	(B)	(C)	(D)=(C)/(B)	(E)
July 2012	1921	589	73	12.4%	n/a
August 2012	1922	584	73	12.5%	1%
September 2012	1867	521	64	12.3%	-2%

CRR ANALYSIS FOR NIT:

EXHIBITS 7 and 8, respectively provide a detailed listing of all approved change orders and trends through December 2012. As shown in Figure 32 below, there is a divergence of trend and change order realization just past the data date of September 30, 2012. The CRR for NIT is 1.66, however NIT contains certain cost features associated with allowances where the change orders were approved without the identification of a trend. As such we will use the CRR of 1.12 effective the data date of September 30, 2012, and recommend that if trends are to be used as a forecasting tool, that such tool should reflect upcoming forecast changes prior to a change order being identified.

Figure 30 - Change orders and trends over time

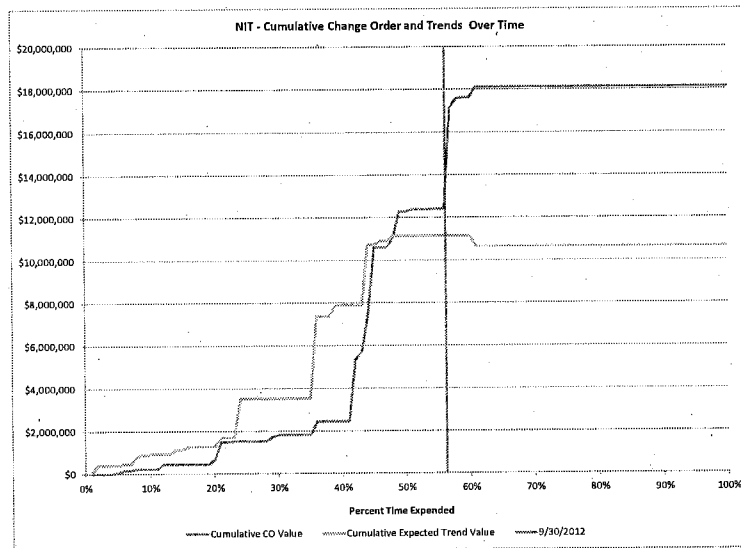
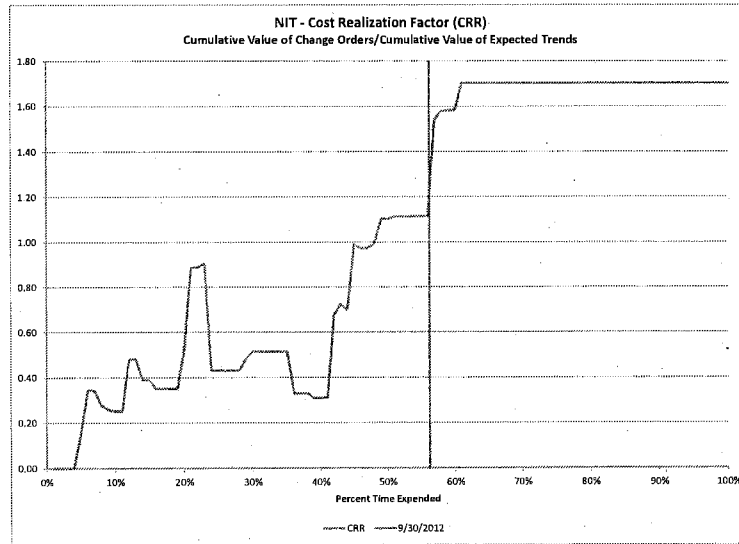


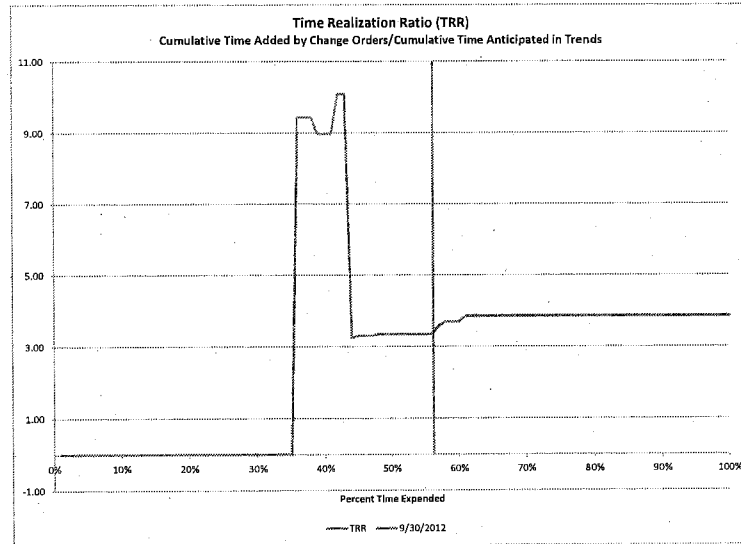
Figure 31 - CRR NIT



TRR ANALYSIS NIT:

The TRR for NIT is 3.85, however this value is skewed by 400 days approved under change order #1 for which the owner is contractually required to provide yet for which the time is must be supported in order to be added to the performance period. There was no trend associated with this change order. The TRR adjusted for change order #1 is 1.75.

Figure 33 - TRR NIT



OVERALL OBSERVATIONS NIT:

This section provides our overall observations based on our review of this project as well as the basis for EAC and SAC analysis.

1. We found that the project team is technically competent and has detailed understanding of the project technical and construction requirements. The general contractor and construction management team appear to have a strong teaming relationship and appear to work together towards project objectives.
2. Only 12% of open activities are on the critical path and the percent complete and balance to finish periods are supported by throughput rates within acceptable limits.
3. Application of TRR of 1.75 would yield a total required performance period of 1,903 days which is 113 days longer than the current allowable 1,790 day performance period. We also note that the throughput performance to date has been very favorable and given that it is within the acceptable productivity range the. Another contributing factor is that historically, the project team has added project time and cost for contractually delineated elements without a trend (e.g. grouting/dewatering) that resulted in an inflated TRR.

Figure 34 - Time forecast using TRR

Element	Days
Current Project Performance Time (including change orders)	1,390
Approved Change Orders	359
Potential Change Orders	12
Trends	81
TRR@1.75	61
TOTAL Expected Time	1,903
Revised contract time:	1,790
Expected additional time requirement based on TRR	(113)

- We recommend that the project team review its practices for treatment of trends on elements which may be contractually bound but which are only reflected as a change order with no trends, to ensure the final cost at completion is properly stated. If there is a condition where a change is shown without a trend, the project estimate could be potentially understated (granted is a temporary understatement).
- Using the CRR, we project that the overall projected budget is \$1.0M lower than currently approved. This projected value applies the project team's forecast for all project elements with the application of the adjusted CRR performance to the current value of trends, plus our recommended value of contingency based on project performance to date.

Figure 35 - NIT Budget Analysis

Element	Amount	Reference/Comments
Current Construction Contract value	\$ 244,777,056	(Feb. 26, 2013 Contract Summary)
Pending and Potential changes	3,754,409	(Feb. 26, 2013 Contract Summary)
Trends	5,297,500	(Feb. 26, 2013 Contract Summary)
CRR @ 1.12	635,700	
Subtotal Construction:	254,464,665	
Contingency:	2,544,647	Estimated required contingency (for analysis purposes) (1%)
Total Construction	\$ 257,009,312	

Project Budget:		
Project Management	\$ 6,632,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Planning	3,908,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Environmental	4,273,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Right of Way	2,416,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Design	16,085,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Bid & Award	725,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction Management	27,649,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction	257,009,312	From above
Closeout	206,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
TOTAL Forecast	\$ 318,903,312	

Current Approved Budget:	319,925,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Variance Forecast vs. Current Approved Budget:	1,021,688	Forecast requirement based on CRR/Trends/Soft Costs

OVERALL RECOMMENDATION:

Based on our review of NIT detailed in the preceding section, we believe that it is very likely that this project will finish within budget and on time. Although CRR and TRR are greater than one, throughput performance has been well within acceptable rates. Finally, although the overall time is projected to extend beyond current contract performance periods, there are mitigating contractual circumstances that may improve final performance.

PROJECT ANALYSIS: Bay Division Pipe Line (BDPL) Reliability Upgrade – Tunnel (CUW36801)

PROJECT SCOPE BDPL:

The BDPL is a tunnel project that extends 5 miles under San Francisco Bay and is adjacent to the marshlands between the vicinity of the Ravenswood Valve Lot and the Newark Valve Lot. The tunnel is constructed using a Tunnel Boring Machine (TBM) (as opposed to traditional mining methods used to excavate NIT). The final tunnel lining will consist of a 9-foot diameter welded steel pipeline. The tunnel will terminate on each end with vertical shafts and a connection to the BDPL Nos. 1, 2, and 5 piping manifolds. The two piping manifolds are provided under the BDPL Reliability Upgrade -Pipeline Project. The tunnel spoils are anticipated to be used as part of the conversion of adjacent salt ponds to marshland. The portion of the existing BDPL Nos. 1 and 2 that are replaced by the tunnel will be capped on each end and will be abandoned in place. The new Bay Tunnel will link the existing segments of BDPL Nos. 1 and 2 and the future BDPL No. 5 in the East Bay with those on the Peninsula. The existing portions of BDPL Nos. 1 and 2, which were built in the 1920's and 30's, lay along the bay floor and on trestles that cross over environmentally sensitive marsh land. The pipe and the trestle are in a deteriorated condition. The Bay Tunnel will bypass these environmentally sensitive wetlands²⁴.

PROJECT STATUS AS OF DATA DATE (SEPTEMBER 30, 2012):

The base construction contract totaling \$215,294,530 was executed on January 4, 2010 to Michaels/Jay Dee/Coluccio JV. The performance period for construction is 1857 days. As of September 30, 2012 there was \$3,759 added to the contract with no time extensions. As of the data date the project was 65% complete and 80% complete as of February 2013.

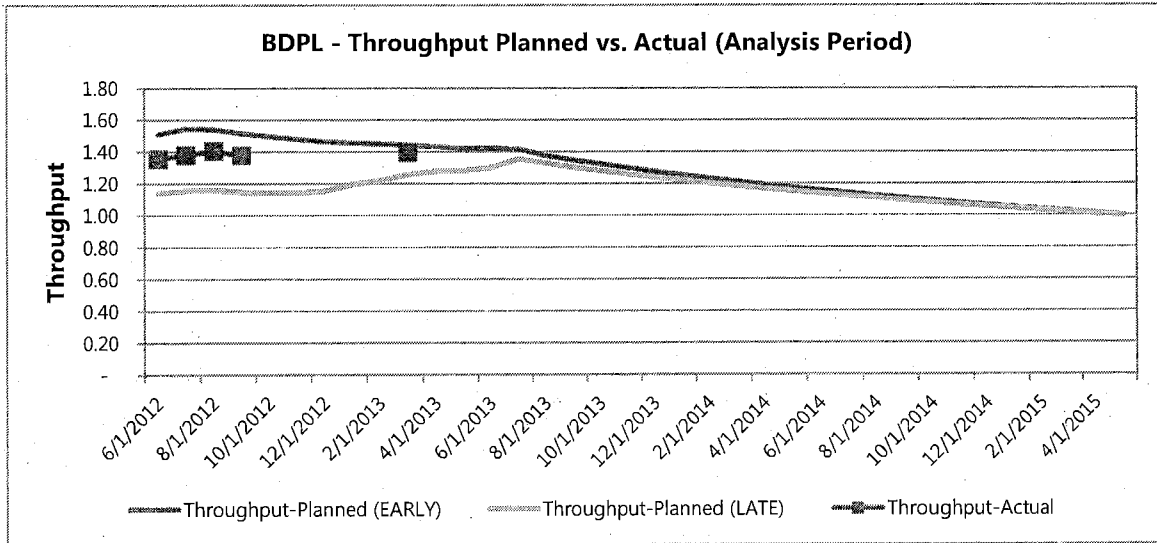
²⁴ WSIP JUN12 Regional Qtrly Rpt

Excavation activities were started in 2011 and as of September 2012 the TBM was in full production but additional challenges remain including: crossing three more levees, a Cargill pump station, Union Sanitary District's two force main sewer lines and our BDPL Nos. 1 and 2 before reaching the receiving shaft in Newark. Tunnel excavation has now progressed into a zone of the San Antonio formation where geotechnical investigation could not be performed during preconstruction. An increase in deep sand and gravel zones are being encountered and further ahead lay a 750-ft long section of the Franciscan rock formation, along with potentially less stable subsurface conditions. As of December 2012 a total of 25,735 feet of initial tunnel lining has been installed (98%). The contractor successfully tunneled the rest of the Cargill levees and the Caltrain Railroad, and through 750 feet of Franciscan rock. The contractor continued to advance proof grouting behind the TBD trailing system. The TBM receiving shaft at Newark is complete, with frozen shaft seal top-hat structure filled with bentonite fluid, and ready for the TBD arrival. As of December 2012 the overall construction progress is 77.8% complete.

THROUGHPUT ANALYSIS BDPL:

RWBC evaluated the actual throughput achieved on the BDPL project through the data date of September 30, 2012 and compared this value to the planned throughput under early and late start dates. We provided an additional data point as of February 25, 2013. Figure 26, below, shows the results of our throughput analysis which shows that actual performance to date is well within the required rates to meet overall project schedule requirements. As of September 30, 2012 throughput for NIT was 1.37 (compared to boundary throughput thresholds of 1.52 and 1.15 based on early and late dates). As of February 27, 2013 the actual throughput was 1.39 (compared to boundary throughput thresholds of 1.44 and 1.29 based on early and late dates).

Figure 36 - BDPL Throughput Analysis



PROJECT CRITICALITY ANALYSIS BDPL:

As shown in Figure 37, below, as of the data date (September 30, 2012), over 50% of the open activities are on the critical path. We believe that the strong throughput performance maintained through February 2013, and barring an unforeseen event, will ensure that this project is completed within projected performance periods.

Figure 37 - Project Schedule Analysis

Data Date	Total Activities	Open Activities	Critical Activities	% Critical	Period Change % Critical
	(A)	(B)	(C)	(D)=(C)/(B)	(E)
July 2012	457	220	106	48.2%	n/a
August 2012	457	217	100	46.1%	-4%
September 2012	459	218	118	54.1%	17%

CRR ANALYSIS FOR BDPL:

EXHIBITS 9 and 10, respectively provide a detailed listing of all approved change orders and trends through December 2012. As shown in Figure 39 below, there is an extremely low realization rate between trends and actual change orders. As of the data date of September 30, 2012 the CRR for BDPL was 0.0027 while that as of December 2012 was 0.0021. A low CRR has been consistent throughout the project with a peak CRR value of 0.16 early in the project. The cost realization rate will be applied when we perform our independent calculation of project budget performance to the end of the work.

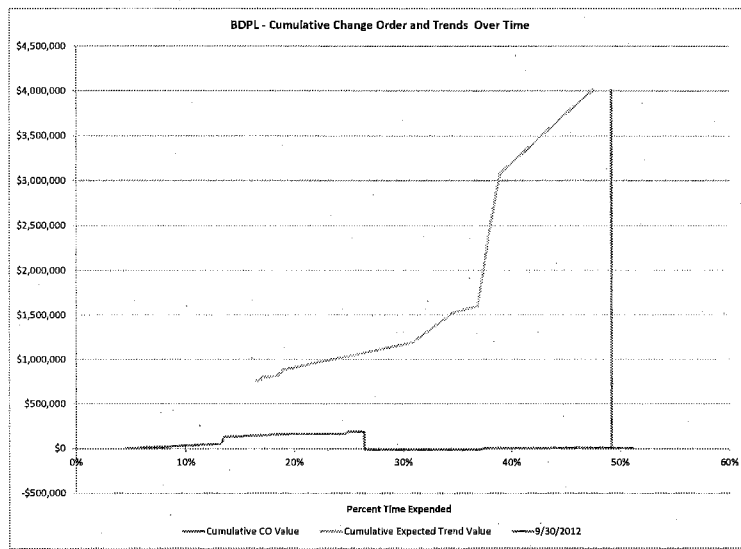


Figure 38 – Change orders vs. trends BDPL

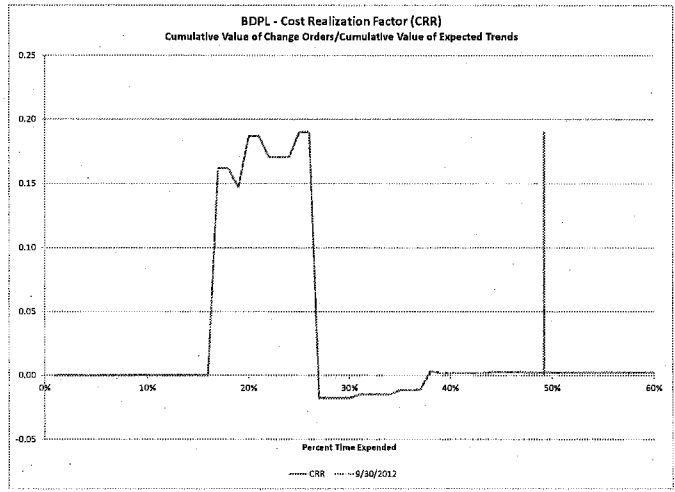


Figure 39 - BDPL CRR

TRR ANALYSIS FOR BDPL:

The TRR for BDPL is 0.00 as there has been no time included in trends and no time extensions approved on the project.

OVERALL OBSERVATIONS BDPL:

This section provides our overall observations based on our review of this project as well as the basis for EAC and SAC analysis.

1. We found that the project team is technically competent and has detailed understanding of the project technical and construction requirements. The general contractor and construction management team appear to have a performing team structure and appear to work together towards project objectives.
2. We found that 54% of open activities are on the critical path. This trend of criticality is offset by strong throughput performance achieved through February 2013, well within the early and late throughput boundaries.
3. The project team appears to be too conservative in forecasting potential costs as the CRR has not exceeded 0.16. The project team may seek to evaluate whether the amounts trended will actually be required as presented.
4. Using the CRR, we project that the overall projected budget is \$47M lower than currently approved. This projected value applies the project team's forecast for all project elements with the application of the adjusted CRR performance to the current value of trends, plus our recommended value of contingency based on project performance to date.

Figure 40 - Budget Forecast BDPL

Element	Amount	Reference/Comments
Current Construction Contract value	\$ 215,298,290	(Feb. 26, 2013 Contract Summary)
Pending and Potential changes	12,000	(Feb. 26, 2013 Contract Summary)
Trends	3,010,000	(Feb. 26, 2013 Contract Summary)
CRR @ 0.0021	(3,003,679)	
Subtotal Construction:	215,316,611	
Contingency:	1,000,000	Estimated required contingency (for analysis purposes)
Total Construction	\$ 216,316,611	

Project Budget:		
Project Management	\$ 9,938,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Planning	2,608,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Environmental	3,099,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Right of Way	1,945,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Design	13,159,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Bid & Award	315,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction Management	25,149,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
Construction	216,316,611	From above
Closeout	513,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
TOTAL Forecast	\$ 273,042,611	

Current Approved Budget:	319,925,000	(January 1, 2013 - Quarterly Report 'Current Forecast')
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Variance Forecast vs. Current Approved Budget:	46,882,389	Forecast requirement based on CRR/Trends/Soft Costs
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OVERALL RECOMMENDATION:

Based on our review of BDPL detailed in the preceding section, we believe that it is highly likely that this project will finish within budget and on time. This recommendation is made based on throughput rates achieved to date as well low realization of costs. We do caution that the application of highly conservative estimates does overstate required project costs at completion and encourage the project team to review the current trends reflected to ensure such are reflective of what is to be expected to be realized on the project.

PROJECT COMPARISON (5 PROJECTS EVALUATED):

The table below provides a side-by-side project performance comparison. Included in each of the project evaluations is our independent forecast of budget performance based on data reviewed and our assessment of remaining contingency required. The data in Figure 41, below, shows that there is a wide range in projected budgetary performance from a projected \$67M requirement for CDR to a projected underrun of \$34M for BDPL, and an aggregate projected budget shortfall totaling \$51M for the five projects combined. The project team will have to make decisions regarding its evaluation of projected program requirements but areas to be evaluated include: (1) review of project contingencies/underruns available in other projects; (2) reduction to soft costs ; (3) de-scoping projects to remain within budget; (4) identify additional sources of funding to cover projected budget shortfalls. In preparing this analysis we recommend that the evaluation be inclusive of all projects so that a holistic picture can be presented to authorizing and/or oversight committees.

