

**Independent Review Panel for the
WSIP Construction Management Program
111 North Hope Street, Room 1336-B
Los Angeles, CA 90012**

January 31, 2011

Ms. Julie Labonte, P.E.
Program Director
WSIP Construction Management
San Francisco Public Utilities Commission
1145 Market Street, 3rd Floor
San Francisco, CA 94103

Dear Ms. Labonte:

Subject: Final Report of the Independent Review Panel for the Hetch Hetchy
Water System Improvement Program Construction Management Program

We are pleased to submit the Final Report for the Independent Review of the Hetch Hetchy Water System Improvement Program (WSIP) Construction Management Program. The Independent Review Panel (Panel) reviewed hundreds of pages of documents and reports and interviewed dozens of Project, Regional, and Program personnel to help us understand the Construction Management Program and gain an appreciation of its implementation.

The Final Report includes the Panel's general observations about the organization and responses to eight specific questions asked by WSIP management. We have included recommendations for further action.

We thoroughly enjoyed our site visit with the WSIP team and were very impressed with the enthusiasm of all personnel, both outside contractors and City employees. Thank you for your hospitality during that week.

Best regards,


Glenn C. Singley, Panel Chair

GCS:jf

Enclosure

c/enc: Mr. Gary E. Griggs, Panel Member
Mr. Galyn G. Rippentrop, Panel Member
Mr. Donald B. Russell, Panel Member

**INDEPENDENT REVIEW OF THE
WSIP CONSTRUCTION MANAGEMENT PROGRAM**

Prepared by

**Glenn C. Singley, P.E., Panel Chair
Gary Griggs, M.S.C.E., P.E., Panel Member
Galyn Rippentrop, Panel Member
Donald Russell, C.C.M., F.C.M.A.A., Panel Member**

Prepared for

San Francisco Public Utilities Commission

January 31, 2011

BACKGROUND OF THE REVIEW

The San Francisco Public Utilities Commission (SFPUC) received a report on its Water System Improvement Program (WSIP) from a five-person Independent Peer Review Panel on January 19, 2010. One of the Independent Peer Review Panel's recommendations was to:

“Conduct an independent test/audit of the CM organization mid-to-late 2010 to verify performance. Because the CM organization is at the beginning of a steep ramp of work, it would be prudent for the SFPUC to commit to evaluate it shortly after the large projects have begun. At that time the organization can be adjusted to address any problems that have become evident once the organization has been put to the test.”

With respect to that recommendation, the SFPUC authorized the WSIP Program Manager, Parsons, to contract with four senior-level Construction Management (CM) industry professionals to conduct a review of the WSIP's current CM Program. Parsons contracted with the CM Review Panel (Panel) members in October/November of 2010. The Panel conducted its first on-site review during the week of November 14, 2010, and prepared this Report for submittal to the SFPUC prior to the end of December 2010.

Follow-up reviews are to be conducted in September 2011 and June 2012.

The Panel is composed of:

Glenn C. Singley, P.E. (Panel Chair)
Gary E. Griggs, M.S.C.E., P.E.
Galyn G. Rippentrop
Donald B. Russell, C.C.M., F.C.M.A.A.

SCOPE OF THE REPORT

The Panel was given the latitude to comment on any aspect of the CM Program which they chose to examine, but was specifically asked to respond to eight questions posed by the SFPUC. Those questions are provided in this Report, followed by the Panel's responses. For purposes of the first review and with the concurrence of WSIP senior management, the Panel paid special attention to the following four areas: Safety, Contract Management, Risk Management, and Project Controls; i.e., the CM Information System (CMIS).

The Panel's comments on various aspects of the CM organization and the overall WSIP execution team are provided in the section identified as “Observations.”

OBSERVATIONS

1. The WSIP is clearly one of the largest, most complex, and aggressive infrastructure improvement programs in the history of public works in our country. It is large in terms of planned capital expenditures and geographical breadth. It is complex in that it needs to execute a tremendous volume of construction while maintaining full water supply service to a major metropolitan area that is literally “stranded at the end of the pipe” if there is any interruption in service because there are no adequate alternative water supply sources. All this must happen right in the middle of one of the most seismically-active areas in the country. Finally, the WSIP is aggressive with respect to the formidable challenges the WSIP’s leaders face in completing this work while respecting the missions of public works agencies, labor organizations, environmental groups, and most importantly, the needs of the residents of San Francisco and the surrounding area. The WSIP team has, to date, performed in exemplary fashion, as evidenced by the successful completion of the first projects undertaken. Ramp-up to maximum workload is now required for the balance of the work.
2. The Commissioners and top management are very supportive of the WSIP and are willing to provide the leadership and funding to keep the WSIP successful.
3. The dozens of WSIP team members with whom the CM Panel met all exhibited a high degree of morale and pride in their work.
4. The WSIP team is a comprehensive blending of City and consultant staff that seems to be working well. We understand there are certain positions that must be filled by City personnel, especially those making financial commitments on behalf of the City. If that type of responsibility could be shared with the consultant personnel, there may be places where some streamlining of the organization could be effected; for example, at the Regional CM level.
5. The safety of all personnel associated with the CM Program is an absolute top priority. Although the approach of requiring a predetermined, detailed safety program structure while assigning risks for managing the safety program to the general contractors is not common, it is working well based on the superior safety record to date. The CM Program’s achievement of more than a million man-hours worked with only one lost-time accident is outstanding. Furthermore, this approach also seems to be fostering an attitude by the contractors on the job sites of “this approach to safety has made us into a team.”
6. The planning and coordination of system shutdowns is, as it must be, expected to be “100 percent defect-free.” Such expectations are continuously relayed by senior WSIP management. Availability of SFPUC Operations personnel may have significant schedule implications.

7. The CMIS developed for the WSIP team is an extraordinary system in both depth and breadth. While similar in structure and function to systems developed for other large capital building programs, there are a variety of unique features, such as the report writing capability, that amplify the system's ability to support management's current and future needs at the WSIP and Regional levels.
8. The field teams are very happy with CMIS's ability to support fast performance of critical activities, such as quick turnaround of contractors' pay applications or rendering of critical decisions by Regional or Program-level managers — but they are slightly unhappy with the work required at the field site to support “the system.”
9. The very detailed work breakdown structure and number of scheduled activities for a project may be more than required to maintain adequate control. The large number of activities requires a lot of time and effort to maintain and increases the possibility of errors. Consideration should be given to simplifying future schedules when possible.
10. The incorporation of clear and unequivocal requirements for formal Dispute Review Boards and partnering in contract specifications has to date resulted in an absence of unresolved claims for contract modifications throughout the WSIP. This initiative is clearly a cost-effective and a best management practice.
11. The CM Plan and the CM Procedures are comprehensive and very well written. These basic “governing documents” comply with and in most cases exceed the standards set in the CM Association of America (CMAA) Standards of Practice, 2010 Edition.
12. Change orders, for the majority of projects, are well within the provided contingencies and are being processed within industry-standard time periods. The CMIS procedures for handling changes and tracking trends are well defined and transparent.
13. The CM organization, as with any major project, has several levels of management and decision making. It is important that negotiations with contractors be predetermined and consistent. One case was observed where the general contractor apparently received several different instructions from different levels of the organization. This situation can be avoided by establishing clear negotiation strategies, constant vigilance, and clear communications.
14. The WSIP has spent an unusually high percentage of preconstruction funding on the environmental permitting and community outreach process. However, the benefits of the time and effort spent can be clearly demonstrated when the WSIP's progress through the California Environmental Quality Act (CEQA) process is

contrasted with the normal experience of major public works projects that have such enormous potential effects on the environment.

15. The increase in the number of projects to be constructed in the last four years of the WSIP, when compared to the original schedule, does not appear to be a “compression” that generates higher risks of cost, schedule overruns, or safety concerns. Even though the dollar volume of construction is shown to increase, the number of projects does not significantly increase, which is probably the more critical factor in assessing resource requirements.
16. There will be a need to reassign large numbers of City staff as the WSIP winds down, which is projected to occur over nearly a one-year period. The reassignment plan is certainly deserving of close attention by the City’s Human Resources directors, but does not appear to represent a significant challenge.
17. The WSIP has transferred more quality control responsibilities to contractors than has been the norm for the SFPUC. The quality assurance/quality control processes being followed are in line with industry best-practices.