Figure 41 - Project-by-Project Comparison - Budget Performance

Element	CDR	CSSA	HTWT	NIT	BDPL	ALL
	Amount	Amount	Amount	Amount	Amount	Amount
Current Construction Contract value	\$ 280,707,564	\$ 103,580,514	\$ 175,293,309	\$ 244,777,056	\$ 215,298,290	\$ 1,019,656,733
Pending and Potential changes	\$ 112,331,216	\$ 6,870,934	\$ 717,872	\$ 3,754,409	\$ 12,000	\$ 123,686,431
Trends	26,017,074	16,279,451	9,444,435	5,297,500	3,010,000	60,048,460
CRR	4,683,073	(325,589)	(188,889)	635,700	(3,003,679)	1,800,617
Subtotal Construction:	423,738,927	126,405,310	185,266,727	254,464,665	215,316,611	1,205,192,240
Contingency:	42,373,893	6,320,266	13,895,005	2,544,647	1,000,000	66,133,809
Total Construction	\$ 466,112,820	\$ 132,725,576	\$ 199,161,732	\$ 257,009,312	\$ 216,316,611	\$ 1,271,326,050
Project Budget:						
Project Management	\$ 13,878,000	\$ 5,709,000	\$ 11,028,000	\$ 6,632,000	\$ 9,938,000	\$ 47,185,000
Planning	6,035,000	3,985,000	4,816,000	3,908,000	2,608,000	21,352,000
Environmental	16,039,000	3,945,000	1,862,000	4,273,000	3,099,000	29,218,000
Right of Way		56,000		2,416,000	1,945,000	4,417,000
Design	22,469,000	11,380,000	19,533,000	16,085,000	13,159,000	82,626,000
Bid & Award	705,000	942,000	1,041,000	725,000	315,000	3,728,000
Construction Management	74,080,000	23,669,000	38,728,000	27,649,000	25,149,000	189,275,000
Construction	466,112,820	132,725,576	199,161,732	257,009,312	216,316,611	1,271,326,050
Closeout	1,242,000	456,000	855,000	206,000	513,000	3,272,000
TOTAL Forecast	\$ 600,560,820	\$ 182,867,576	\$ 277,024,732	\$ 318,909,312	\$ 273,042,611	\$ 1,652,399,050
Current Approved Budget:	\$ 532,638,000	\$ 164,722,000	\$ 276,896,000	\$ 319,925,000	\$ 307,081,000	\$ 1,601,262,000
Variance Forecast vs. Current Approved Budget:	\$ (67,922,820)	\$ (18,145,576)	\$ (128,732)	\$ 1,021,688	\$ 34,038,389	\$ (51,137,050)

Figure 42 provides a project-by-project comparison of selected performance measures. In evaluating the project data we found that the trend logs do reflect all known conditions, yet there is variability in the way trends are entered for both time and cost projections. On the cost side certain projects use more of a top-down approach to forecasting trend (e.g. CSSA, HTWP), while other projects use a more granular approach (NIT) to performing the same function. We also found the fact that project teams do not always assign a probability to a trend (e.g. CDR), therefore the trend data in CMIS loses value as it may not necessarily reflect the project team's assessment of the trend. With regards to time, we found that project teams used different approaches to estimating time impacts of trends. For example the NIT project team assigned time impacts to each trend then using the aggregated value as that used to forecast trend time. The assumption under this approach is that all time associated with trends are additive (no concurrency) and that all time forecast is on the critical path (hence a day for day addition of time shown on reports). Another approach used is a top-down approach where all trend time is captured under one catch all activity. Neither approach is incorrect, nor given the undefined nature of the data, it is not feasible to perform detailed scheduled analysis. We recommend that the program evaluate current trends, probabilities assigned to their occurrence, and ensure that the data on CMIS is consistently entered.

Figure 42 - Project Comparison - performance indicators

MEASURE	CDR	CSSA	HTWT	NIT	BDPL	Comments
Throughput						
Early	1.23	1.13	1.41	1.31	1.44	Through February 2013
Late	0.88	0.85	1.02	1.08	1.26	Through February 2013
Actual	0.74	0.84	0.68	1.2	1.39	Through February 2013
Criticality	30%	45%	9%	12.30%	54.10%	Through September 2012
CRR	1.18	0.98	0.98	1.12	0.0021	Through December 2012
TRR	0.93	0	0	1.75	0	Through December 2012
Forecast Budget Performance (\$ Million)	\$ (67.90)	\$ (18.10)	\$ (0.10)	\$ 1.00	\$ 34.00	Through February 2013

USE OF RISK TO FORECAST BUDGET EXPOSURE:

The WSIP uses a Monte-Carlo model for calculation of probability curves to evaluate how such data could impact the performance of the project. RWBC found the application and use of risk to be unclear: on one hand it is not used to forecast costs yet on the other it is used to test budget performance (which is a cost measure). Based on interviews with each project team we found various opinions to their use of risk as a management tool. These range from risks being used as a management tool to others who used different methods to managing their projects. RWBC did not incorporate the values of risk on the risk registers within the forecast to completion values as we believe that the trend data is reflective of known impacts.

However we do recommend that more clarity be provided moving forward by the WSIP team on the use and applications of risks and their use in preparation of EAC/SAC forecasts or why risks are used to test overall budget performance yet not used to forecast costs.

TASK B: WSIP SOFT COSTS

Our review of WSIP soft costs was divided into three components: those pertaining to the five projects analyzed under TASK A, Program Management Costs, and the balance of the WSIP program. In evaluating soft costs it is critically important to understand what is included within each category of soft costs. This becomes more critical when trying use general rules of soft-costs to construction costs or application of comparable data. As it pertains to the WSIP the following categories are include as soft costs: (A) SFPUC Labor; (B) Other City Departments; (C) WSIP Consultants

The total for items A, B and C are the primary components of soft costs. In addition, there are **Program Management Costs** which support the entire program in an oversight function. We developed metrics to evaluate projected staffing plans as follows:

- (1). % Soft Costs/Construction (both for historical and for forecast conditions)
- (2). Remaining construction costs (Forecast Construction less expenditures to date)²⁵/Remaining Soft Costs. This ratio provides a productivity rate that can be compared across projects.
- (3). Remaining construction costs/sum of FTE associated with remaining soft costs for the forecast period (another productivity ratio this time using FTE to measure amount of remaining work being managed by each resource).
- (4). We provide a breakdown of the amount of SFPUC/Other City Departments/Consultants for each project evaluated under task A, program management costs, and balance of program.

EVALUTION OF SOFT COSTS FOR PROJECTS ANALYZED IN TASK A

The soft costs forecast for each of the projects under task A were analyzed as shown in Figure 43, below.

²⁵ RWBC used its prior forecast of construction shown in Figure 40 to independently evaluate ratios and maintain consistent application of data.

Figure 43 - Soft Cost Analysis TASK A Projects

ELEMENT	PROJECT					ALL
	CDR	CSSA	HTWT	NIT	BDPL	
Total Forecast Construction (RWBC-5 Projects)	466,112,820	132,725,576	199,161,732	257,009,312	216,316,611	1,271,326,050
Expended Construction (12/31/12)	149,156,102	87,731,606	62,337,622	186,845,770	168,294,323	654,365,423
Remaining Construction (Unexpended)	316,956,717	44,993,970	136,824,110	70,163,542	48,022,288	616,960,627
Soft Costs Expended (12/31/12)	68,893,962	40,138,610	47,961,109	50,385,024	37,731,421	245,110,126
SFPUC	16,124,970	15,556,436	18,603,435	17,384,631	10,648,369	78,317,841
Other City Departments	5,081,887	2,560,994	2,702,550	3,059,064	2,862,592	16,267,087
Consultants	47,687,105	22,021,180	26,655,125	29,941,329	24,220,460	150,525,198
Soft Costs Forecast Total	65,480,963	6,934,610	29,101,562	15,680,418	18,303,194	135,500,746
SFPUC	7,725,038	835,962	11,946,174	1,693,225	2,617,330	24,817,730
Other City Departments	5,574,706	2,649,090	2,589,568	2,098,193	2,748,296	15,659,854
Consultants	52,181,219	3,449,557	14,565,820	11,889,000	12,937,567	95,023,163
Soft Costs/Construction (Historical)	46%	46%	77%	27%	22%	37%
SFPUC	11%	18%	30%	9%	6%	12%
Other City Departments	3%	3%	4%	2%	2%	2%
Consultants	32%	25%	43%	16%	14%	23%
Soft Costs/Construction (Forecast)	21%	15%	21%	22%	38%	22%
SFPUC	2%	2%	9%	2%	5%	4%
Other City Departments	2%	6%	2%	3%	6%	3%
Consultants	16%	8%	11%	17%	27%	15%
TOTAL FTE (2013-2017)	232	28	103	56	65	483
FTE SFPUC	27	3	42	6	9	88
FTE Other City Departments	20	12	9	7	10	58
FTE Consultants	185	12	52	42	46	337
Remaining Construction/Remaining Soft Costs	4.84	6.49	4.70	4.47	2.62	4.55
Remaining Construction/FTE	1,365,004	1,632,866	1,325,853	1,263,743	739,886	1,276,348

The following observations are made based on the data and ratios contained in Figure 43:

1. There is approximately \$616M of construction work to be placed in the five projects and it is forecast that \$135M of costs will be needed (2013-2017) to manage the work. This equates to a 22% soft cost rate. The remaining construction to be put in place is about 49% of the work²⁶.
2. We found that over the forecast period (aggregating all FTEs for each year) of the 483 planned FTS 337 (70%) are consultants while the balance are slated to be provided through SFPUC (18%) and the balance from other city departments. We believe there may be opportunity to increase the level of SFPUC staffing as internal staffing should be less expensive than use of a consultant, provided that they are qualified to perform the needed function. Two projects, namely CDR and HTWT could be candidate projects given their remaining duration and which have the highest levels of staffing.
3. We note that in preparing budgets and FTE calculations, a standard \$282,000 annual cost/FTE was used for all FTE calculations (SFPUC, Other City Departments, and Consultants). We recommend that actual costs be used for SFPUC and Other City Departments as internal city staff should be

²⁶ As previously stated, RWBC included base contract, approved, pending, and potential changes, trends and contingency when forecasting construction as is reflected in these values.



more cost effective than consulting staff. As a point of reference a \$282,000 salary equates to an hourly cost of \$135.58/hr ($\$282,000/2080$ hrs-yr).

4. We believe that staffing on CDR should be re-evaluated as on average, CDR management plan shows 45 FTEs for next five years. We note that pricing under negotiations for the found geologic condition includes extensive monitoring being required of the general contractor.
5. We recommend that each of these projects be managed as stand-alone projects without regional program management support for the following reasons: (a) all are under construction; (b) all have seasoned senior staff to manage the project; (c) a web-enabled program management system is in place that can be leveraged to maximize information/data flow; (d) cost savings could be realized by eliminating the regional oversight function through a project-centric management structure.
6. We recommend that the staffing plan for the BDPL be reviewed as the current forecast for soft costs represents 38% of the remaining construction costs, which is a high value, especially when the remaining projects range between 15-21%.
7. The weighted average resulting value of remaining construction costs to remaining soft costs is 4.55 compared to a historical value of 2.66²⁷, representing an efficiency increase of 71%. However we do believe that this value can be improved by evaluating opportunities to reevaluated staff levels in CDR and HTWT and using actual cost to calculate costs associated with FTEs (versus using a top down forecast soft cost/an average annual FTE cost).

Additional calculations for the five projects evaluated under TASK A are included in EXHIBIT 11.

EVALUTION OF SOFT COSTS FOR PROGRAM MANAGEMENT

The program management function for a program of this magnitude is an important activity, especially during the program startup and high activity phase. The WSIP is more than half way complete and the program infrastructure is mature. Further the CMIS allows project information to flow directly from the project site into the system, to capture data in the most efficient manner. As shown in Figure 44 71% of budgeted program management costs have been expended, which is not unusual given that program management tends to be a leading source of expenditures on a program.

²⁷ $\$654M$ historical construction expenditures/ $\$245.1M$ soft costs = 2.66

Figure 44 - WSIP Program Management

Program Management	ALL
Expended through 12/31/12	78,572,030
SFPUC	17,012,714
Other City Departments	4,916,068
Consultants	56,643,248
Forecast remaining (2013-2016)	30,624,138
SFPUC	13,484,338
Other City Departments	3,604,249
Consultants	13,535,551
Forecast remaining (2013-2016) FTE	94
SFPUC	33
Other City Departments	13
Consultants	48

There are opportunities to evaluate reductions in program management costs as follows:

1. Evaluate opportunity to transfer duties to SFPUC staff (that is qualified to perform assigned duty) data reconciliation. We understand that reconciling data from the CMIS against the City's core financial system is not straightforward. However, the WSIP executive management staff may want to consider (if acceptable to oversight agencies) to not perform monthly reconciliations (possibly quarterly) as this task appears to create a very high level of effort for program management staff. The tradeoff would be that data reported may be off by a value (that should be acceptable) yet which could be reconciled less frequently. This would also allow the issuance of reports potentially closer to when the costs are incurred.
2. The program management forecast shows 33 FTE for 2013, 28 FTE for 2014, 21 FTE for 2015 and 11 FTE for 2016. We recommend the evaluation of 2013 and 2014 levels to identify 2-3 additional FTE reduction through transfer for SFPUC staff, modifications to reconciliation (it would be helpful for an analysis to be performed for the FTE effort it takes monthly to reconcile project expenditures against City's financial system).

EVALUATION OF SOFT COSTS FOR BALANCE OF WSIP

The balance of the WSIP program shows there is approximately \$296M of remaining construction and it is forecast that \$70M of soft costs is required to administer the work. Using a similar metric as that used for the five projects evaluated under TASK A, the ratio of construction work performed divided by soft costs was 1.66 through December 31, 2012 and is forecast to increase to 4.22 to program completion. The ratio of SFPUC staff to consultants is equal in total which is in line with previous recommendations provided with the five projects evaluated under TASK A. Similar to our previous evaluations of soft costs, we recommend that instead of using a standard \$282,000 annual FTE value that actual costs be

used to ensure FTE equivalents are more accurately calculated. Further we also recommend that a bottoms up approach be used (e.g. identification of FTE/role times actual burdened salary versus use of budgeted value divided by \$282,000).

Figure 45 - Balance of WSIP Soft Costs

Balance of Projects (All less 5 Mega Projects)		ALL
Total Forecast Construction (Balance)		1,039,859,000
Expended Construction (12/31/12)		743,134,577
Remaining Construction:		296,724,423
Soft Costs Expended through 12/31/12		458,122,174
SFPUC		195,120,628
Other City Departments		63,385,648
Consultants		199,615,898
Soft Costs Forecast remaining (2013-2016)		70,369,963
SFPUC		28,863,987
Other City Departments		11,358,082
Consultants		30,147,893
Forecast remaining (2013-2016) FTE		247
SFPUC		102
Other City Departments		37
Consultants		107
Remaining Construction/Remaining Soft Costs		4.22
Remaining Construction/FTE		1,202,977

WSIP SOFT COST RECOMMENDATIONS:

Based on our review of the WSIP soft costs we recommend the following:

1. Consider streamlining the program management function by eliminating the regional level of oversight given that the program is well under way and major projects will be completed in the next two years
2. Evaluate the level of effort required to reconcile monthly costs between CMIS and the City core financial system and validate whether it would be beneficial to perform less frequent reconciliations with the tradeoff of lower program management costs and potentially ability to issue cost reporting more quickly
3. Evaluate opportunities for added SFPUC staffing to CDR and HTWT projects as staffing levels appear high and shifted to high level of consultants. We recommend a two-step evaluation (a) evaluate level of staff in total (b) identify opportunities to leverage SFPUC staff
4. Consider using a bottoms up analysis with actual FTE costs (SFPUC/Consultants/Other City Departments) and compare to existing top-down approach.

EXHIBIT 1 – CDR APPROVED CHANGE ORDERS (THROUGH 12/11/12)

Change Order Information				
CO #	Date of Approval	Days	CO \$	Cumulative CO
00001	3-Oct-11	-	\$ 301,025	\$ 301,025
00002	20-Oct-11	-	\$ 250,000	\$ 551,025
00003	19-Oct-11	-	\$ 3,376,370	\$ 3,927,395
00004	20-Oct-11	-	\$ 65,000	\$ 3,992,395
00005	4-Jan-12	-	\$ 3,807	\$ 3,996,202
00006	4-Jan-12	-	\$ 18,796	\$ 4,014,998
00007	13-Mar-12	-	\$ 72,305	\$ 4,087,303
00008	13-Mar-12	-	\$ 169,062	\$ 4,256,365
00009	15-Mar-12	-	\$ (285,374)	\$ 3,970,991
00010	2-May-12	-	\$ 49,630	\$ 4,020,621
00011	2-May-12	-	\$ 104,786	\$ 4,125,407
00012	7-May-12	-	\$ 40,514	\$ 4,165,921
00013	6-Jun-12	69.00	\$ 11,782,647	\$ 15,948,568
00014	8-Jun-12	-	\$ 34,714	\$ 15,983,282
00015	18-Jun-12	-	\$ 102,356	\$ 16,085,638
00016	21-Jun-12	-	\$ 98,750	\$ 16,184,388
00017	28-Jun-12	-	\$ 1,000,000	\$ 17,184,388
00018	12-Jul-12	-	\$ 7,950	\$ 17,192,338
00019	12-Jul-12	-	\$ 1,962	\$ 17,194,300
00020	30-Jul-12	-	\$ -	\$ 17,194,300
00021	30-Jul-12	-	\$ 134,358	\$ 17,328,658
00022	20-Aug-12	-	\$ 320,000	\$ 17,648,658
00023	20-Aug-12	-	\$ 374,224	\$ 18,022,882
00024	10-Sep-12	-	\$ -	\$ 18,022,882
00025	18-Sep-12	-	\$ 1,000,000	\$ 19,022,882
00026	14-Nov-12	-	\$ 120,000	\$ 19,142,882
00027	10-Dec-12	-	\$ 500,000	\$ 19,642,882
00028	10-Dec-12	-	\$ 350,000	\$ 19,992,882
00029	11-Dec-12	-	\$ 67,000	\$ 20,059,882
00030**	TBD	761.00	\$ 133,000,000	\$ 153,059,882

** Change Order not formally approved. This value is that presented to SFPUC and BASWAC on 11/7/12 (\$133M and 25 month time extension)

EXHIBIT 2 – CDR TRENDS (THROUGH 12/14/12)