QUESTIONS AND RESPONSES

Question 1: Is the WSIP CM organization performing to the standards and requirements established by the CM Plan and procedures?

The CM Plan was reviewed by the Panel and found to be well written, consistent with the standard of practice and setting forth a comprehensive and clear set of procedures. The CM Plan appears to be up to date based on the modification dates of October 29 and November 4, 2010.

There does not appear to be a Configuration Management Plan whereby design changes made during the course of construction can be handled to ensure that there is review and approval by all elements of the project that could be affected by the change. There must be a controlled and well-defined process by which design changes are reviewed and approved, including a record of the review and approvals. Each time there is a design change, it must be circulated to a predetermined list of responsible managers who can have the change reviewed and confirm that the change does not impact their portion of the project or, if it does, determine the change cannot be implemented or develop a compromise solution.

The Panel met with various members of the organization representative of all levels of the organization and of varying roles and responsibilities.

Specific areas that were observed during this first review period were related to the following sections of the CM Procedures: Submittals, Meeting Minutes, Project Document and Correspondence Control, Construction Quality Management, Safety Reporting Procedures, Construction Schedule Management, Construction Change Management, Monthly Project Construction Progress Reports, Public Outreach and Weekly Project Construction Reports. The Risk Management Plan was also reviewed.

Based on a limited review of project documents, attendance at meetings and interviews with project staff, both at the home office and in the field, it appeared to the Panel that the organization is generally performing to the standards and requirements of the CM Plan and Procedures.

There is a potential concern by the Panel about the extremely detailed work breakdown structure and detailed schedule of activities. The large number of tasks and schedule items may make it difficult to provide complete and accurate progress updates on a monthly basis. One of the contractors interviewed complained about the number of schedule tasks required and questioned the need to break logical work items into multiple tasks. While this is only one case, it may warrant checking with others to see if this is a legitimate concern.

It is not clear that there is full compliance with the Risk Management Plan at the field level. One project CM team and their contractor stated that there was little value at the field level for the risk registers being generated, and they were probably of more use to senior management. There was also a concern expressed by project staff about discussing risk management issues with the contractor for fear of providing them with ideas about potential claims. Although this concern does have merit, the Panel recommends continuing to involve the contractor in the risk management process since the advantages of managing risk as a team with the contractor outweigh its disadvantages.

Question 2: *Is the CM organization performing effectively and efficiently?*

The CM organization is large, comprehensive, and impressive. It is part of the overall Program Management matrix organization and consists of five geographical regions under the Construction Deputy Director. It is made up of an integrated team of City and consultant staff.

The WSIP Deputy Director of Construction, Harvey Elwin, is a very strong manager and well respected throughout the organization. One concern is that he also manages the CM Bureau for the SFPUC, which could place unreasonable demands on him.

The Project Safety Program appears to be working very effectively. The latest safety report showed over 1 million hours worked with only one lost-time accident, and an

overall lost-time incidence rate of 0.2 against an industry national average of 1.7. The Panel met with four of the safety managers associated with the WSIP and found them to be effective and well respected by all team members including the contractors.

The review team attended a Biweekly WSIP CM Meeting led by the WSIP Deputy Director of Construction, Harvey Elwin, which addressed major issues and proposed actions. The meeting was very effective addressing major issues with reports provided by the City Regional Project Managers. The Regional Project Managers were very knowledgeable of their projects and issues. It was not clear how the issues being discussed were selected. In one case, the Panel had heard what appeared to be major issues discussed in the field that were not addressed in the meeting. It may be good to review how issues are identified for meetings like this to make sure the most serious issues are being brought forward. It should not be left to the reporting managers alone to determine what issues they wish to discuss.