Trend #	Date	% Time	Days	Trend Information				
				Trended Days	Initial Value	Likelihood	Trend \$	Cumulative
00001	8-Sep-11	2%	-	-	\$ 302,200.32	100%	\$ 302,200.32	\$ 302,200.32
00002	13-Sep-11	2%	90.00	90.00	\$ 3,500,000.00	100%	\$ 3,500,000.00	\$ 3,802,200.32
00003	13-Sep-11	2%	10.00	10.00	\$ 475,000.00	100%	\$ 475,000.00	\$ 4,277,200.32
00004	23-Sep-11	3%	-	-	\$ 500,000.00	100%	\$ 500,000.00	\$ 4,777,200.32
00005	5-Oct-11	3%	-	-	\$ 13,521,816.00	100%	\$ 13,521,816.00	\$ 18,299,016.32
00006	17-Oct-11	4%	-	-	\$ 68,000.00	100%	\$ 68,000.00	\$ 18,367,016.32
00007	15-Nov-11	6%	-	-	\$ 3,806.88	100%	\$ 3,806.88	\$ 18,370,823.20
00008	1-Dec-11	7%	-	-	\$ 18,796.47	100%	\$ 18,796.47	\$ 18,389,619.67
00009	6-Dec-11	8%	-	-	\$ 72,305.00	100%	\$ 72,305.00	\$ 18,461,924.67
00010	6-Dec-11	8%	-	-	\$ 90,000.00	100%	\$ 90,000.00	\$ 18,551,924.67
00011	19-Dec-11	9%	-	-	\$ 180,000.00	100%	\$ 180,000.00	\$ 18,731,924.67
00012	19-Dec-11	9%	-	-	\$ 179,378.00	100%	\$ 179,378.00	\$ 18,911,302.67
00013	19-Dec-11	9%	-	-	\$ 35,000.00	100%	\$ 35,000.00	\$ 18,946,302.67
00014	19-Dec-11	9%	-	-	\$ 75,000.00	100%	\$ 75,000.00	\$ 19,021,302.67
00015	19-Dec-11	9%	-	-	\$ 29,200.00	100%	\$ 29,200.00	\$ 19,050,502.67
00016	19-Dec-11	9%	-	-	\$ 9,600.00	100%	\$ 9,600.00	\$ 19,060,102.67
00017	19-Dec-11	9%	-	-	\$ 22,000.00	100%	\$ 22,000.00	\$ 19,082,102.67
00018	19-Dec-11	9%	-	-	\$ 500,000.00	100%	\$ 500,000.00	\$ 19,582,102.67
00019	19-Dec-11	9%	-	-	\$ 35,000.00	100%	\$ 35,000.00	\$ 19,617,102.67
00020	21-Feb-12	13%	-	-	\$ (302,097.60)	100%	\$ (302,097.60)	\$ 19,315,005.07
00021	21-Feb-12	13%	-	-	\$ 109,333.03	100%	\$ 109,333.03	\$ 19,424,338.10
00022	21-Feb-12	13%	-	-	\$ 150,000.00	100%	\$ 150,000.00	\$ 19,574,338.10
00023	21-Feb-12	13%	-	-	\$ 80,000.00	100%	\$ 80,000.00	\$ 19,654,338.10
00024	21-Feb-12	13%	-	-	\$ 64,436.80	100%	\$ 64,436.80	\$ 19,718,774.90
00025	21-Feb-12	13%	-	-	\$ 18,740.00	100%	\$ 18,740.00	\$ 19,737,514.90
00026	21-Feb-12	13%	-	-	\$ 25,000.00	100%	\$ 25,000.00	\$ 19,762,514.90
00027	2-Mar-12	14%	10.00	10.00	\$ 560,000.00	100%	\$ 560,000.00	\$ 20,322,514.90
00028	2-Mar-12	14%	-	-	\$ 60,000.00	100%	\$ 60,000.00	\$ 20,382,514.90
00029	2-Mar-12	14%	-	-	\$ 245,000.00	100%	\$ 245,000.00	\$ 20,627,514.90
00030	5-Apr-12	16%	-	-	\$ 350,000.00	100%	\$ 350,000.00	\$ 20,977,514.90
00031	5-Apr-12	16%	-	-	\$ 100,000.00	100%	\$ 100,000.00	\$ 21,077,514.90
00032	5-Apr-12	16%	-	-	\$ 100,000.00	100%	\$ 100,000.00	\$ 21,177,514.90
00033	5-Apr-12	16%	-	-	\$ 120,000.00	100%	\$ 120,000.00	\$ 21,297,514.90
00034	5-Apr-12	16%	-	-	\$ 380,000.00	100%	\$ 380,000.00	\$ 21,677,514.90
00035	5-Apr-12	16%	-	-	\$ 150,000.00	100%	\$ 150,000.00	\$ 21,827,514.90
00036	5-Apr-12	16%	-	-	\$ 400,000.00	100%	\$ 400,000.00	\$ 22,227,514.90
00037	26-Apr-12	17%	25.00	25.00	\$ -	100%	\$ -	\$ 22,227,514.90
00038	24-May-12	19%	-	-	\$ 572,333.73	100%	\$ 572,333.73	\$ 22,799,848.63
00039	24-May-12	19%	-	-	\$ 150,000.00	100%	\$ 150,000.00	\$ 22,949,848.63
00040	5-Jun-12	20%	-	-	\$ 33,922.00	100%	\$ 33,922.00	\$ 22,983,770.63
00041	28-Jun-12	22%	-	-	\$ 9,000.00	100%	\$ 9,000.00	\$ 22,992,770.63
00042	28-Jun-12	22%	-	-	\$ 813,495.00	100%	\$ 813,495.00	\$ 23,806,265.63
00043	12-Jul-12	23%	-	-	\$ 340,000.00	100%	\$ 340,000.00	\$ 24,146,265.63
00044	31-Aug-12	26%	761.00	761.00	\$ 95,000,000.00	100%	\$ 95,000,000.00	\$ 119,146,265.63
00045	10-Sep-12	27%	-	-	\$ 100,000.00	100%	\$ 100,000.00	\$ 119,246,265.63
00046	10-Sep-12	27%	-	-	\$ 410,000.00	100%	\$ 410,000.00	\$ 119,656,265.63
00047	10-Sep-12	27%	-	-	\$ 100,000.00	100%	\$ 100,000.00	\$ 119,756,265.63
00048	10-Sep-12	27%	-	-	\$ 55,000.00	100%	\$ 55,000.00	\$ 119,811,265.63
00049	10-Sep-12	27%	-	-	\$ 120,000.00	100%	\$ 120,000.00	\$ 119,931,265.63
00050	10-Sep-12	27%	-	-	\$ 5,159.42	100%	\$ 5,159.42	\$ 119,936,425.05
00051	12-Oct-12	29%	-	-	\$ 75,000.00	100%	\$ 75,000.00	\$ 120,011,425.05
00052	12-Nov-12	31%	-	-	\$ 25,000.00	100%	\$ 25,000.00	\$ 120,036,425.05
00053	12-Nov-12	31%	-	-	\$ 350,000.00	100%	\$ 350,000.00	\$ 120,386,425.05
00054	12-Nov-12	31%	-	-	\$ 175,000.00	100%	\$ 175,000.00	\$ 120,561,425.05
00055	12-Nov-12	31%	-	-	\$ 67,090.00	100%	\$ 67,090.00	\$ 120,628,515.05
00056	12-Nov-12	31%	-	-	\$ 25,000.00	100%	\$ 25,000.00	\$ 120,653,515.05
00057	29-Nov-12	32%	-	-	\$ 500,000.00	100%	\$ 500,000.00	\$ 121,153,515.05
00058	29-Nov-12	32%	-	-	\$ 150,000.00	100%	\$ 150,000.00	\$ 121,303,515.05
00059	29-Nov-12	32%	-	-	\$ 75,000.00	100%	\$ 75,000.00	\$ 121,378,515.05
00060	29-Nov-12	32%	-	-	\$ 500,000.00	100%	\$ 500,000.00	\$ 121,878,515.05
00061	29-Nov-12	32%	-	-	\$ 250,000.00	100%	\$ 250,000.00	\$ 122,128,515.05
00062	6-Dec-12	33%	-	-	\$ 15,000.00	100%	\$ 15,000.00	\$ 122,143,515.05
00063	6-Dec-12	33%	-	-	\$ 25,000.00	100%	\$ 25,000.00	\$ 122,168,515.05
00064	6-Dec-12	33%	-	-	\$ 145,000.00	100%	\$ 145,000.00	\$ 122,313,515.05
00065	6-Dec-12	33%	-	-	\$ 25,000.00	100%	\$ 25,000.00	\$ 122,338,515.05
00066	6-Dec-12	33%	-	-	\$ 5,000.00	100%	\$ 5,000.00	\$ 122,343,515.05
00067	6-Dec-12	33%	-	-	\$ 100,000.00	100%	\$ 100,000.00	\$ 122,443,515.05
00068	6-Dec-12	33%	-	-	\$ 4,500,000.00	100%	\$ 4,500,000.00	\$ 126,943,515.05
00069	6-Dec-12	33%	-	-	\$ 100,000.00	100%	\$ 100,000.00	\$ 127,043,515.05
00070	6-Dec-12	33%	-	-	\$ 2,400,000.00	100%	\$ 2,400,000.00	\$ 129,443,515.05
00071	14-Dec-12	33%	-	-	\$ 750,000.00	100%	\$ 750,000.00	\$ 130,193,515.05

EXHIBIT 3 – CSSA APPROVED CHANGE ORDERS (THROUGH DECEMBER 20, 2012)

Change Order Information					
CO #	Date of Approval	% Time	Days	CO \$	Cumulative
00001	6-Dec-10	1%	-	\$ 36,032.00	\$ 36,032.00
00002	11-Feb-11	7%	-	\$ (676,938.00)	\$ (640,906.00)
00003	15-Feb-11	8%	-	\$ 2,317.00	\$ (638,589.00)
00004	8-Mar-11	10%	-	\$ 26,746.00	\$ (611,843.00)
00005	14-Mar-11	11%	-	\$ 381,953.00	\$ (229,890.00)
00016	7-Apr-11	13%	-	\$ 7,495.00	\$ (222,395.00)
00006	10-May-11	16%	-	\$ 46,001.00	\$ (176,394.00)
00007	29-Jun-11	21%	-	\$ 15,658.00	\$ (160,736.00)
00008	29-Jun-11	21%	-	\$ 456,051.00	\$ 295,315.00
00009	12-Jul-11	23%	-	\$ 57,945.00	\$ 353,260.00
00010	12-Jul-11	23%	-	\$ 13,257.00	\$ 366,517.00
00011	12-Jul-11	23%	-	\$ 11,660.00	\$ 378,177.00
00012	15-Jul-11	23%	-	\$ 314,073.66	\$ 692,250.66
00013	18-Jul-11	23%	-	\$ -	\$ 692,250.66
00014	22-Jul-11	24%	-	\$ -	\$ 692,250.66
00015	26-Jul-11	24%	-	\$ 108,200.00	\$ 800,450.66
00017	3-Aug-11	25%	-	\$ 14,913.00	\$ 815,363.66
00018	25-Aug-11	27%	-	\$ 3,000.00	\$ 818,363.66
00019	31-Aug-11	28%	-	\$ -	\$ 818,363.66
00020	2-Sep-11	28%	-	\$ 55,200.00	\$ 873,563.66
00021	8-Sep-11	29%	-	\$ 11,616.00	\$ 885,179.66
00022	12-Sep-11	29%	-	\$ 1,310.00	\$ 886,489.66
00023	12-Sep-11	29%	-	\$ 6,800.00	\$ 893,289.66
00024	19-Sep-11	30%	-	\$ 100,000.00	\$ 993,289.66
00025	20-Sep-11	30%	-	\$ 840,000.00	\$ 1,833,289.66
00026	5-Oct-11	31%	-	\$ 45,309.00	\$ 1,878,598.66
00027	7-Oct-11	32%	-	\$ 31,233.00	\$ 1,909,831.66
00030	6-Oct-11	32%	-	\$ 83,138.00	\$ 1,992,969.66
00028	11-Oct-11	32%	-	\$ 48,448.00	\$ 2,041,417.66
00029	1-Nov-11	34%	-	\$ 3,973.73	\$ 2,045,391.39
00031	23-Nov-11	36%	-	\$ (238,252.00)	\$ 1,807,139.39
00032	2-Dec-11	37%	-	\$ 10,480.00	\$ 1,817,619.39
00033	13-Dec-11	39%	-	\$ 19,086.00	\$ 1,836,705.39
00034	15-Dec-11	39%	-	\$ 146,089.00	\$ 1,982,794.39
00035	16-Dec-11	39%	-	\$ 87,000.00	\$ 2,069,794.39
00036	16-Dec-11	39%	-	\$ 10,972.00	\$ 2,080,766.39
00037	21-Dec-11	39%	-	\$ 39,241.00	\$ 2,120,007.39
00038	11-Jan-12	41%	-	\$ 30,425.00	\$ 2,150,432.39
00039	11-Jan-12	41%	-	\$ 44,970.00	\$ 2,195,402.39
00040	13-Jan-12	42%	-	\$ 31,181.00	\$ 2,226,583.39
00042	3-Feb-12	44%	-	\$ 25,323.00	\$ 2,251,906.39
00041	8-Feb-12	44%	-	\$ 34,600.00	\$ 2,286,506.39



Change Order Information					
CO #	Date of Approval	% Time	Days	CO \$	Cumulative
00043	22-Feb-12	46%	-	\$ 467,300.00	\$ 2,753,806.39
00044	28-Feb-12	46%	-	\$ 250,000.00	\$ 3,003,806.39
00045	6-Mar-12	47%	-	\$ (192,000.00)	\$ 2,811,806.39
00046	22-Mar-12	49%	-	\$ 71,981.00	\$ 2,883,787.39
00047	2-Apr-12	50%	-	\$ -	\$ 2,883,787.39
00048	9-Apr-12	51%	-	\$ 277,465.00	\$ 3,161,252.39
00049	20-Apr-12	52%	-	\$ 43,601.00	\$ 3,204,853.39
00050	20-Apr-12	52%	-	\$ 62,469.00	\$ 3,267,322.39
00052	7-May-12	53%	-	\$ 19,110.00	\$ 3,286,432.39
00051	8-May-12	54%	-	\$ 29,200.00	\$ 3,315,632.39
00053	25-May-12	55%	-	\$ 53,188.00	\$ 3,368,820.39
00054	25-Jun-12	58%	-	\$ 8,820.00	\$ 3,377,640.39
00055	22-Jun-12	58%	-	\$ 1,391.00	\$ 3,379,031.39
00056	22-Jun-12	58%	-	\$ 3,889.00	\$ 3,382,920.39
00057	25-Jun-12	58%	-	\$ 2,357.00	\$ 3,385,277.39
00058	25-Jun-12	58%	-	\$ 2,347.00	\$ 3,387,624.39
00059	5-Jul-12	59%	-	\$ 8,414.00	\$ 3,396,038.39
00062	2-Jul-12	59%	-	\$ 43,492.00	\$ 3,439,530.39
00060	10-Jul-12	60%	-	\$ 7,675.00	\$ 3,447,205.39
00061	10-Jul-12	60%	-	\$ 6,515.00	\$ 3,453,720.39
00063	11-Jul-12	60%	-	\$ 7,148.00	\$ 3,460,868.39
00064	12-Jul-12	60%	-	\$ 2,290.00	\$ 3,463,158.39
00065	16-Jul-12	61%	-	\$ 3,407.00	\$ 3,466,565.39
00066	18-Jul-12	61%	-	\$ 4,443.00	\$ 3,471,008.39
00067	20-Jul-12	61%	-	\$ 18,560.00	\$ 3,489,568.39
00068	24-Jul-12	61%	-	\$ 4,545.00	\$ 3,494,113.39
00069	30-Jul-12	62%	-	\$ 18,567.00	\$ 3,512,680.39
00070	2-Aug-12	62%	-	\$ (12,876.00)	\$ 3,499,804.39
00071	2-Aug-12	62%	-	\$ 2,673.00	\$ 3,502,477.39
00072	8-Aug-12	63%	-	\$ 9,000.00	\$ 3,511,477.39
00073	17-Aug-12	64%	-	\$ 128,162.00	\$ 3,639,639.39
00074	29-Aug-12	65%	-	\$ 16,500.00	\$ 3,656,139.39
00075	4-Sep-12	66%	-	\$ 10,824.00	\$ 3,666,963.39
00076	5-Sep-12	66%	-	\$ 4,473.00	\$ 3,671,436.39
00077	7-Sep-12	66%	-	\$ 5,379.00	\$ 3,676,815.39
00078	11-Sep-12	66%	-	\$ 14,000.00	\$ 3,690,815.39
00079	12-Sep-12	66%	-	\$ 155,052.00	\$ 3,845,867.39
00080	19-Sep-12	67%	-	\$ 5,300.00	\$ 3,851,167.39
00081	1-Oct-12	68%	-	\$ 1,217.00	\$ 3,852,384.39
00082	1-Oct-12	68%	-	\$ 2,014.00	\$ 3,854,398.39
00083	4-Oct-12	69%	-	\$ 6,738.00	\$ 3,861,136.39
00084	9-Oct-12	69%	-	\$ 30,500.00	\$ 3,891,636.39
00085	15-Oct-12	70%	-	\$ 25,060.00	\$ 3,916,696.39
00086	24-Oct-12	71%	-	\$ 100,000.00	\$ 4,016,696.39



RW Block
Consulting, Inc.

Change Order Information					
CO #	Date of Approval	% Time	Days	CO \$	Cumulative
00087	24-Oct-12	71%	-	\$ 10,371.00	\$ 4,027,067.39
00088	7-Nov-12	72%	-	\$ 33,425.00	\$ 4,060,492.39
00089	10-Dec-12	76%	-	\$ 1,467.00	\$ 4,061,959.39
00090	10-Dec-12	76%	-	\$ 5,540.00	\$ 4,067,499.39

EXHIBIT 4 – CSSA TRENDS (THROUGH 12/14/12)

Trend Information								
Trend #	Date	% Time	Days	Trended Days	Value	Likelihood	Trend \$	Cumulative
00001	3-Dec-10	0%	-	-	\$ (550,000.00)	95%	\$ (522,500.00)	\$ (522,500.00)
00002	3-Dec-10	0%	-	-	\$ -	95%	\$ -	\$ (522,500.00)
00003	3-Dec-10	0%	-	-	\$ -	95%	\$ -	\$ (522,500.00)
00004	22-Dec-10	2%	-	-	\$ 62,563.00	95%	\$ 59,434.85	\$ (463,065.15)
00005	3-Jan-11	3%	-	-	\$ 100,000.00	0%	\$ -	\$ (463,065.15)
00006	13-Jan-11	4%	-	-	\$ 500,000.00	0%	\$ -	\$ (463,065.15)
00007	14-Jan-11	4%	-	-	\$ 80,000.00	0%	\$ -	\$ (463,065.15)
00008	21-Jan-11	5%	-	-	\$ 102,190.00	0%	\$ -	\$ (463,065.15)
00009	4-Feb-11	7%	-	-	\$ 100,000.00	0%	\$ -	\$ (463,065.15)
00010	14-Mar-11	11%	-	-	\$ 20,000.00	0%	\$ -	\$ (463,065.15)
00011	14-Mar-11	11%	-	-	\$ 70,000.00	0%	\$ -	\$ (463,065.15)
00012	30-Mar-11	12%	-	-	\$ 15,000.00	90%	\$ 13,500.00	\$ (449,565.15)
00013	30-Mar-11	12%	-	-	\$ 15,000.00	90%	\$ 13,500.00	\$ (436,065.15)
00014	8-Apr-11	13%	-	-	\$ 80,000.00	95%	\$ 76,000.00	\$ (360,065.15)
00015	10-May-11	16%	-	-	\$ 15,000.00	99%	\$ 14,850.00	\$ (345,215.15)
00016	10-May-11	16%	-	-	\$ 50,000.00	99%	\$ 49,500.00	\$ (295,715.15)
00017	10-May-11	16%	-	-	\$ 50,000.00	75%	\$ 37,500.00	\$ (258,215.15)
00018	10-May-11	16%	-	-	\$ 100,000.00	99%	\$ 99,000.00	\$ (159,215.15)
00019	25-May-11	18%	-	-	\$ 250,000.00	90%	\$ 225,000.00	\$ 65,784.85
00020	13-Jun-11	20%	-	-	\$ 50,000.00	0%	\$ -	\$ 65,784.85
00021	15-Jun-11	20%	-	-	\$ 30,000.00	0%	\$ -	\$ 65,784.85
00022	17-Jun-11	20%	150.00	-	\$ 1,000,000.00	0%	\$ -	\$ 65,784.85
00023	17-Jun-11	20%	-	-	\$ 490,000.00	80%	\$ 392,000.00	\$ 457,784.85
00024	13-Jul-11	23%	-	-	\$ 1,000,000.00	0%	\$ -	\$ 457,784.85
00025	26-Jul-11	24%	-	-	\$ 1,000,000.00	0%	\$ -	\$ 457,784.85
00026	15-Aug-11	26%	-	-	\$ 50,000.00	0%	\$ -	\$ 457,784.85
00027	25-Aug-11	27%	-	-	\$ 500,000.00	99%	\$ 495,000.00	\$ 952,784.85
00028	25-Aug-11	27%	-	-	\$ 90,000.00	75%	\$ 67,500.00	\$ 1,020,284.85
00029	25-Aug-11	27%	-	-	\$ -	0%	\$ -	\$ 1,020,284.85
00030	25-Aug-11	27%	-	-	\$ 600,000.00	75%	\$ 450,000.00	\$ 1,470,284.85
00031	14-Sep-11	29%	-	-	\$ (1,000,000.00)	0%	\$ -	\$ 1,470,284.85
00032	4-Oct-11	31%	-	-	\$ 50,000.00	0%	\$ -	\$ 1,470,284.85
00033	25-Oct-11	34%	-	-	\$ 30,000.00	0%	\$ -	\$ 1,470,284.85
00034	25-Oct-11	34%	-	-	\$ 100,000.00	50%	\$ 50,000.00	\$ 1,520,284.85
00035	25-Oct-11	34%	-	-	\$ 150,000.00	50%	\$ 75,000.00	\$ 1,595,284.85
00036	25-Oct-11	34%	-	-	\$ 10,000.00	50%	\$ 5,000.00	\$ 1,600,284.85
00037	25-Oct-11	34%	-	-	\$ 30,000.00	25%	\$ 7,500.00	\$ 1,607,784.85
00038	25-Oct-11	34%	-	-	\$ 440,000.00	50%	\$ 220,000.00	\$ 1,827,784.85
00039	15-Nov-11	36%	-	-	\$ 579,230.00	50%	\$ 289,615.00	\$ 2,117,399.85
00040	16-Nov-11	36%	-	-	\$ 350,000.00	0%	\$ -	\$ 2,117,399.85
00041	22-Nov-11	36%	-	-	\$ 40,000.00	0%	\$ -	\$ 2,117,399.85
00042	9-Dec-11	38%	-	-	\$ 400,000.00	80%	\$ 320,000.00	\$ 2,437,399.85

Trend Information								
Trend #	Date	% Time	Days	Trended Days	Value	Likelihood	Trend \$	Cumulative
00043	9-Dec-11	38%	-	-	\$ 100,000.00	80%	\$ 80,000.00	\$ 2,517,399.85
00044	9-Dec-11	38%	-	-	\$ 25,000.00	0%	\$ -	\$ 2,517,399.85
00045	16-Dec-11	39%	-	-	\$ 50,000.00	50%	\$ 25,000.00	\$ 2,542,399.85
00046	11-Jan-12	41%	-	-	\$ 100,000.00	80%	\$ 80,000.00	\$ 2,622,399.85
00047	19-Jan-12	42%	-	-	\$ 50,000.00	15%	\$ 7,500.00	\$ 2,629,899.85
00048	19-Jan-12	42%	-	-	\$ 100,000.00	75%	\$ 75,000.00	\$ 2,704,899.85
00049	30-Jan-12	43%	-	-	\$ 50,000.00	0%	\$ -	\$ 2,704,899.85
00050	14-Feb-12	45%	30.00	-	\$ 100,000.00	0%	\$ -	\$ 2,704,899.85
00051	23-Feb-12	46%	-	-	\$ 200,000.00	0%	\$ -	\$ 2,704,899.85
00052	7-Mar-12	47%	-	-	\$ 150,000.00	99%	\$ 148,500.00	\$ 2,853,399.85
00053	7-Mar-12	47%	-	-	\$ 200,000.00	50%	\$ 100,000.00	\$ 2,953,399.85
00054	13-Apr-12	51%	-	-	\$ (290,000.00)	99%	\$ (287,100.00)	\$ 2,666,299.85
00055	13-Apr-12	51%	-	-	\$ 500,000.00	99%	\$ 495,000.00	\$ 3,161,299.85
00056	13-Apr-12	51%	-	-	\$ 500,000.00	99%	\$ 495,000.00	\$ 3,656,299.85
00057	18-May-12	55%	-	-	\$ 170,000.00	75%	\$ 127,500.00	\$ 3,783,799.85
00058	21-May-12	55%	-	-	\$ 50,000.00	99%	\$ 49,500.00	\$ 3,833,299.85
00059	18-Jun-12	58%	-	-	\$ 4,600,000.00	50%	\$ 2,300,000.00	\$ 6,133,299.85
00060	20-Jun-12	58%	-	-	\$ 100,000.00	99%	\$ 99,000.00	\$ 6,232,299.85
00061	3-Jul-12	59%	-	-	\$ 100,000.00	50%	\$ 50,000.00	\$ 6,282,299.85
00062	21-Sep-12	67%	-	-	\$ 300,000.00	0%	\$ -	\$ 6,282,299.85
00063	1-Nov-12	72%	-	-	\$ 3,099,363.00	50%	\$ 1,549,681.50	\$ 7,831,981.35
00064	1-Nov-12	72%	-	-	\$ 900,000.00	50%	\$ 450,000.00	\$ 8,281,981.35
00065	1-Nov-12	72%	-	-	\$ 500,000.00	50%	\$ 250,000.00	\$ 8,531,981.35
00066	27-Nov-12	74%	-	-	\$ 100,000.00	0%	\$ -	\$ 8,531,981.35
00067	12-Dec-12	76%	-	-	\$ 320,000.00	0%	\$ -	\$ 8,531,981.35
00068	13-Dec-12	76%	-	-	\$ 200,000.00	0%	\$ -	\$ 8,531,981.35
00069	13-Dec-12	76%	-	-	\$ 270,000.00	0%	\$ -	\$ 8,531,981.35

EXHIBIT 5 – HTWT CHANGE ORDERS (THROUGH 12/18/12)

Change Order Information					
CO #	Date of Approval	% Time	Days	CO \$	Cumulative
00001	12-Oct-11	15%	-	\$ 2,231.00	\$ 2,231.00
00002	29-Feb-12	24%	-	\$ 20,397.00	\$ 22,628.00
00003	7-Mar-12	25%	-	\$ 2,616.00	\$ 25,244.00
00005	2-Apr-12	27%	-	\$ 32,586.00	\$ 57,830.00
00006	6-Apr-12	27%	-	\$ 3,249.00	\$ 61,079.00
00007	9-Apr-12	27%	-	\$ 3,200.00	\$ 64,279.00
00008	9-Apr-12	27%	-	\$ 3,615.00	\$ 67,894.00
00009	9-Apr-12	27%	-	\$ 28,084.00	\$ 95,978.00
00010	26-Apr-12	28%	-	\$ 96,632.00	\$ 192,610.00
00011	7-May-12	29%	-	\$ (8,226.00)	\$ 184,384.00
00012	8-May-12	29%	-	\$ 440.00	\$ 184,824.00
00013	16-May-12	30%	-	\$ 41,056.00	\$ 225,880.00
00014	16-May-12	30%	-	\$ 200,000.00	\$ 425,880.00
00015	6-Jun-12	31%	-	\$ 49,836.00	\$ 475,716.00
00016	6-Jun-12	31%	-	\$ 72,563.00	\$ 548,279.00
00017	14-Jun-12	32%	-	\$ 7,050.00	\$ 555,329.00
00018	12-Jun-12	31%	-	\$ (5,060.00)	\$ 550,269.00
00019	15-Jun-12	32%	-	\$ 42,237.00	\$ 592,506.00
00020	19-Jun-12	32%	-	\$ -	\$ 592,506.00
00021	19-Jun-12	32%	-	\$ 2,409.00	\$ 594,915.00
00022	20-Jun-12	32%	-	\$ 34,821.48	\$ 629,736.48
00023	21-Jun-12	32%	-	\$ 2,288.00	\$ 632,024.48



Change Order Information					
CO #	Date of Approval	% Time	Days	CO \$	Cumulative
00024	27-Jun-12	32%	-	\$ 4,519.00	\$ 636,543.48
00025	2-Jul-12	33%	-	\$ 34,125.00	\$ 670,668.48
00026	6-Jul-12	33%	-	\$ 8,000.00	\$ 678,668.48
00027	10-Jul-12	33%	-	\$ 20,998.00	\$ 699,666.48
00028	10-Jul-12	33%	-	\$ 58,115.00	\$ 757,781.48
00029	19-Jul-12	34%	-	\$ 78,258.00	\$ 836,039.48
00030	16-Jul-12	34%	-	\$ 30,387.00	\$ 866,426.48
00031	18-Jul-12	34%	-	\$ 2,350.00	\$ 868,776.48
00032	24-Jul-12	34%	-	\$ 2,255.00	\$ 871,031.48
00033	1-Aug-12	35%	-	\$ 108,120.00	\$ 979,151.48
00034	3-Aug-12	35%	-	\$ -	\$ 979,151.48
00035	8-Aug-12	35%	-	\$ 3,911.00	\$ 983,062.48
00004	14-Aug-12	36%	-	\$ 7,197.00	\$ 990,259.48
00036	15-Aug-12	36%	-	\$ 15,612.00	\$ 1,005,871.48
00037	17-Aug-12	36%	-	\$ 169,376.00	\$ 1,175,247.48
00038	7-Sep-12	37%	-	\$ 2,398.00	\$ 1,177,645.48
00039	18-Sep-12	38%	-	\$ 5,856.00	\$ 1,183,501.48
00040	19-Sep-12	38%	-	\$ 149,374.00	\$ 1,332,875.48
00041	20-Sep-12	38%	-	\$ 10,826.00	\$ 1,343,701.48
00042	1-Oct-12	39%	-	\$ 53,941.00	\$ 1,397,642.48
00043	1-Oct-12	39%	-	\$ 86,865.00	\$ 1,484,507.48
00044	9-Oct-12	40%	-	\$ 6,155.00	\$ 1,490,662.48
00045	12-Oct-12	40%	-	\$ 100,000.00	\$ 1,590,662.48
00046	16-Oct-12	40%	-	\$ 71,566.00	\$ 1,662,228.48



Change Order Information					
CO #	Date of Approval	% Time	Days	CO \$	Cumulative
			-		
00047	18-Oct-12	40%	-	\$ 134,975.00	\$ 1,797,203.48
00048	29-Oct-12	41%	-	\$ 1,255.00	\$ 1,798,458.48
00049	31-Oct-12	41%	-	\$ 29,712.00	\$ 1,828,170.48
00050	31-Oct-12	41%	-	\$ 555.00	\$ 1,828,725.48
00051	31-Oct-12	41%	-	\$ 445.00	\$ 1,829,170.48
00052	5-Nov-12	42%	-	\$ 16,131.00	\$ 1,845,301.48
00053	13-Nov-12	42%	-	\$ 11,577.00	\$ 1,856,878.48
00054	27-Nov-12	43%	-	\$ 2,286.00	\$ 1,859,164.48
00055	3-Dec-12	43%	-	\$ 5,442.00	\$ 1,864,606.48
00056	6-Dec-12	44%	-	\$ 9,553.00	\$ 1,874,159.48
00057	13-Dec-12	44%	-	\$ 2,722.00	\$ 1,876,881.48
00058	13-Dec-12	44%	-	\$ 3,262.00	\$ 1,880,143.48
00059	18-Dec-12	45%	-	\$ 16,368.00	\$ 1,896,511.48

EXHIBIT 6 – HTWT TRENDS (THROUGH 12/17/12)

Trend Information								
Trend #	Date	% Time	Days	Trended Days	Value	Likelihood	Trend \$	Cumulative
00001	3-Oct-11	14%	-	-	\$ 100,000.00	50%	\$ 50,000.00	\$ 50,000.00
00002	17-Oct-11	15%	-	-	\$ 35,000.00	80%	\$ 28,000.00	\$ 78,000.00
00003	17-Oct-11	15%	-	-	\$ 10,000.00	20%	\$ 2,000.00	\$ 80,000.00
00004	17-Oct-11	15%	-	-	\$ 21,000.00	90%	\$ 18,900.00	\$ 98,900.00
00005	17-Oct-11	15%	-	-	\$ 5,000.00	90%	\$ 4,500.00	\$ 103,400.00
00006	17-Oct-11	15%	-	-	\$ (8,000.00)	0%	\$ -	\$ 103,400.00
00007	17-Oct-11	15%	-	-	\$ 1,000.00	90%	\$ 900.00	\$ 104,300.00
00008	18-Oct-11	15%	-	-	\$ 12,000.00	10%	\$ 1,200.00	\$ 105,500.00
00009	18-Oct-11	15%	-	-	\$ 100,000.00	90%	\$ 90,000.00	\$ 195,500.00
00010	14-Dec-11	19%	-	-	\$ (50,000.00)	90%	\$ (45,000.00)	\$ 150,500.00
00011	16-Dec-11	19%	-	-	\$ 90,000.00	80%	\$ 72,000.00	\$ 222,500.00
00012	11-Jan-12	21%	-	-	\$ 120,000.00	90%	\$ 108,000.00	\$ 330,500.00
00013	6-Feb-12	23%	-	-	\$ 150,000.00	60%	\$ 90,000.00	\$ 420,500.00
00014	7-Feb-12	23%	-	-	\$ 150,000.00	70%	\$ 105,000.00	\$ 525,500.00
00015	7-Feb-12	23%	-	-	\$ 100,000.00	90%	\$ 90,000.00	\$ 615,500.00
00016	7-Feb-12	23%	40.00	20.00	\$ 1,000,000.00	50%	\$ 500,000.00	\$ 1,115,500.00
00017	1-Mar-12	24%	-	-	\$ 40,000.00	90%	\$ 36,000.00	\$ 1,151,500.00
00018	1-Mar-12	24%	-	-	\$ 5,000.00	90%	\$ 4,500.00	\$ 1,156,000.00
00019	1-Mar-12	24%	-	-	\$ 4,478.00	90%	\$ 4,030.20	\$ 1,160,030.20
00020	1-Mar-12	24%	-	-	\$ 5,000.00	90%	\$ 4,500.00	\$ 1,164,530.20
00021	11-Apr-12	27%	-	-	\$ 200,000.00	90%	\$ 180,000.00	\$ 1,344,530.20
00022	11-Apr-12	27%	-	-	\$ 40,000.00	60%	\$ 24,000.00	\$ 1,368,530.20
00023	11-Apr-12	27%	-	-	\$ 330,000.00	10%	\$ 33,000.00	\$ 1,401,530.20
00024	11-Apr-12	27%	-	-	\$ 75,000.00	90%	\$ 67,500.00	\$ 1,469,030.20
00025	19-Jun-12	32%	-	-	\$ 100,000.00	90%	\$ 90,000.00	\$ 1,559,030.20
00026	10-Jul-12	33%	-	-	\$ 28,084.00	40%	\$ 11,233.60	\$ 1,570,263.80
00027	8-Aug-12	35%	-	-	\$ 25,000.00	90%	\$ 22,500.00	\$ 1,592,763.80
00028	8-Aug-12	35%	-	-	\$ 88,315.00	0%	\$ -	\$ 1,592,763.80
00029	8-Aug-12	35%	-	-	\$ 41,495.00	0%	\$ -	\$ 1,592,763.80
00030	8-Aug-12	35%	-	-	\$ 100,000.00	90%	\$ 90,000.00	\$ 1,682,763.80
00031	8-Aug-12	35%	-	-	\$ 14,971.00	50%	\$ 7,485.50	\$ 1,690,249.30
00032	8-Aug-12	35%	-	-	\$ 50,000.00	90%	\$ 45,000.00	\$ 1,735,249.30
00033	8-Aug-12	35%	-	-	\$ 45,336.00	80%	\$ 36,268.80	\$ 1,771,518.10
00034	8-Aug-12	35%	-	-	\$ 100,000.00	70%	\$ 70,000.00	\$ 1,841,518.10
00035	8-Aug-12	35%	-	-	\$ 30,000.00	50%	\$ 15,000.00	\$ 1,856,518.10
00036	8-Aug-12	35%	-	-	\$ 42,984.00	25%	\$ 10,746.00	\$ 1,867,264.10
00037	8-Aug-12	35%	-	-	\$ 14,895.00	90%	\$ 13,405.50	\$ 1,880,669.60
00038	8-Aug-12	35%	-	-	\$ 9,917.00	50%	\$ 4,958.50	\$ 1,885,628.10
00039	28-Aug-12	37%	-	-	\$ 174,378.00	10%	\$ 17,437.80	\$ 1,903,065.90
00040	25-Sep-12	39%	-	-	\$ 30,000.00	60%	\$ 18,000.00	\$ 1,921,065.90
00041	19-Nov-12	43%	-	-	\$ 75,000.00	0%	\$ -	\$ 1,921,065.90
00042	19-Nov-12	43%	-	-	\$ 175,000.00	0%	\$ -	\$ 1,921,065.90
00043	27-Nov-12	43%	-	-	\$ 150,000.00	10%	\$ 15,000.00	\$ 1,936,065.90
00044	17-Dec-12	44%	-	-	\$ 500,000.00	0%	\$ -	\$ 1,936,065.90

EXHIBIT 7 – NIT CHANGE ORDERS (THROUGH 12/3/12)

Change Order Information						
CO #	Date of Approval	% Time	Days	Total Days	CO \$	Cumulative
00001	21-Jul-10	0%	400.00	400.00	\$ -	\$ -
00002	21-Jul-10	0%	-	400.00	\$ -	\$ -
00003	30-Sep-10	5%	-	400.00	\$ 60,000.00	\$ 60,000.00
00004	7-Oct-10	5%	-	400.00	\$ 106,279.00	\$ 166,279.00
00005	11-Nov-10	8%	-	400.00	\$ 66,667.00	\$ 232,946.00
00006	30-Dec-10	11%	-	400.00	\$ 21,638.92	\$ 254,584.92
00007	7-Jan-11	12%	-	400.00	\$ 188,583.06	\$ 443,167.98
00008	21-Jan-11	13%	-	400.00	\$ 3,333.35	\$ 446,501.33
00009	19-Apr-11	19%	-	400.00	\$ 218,230.00	\$ 664,731.33
00010	10-May-11	21%	-	400.00	\$ 861,983.00	\$ 1,526,714.33
00011	4-May-11	20%	-	400.00	\$ 1,058.84	\$ 1,527,773.17
00012	11-May-11	21%	-	400.00	\$ (32,170.00)	\$ 1,495,603.17
00013	18-May-11	21%	-	400.00	\$ 5,315.28	\$ 1,500,918.45
00014	1-Jun-11	22%	-	400.00	\$ -	\$ 1,500,918.45
00015	3-Jun-11	22%	-	400.00	\$ 25,000.00	\$ 1,525,918.45
00016	28-Jun-11	24%	-	400.00	\$ -	\$ 1,525,918.45
00017	25-Aug-11	28%	-	400.00	\$ -	\$ 1,525,918.45
00018	29-Aug-11	28%	-	400.00	\$ 11,824.79	\$ 1,537,743.24
00019	29-Aug-11	28%	12.00	412.00	\$ 9,799.00	\$ 1,547,542.24
00020	6-Sep-11	29%	-	412.00	\$ 74,243.00	\$ 1,621,785.24
00021	7-Sep-11	29%	-	412.00	\$ 86,836.00	\$ 1,708,621.24
00022	8-Sep-11	29%	-	412.00	\$ 25,522.00	\$ 1,734,143.24

Change Order Information						
CO #	Date of Approval	% Time	Days	Total Days	CO \$	Cumulative
00023	8-Sep-11	29%	-	412.00	\$ 54,026.00	\$ 1,788,169.24
00024	8-Sep-11	29%	-	412.00	\$ 21,159.00	\$ 1,809,328.24
00025	13-Sep-11	29%	-	412.00	\$ 3,423.00	\$ 1,812,751.24
00026	15-Sep-11	29%	-	412.00	\$ -	\$ 1,812,751.24
00027	19-Sep-11	30%	-	412.00	\$ -	\$ 1,812,751.24
00028	3-Oct-11	31%	27.00	439.00	\$ -	\$ 1,812,751.24
00029	24-Oct-11	32%	38.00	477.00	\$ -	\$ 1,812,751.24
00030	22-Nov-11	34%	25.00	502.00	\$ -	\$ 1,812,751.24
00031	12-Dec-11	36%	28.00	530.00	\$ 299,110.36	\$ 2,111,861.60
00032	14-Dec-11	36%	6.00	536.00	\$ 324,732.00	\$ 2,436,593.60
00033	23-Feb-12	41%	-	536.00	\$ 21,661.00	\$ 2,458,254.60
00034	24-Feb-12	41%	-	536.00	\$ -	\$ 2,458,254.60
00035	27-Feb-12	41%	-	536.00	\$ 15,291.14	\$ 2,473,545.74
00036	27-Feb-12	41%	67.00	603.00	\$ 16,365.00	\$ 2,489,910.74
00037	27-Feb-12	41%	-	603.00	\$ 21,846.84	\$ 2,511,757.58
00038	8-Mar-12	42%	-	603.00	\$ 2,800,000.00	\$ 5,311,757.58
00039	5-Mar-12	42%	-	603.00	\$ 13,805.98	\$ 5,325,563.56
00040	8-Mar-12	42%	-	603.00	\$ -	\$ 5,325,563.56
00041	21-Mar-12	43%	-	603.00	\$ 397,303.34	\$ 5,722,866.90
00042	4-Apr-12	44%	14.00	617.00	\$ 1,780,405.73	\$ 7,503,272.63
00043	12-Apr-12	44%	-	617.00	\$ 3,063,026.83	\$ 10,566,299.46
00044	19-Apr-12	45%	-	617.00	\$ 40,171.96	\$ 10,606,471.42
00045	19-Apr-12	45%	12.00	629.00	\$ 4,959.00	\$ 10,611,430.42
00046	19-Apr-12	45%	-	-	\$ -	\$ 10,611,430.42