The review team attended several weekly progress meetings in the field, which included City, consultant, and contractor representatives. The meetings were effective with issues clearly discussed and action items identified. In one case there were many people at the meeting who did not appear to be essential to it. As always, it is good to limit attendance to those required and try to limit those who are just observers and could be doing more productive things elsewhere.

Overall the organization appears to be very effective. However, in the integration of the City and consultant staff, there seems to be some overlap of duties that may lead to some inefficiency. However, we understand there are requirements of the City that make the overlap of City and consultant staff necessary.

The overall CM organization has a well-defined structure consisting of Program, Regional, and Project levels. As the project moves into a pure construction phase, there may be possible streamlining and perhaps leveling of the organization.

Question 3: Is communication within the organization and through the use of meetings and reports adequate and most efficient for the needs of the construction program?

Communication at all levels of the organization is strong. Issues are being raised and discussed in a timely manner through personal communication and the use of extensive meetings and reports. Most problems are being resolved quickly and are minimized by identifying key issues early and handling them at the appropriate level.

An extensive number of reports are generated for the Project, Regional, and Program levels. Dashboard reports contained within the WSIP Quarterly Report give top management and the public an overall view of the status of the WSIP and enough detail

to help them gain an understanding of the key issues affecting each project. Variances in project budgets and schedules are being reported in multiple project and regional reports. Other metrics being tracked for Regional and Project-level reports give a tremendous amount of information on turnaround times for submittals, requests for information, progress payments, change order processing, and other pertinent project details.

Project and Regional meetings are being held regularly with consistent agendas and meeting minutes, ensuring ongoing identification and tracking of all major issues. Unresolved issues appropriately remain on agendas until resolved.

Commissioners and top management communicate their backing of the CM organization by their verbal support and willingness to provide sufficient resources to keep the WSIP running well. The goals and objectives of this ambitious construction program are being communicated clearly throughout the organization. Personnel at all levels understand their roles.

The CMIS Program is a valuable communication tool. Though a significant amount of data is demanded of the contractor and project personnel, important information is input once at the lowest level and can be rolled up or summarized for review, minimizing duplication of effort. Critical project information is available electronically to all levels of the organization.

One concern the Panel had was the apparently large volume of email required to operate and maintain the system. There is also a concern about how emails are selected for inclusion in the CMIS. In one interview it was clear that the Project Construction Manager determined unilaterally what specific emails were to be memorialized in the system. The overall approach to selection of emails to be entered into the system needs to be reviewed. An appropriate protocol should be designed to provide the SFPUC with a clear and comprehensive history of WSIP activities, and an effective archive to support litigation and other types of activities, should they occur.

Communication with the public has been outstanding. The SFPUC website, with maps and descriptions of each project and up-to-date posting of WSIP Quarterly Reports, allows the public to keep abreast of the latest project news online. Ongoing blogs, public meetings, and tours keep the public involved. Public liaisons for each project help ease tensions with communities when construction becomes irritating.

Question 4: *Are decisions being made timely and in the most efficient manner?*

Decisions are being made in a timely manner as evidenced by the metrics being recorded in regularly published reports. Reports are showing excellent turnaround times for Requests for Information, Submittals, Proposed Change Orders, etc. Though there is some complaining by contractors about the amount of paperwork and data that is

required, they are quick to point out that submittals are returned quickly and invoices are getting paid in record times. The uniformity of the processes among all projects aids the efficiency tremendously.

Though the sheer number of reports being generated and meetings held is daunting, Program, Regional, and Project-level personnel are using reports and meetings effectively to maintain up-to-date knowledge of their areas of responsibility.

Competent professional CMs are ensuring good working relationships with contractors and the early handling of issues. Weekly project meetings focus on all current issues. The meetings that we attended were well run and addressed actions required for all outstanding issues. The fact that all issues to date have been resolved without having to elevate them to the Dispute Resolution Board is a tribute to the constant attention to outstanding issues.

Question 5: Is the status of construction being reported accurately, consistently and timely?

As part of the CM Program review process, members of the Project Review Team were able to attend several Project Weekly Meetings and site visits. Members were also able to observe a Quarterly Update Meeting and a CM Coordination Meeting.