Change Order Information						
CO #	Date of Approval	% Time	Days	Total Days	CO \$	Cumulative
				629.00		
00047	15-May-12	47%	-	629.00	\$ 1,849.65	\$ 10,613,280.07
00048	22-May-12	47%	7.00	636.00	\$ 40,000.00	\$ 10,653,280.07
00049	29-May-12	48%	-	636.00	\$ 413,322.13	\$ 11,066,602.20
00050	5-Jun-12	48%	-	636.00	\$ 725,755.05	\$ 11,792,357.25
00051	5-Jun-12	48%	-	636.00	\$ -	\$ 11,792,357.25
00052	7-Jun-12	48%	-	636.00	\$ 495,720.00	\$ 12,288,077.25
00053	10-Jul-12	50%	-	636.00	\$ 75,637.00	\$ 12,363,714.25
00054	10-Jul-12	50%	-	636.00	\$ 5,843.00	\$ 12,369,557.25
00055	12-Jul-12	51%	-	636.00	\$ 7,738.00	\$ 12,377,295.25
00056	21-Aug-12	53%	-	636.00	\$ 14,468.00	\$ 12,391,763.25
00057	21-Aug-12	53%	-	636.00	\$ 13,627.00	\$ 12,405,390.25
00058	17-Sep-12	55%	-	636.00	\$ 4,011.00	\$ 12,409,401.25
00059	17-Sep-12	55%	-	636.00	\$ 6,955.40	\$ 12,416,356.65
00060	17-Sep-12	55%	-	636.00	\$ 7,459.00	\$ 12,423,815.65
00061	20-Sep-12	56%	-	636.00	\$ -	\$ 12,423,815.65
00062	8-Oct-12	57%	-	636.00	\$ 4,236,893.78	\$ 16,660,709.43
00063	8-Oct-12	57%	21.00	657.00	\$ 495,720.00	\$ 17,156,429.43
00064	8-Oct-12	57%	22.00	679.00	\$ -	\$ 17,156,429.43
00065	12-Oct-12	57%	-	679.00	\$ 136,917.10	\$ 17,293,346.53
00066	12-Oct-12	57%	23.00	702.00	\$ 232,705.84	\$ 17,526,052.37
00067	22-Oct-12	58%	-	702.00	\$ 54,994.64	\$ 17,581,047.01
00068	7-Nov-12	59%	-	702.00	\$ 38,943.00	\$ 17,619,990.01
00069	7-Nov-12	59%	-	702.00	\$ -	\$ 17,619,990.01

Change Order Information						
CO #	Date of Approval	% Time	Days	Total Days	CO \$	Cumulative
00070	14-Nov-12	59%	-	702.00	\$ 3,646.00	\$ 17,623,636.01
00071	3-Dec-12	61%	30.00	732.00	\$ -	\$ 17,623,636.01
00072	3-Dec-12	61%	-	732.00	\$ 495,720.00	\$ 18,119,356.01



EXHIBIT 8 – NIT TRENDS (THROUGH 12/4/12)

Trend Information								
Trend #	Date	% Time	Days	ended Da	Value	Likelihood	Trend \$	Cumulative
00001	20-Jul-10	0%	-	-	\$ 75,000.00	100%	\$ 75,000.00	\$ 75,000.00
00002	17-Aug-10	2%	-	-	\$ 435,000.00	75%	\$ 326,250.00	\$ 401,250.00
00003	30-Aug-10	3%	-	-	\$ -	75%	\$ -	\$ 401,250.00
00004	4-Oct-10	5%	-	-	\$ 110,000.00	75%	\$ 82,500.00	\$ 483,750.00
00005	5-Oct-10	5%	-	-	\$ (2,550.00)	0%	\$ -	\$ 483,750.00
00006	12-Nov-10	8%	-	-	\$ 710,000.00	50%	\$ 355,000.00	\$ 838,750.00
00007	23-Nov-10	9%	-	-	\$ 85,500.00	75%	\$ 64,125.00	\$ 902,875.00
00008	10-Dec-10	10%	-	-	\$ 21,200.00	100%	\$ 21,200.00	\$ 924,075.00
00009	2-Feb-11	14%	-	-	\$ 300,000.00	75%	\$ 225,000.00	\$ 1,149,075.00
00010	21-Feb-11	15%	-	-	\$ 4,500.00	75%	\$ 3,375.00	\$ 1,152,450.00
00011	21-Feb-11	15%	-	-	\$ 125,000.00	100%	\$ 125,000.00	\$ 1,277,450.00
00012	0-Jan-00	0%	-	-	\$ -	0%	\$ -	\$ 1,277,450.00
00013	0-Jan-00	0%	-	-	\$ -	0%	\$ -	\$ 1,277,450.00
00014	19-Apr-11	19%	-	-	\$ 0.01	75%	\$ 0.01	\$ 1,277,450.01
00015	16-May-11	21%	-	-	\$ 500,000.00	75%	\$ 375,000.00	\$ 1,652,450.01
00016	16-May-11	21%	-	-	\$ 47,500.00	75%	\$ 35,625.00	\$ 1,688,075.01
00017	21-Jun-11	23%	-	-	\$ 1,800,000.00	100%	\$ 1,800,000.00	\$ 3,488,075.01
00018	23-Jun-11	24%	-	-	\$ 60,000.00	75%	\$ 45,000.00	\$ 3,533,075.01
00019	6-Dec-11	35%	11.00	11.00	\$ 3,500,000.00	100%	\$ 3,500,000.00	\$ 7,033,075.01
00020	7-Dec-11	35%	-	-	\$ 100,000.00	50%	\$ 50,000.00	\$ 7,083,075.01
00021	7-Dec-11	35%	61.00	45.75	\$ 1.00	75%	\$ 0.75	\$ 7,083,075.76
00022	7-Dec-11	35%	-	-	\$ 400,000.00	75%	\$ 300,000.00	\$ 7,383,075.76
00023	23-Jan-12	39%	6.00	3.00	\$ 1,000,000.00	50%	\$ 500,000.00	\$ 7,883,075.76
00024	26-Mar-12	43%	-	-	\$ 800,000.00	75%	\$ 600,000.00	\$ 8,483,075.76
00025	29-Mar-12	43%	50.00	37.50	\$ 2,000,000.00	75%	\$ 1,500,000.00	\$ 9,983,075.76
00026	30-Mar-12	43%	-	-	\$ -	0%	\$ -	\$ 9,983,075.76
00027	30-Mar-12	43%	124.00	93.00	\$ 991,440.00	75%	\$ 743,580.00	\$ 10,726,655.76
00028	27-Apr-12	45%	-	-	\$ 250,000.00	75%	\$ 187,500.00	\$ 10,914,155.76
00029	22-May-12	47%	-	-	\$ 297,000.00	75%	\$ 222,750.00	\$ 11,136,905.76
00030	4-Dec-12	61%	-	-	\$ (1,000,000.00)	50%	\$ (500,000.00)	\$ 10,636,905.76

EXHIBIT 9 – BDPL CHANGE ORDERS (THROUGH 12/4/12)

Change Order Information					
CO #	Date of Approval	% Time	Days	CO \$	Cumulative
00001	24-Jun-10	5%	-	\$ -	\$ -
00002	1-Dec-10	13%	-	\$ 49,645.75	\$ 49,645.75
00003	3-Dec-10	13%	-	\$ 4,672.50	\$ 54,318.25
00004	8-Dec-10	14%	-	\$ 70,000.35	\$ 124,318.60
00006	8-Dec-10	14%	-	\$ 4,672.50	\$ 128,991.10
00007	28-Mar-11	19%	-	\$ 35,182.57	\$ 164,173.67
00008	30-Jun-11	25%	-	\$ -	\$ 164,173.67
00009	6-Jul-11	25%	-	\$ 18,800.00	\$ 182,973.67
00010	2-Aug-11	26%	-	\$ -	\$ 182,973.67
00011	3-Aug-11	26%	-	\$ (200,000.00)	\$ (17,026.33)
00013	19-Oct-11	30%	-	\$ (495.94)	\$ (17,522.27)
00012	16-Nov-11	32%	-	\$ -	\$ (17,522.27)
00014	20-Dec-11	34%	-	\$ -	\$ (17,522.27)
00016	9-Feb-12	37%	-	\$ -	\$ (17,522.27)
00015	1-Mar-12	38%	-	\$ 23,048.46	\$ 5,526.19
00017	22-Jun-12	44%	-	\$ 2,906.00	\$ 8,432.19
00018	6-Nov-12	51%	-	\$ -	\$ 8,432.19

EXHIBIT 10 – BDPL TREND TRENDS (THROUGH 12/4/12)

Trend Information								
Trend #	Date	% Time	Days	ended Da	Value	Likelihood	Trend \$	Cumulative
00001	31-Jan-11	16%	-	-	\$ 950,000.00	80%	\$ 760,000.00	\$ 760,000.00
00002	9-Feb-11	17%	-	-	\$ 36,000.00	50%	\$ 18,000.00	\$ 778,000.00
00003	9-Feb-11	17%	-	-	\$ 37,500.00	50%	\$ 18,750.00	\$ 796,750.00
00102	10-Mar-11	18%	-	-	\$ 36,000.00	50%	\$ 18,000.00	\$ 814,750.00
00103	10-Mar-11	18%	-	-	\$ 37,500.00	50%	\$ 18,750.00	\$ 833,500.00
00104	10-Mar-11	18%	-	-	\$ 22,000.00	75%	\$ 16,500.00	\$ 850,000.00
00105	15-Mar-11	19%	-	-	\$ 3,500.00	75%	\$ 2,625.00	\$ 852,625.00
00106	16-Mar-11	19%	-	-	\$ 52,500.00	50%	\$ 26,250.00	\$ 878,875.00
00107	12-May-11	22%	-	-	\$ 120,000.00	70%	\$ 84,000.00	\$ 962,875.00
00108	24-Oct-11	31%	-	-	\$ 450,000.00	50%	\$ 225,000.00	\$ 1,187,875.00
00109	5-Jan-12	35%	-	-	\$ 360,000.00	95%	\$ 342,000.00	\$ 1,529,875.00
00110	15-Feb-12	37%	-	-	\$ 98,000.00	75%	\$ 73,500.00	\$ 1,603,375.00
00111	7-Mar-12	38%	-	-	\$ 950,000.00	95%	\$ 902,500.00	\$ 2,505,875.00
00112	23-Mar-12	39%	-	-	\$ 606,000.00	95%	\$ 575,700.00	\$ 3,081,575.00
00113	31-Aug-12	48%	-	-	\$ 1,870,000.00	50%	\$ 935,000.00	\$ 4,016,575.00

EXHIBIT 11 – SOFT COSTS EVALUATION 5 MEGA PROJECTS

	Forecast Construction (RWBC Projection)	Remaining Construction - (Expenditures through) (12/31/12)	YEAR					
			2013	2014	2015	2016	2017	2018
Construction Costs	466,112,820	316,956,717	64,811,878	64,811,878	64,811,878	64,811,878	57,709,206	-
CDR-Soft Costs	Expended Through 2012	Total Remaining (2013-2017)	2013	2014	2015	2016	2017	2018
SFPUC	16,124,970	7,725,038	1,802,248	1,802,248	1,802,248	1,083,194	935,202	299,899
Other City Departments	5,081,887	5,574,706	1,249,005	1,031,145	1,013,079	730,979	608,397	942,101
Consultants	47,687,105	52,181,219	10,350,207	10,507,882	10,983,484	10,727,662	9,611,985	-
Total Soft Costs:	68,893,962	65,480,963	13,401,460	13,341,274	13,798,810	12,541,835	11,155,584	1,242,000
As % of Construction		10.61%	5.54%	7.81%	16.89%	19.35%	19.33%	n/a
FTE SFPUC			6	6	6	4	3	1
FTE Other City Departments			4	4	4	3	2	3
FTE Consultants			37	37	39	38	34	-
TOTAL FTE CDR:			48	47	49	44	40	4
Remaining Construction/Remaining Soft Costs:		4.84						
Remaining Construction/Sum FTE:		\$ 1,365,004						

	Forecast Construction (RWBC Projection)	Remaining Construction - (Expenditures through) (12/31/12)	YEAR					
			2013	2014	2015	2016	2017	2018
Construction Costs	132,725,576	44,993,970	44,993,970	-	-	-	-	-
CSSA-Soft Costs	Expended Through 2012	Total Remaining (2013-2017)	2013	2014	2015	2016	2017	2018
SFPUC	15,556,436	835,962	344,422	491,540	-	-	-	-
Other City Departments	2,560,994	2,649,090	2,645,585	3,506	-	-	-	-
Consultants	22,021,180	3,449,557	3,449,557	-	-	-	-	-
Total:	40,138,610	6,934,610	6,439,564	495,046	-	-	-	-
As % of Construction		15.41%	14.31%	n/a	n/a	n/a	n/a	n/a
FTE SFPUC			1	2	-	-	-	-
FTE Other City Departments			11	2	-	-	-	-
FTE Consultants			12	-	-	-	-	-
TOTAL FTE CSSA:			24	3	n/a	n/a	n/a	n/a
Remaining Construction/Remaining Soft Costs:		6.49						
Remaining Construction/Sum FTE:		\$ 1,632,866						

	Forecast Construction (RWBC Projection)	Remaining Construction - (Expenditures through) (12/31/12)	YEAR					
			2013	2014	2015	2016	2017	2018
Construction Costs	199,161,732	136,824,110	63,376,650	63,376,650	10,070,810	-	-	-
HTWT-Soft Costs	Expended Through 2012	Total Remaining (2013-2017)	2013	2014	2015	2016	2017	2018
SFPUC	18,603,435	11,946,174	4,923,306	4,923,306	2,099,562	-	-	-
Other City Departments	2,702,550	2,589,568	1,162,237	1,162,237	265,095	-	-	-
Consultants	26,655,125	14,565,820	6,544,451	6,874,967	1,146,402	-	-	-
Total:	47,961,109	29,101,562	12,629,993	12,960,510	3,511,058	-	-	-
As % of Construction		21.27%	19.93%	20.45%	34.86%	n/a	n/a	n/a
FTE SFPUC			17	17	7	-	-	-
FTE Other City Departments			4	4	1	-	-	-
FTE Consultants			23	24	4	-	-	-
TOTAL FTE HTWT:			45	46	12	-	-	-
Remaining Construction/Remaining Soft Costs:		4.70	(Dollars of remaining construction/Dollars of Remaining Soft Costs)					
Remaining Construction/Sum FTE:		\$ 1,325,853	(Dollar of remaining construction/Total Staffing Planned to complete work)					



	Forecast Construction (RWBC Projection)	Remaining Construction (Expenditures through)	YEAR					
			2013	2014	2015	2016	2017	2018
Construction Costs	257,009,312	70,163,542	48,229,177	21,934,365	-	-	-	-
NIT-Soft Costs	Expended Through 2012	Total Remaining (2013-2017)	2013	2014	2015	2016	2017	2018
SFPUC	17,384,631	1,693,225	686,736	686,736	296,090	23,663	-	-
Other City Departments	3,059,064	2,098,193	751,031	751,031	401,194	194,937	-	-
Consultants	29,941,329	11,889,000	5,553,709	5,474,470	860,821	-	-	-
Total:	50,385,024	15,680,418	6,991,476	6,912,237	1,558,105	218,600	-	-
As % of Construction		22.35%	14.50%	31.51%	n/a	n/a	n/a	n/a
FTE SFPUC			2	2	1	-	-	-
FTE Other City Departments			3	3	1	1	-	-
FTE Consultants			20	19	3	-	-	-
TOTAL FTE NIT:			25	25	6	1	-	-
Remaining Construction/Remaining Soft Costs:		4.47						
Remaining Construction/Sum FTE:		\$ 1,263,743						

	Forecast Construction (RWBC Projection)	Remaining Construction (Expenditures through)	YEAR					
			2013	2014	2015	2016	2017	2018
Construction Costs	216,316,611	48,022,288	20,597,103	20,597,103	6,828,081	-	-	-
BDPL-Soft Costs	Expended Through 2012	Total Remaining (2013-2017)	2013	2014	2015	2016	2017	2018
SFPUC	10,648,369	2,617,330	1,098,873	807,499	710,959	-	-	-
Other City Departments	2,862,592	2,748,296	914,571	1,121,900	711,825	-	-	-
Consultants	24,220,460	12,937,567	5,564,465	5,526,681	1,846,422	-	-	-
Total:	37,731,421	18,303,194	7,577,908	7,456,080	3,269,206	-	-	-
As % of Construction		38.11%	36.79%	36.20%	47.88%	n/a	n/a	n/a
FTE SFPUC			4	3	3	-	-	-
FTE Other City Departments			3	4	3	-	-	-
FTE Consultants			20	20	7	-	-	-
TOTAL FTE BDPL:			27	26	12	-	-	-
Remaining Construction/Remaining Soft Costs:		2.62						
Remaining Construction/Sum FTE:		\$ 739,886						

GLOSSARY OF DOCUMENTS REVIEWED

1. WSIP PROGRESS SCHEDULES

- a. Original Scheduled folders
 - i. Bay Division Pipeline Reliability Upgrade Tunnel Contractors P6
 - 1. BT August 2012 Update
 - 2. BT July 2012 Update
 - 3. BT September 2012
 - ii. P6 Native Cm Contractor Progress Schedules
 - 1. Harry Tracy July_Aug_Sep
 - 2. NIT July_Aug_Sep
 - 3. CSSA July
 - 4. CDR July_Aug_Sep
 - 5. CSSA Aug_Sep
 - 6. Bay Tunnel July_Aug_Sep
 - iii. Crystal Springs San Andreas (CSSA) Transmission Upgrade Contractors P6
 - 1. July 25, 2012 Monthly Update
 - 2. August 25, 2012 Monthly Update
 - 3. September 2012 Monthly Update - Final
 - iv. Calaveras Dam Replacement Contractors P6
 - 1. September Update Schedule – 09.25.2012
 - 2. August Update 08.2012
 - 3. July Update Schedule 07.25.2012
 - v. Harry Tracy Water Treatment Plant (HTWTP) Long Term Improvements Contractors P6
 - 1. Submittal 01310-012, Monthly Revision, Schedule update, for August 2012
 - 2. Submittal 01310-010, Monthly Revision, Schedule update, for September 2012
 - vi. New Irvington Tunnel Contractors P6
 - 1. NIT Schedule Update for August 25, 2012
 - 2. NIT Schedule Update for September 25, 2012
 - 3. NIT Schedule Update for July 25, 2012
 - vii. Quarterly P6
 - 1. September 2012 Quarterly
 - 2. June 2012 Quarterly
 - viii. Schedule Reports
 - 1. New Irvington Tunnel
 - a. September 2012 – CUW35901 Schedule
 - b. September 2012 – Var Report
 - c. July 2012 – CUW35901 Var Report
 - d. July 2012 – CUW35901 Schedule
 - e. August 2012 – CUW35901 Schedule
 - f. August 2012 – CUW35901 Car Report
 - 2. CS SA Transmission Upgrade

- a. September 2012 – CUW37101 Schedule
- b. September 2012 – CUW37101 Var Report
- c. July 2012 – CUW37101 Var Report
- d. July 2012 – CUW37101 Schedule
- e. August 2012 – CUW37101 Var Report
- f. August 2012 – CUW37101 Schedule
- 3. HTWTP Long Term Improvements
 - a. September 2012 – CUW36701 Schedule
 - b. September 2012 – CUW36701 Var Report
 - c. July 2012 – CUW36701 Schedule
 - d. July 2012 – CUW36701 Var Report
 - e. August 2012 – CUW36701 Schedule
 - f. August 2012 – CUW36701 Var Report
- 4. BDPL Reliability Upgrade Tunnel
 - a. September 2012 – CUW36801 Schedule
 - b. September 2012 – CUW36801 Var Report
 - c. July 2012 – CUW36801 Var Report
 - d. July 2012 – CUW36801 Schedule
 - e. August 2012 – CUW36801 Schedule
 - f. August 2012 – CUW36801 Var Report
- 5. Calaveras Dam Replacement
 - a. September 2012 – CUW37401 Schedule
 - b. September 2012 – CUW37401 Var Report
 - c. July 2012 – CUW37401 Var Report
 - d. July 2012 – CUW37401 Schedule
 - e. August 2012 – CUW37401 Schedule
 - f. August 2012 – CUW37401 Var Report
- b. Detailed Cost Reports
 - i. New Irvington Tunnel Construction Documents
 - 1. NIT PCS – July 13, 2012
 - 2. NIT Trends – July 13, 2012
 - 3. 2012.07 NIT – PCS – August 17, 2012
 - 4. 2012_08 NIT – Change Order Log August 2012
 - 5. CUW35901 NIT – August 2012
 - 6. CUW35901 NIT – September 2012
 - 7. CUW35901 NIT Contract Summary Report
 - 8. 2012.09 NIT – Change Order Log September 2012
 - 9. 2012.07 NIT – Trends August 17, 2012
 - 10. 2012.08 NIT – PCS – September 12, 2012
 - 11. 2012.09 NIT – Risk Register – Top 10 – September 24, 2012
 - 12. 2012.08 NIT – Contract Summary
 - 13. 2012.09 NIT – Risk Register – Top 10 – August 28, 2012
 - 14. 2012.09 NIT – Trends – November 6, 2012
 - 15. 2012.08 NIT – Trends – September 12, 2012
 - 16. 2012.07 NIT – July Change Order Log
 - 17. 2012.07 NIT – Risk Register – Top 10 – July 25, 2012
 - 18. 2012.09 NIT Contract Summary Report



19. 2012.09 NIT – PCS – November 6, 2012
20. CUW35901 NIT – July 2012
- ii. Harry Tracy Water Treatment Plant (HTWP) Long Term Improvements
 1. HTWTP PCS – July 13, 2012
 2. HTWTP Trends – July 13, 2012
 3. 2012.07 – HTWTP LT Contract Summary Report
 4. CUW36701 HTWTP – September 2012
 5. 2012.09 HTWTP LT Change Order Log – September 2012
 6. 2012.08 HTWTP LT Trends – September 12, 2012
 7. 2012.08 HTWTP PCS – September 12, 2012
 8. 2012.09 HTWTP LT Contract Summary Report
 9. CUW36701 HTWTP – July 2012
 10. 2012.08 HTWTP Risk Register – Top 10 – August 2012
 11. 2012.08 HTWTP LT Contract Summary Report
 12. 2012.07 HTWTP LT PCS – August 17, 2012
 13. 2012.09 HTWTP Trends – November 6, 2012
 14. 2012.09 HTWTP PCS – November 6, 2012
 15. 2012.07 HTWTP LT Change Order Log – July 2012
 16. 2012.09 HTWTP LT Risk Register – Top 10 – September 24, 2012
 17. CUW36701 – HTWTP – August 2012
 18. 2012.07 HTWTP LT Risk Register – Top 10 – July 30, 2012
 19. 2012.08 HTWTP LT Change Order Log – August 2012
 20. 2012.07 HTWTP LT Trends – August 17, 2012
- iii. Crystal Springs – San Andreas (CSSA) Transmission Upgrade
 1. CSSA PCS – July 13, 2012
 2. CSSA Trends – July 13, 2012
 3. 2012.08 CSSA August Change Order Log
 4. 2012.07 CSSA Contract Summary Report rev1
 5. 2012.08 CSSA Trends – September 12, 2012
 6. 2012.09 CSSA Risk Register – Top 10 – September 19, 2012
 7. 2012.08 CSSA Contract Summary Report
 8. 2012.09 CSSA PCS – November 6, 2012
 9. 2012.08 CSSA PCS – September 12, 2012
 10. 2012.07 CSSA Trends – August 17, 2012
 11. 2012.09 CSSA Contract Summary Report
 12. CUW37101 CSSA – September 2012
 13. 2012.07 CSSA PCS – August 17, 2012
 14. CU237101 CSSA – July 2012
 15. 2012.09 CSSA September Change Order Log
 16. 2012.07 CSSA July Change Order Log
 17. 2012.08 CSSA Risk Register – Top 10 – August 2012
 18. 2012.07 CSSA Risk Register – Top 10 – July 2012
 19. CUW37101 CSSA – August 2012
 20. 2012.09 Trends – November 6, 2012
- iv. Calaveras Dam Replacement Construction Documents
 1. CDRP PCS – July 13, 2012
 2. CDRP Trends – July 12, 2012

3. 2012.07 CDRP Contract Summary
 4. 2012.07 CDRP July Change Order Log
 5. 2012.09 CDRP Contract Summary Report
 6. 2012.08 CDRP Contract Summary Report
 7. CUW37401 CDRP – August 2012
 8. 2012.08 CDRP PCS – September 12, 2012
 9. 2012.08 CDRP August Change Order Log
 10. CUW37401 CDRP August Change Order Log
 11. CUW37401 CDRF July 2012
 12. 2012.09 CDRP PCS – November 6, 2012
 13. 2012.09 CDRP Risk Register – Top 10 – 30 September 2012
 14. 2012.09 CDRP September Change Order Log
 15. 2012.08 CDRP Risk Register – Top 10 – August 31, 2012
 16. 2012.07 CDRP PCS – August 17, 2012
 17. 2012.09 CDRP Trends – November 6, 2012
 18. CUW37401 CDRP – September 2012
 19. 2012.07 CDRP Trends – August 17, 2012
 20. 2012.07 CDRP Risk Register – Top 10 – July 27, 2012
 21. 2012.08 CDRP Trends – September 12, 2012
- v. Bay Division Pipeline Reliability Upgrade Tunnel
1. BDPL PCS – July 13, 2012
 2. BDPL Trends – July 13, 2012
 3. 2012.08 BDPL Risk Register – Top 10 – August 23, 2012
 4. 2012.08 BDPL Contract Summary
 5. 2012.07 BDPL PCS – August 17, 2012
 6. 2012.09 BDPL Risk Register – Top 10 – September 18, 2012
 7. 2012.07 BDPL Trends – August 17, 2012
 8. 2012.08 BDPL August Change Order Log
 9. CUW36801 BDPL – September 2012
 10. 2012.09 BDPL Trends – November 6, 2012
 11. 2012.07 BDPL Risk Register – Top 10 – July 23, 2012
 12. 2012.09 BDPL September Change Order Log
 13. 2012.08 BDPL PCS – September 12, 2012
 14. 2012.07 BDPL July Change Order Log
 15. 2012.09 BDPL Contract Summary Report
 16. CUW36801 BDPL – July 2012
 17. 2012.07 BDPL Contract Summary Report
 18. 2012.08 BDPL Trends – September 12, 2012
 19. CUW36801 BDPL – August 2012
 20. 2012.09 BDPL PCS – November 6, 2012

2. Detailed Cost Reports

- a. New Irvington Tunnel Construction Documents
 - i. 2012.07 NIT Trends – August 17, 2012
 - ii. 2012.08 NIT PCS – September 12, 2012



- iii. 2012.09 NIT Risk Register – Top 10 – September 24, 2012
- iv. 2012.08 NIT Contract Summary Report
- v. 2012.08 NIT Risk Register – Top 10 – August 28, 2012
- vi. 2012.09 NIT Trends – November 6, 2012
- vii. 2012.08 NIT Trends – September 12, 2012
- viii. 2012.07 NIT July Change Order
- ix. 2012.07 NIT Risk Register – Top 10 – July 25, 2012
- x. 2012.09 NIT Contract Summary Report
- xi. 2012.09 NIT PCS – November 6, 2012
- xii. CUW35901 NIT – July 2012
- b. Harry Tracy Water Treatment Plant (HTWP) Long Term Improvements
 - i. HTWTP PCS – July 13, 2012
 - ii. HTWTP Trends – July 13, 2012
 - iii. 2012.07 HTWTP LT Contract Summary Report
 - iv. CUW36701 HTWTP – September 2012
 - v. 2012.09 HTWTP LOT Change Order Log – September 2012
 - vi. 2012.08 HTWTP LT PCS – September 12, 2012
 - vii. 2012.09 HTWTP LT Contract Summary Report
 - viii. CUW36701 HTWTP – July 2012
 - ix. 2012.08 HTWTP LT – Risk Register – Top 10 – August 23, 2012
 - x. 2012.08 HTWTP LT Contract Summary Report
 - xi. 2012.07 HTWTP LT PCS – August 17, 2012
 - xii. 2012.09 HTWTP Trends – November 6, 2012
 - xiii. 2012.09 HTWTP PCS – November 6, 2012
 - xiv. 2012.07 HTWTP LOT Change Order Log – July 2012
 - xv. 2012.09 HTWTP LOT – Risk Register – Top 10 – September 24, 2012
 - xvi. CUW36701 HTWTP – August 2012
 - xvii. 2012.07 HTWTP LT – Risk Register – Top 10 – July 30, 2012
 - xviii. 2012.08 HTWTP LT Trends – August 17, 2012
- c. Crystal Springs – San Andreas (CSSA) Transmission Upgrade
 - i. CSSA PCS – July 13, 2012
 - ii. CSSA Trends – July 13, 2012
 - iii. 2012.08 CSSA August Change Order Log
 - iv. 2012.07 CSSA Contract Summary Report Rev1
 - v. 2012.08 CSSA Trends – September 12, 2012
 - vi. 2012.09 CSSA Risk Register – Top 10 – September 19, 2012
 - vii. 2012.08 CSSA Contract Summary Report
 - viii. 2012.09 CSSA PCS – November 6, 2012
 - ix. 2012.08 CSSA PCS – September 12, 2012
 - x. 2012.07 CSSA Trends – August 17, 2012
 - xi. 2012.09 CSSA Contract Summary Report
 - xii. CUW37101 CSSA – September 2012
 - xiii. 2012.07 CSSA PCS – 17 August 2012
 - xiv. CUW37101 CSSA – July 2012
 - xv. 2012.09 CSSA September Change Order Log
 - xvi. 2012.07 CSSA July Change Order Log
 - xvii. 2012.08 CSSA Risk Register – Top 10 – August 17, 2012

- xviii. 2012.07 CSSA Risk Register – Top 10 – July 20, 2012
- xix. CUW37101 CSSA – August 2012
- xx. 2012.09 CSSA Trends – November 6, 2012
- d. Calaveras Dam Replacement Construction Documents
 - i. CDRP PCS – July 13, 2012
 - ii. CDRP Trends – July 13, 2012
 - iii. 2012.07 CDRP Contract Summary Report
 - iv. 2012.07 CDRP July Change Order Log
 - v. 2012.09 CDRP Contract Summary Report
 - vi. 2012.08 CDRP Contract Summary Report
 - vii. CUW37401 CDRP – August 2012
 - viii. 2012.08 CDRP PCS – September 12, 2012
 - ix. 2012.08 CDRP August Change Order Log
 - x. CUW37401 CDRP – July 2012
 - xi. 2012.09 CDRP PCS – November 6, 2012
 - xii. 2012.09 CDRP Risk Register – Top 10 – September 30, 2012
 - xiii. 2012.09 CDRP September Change Order Log
 - xiv. 2012.08 CDRP Risk Register – Top 10 – August 2012
 - xv. 2012.07 CDRP PCS – August 17, 2012
 - xvi. 2012-09 CDRP Trends – November 6, 2012
 - xvii. CUW37401 CDRP Trends – August 17, 2012
 - xviii. 2012.07 CDRP Risk Register – Top 10 – July 27, 2012
 - xix. 2012.08 CDRP Trends – September 12, 2012
- e. Bay Division Pipeline Reliability Upgrade Tunnel
 - i. BDPL PCS – July 13, 2012
 - ii. BDPL Trends – July 13, 2012
 - iii. 2012.08 BDPL Risk Register – Top 10 – August 23, 2012
 - iv. 2012.08 BDPL Contract Summary Report
 - v. 2012.07 BDPL PCS – August 17, 2012
 - vi. 2012.09 BDPL Risk Register – Top 10 – September 18, 2012
 - vii. 2012.07 BDPL Trends – August 17, 2012
 - viii. 2012.08 BDPL August Change Order Log
 - ix. CUW36801 BDPL – September 2012
 - x. 2012.09 BDPL Trends – November 6, 2012
 - xi. 2012.07 BDPL Risk Register – Top 10 – July 2012
 - xii. 2012.09 BDPL September Change Order Log
 - xiii. 2012.08 BDPL PCS – September 12, 0102
 - xiv. 2012.07 BDPL July Change Order Log
 - xv. 2012.09 BDPL Contract Summary Report
 - xvi. CUW367801 BDPL – July 2012
 - xvii. 2012.07 BDPL Contract Summary Report
 - xviii. 2012.08 BDPL Trends – September 12, 2012
 - xix. CUW36801 BDPL – August 2012
 - xx. 2012.09 BDPL PCS – November 6, 2012

3. WSIP Construction Contract Documents

- a. Crystal Springs – San Andreas (CSSA) Transmission Upgrade
 - i. Executed Contract
 - 1. SFPUC - 871171
 - ii. Contract No. WD 2601 Plan Vol.1 of 2
 - iii. Notice to Users of this DVD
 - iv. Contract No. WD 2601 Spec vol.1 of 3
 - v. Contract No. WD 2601 Plan vol.2 of 2
 - vi. Contract No. WD 2601 Spec vol3 of 3
 - vii. Contract No. WD 2601 Spec vol.2 of 3
- b. Bay Division Pipeline Reliability Upgrade Tunnel
 - i. Executed Contract
 - 1. SFPUC - 841160
 - ii. Bay Division Pipelines Reliability Upgrade – WD-2531 11x17
 - iii. WD-2531 Contract Specs vol.1 of 2
 - iv. WD-2531 Contract Specs vol.1 of 2
- c. Calaveras Dam Replacement Construction Documents
 - i. Executed Contract
 - 1. SFPUC - 841163
 - ii. Plans WD 2551
 - iii. Contract WD 2551 vol.1
 - iv. Notice to Users of this CD.
 - v. Contract No WD 2551 vol.2
- d. Harry Tracy Water Treatment Plant (HTWP) Long Term Improvements
 - i. WD-2596 Reference Documents
 - 1. Haz Mat
 - a. SCA – April 2009
 - 2. Geotechnical
 - a. 7 GTC – July 2009
 - b. 6 GTC – July 2009
 - c. 5 GTC – July 2009
 - d. 4 GTC – June 2009
 - e. 3 GTC – April 2009
 - f. 2 GTC – May 2009
 - g. 1 GTC_GDR – Dec 2009
 - 3. Disclaimer
 - a. Notice to Users of this CD
 - ii. Executed Contract
 - iii. WD-2596 Specs vol.2 of 4
 - iv. WD-2596 Specs vol.4 of 4
 - v. WD-2596 Specs vol.3 of 4
 - vi. WD-2596 Specs vol.1 of 4
 - vii. WD-2596 Plans vol.2 of 4
 - viii. WD-2596 Plans vol.4 of 4
 - ix. WD-2596 Plans vol.3 of 4
 - x. Notice to Users of this CD
 - xi. WD-2596 Plans vol.1 of 4



- e. New Irvington Tunnel Construction Documents
 - i. Executed Contract
 - 1. SFPUC - 841169
 - ii. Contract No. WD-2581 vol.1 of 4 -01.06.10
 - iii. WD-2581 NIT
 - iv. Contract no. WD-2581 – 12.24.09
 - v. GBR Final PDF for Print 2010.01.04

4. Project Photos

- a. Calaveras Dam Replacement Construction Documents
 - i. Photos
 - 1. MG 7584 1
 - 2. MG 7386 1
 - 3. MG 7359 1
 - 4. MG 7380 1
 - 5. MG 7350 1
 - 6. MG 7356 1
 - ii. Calaveras Dam 3
 - iii. Calaveras Dam 8
 - iv. Calaveras Dam 4
 - v. Calaveras Dam 5
- b. New Irvington Tunnel Constructions Documents
 - i. NITO
 - ii. NIT5
 - iii. NIT8
 - iv. NIT2
 - v. NIT6
- c. Bay Division Pipeline Reliability Upgrade Tunnel
 - i. Bay Tunnel0
 - ii. Bay Tunnel8
 - iii. Bay Tunnel6
 - iv. Bay Tunnel TBM
 - v. Bay Tunnel1
- d. Harry Tracy Water Treatment Plant (HTWP) Long Term Improvements
 - i. HTWTP10
 - ii. HTWTP4
 - iii. HTWTP7
 - iv. HTWTP2
 - v. HTWTP8
- e. Crystal Springs – San Andreas (CSSA) Transmission Upgrade
 - i. CSSA5
 - ii. CSSA2
 - iii. CSSA4
 - iv. CSSA9
 - v. CSSA0

- f. ASCE Montreal 2012 – Tunnels

5. Daily Project Progress QA Reports

- a. HTWTP July thru September Daily Reports
- b. CSSA Upgrade July thru September Daily Reports
- c. Calaveras Dam July through September Daily QA Reports Log
- d. NIT July thru September Daily Report Log
- e. Bay Tunnel July thru September Daily QA Report Log
- f. Report Example BDPL Tunnel No. 0271 – 09.30.2012

6. Applications for Payments

- a. Bay Division Pipeline Reliability Upgrade Tunnel
 - i. Bay Tunnel Application for Payment – August 2012
 - ii. Bay Tunnel Application for Payment - July 2012
 - iii. Bay Tunnel Application for Payment – September 2012
- b. Calaveras Dam Replacement Construction Documents
 - i. CDRP Application for Payment – August 2012
 - ii. CDRP Application for Payment – July 2012
 - iii. CDRP Application for Payment – September 2012
- c. Crystal Springs – San Andreas (CSSA) Transmission Upgrade
 - i. CSSA Application for Payment – July 2012
 - ii. CSSA Application for Payment – September 2012
 - iii. CSSA Application for Payment – August 2012
- d. Harry Tracy Water Treatment Plant (HTWP) Long Term Improvements
 - i. HTWTP LT Application for Payment – July 2012
 - ii. HTWTP LT Application for Payment – August 2012
 - iii. HTWTP LT Application for Payment – September 2012
- e. New Irvington Tunnel Construction Documents
 - i. NIT Application for Payment – August 2012
 - ii. NIT Application for Payment – September 2012
 - iii. NIT Application for Payment – July 2012

7. Change Orders

- a. Calaveras Dam Replacement Change Orders
 - i. CDRP CO #25
 - 1. CDRP CO #25
 - ii. CDRP CO #27
 - 1. CDRP CO #27
 - iii. Calaveras PCO #20 Estimates
 - 1. PCO #20 Tabs 1-18
 - a. Tab 4
 - i. Tab 20 Contract Drawings
 - b. Tab 18
 - i. Tab 18 Time Related Pricing
 - c. Tab 17
 - i. Tab 17 Standby Pricing
 - d. Tab 16
 - i. Tab 16 Acceleration Pricing
 - e. Tab 15
 - i. Tab 15 Project Escalator Pricing

- f. Tab 14
 - i. Tab 14.DSC Discover Explore Pricing
 - g. Tab 13
 - i. Tab 13 Environmental Costs
 - h. Tab 12
 - i. Tab 12 Embankment Pricing
 - i. Tab 11
 - i. Tab 11 Disposal Site Pricing
 - j. Tab 10
 - i. Tab 10 Stilling Basin Pricing
 - k. Tab 9
 - i. Tab 9 Spillway Exc. Pricing
 - l. Tab 8
 - i. Tab 8 New Contract Unit Pricing
 - m. Tab 7
 - i. Tab 7 PCO 20 Contract Unit Price Details
 - n. Tab 6
 - i. Tab 6 PCO 20 Pricing Summary
 - o. Tab 5
 - i. Tab 5 RBL1 Summary Bar Compare BL 120612
 - p. Tab 3
 - i. Tab 3 PCO 20 Disposal Site Drawings
 - q. Tab 1
 - i. Tab 1 City Letter No. WD_2551-00129 PCO No. 20
 - r. Tab 2
 - i. Tab 2 Proposal 10.17.12
2. PCO #20 Appendix 2 Contractor's Schedule Detailed Activities by WBS
 3. PCO No. 20 Cost Estimate
 4. PCO #20 Appendix 1 Contractors Schedule Summary Bar Chart by WBS
 5. SFPUC 325 PCO #20 Contractors Cost Proposal
- iv. Tech Memo
 1. CDRP Final TMs for Commission on Observation Hill Issue Presented at Commission Meeting 11.13.2012
 - v. Slides
 1. SFPUC CDRP Presentation – Nov 2012
 2. Left Abutment Slides – Revised Sunol CAC
 - vi. CDRFP CO #13
 1. 9. CDRP Rev Spec Sec 02266 CO #13 Attachment 3
 2. 19. CDRP Approved Change Order 2 with Revised Drawings CO #13 Attachment D
 3. 18. CDRP URS Analyses CO #13 Attachment C
 4. 17. CDRP Engineers Schedule & Contractors As-Bid Schedule CO #13 Attachment B
 5. 16. CDRP Contract Drawings As-Bid CO #13 Attachment A
 6. 15. CDRP New Design Drawing FD-16.1 CO #13 Attachment 8
 7. 13. CDRP Rev Design Drawing FD-15.R1 CO #13 Attachment 7
 8. 12. CDRP Rev Design Drawing FD-2.R1 CO #13 Attachment 6

9. 11. CDRP Rev Spec Sec 00802 CO #13 Attachment 5
10. 2. CDRP Comparative Schedule CO #13 Attachment H
11. 20. CDRP Executed CO #13
12. CDRP CO #13 Attachments TOC
13. 8. CDRP Rev Specs Sec 02227 CO #13 Attachment 2
14. 5 CDRP Evaluation of CCO CO #13 Attachment 1
15. 6. CDRP Cross Section and Profile CO #13 attachment F
16. 1. CDRP Contractor Proposal CO #13 Attachment G
17. 4. CDRP Approved CCO 3 with Rev Dwgs CO #13 Attachment E
18. 3. CDRP Escrow Verification CO #13 Attachment J
19. 21. CDRP Letter CO #13
20. 10. CDRP Rev Spec Sec 03300 CO #13 Attachment 4
- vii. CDRP CO Log sort by number from CMIS – 02.20.13
- viii. CDRP CO Log from CMIS download – 02.20.13
- ix. CDRP Executed CO #17
- x. CDRP Executed CO #03
- b. Harry Tracy Water Treatment Plant (HTWP) Long Term Improvements Change Orders
 - i. HTWTP CO #30
 1. HTWTP CO #30 PCO 0084 Initial Price Proposal MSB 1 Breakers
 2. HTWTP CO #30 PCO 84 City Serial Letter No. 249
 3. HTWTP CO #30 Summary
 - ii. HTWTP CO #16 Summary
 - iii. HTWTP CO #10
- c. New Irvington Tunnel Construction Documents
 - i. NIT CO #43
 1. 3. NIT CO #34 – Summary Report with Attachments
 2. 2. NIT CO #43 – Signed by DM
 3. 1. NIT CO #43 – Fully Executed
 - ii. NIT CO #32
 1. 3. NIT #32 – Summary Report
 2. 2. NIT CO #32 – Signed by DM
 3. 1. NIT CO #32 – Fully Executed
 - iii. NIT CO #31
 1. 3. NIT CO #31 - CO Summary Report
 2. 2. NIT CO #31 – Signed by DM
 3. 1. NIT CO #31 – Fully Executed
 - iv. NIT CO #10
 1. 8 NIT CO #10 – Appendix H – All American Rental Cost Breakup
 2. NIT CO #10 – Back up Documents TOC
 3. 9. NIT CO #10 – Appendix 1 – Cresco Cost Breakup
 4. 5. NIT Co #10 – Appendix E Economy Trucking Cost Backup
 5. 7. NIT CO #10 – Appendix G – Apex Testing Lab Cost Breakup
 6. 2. NIT CO #10 – Appendix B – Signed Backup for Malcolm Drilling Cost Break up
 7. 4. NIT CO #10 – Appendix D – Hernandez Engineering Cost Backup
 8. 3. NIT CO #10 – Appendix C – R&W Concrete Cost Backup
 9. 26. NIT CO #10 Secant Pile Negotiation Spreadsheet

10. 25. NIT #10 – STP OG Lette No.027 Vargas Shaft Secant Pile T and M Back
 11. 24. NIT CO #23 – STP Cost Proposal – Accepted email
 12. 23. NIT CO #10 Vargas Shaft – DSC Cost
 13. 22. NIT CO #10 Vargas Shaft – Bid Cost
 14. 21. NIT CO #10 SFPUC Letter #9 – Response to Alleged Vargas Shaft Differing Cond.
 15. 20. NIT CO #10 SFPUC Letter #9 Response to Alleged Vargas Shaft Differing Cond.
 16. 1. NIT CO #10 Appendix A – STOP Direct Cost Backup
 17. 19. NIT CO #10 Transmittal to KC
 18. 18. NIT CO #10 Summary
 19. 17. NIT CO 10 Original Voided Signed by DM and MC
 20. 16. NIT CO #10 Revised Signed by DMMC 5.10.11
 21. 15. NIT CO #10 Executed b
 22. 14. NIT CO #10 Force Account Log by STP
 23. 13. NIT CO #10 CM Estimate for Secant Pile T&M
 24. 12. NIT CO #10 Negotiation Summary
 25. 11. NIT CO #11 Appendix K-CEMEX Cost Backup
 26. 10. NIT CO #10 Appendix J-Adler Rentals Cost Breakup
- v. CIT CO #38
1. 3. NIT CO #38 – Summary Rev 1
 2. 2. NIT CO #38 – Signed by DM Rev 1
 3. 1. NIT CO #38 – Fully Executed
- vi. NIT CO #15
1. 2. NIT CO #15 – Force Account Reports – Temp Slope Protection at IP
 2. NIT CO #15 Attachments TOC
 3. 4. NIT CO #15 SFPUC Letter 038 – Slope Protection at Irv Portal
 4. NIT CO #15 Force Account Log
 5. 1. NIT CO #15 Fully Executed
- d. Crystal Springs – San Andreas (CSSA) Transmission Upgrade Change Orders
- i. CCSA CO #25
 1. 1. CO #25 – Request for Construction Contract Modification #7
 2. 2. CO #25 – Access Road Cut & Fill Quantities
 3. 3. CSSA CO #25 – C Letter 074 & PCO 011
 4. 4. CSSA CO #25 – Summary Form 12 PCO 011
 5. 5. CSSA CO #25 – K Quantities Summary
 6. 6. CSSA CO #25 – PCO 011A K Cut Quantity Adjustment
 7. 7. CSSA CO #25 – PCO 011B K Fill Quantity Adjustment Estimate
 8. 8. CCSA CO #25 – PCO-011B Rev 1-Cut Fill Bid Items 5-305.4
 9. CSSA #25 – Attachments TOC
 - ii. CSSA CO #12
 1. 1. CSSA CO #12 – Telecommunication System Upgrades
 2. 2. CSSA CO #12 – Request to Modify Construction Contract #4
 - iii. CSSA CO #44
 1. 2. CSSA CO #44 Request for Construction Contract Modification #14
 2. 1. #44 Summary (Form 12 PCO 31)

- iv. CSSA CO #08
 - 1. 1. CSSA CO #08 – Flange Gaskets
 - 2. 2. CSSA CO #08 – Request to Modify Construction Contract #9
- v. CSSA CO #52
 - 1. CSSA CO #52 – Attachments TOC
 - 2. 6. CSSA CO #52 – K letter 564 Main Relay Panel Change
 - 3. 2. CSSA CO #52 – Request to modify Construction Contract #16
 - 4. 5. CSSA CO #52 – Summary Form 12
 - 5. 4. CSSA CO #52 – Email WL to MPS 07may12
 - 6. 1. CSSA CO #52 – Request for Mod #16 Rev. 06.06.12
- e. Bay Division Pipeline Reliability Upgrade Tunnel Change Orders
 - i. BDPL CO #11
 - 1. BDPL CO #11 – Attachments TOC
 - 2. 6. BDPL CO #11 - Updated Contractor Estimate
 - 3. 7. BDPL CO #11 – Contractor COR Package
 - 4. 5. BDPL CO #11 CM Credit Evaluation
 - 5. 4. BDPL CO #11 Summary Ravenswood Jet Grout Final -09.26.2011
 - 6. 2. BDPL CO #11 – Ravenswood Jet Grout – Approved
 - 7. 3. CO #11 – RCB Leung Supplemental Analysis 08.22.11 – Supplement Credit Evaluation
 - 8. 1. BDPL CO #11 Ravenswood Jet Grout SFPUC Certification
 - ii. BDPL CO #004 Training for New Tunnel Workers

8. Soft Cost Documents

- a. Current Staffing Plans
 - i. WSIP Overall Regional Projects Staffing Plan – excluding support projects
 - 1. RW overall excluding support projects
 - ii. Project Staffing Plans – 5 Mega Projects
 - 1. NIT Staffing Plan – 35901
 - 2. HTWP Staffing Plan – 36701
 - 3. CSSA Staffing Plan – 37101
 - 4. BDPL Staffing Plan – 36801
 - 5. CDRP Staffing Plan - 37401
 - iii. Pre-construction Project Staffing Plans
 - 1. Staffing Plan – 38802
 - 2. Staffing Plan – 36702
 - 3. Staffing Plan – 37403
 - 4. Staffing Plan – 35201
 - 5. Staffing Plan – 30103
- b. CM Services Actual Cost and Forecast Report
 - i. New Irvington Tunnel
 - 1. 2012.09 CM Financial Report Forecast Sep2012
 - 2. 2012.08 CS918 CM Financial Report Forecast Aug2012
 - 3. 2012.07 CS918 CM Financial Report Forecast 01Feb12 thru 31Oct14
 - ii. HTWTP Long Term Improvement
 - 1. 2012.09 CS919\$ HTWTP Monthly Forecast Sep2012
 - 2. 2012.07 CS919R HTWTP July 2012
 - 3. 2012.08 CS919R HTWTP August 2012



- iii. Crystal Springs An Andreas Transmission Upgrade
 - 1. 2012.09 CS916 CM Services Attachment Sep2012
 - 2. 2012.08 CS916 CM Services Attachment Aug2012
 - 3. 2012.07 CS916 Peninsula Region Attachment July 2012
- iv. Calaveras Dam Replacement
 - 1. 2012.09 CS911 R Monthly CM Services Sep2012
 - 2. 2012.08 CS911R Monthly CM Services Rev Aug2012
 - 3. 2012.07 CDRP Resources Loaded Schedule Rev July2012
- v. BDPL Reliability Upgrade Tunnel
 - 1. 2012.08 BT Budget CM Services Report August 2012
 - 2. 2012.09 BT Budget CM Services Report Sep 2012
 - 3. 2012.07 BT Budget CM Services Report July 2012
- c. CM Services Progress Report
 - i. New Irvington Tunnel
 - 1. 2012.09 CS918 NIT CM Services Report
 - 2. 2012.08 WD2581 CM Services Report
 - 3. 2012.07 CS918 CM Services Monthly Report
 - ii. HTWTOP Long Term Improvement
 - 1. 2012.09 CS919R CM Services Progress Report 017 Sep2012
 - 2. 2012.08 CS919R CM Services Progress Report 016 August 2012
 - 3. 2012.07 CS-919R CM Services Progress Report 015 July 2012
 - iii. Crystal Springs San Andreas Transmission Upgrade
 - 1. 2012.09 CS916 Peninsula Regional Monthly CM Services Report
 - 2. 2012.08 CS916 CM Services Report 032 August 2012
 - 3. 2012.07 CS916 CM Services Progress Report 031 July 2012
 - iv. Calaveras Dam Replacement
 - 1. 2012.09 CS911R CDRP CM Services Report Sep2012
 - 2. 2012.08 CS911R CDRP CM Services Report Aug2012
 - 3. 2012.07 002 CDRP CM Services Report July 2012
 - v. BDPL Reliability Upgrade Tunnel
 - 1. 2012.09 CS-913 BT Monthly CM Report Sep2012
 - 2. 2012.07 CS-913 BT Monthly CM Report July2012
 - 3. 2012.08 CS-913 BT Monthly CM Report August2012
- d. WSIP Staffing Plan 39201 as 12.24.12 November Forecast

9. WSIP Policies (including Cost, Schedule & Forecast)

- a. CM Plan Revision 3
- b. WSIP Safety App 013108

10. WSIP Policies (including Cost, Schedule & Forecast)

- a. CMIS
 - i. CMIS User Manual Version 3
- b. Cost and Schedule Report Workflow
 - i. P6 CMB Design Document Rev
 - ii. P6 Implementation Project Charter – With Signatures as of November 5, 2009
 - iii. Final Training Manual CMB Submitted
- c. Procedures

- i. CM PM065 Rev 2 Quarterly Project Review Meeting 23Dec10
- ii. CM P071 Rev 0 Ombudsman Program 07Mar11
- iii. CM P064 Rev 1 CM Services Monitoring and Reporting 03Nov09
- iv. CM P062 Rev 0 New and Revised Task Orders Processing 03Jun09
- v. CM P061 Rev 0 Manual Timesheet and Invoice Processing 01Apr09
- vi. CM P058 Rev0 Envir Daily Inspection Reports 20Feb09
- vii. CM P057 Rev 0 Environmental Daily Monitoring Log 19Feb09
- viii. CM P056 Rev 0 Environmental Quarterly Compliance Report Tale 18Feb09
- ix. CM P055 Rev 0 Monthly Environmental Compliance Report 18Feb09
- x. CM P054 Rev 0 Envir MPD 18Feb09
- xi. CM P035 Rev 0 Certified Payroll Reports 06Apr09
- xii. CM P053 Rev 0 Envir NCN 24feb09
- xiii. CM P052 Rev 0 Envir Inspection and Special Envir Monitoring 18Feb09
- xiv. CM P051 Rev 0 Environmental Requirements Table 19Feb09
- xv. CM P041 Rev 1 Informal Partnering 28Aug09
- xvi. CM P040 Rev 1 Pla 28Aug09
- xvii. M P038 Rev 1 Site Security 27Aug09
- xviii. CM P036 Rev 0 Administration of Force Accounts 11Aug09
- xix. CM P034 Rev 2 Risk Management Plan 23Mar11
- xx. CM P033 Rev 1 Record Documents Maintenance and Submittal 26May10
- xxi. CM 032 Rev 3 Contract Close Out 23July12
- xxii. CM P031 Rev 1 Dispute Resolution Advisor DRA 26Aug09
- xxiii. CM P022 Rev 5 System Shutdowns 17Feb12
- xxiv. CM 030 Rev 1 Project History Lessons Learned 26Aug09
- xxv. Cm P028 Rev 1 Weekly Construction Progress Reports 10Oct12
- xxvi. CM P027 Rev 1 Public Outreach 18Sep09
- xxvii. CM P026 Rev 0 SQS Surveillance Report 19Aug09
- xxviii. CM P025 Rev 3 Emergency Response 24Feb11
- xxix. CM P024 Rev 0 Formal Partnering 16Feb09
- xxx. CM P023 Rev 1 CMIS Access and Help Request 24Sep09
- xxxi. Cm P021 Rev 0 Request for Substitution 10Jun09
- xxxii. CM P020 Rev 3 Monthly Project Construction Progress Reports 22Dec10
- xxxiii. CM P018 Rev 1 Pre Construction and Post Construction Site Survey 18Aug09
- xxxiv. CM P019 Rev 1 Dispute Review Board 25Aug09
- xxxv. CM P017 Rev 1 City Furnished Equipment 20Aug09
- xxxvi. CM P010 Rev 2 Applications for Payment 01May11
- xxxvii. CM P010 Rev 2 Applications for Payment 01May11
- xxxviii. Cm P016 Rev 8 Construction Change Management 14Aug09
- xxxix. CM P014 Rev 1 Drawing Control 12Aug09
 - xl. CM P013 Rev 1 Construction Claims Management 23Mar11
 - xli. CM P012 Rev 2 Safety Reporting Procedures 06Aug09
 - xl.ii. CM P009 Rev 0 Noncompliance Notices Quality 26Mar09
 - xl.iii. CM P006 Rev 0 Project Doc and Correspondence Ctrl 17Feb09
 - xl.iiii. CM P008 Rev 1 Preconstruction Conference 20Aug09
 - xl.v. Cm P007 Rev 2 Daily QA Inspection Reports 19Jun12
 - xl.vi. CM P003 Rev 0 VECP 24Feb09
 - xl.vii. Cm P005 Rev 1 Meeting Minutes 11Aug09

- xlvi. Cm P004 Rev 1 Submittals 07Aug09
- xlvii. Cm P001 Rev 0 Prep and Doc Control CM Procedures 04Feb09
 - i. CM P002 Rev 1 Request for Information RFI 09Sep09
 - ii. CM TOC SWIP CM Procedures revisions 33 10Oct12
 - iii.
- d. Cost and Schedule Workflows
 - i. CM Process 004c Rev 0 Applications for Payment 09Feb09
 - ii. Cm Process 004b Rev 0 Envir Compliance Field Reporting 12Feb09
 - iii. CM Process 003b Rev 0 Drawing Control 12Feb09
 - iv. CM Process 004a Rev 0 Punch list and NCN 12Feb09
 - v. CM Process 002b Rev 0 Doc Control and Mgmt and Correspondence 12Feb09
 - vi. Cm Process 003a Rev 1 Contract and Change Management 03Sep09
 - vii. CM Process 002a Rev 0 Meeting Minutes and Daily QA Inspection Reports 12Feb09
 - viii. CM Process 001c Rev 0 VECEP 12Feb09
 - ix. CM Process 001b Rev 0 RFS 12Feb09
 - x. CM Process 001a Rev 0 Submittals an RFI 12Feb09
 - xi. 000 Process rev 0 Project Start Up 16Mar09
 - xii. 00 Preface Rev 0 Business Process 01Apr09
 - xiii. 00 Rev 1 Table of Contents Business processes 09Sep09

11. WSIP Policies (including Cost, Schedule & Forecast)

- a. Monthly Cost Report
 - i. WSIP Actuals to date by fiscal month 02.08.13 sr v1 showing 5 projects only
 - ii. WSIP Actuals to date by Fiscal month 02.08.13
- b. Trends vs CO's
 - i. Open and closed Trends with Time Impact form JKinnen vs Sr Original with associated CO info
 - ii. Open and Closed Trends with Time Impact form JKinnen
 - iii. Trends vs. Change Orders V2
- c. Backup to Certain Cos
 - i. HTWTP Back Up Docs from CMIS
 - 1. CO #18 CM #37
 - a. HTWTP KIW SFPUC 0143 Pricing for PCO0063 Area 02 Baffle Wall Waterproofing Coating Basins 1, 2 and 5
 - b. WD-2596 – City Serial Letter No. 0136
 - c. WD-2596 – City Serial Letter No. 0028
 - d. Co #16 Estimate
 - 2. CO #16 CM #26
 - a. HTWTP KIW SFPUC 0143 Pricing for PCO0063 Area 2 Baffle Wall Water proofing Coating Basins 1, 2 & 5
 - b. WD2596 City Serial Letter No. 0136
 - c. CO#16 Estimate
 - 3. CO #13 CM #33
 - a. PCO 064 Attachments 1 thru 6
 - b. WD2596 City Serial Letter No. 0155



- c. HTWTOP KIW SFPUC 0244 PCO 64 Valve T11 Piping Valve Installations Part 1
4. CO #15 CM #35
 - a. WD2596 City Serial Letter No. 0083
 - b. HTWTP KIW SFPUC 0279 PCO 0045 Changes to Hach Filter trak Turbidimeters Rev1
 - c. HTWTP KIW SFPUC 0142 Pricing for PCO 0045 Change to Hach Filter trak
 - d. CO #15 Estimates
5. CO #12 CM #32
 - a. Letter 80 Attachment 1 PCO Mis Ltg Fixture Mounting Changes
 - b. WD2596 City Serial Letter No. 0080
 - c. Letter 80 Attachment 2 PCO Misc. Ltg Fixture Mounting Changes
 - d. HTWTP KIW SFPUC 0224 PCO 0043 Price Proposal
6. CO #10 CM #17
 - a. HTWTP KIW SFPUC 0240 PCO 40 Area 14 H Pile Additional Reserves
 - b. WD2596 City Serial Letter No 0069
 - c. CO 10 Estimate
7. CO #11 CM #31
 - a. WD2596 City Serial Letter No 0079
 - b. HTWTP KIW SFPUC 0211 Pricing for PCO #30 Motorized Butterfly Valve Changes
 - c. CO #11 Estimates
8. CO #08 CM #29
 - a. WD2596 City Serial Letter No. 0142
 - b. WD2596 City Serial Letter No. 0062
 - c. HTWTP KIW SFPUC 0137 Pricing for PCO #34 Area Electric Golf Carts for CM Staff
9. CO #07 CM #28
 - a. WD2596 City Serial Letter No. 0119
 - b. WD2596 City Serial Letter No. 0097
 - c. Letter #97 Attachment Revised Hydro Tank Inlet Outlet Piping
10. CO #05 CM #22
 - a. WD2596 City Serial Letter No. 0142
 - b. HTWTP KIW SFPUC 0137 Pricing for PCO #34 Area 00 Electric Golf Carts for CM Staff
 - c. WD2596 City Serial Letter No. 0062
 - d. CO No. 5 and 8 Estimate
11. HTWTP LT Backup Information for a few COs
 - ii. NIT
 1. NIT CO 31 with Backup
 2. NIT CO 32 with Backup
 - iii. Bay Tunnel
 1. SFPUC Directive and Estimate for PC03
 2. PC03 Training for New Tunnel Workers
 3. CO4 Training for New Tunnel Workers Approved

- d. Project Risk Docs from Susan Hou Per Site Visit Requests Week of 12.10.12 (FTP docs)
 - i. CDRP
 - 1. Risk Register
 - a. CUW37401 – Calaveras Dam Replacement – Risk Register – 31Aug12
 - 2. CUW37401 - Calaveras Dam Replacement – Risk Register 30Sep12
 - 3. CUW37401 – Calaveras Dam Replacement – Risk Register 29Feb12
 - 4. CUW37401 - Calaveras Dam Replacement – Risk Register 27July12
 - 5. CDRP S Curve Heat Map Seat 2012
 - 6. CDRP S Curve Heat Map July 2012
 - 7. CDRP S Curve Heat Map Aug 2012
 - ii. NIT
 - 1. NIT S Curve Heat Map Sep2012
 - 2. NIT S Curve Heat Map July 2012
 - 3. NIT S Curve Heat Map Aug 2012
 - 4. CUW35901 – New Irvington Tunnel – Baseline – June 2012
 - 5. CUW35901 35901 0 New Irvington Tunnel – Risk Register 28 – August 2012
 - 6. CUW35901 – New Irvington Tunnel – Risk Register – 25 July 2012
 - 7. CUW35901 – New Irvington Tunnel – Risk Register – 24 September 2012
 - iii. HTWTP
 - 1. HTWTP S Curve Heat Map Sept 2012
 - 2. HTWTP S Curve Heat Map July 2012
 - 3. HTWTP S Curve Heat Map Aug 2012
 - 4. CUW36701 – HTWTP – Baseline Register – August 2011
 - 5. CWU36701 – Harry Tracy Water Treatment Plant – Risk Register – 30 July 2012
 - 6. CUW36701 – Harry Tracy Water Treatment Plant – Risk Register – 24 September 2012
 - 7. CUW36701 – Harry Tracy Water Treatment Plant – Risk Register 23 August 2012
 - iv. CSSA
 - 1. CUW37101 – CSSA – Baseline Register – August 2011
 - 2. CUW37101 – Crystal Springs San Andreas – Risk Register – 20 July 2012
 - 3. CUW37101 – Crystal Springs San Andreas – Risk Register – 19 Augusts 2012
 - 4. CSSA S Curve Heat Map Sep 2012
 - 5. CSSA S Curve Heat Map July 2012
 - 6. CSSA S Curve Heat Map Aug 2012
 - v. BAY TUNNEL
 - 1. CUW36801 – Bay Tunnel – Baseline Register – November 2010
 - 2. CUW36801 – Bay Tunnel – Risk Register – 23 July 2012
 - 3. CUW36801 – Bay Tunnel – Risk Register – 23 August 2012
 - 4. CUW6801 – Bay Tunnel – Risk Register – 18 September 2012
 - 5. Bat Tunnel S Curve Heat Map Sept 2012
 - 6. Bay Tunnel S Curve Heat Map July 2012
 - 7. Bay Tunnel S Curve Heat Map Aug 2012

- e. CDRP Issues and Trends Logs
 - i. CERP Audit Info – Issues and Trend R1
- f. CDRP Factsheets
 - i. Calaveras Dam Project Update – Winter 2012
 - ii. Calaveras Dam Fact Sheet November 2012
- g. WSIP Documents per Site Visit Request Week of 12.3.12 (emailed docs)
 - i. Sunol – September 2012
 - ii. WSIP September 2012
 - iii. Status of Active Contracts – Table – September 2012
 - iv. NIT Summary Reports 09.2.12
 - v. Status of Active Contracts – Cos & Risks vs. Contingency – September 2012 V3
 - vi. NIT Time Ex Cos
 - vii. NIT Summary Report 06.29.12
 - viii. NIT Summary Report 8.30.12
 - ix. NIT Project Status JS
 - x. NIT Progress Profile 11.27.12
 - xi. NIT Bid Item 10e Monthly Summary JS
 - xii. NIT Bid Item 10 Accounting Spreadsheet
 - xiii. CUW35901 – New Irvington Tunnel – Risk Register 28 August 2012
 - xiv. CUW35901 – New Irvington Tunnel – Risk Register 25 July 2012
 - xv. CUW39501 – New Irvington Tunnel – Risk Register 24 September 2012
 - xvi. CUW39501 – New Irvington Tunnel – Risk Register 21 November 2012
 - xvii. CDRP DFS JV Employee Contact List
 - xviii. CDRP CM Contact List
- h. Pre Bid Presentations
 - i. RBOC Evaluation of WSIP – Pre-Submittal Conference JLL
- i. Bid History
 - i. SFPUC 844164 Crystal Springs San Andreas Transmission
 - ii. SFPUC 844163 Harry Tracy Water Treatment Plant
 - iii. SFPUC 844162 New Irvington Tunnel
 - iv. SFPUC 844161 Calaveras Dam
 - v. SFPUC 587389v Bay Tunnel

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Comments on Preliminary Draft Report, CS-254
RBOC Evaluation of the WSIP
Submitted by RBOC Member John Ummel (BAWSCA Representative)

General Comments

- 1) The Main Objectives section on the first page of the RFP for CS-254, *Description of Services and Scope of Work Regarding RBOC's Evaluation of the Water System Improvement Program*, identifies two high level questions:
 - Does the current WSIP methodology for forecasting cost and schedule provide realistic, sound, and reliable projections?
 - What is the confidence level that the program will be completed within the currently approved WSIP schedule and cost?

The preliminary report needs to address these two major questions both in the executive summary and the body of the report. The purpose of the first bullet is to understand how well the current forecasting methodology is working (or not). With respect to the second bullet, it is noted that while the consultant did address the "likelihood" of the 5 major projects meeting schedule and budget, the consultant did not opine on the overall likelihood of the *program* being completed on time, on budget. This is specifically mentioned in the Main Objectives section under Task 1, page 1, and under Section III- Scope of Work, #10) Note: addressing this latter issue may be problematic since it depends on what projects are currently still in the WSIP program.

It is strongly recommended that the Consultant review the scope of work to ensure that the report is responsive to the specific tasks listed for Tasks A and B. The BAWSCA representative from RBOC will be reviewing the report to ensure the scope was adhered to. Finally, it is recommended that the scope be included in the appendix.

Key Comments (Executive Summary and Approach to Workplan)

1. The EAC and SAC criteria and approach for Task A seem reasonable with the exception of how risks are handled. RWBC's analysis does not include risk despite the SFPUC's experience that risk does translate to added cost and schedule for WSIP projects. **RWBC's report should directly address how risks might be quantified for use in the WSIP program cost and schedule.**
2. RWBC was presented with four possible "confidence level" scenarios ranging from 70-100% under which to assess each project with the "Unlikely" scenario being anything less than 70%. With a program of this magnitude, this range appears too broad for defining a level of likelihood of occurrence. **A smaller window of acceptability (from 80-100%) is more appropriate to be used when examining the complete WSIP given the magnitude of the potential budget and schedule impact.**

3. Figure 1 presents the results of Task A for each project evaluated. Unfortunately, the report narrative does not quantitatively explain how the results presented in Figure 42 are converted to the identified confidence levels shown for each project in Figure 1. For example, the results for CSSA seem to favor an "Unlikely" rating based on how large the calculated Budget Performance Variance is, yet the project is actually rated "Somewhat Likely". **The exact process for assigning a confidence level to each project should be presented clearly in the report such that the reader fully understands all the parameters that are encompassed in the presented results.**
4. The Task B (soft cost) analysis takes key assumptions at face value (e.g. that \$282,000 is an appropriate cost for SFPUC staff) without addressing the impact or confidence in such assumptions. The analysis only addresses the soft cost necessary to complete the WSIP based on past WSIP soft cost expenditure performance, rather than analyzing the level of soft cost needed to complete the work based on industry standards or per an analysis done by RWBC as an independent 3rd party. **The Task B analysis is informative but not complete or entirely useful in its current state.**

Background (Pg. 8)

1. The report should clarify why these specific 5 projects were chosen for this analysis (e.g., large projects in construction with completion between x and y %, rep's representing a spectrum of construction activity).

Cost Realization Rate and Time Realization Rate (Pgs. 12- 17)

1. Equations 1, 2, 2A, 3, 3A and 4 that were developed by RWBC seem to be a reasonable approach to evaluating the final cost at completion, cost projections, time (schedule) projections, work "throughput", and criticality of schedule with two notes of caution as follows:
 - None of the formulas include any impacts resulting from projected "risks" from the risk list. These potential risks can definitely have an impact on schedule and cost as discussed on Page 57 of the report. An additional term should be added to the formula to represent risks.
 - The formulas are based on existing trends. It is unclear if RWBC discussed with staff and the contractors the probability or likelihood that additional trends might be forthcoming that aren't currently on the risk list.

Calaveras Dam Replacement (Pgs. 17-26)

1. Pgs. 24 and 25 note that there are many currently unknown costs that may materialize. It would be helpful for RWBC to give a best estimate of how much the costs might be given their detailed evaluation of the project. Is the 10% contingency enough to cover all

reasonably foreseeable costs? What is the cost breakdown of how the 10% was determined? Soft costs should not be included in construction contingency. Are soft costs accounted for as part of the estimated presented?

2. Pg. 25, item #4, line 2: Please correct the incorrect dollar figure. This is the Q2 Forecasted cost. The current approved budget for CDR is \$532.6M as shown in Figure 10.
3. Did RWBC discuss and identify possible future trends and risks with the contractor? What was the outcome?
4. Note that there are no risks included in the analysis. Is more funding needed to cover risks?

Crystal Springs/San Andreas Transmission Upgrade (Pgs. 34 and 35)

1. Page 34, item #4, line 1: Please correct the incorrect budget shortfall value. Figure 18 shows \$18.1M.
2. What are RWBC's recommendations for resolving the "strained" contractor/CM team relations?
3. What are RWBC's recommendations to resolve the important trend challenges with the contractor?
4. Did RWBC interview the contractor about 1 and 2 above? What was the result?
5. It appears that many issues exist on the project. Why is the contingency recommended at only 5%? How was this amount determined?
6. Did RWBC discuss and identify possible future trends and risks with the contractor? What was the outcome?
7. Note that no risks are included in the analysis. Is more funding needed to cover risks?

Harry Tracy Water Treatment Plant (Pgs. 40 and 41)

1. Page 38, paragraph 1, last sentence: Please change the reference to correctly refer to Figure 21. It is unclear how the 70% is derived as $3373/4884 = 69\%$ (July) but $3162/4922 = 64\%$ (Sept.) which is the most recent. Please provide clarity.
2. Page 40, item #4, line 2: Please correct the current budget approval value. Figure 25 shows this as \$276.9M.
3. What are RWBC's recommendations for resolving the "strained" contractor/CM team relations?
4. It appears that many issues exist on the project that could result in costs or schedule problems. Why is the contingency recommended at only 7.5%? How was this amount determined? (Note: 60% of the work remains with only 50% of the time remaining.)
5. Did RWBC discuss and identify possible future trends and risks with the contractor? What was the outcome?
6. Note that no risks are included in the analysis. Is more funding needed to cover risks?

New Irvington Tunnel (Pgs. 48-50)

1. Page 46, paragraph 1, line 2: Please change reference to correctly cite Figure 30.
2. Page 48, #3: The data presented does not seem to reconcile with the CMIS data (January 2013 Contract Summary Report) which indicates the project is tracking 623 days late.
3. Did RWBC discuss and identify possible future trends and risks with the contractor? What was the outcome?
4. Note that no risks are included in the analysis. Is more funding needed to cover risks?

BDPL Reliability – Tunnel (Pgs. 50 -56)

1. Page 51, paragraph 2, line 3: Please change reference to correctly cite Figure 36.
2. Page 55, item #3: This type of analysis (plotting the CRR) should be performed on other projects in construction to identify where cost savings may be obtained for the realignment.
3. Page 55, item #4: Recalculate Variance (also in Figure 41) per the following two corrections noted for Figure 40:
 - a). Incorrect number for Construction Management. The number provided is the Q1 forecast - the Q2 value is \$26,447,000.
 - b) The Current Approved Budget for BDPL (Tunnel) is \$307,081,000.
4. Did RWBC discuss and identify possible future trends and risks with the contractor? What was the outcome?
5. Note that no risks are included in the analysis. Is more funding needed to cover risks?

Project Comparison—5 Projects (Pg. 56)

1. Paragraph 2, Item 3: The WSIP has been designed to meet specific level of service (LOS) goals as adopted by the Commission. A complete evaluation of the impact on the SFPUC's ability to meet the LOS goals would be necessary as part of any de-scoping activity.
2. Paragraph 2, last sentence: BAWSCA agrees that the next realignment should go to this level of detail (and also accounting for risks in some way) in creating the cost to complete.
3. Fig. 41 presents contingency elements for each of the 5 projects evaluated. It is unclear what protocol and metric RWBD used to establish contingency levels for each of the projects. This should be clarified in the report.
4. Fig. 41 shows the 5 project budget deficit of \$51M which does not include risks. How much money should be added for risks?
5. What is the projected deficit for the entire WSIP based on the extrapolated formula data? This level of information should be provided as part of the upcoming rebaselining effort.

Use of Risks to Forecast Budget Exposure (Pgs. 57 and 58)

1. What are RWBC's recommendations to clarify how risks might be quantified for use in the WSIP program cost and schedule? It appears some allowance is needed to be more accurate about cost and schedule estimates at finish.
2. Did RWBC review the risk list for possible cost and schedule impacts?
3. In RWBC's opinion, what level of risks (likelihood of occurrence or cost impact) should be considered for contingency funding set-aside?
4. Figure 42, HTWTP Variance: Please correct the value to -0.13 per Figure 41.

Soft Costs (Pages 59-63)

1. Page 60, #1, and #3: There are references that using internal staffing "should" be less expensive than using consultants. Did RWBC verify that there would be an actual cost reduction after all overhead and other indirect costs are accounted for on SFPUC labor costs? How much would the saving be?
2. Is the \$282,000 annual cost for the SFPUC FTE fully loaded with overhead and all indirect costs?
3. Page 61, #5: BAWSCA agrees with this concept in general however it would be important for the pros and cons of such a proposal were presented as the rationale supporting such an action. What work efficiencies or quality would be lost by eliminating regional oversight? Perhaps the projects that are less than 50% complete would be the best candidates to obtain savings from this approach (Calaveras & HTWTP, and maybe CSSA if its schedule gets significantly extended).
4. What work efficiencies or quality would be lost by eliminating the program management function?
5. RWBC's soft cost evaluation going forward is based on soft cost rates expended on WSIP completed work. There is no determination whether the costs were too high or too low to effectively do the job, or any comparison to industry norms. Nor did RWBC do an independent analysis of how much soft cost RWBC believes is necessary to complete the work. This analysis would be very helpful in establishing a soft cost budget going forward rather than just relying on old soft cost expenditure trends.
6. WSIP program soft costs are programmed at about 45% of construction costs. This seems very high. What is RWBC opinion?

Minor Typographical Errors

1. Page 5, bullet 3, 4th line: incorrect "." after word year
2. Page 7, paragraph 5, line 2: "for r"
3. Page 14, paragraph 1, line 5: "tile" should be "time"
4. Page 14, paragraph 1, line 8: "date" should be "data"
5. Page 14, paragraph 2, line 1: "analyzes" should be "analyses"
6. Page 14, paragraph 2, line 2: "rends" should be "trends"
7. Page 18, paragraph 1, line 7: "fending" should be "fencing"

8. Page 18, paragraph 2, line 4: "Ref" should be replaced with the correct citation
 9. Page 26, Figure 10: The Current Approved Budget citation is not from the Current Forecast column as stated; figure is from the "Current Approved Budget" column in the Q2 report. This incorrect citation is also carried in to the Projected Budget tables for the other 4 projects.
 10. Page 27, paragraph 2, line 9: "a" should be "as"
 11. Page 30, paragraph 1, line 7: "not" should be "note"
 12. Page 30, paragraph 1, line 8: "increase" should be "increased"
 13. Page 31, paragraph 1, line 11: "there" should be "the"
 14. Page 34, item #2, line 3: "side" should be "site"
 15. Page 34, item #4, line 1: "that the" should be "an"
 16. Page 37, paragraph 1, line 3: "Figure 12" should be "Figure 20"
 17. Page 43, paragraph 2, line 1: "few project" should be "few projects"
 18. Page 47: Note: Figure 32 skipped in figure numbering sequence.
 19. Page 51, paragraph 1, lines 10 and 11: "TBD" should be "TBM"
 20. Page 56, paragraph 2, line 8: "to" should be "of"
- Page 62, item #1: "be a value"

Task A. Examine the Process for Forecasting Cost Estimate at Completion (EAC) and Schedule at Completion (SAC)

Key questions to be addressed in Task A include but are not limited to: 1) Does the EAC/SAC analysis of the *representative projects* suggest that these projects are on schedule and within the budget? 2) Does the EAC/SAC analysis suggest that the *overall* WSIP program is on schedule/budget?

From: holly@environmentstrategies.com [mailto:holly@environmentstrategies.com]

Sent: Tuesday, March 12, 2013 11:47 AM

Apologies for not getting back to you on the Block report yesterday. I tried, but here I am now!

I haven't read all 130+ pages, and there wouldn't be much value in me doing that owing to what I can contribute in the way of comments. I did read the Exec Summary, and other than a few extremely minor typos, here is what I have to say:

-Report looks very well organized, researched and presented

-Findings re likelihood of meeting budgets and timelines are surprising - this is a comment for RBOC/SFPUC, not Block. If we agree with Block's methodologies for arriving at their findings, then we have a lot to learn from the report and it will clearly have been a valuable exercise for us to have undertaken.

-Recommendations - I think I saw more in terms of how to save \$ to make up for cost overruns than how to catch up time wise, but haven't read enough to know whether time line is much of an issue or not, the way we know that cost is. (I didn't understand the "bottoms up" staffing recommendation as a way to save \$, but that's me.) Does the report detail how much \$ could be made up via their recommendations, and is it enough to meet the projected gap?

Hope that is a bit helpful.

Best, Holly



**PUBLIC UTILITIES
REVENUE BOND OVERSIGHT COMMITTEE
CONTRACTING WORKING GROUP
CITY AND COUNTY OF SAN FRANCISCO
MINUTES**

**Public Utilities Commission Building
525 Golden Gate Ave., 4th Floor, San Joaquin Room
San Francisco, CA 94102**

Monday, October 1, 2012 - 9:00 AM

Special Meeting

- 1. **Call to Order and Roll Call (00:00:00 - 00:00:30)**

John Ummel, Chair
Kevin Cheng
Holly Kaufman

The meeting was called to order at 9:12 a.m. On the call of the roll all members were noted present.

- 2. **Public Comment. (00:00:30 – 00:01:56)**

Public Comment: None.

- 3. **Acceptance of the Evaluation Panel's Consultant Rankings – CS-254 (00:01:56 – 00:04:17)**

Holly Kuafman and Ian Hart provided an overview of the evaluation process and the resulting recommendation of RW Block Consulting Inc.

Member Kaufman, seconded by Member Cheng, moved to accept the recommendation of the Evaluation Panel (CS-254) and recommended to the Revenue Bond Oversight Committee the award of contract CS-254 to RW Block Consulting Inc.

The motion passed by the following vote:

Ayes: Ummel, Cheng, Kaufman

Noes: None.

Public Comment: None.

4. **Future Agenda Items/Meeting Dates.** (00:04:17 – 00:09:00)

Member Kaufman requested follow up in the follow areas:

- Lessons Learned for the contracting process
- Clarification as to who is the official client
- Status of the RBOC Pool of Consultants

5. **Adjournment**

The meeting adjourned at 9:21 a.m.

Agenda Item Information

Each item on the agenda may include: 1) Department or Agency cover letter and/or report; 2) Public correspondence; 3) Other explanatory documents. For more information concerning agendas, minutes, and meeting information, such as these document, please contact RBOC Committee Clerk, City Hall, 1 Dr. Carlton B. Goodlett Place, Room 244, San Francisco, CA 94102.

Audio recordings of the meeting of the Revenue Bond Oversight Committee are available at:
http://sanfrancisco.granicus.com/ViewPublisher.php?view_id=97

For information concerning San Francisco Public Utilities Commission please contact by e-mail bondoversight@sfwater.org or by calling (415) 487-5245.

Public Comment

Public Comment will be taken before or during the Committee's consideration of each agenda item. Speakers may address the Committee for up to three minutes on that item. During General Public Comment, members of the public may address the Committee on matters that are within the Committee's jurisdiction and are not on the agenda.

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