Although there were a large number of attendees at the weekly meetings, the Project Construction Managers (PCMs) did a good job of controlling the flow of the meetings. Most comments were pertinent and to the point. The interaction between the CM staff and the contractor was professional and discussions appeared to be open as well as productive. The meetings are organized into approximately a dozen topics with attachments such as the "Look Ahead" Schedule and Coordination Meeting Matrix. Meeting notes keep a running history of open issues and are a good reference for meeting attendees.

Various "Ad Hoc" meetings/discussions were held following the Weekly Meeting to provide additional information and to exchange views. During several interviews that were held after the weekly meetings, CM staff members stated that they realized there was a large number of attendees but explained that the meeting gave everyone an opportunity to review the scheduled activities, ask questions, and provide comments. Issues are brought up in a timely manner at the meeting and both the CM staff and the contractor provide input for accuracy. Based on the Panel's observations, the meetings were well run and certainly well attended.

Panel members were also able to attend the CM Coordination Meeting. The status of construction at the various projects was presented by the Regional Project Managers (RPMs) along with a discussion of top issues related to each project. Although some topics differed from discussions we heard at the weekly meetings, it is the Panel's

understanding that the RPM decides which topics have the highest priority and will be added to the Biweekly Regional Update Report. Additional updates, including Safety, Quality Assurance, Shutdown Concerns, and Change Orders were presented to attendees and appeared to be consistent with information we were provided at the weekly meetings.

There are also a number of reports that are produced which are used as reference material for the meetings and, in some instances, are incorporated into meeting agendas. Reports such as Submittals/Requests for Information, Trends, Alert Reports, Supplier Quality Surveillance Status, and Average Payment Processing Time appear to be useful aids in providing and maintaining an accurate, consistent, and timely status of construction at the various projects. Although members of the Project Review team were only able to compare a few of these reports with observations made during site visits and related meetings, these reports did appear to accurately represent the status of the work. A much more in-depth review would be required to confirm this on a program wide basis.

Question 6: *Is the CMIS being used effectively as a management and reporting tool?*

The WSIP CM team has developed a comprehensive CMIS. The CMIS is based upon the commercially-available Primavera Construction Manager software program, which has become a top-quality standard of excellence in the industry. The CM Program is especially well suited for utilization in large, complex, multiproject capital construction programs. While the as-developed system has extensive capabilities, it is not “over-built” given the challenges of the task at hand for the WSIP team. One of the more significant and value-adding features of the system is the extremely flexible “report-writing” capabilities that the consultant has built in to the product.

As a management and reporting tool, the system is very effective. The CMIS provides managers at every level of the WSIP team with critical and invaluable Project-level information. While in many cases it is vital for WSIP senior management to examine program-wide trends and metrics, they cannot, and quite apparently do not, lose sight of the facts that problems and successes occur at the individual project level. The current CMIS is rigorous in its reporting on Project-level performance. Mid-level (e.g., Regional) and senior-level management of the WSIP clearly rely on selected reports from the CMIS in their decision-making processes concerning project activities.

At a macro-level, senior management relies on CMIS output to guide them in identifying potential problem areas or issues within the CM Program parameters that should be dealt with at the Project, Regional, or Program levels. The reporting requirements, all originating at the project level, are well thought out and rigorously enforced. There are a multitude of reports being generated, and it is doubtful that any one manager at any

level needs all of them. However, the CMIS developers believe that every report is important to, and being used by, someone in the management hierarchy. To maximize the efficiency and effectiveness of the system as a management tool going forward, it is recommended that this belief be verified by an independent review of the system.

The current status of the CMIS was judged to be as a fully functional and complete tool for management. However, the users' experience at all management levels has spanned a duration that has allowed many of the users to feel that a variety of "tweaks" would improve the value of the system. These suggestions for improvement in such a system are normal, to be expected, incredibly valuable to the overall success of the WSIP, and should be exploited with all dispatch — the "continuous improvement" process at its best. In these cases, the most productive suggestions will probably come from the individuals who really make the system work, e.g., the Project Engineers and Data System Coordinators. But the people that have to read the reports and act accordingly are equally important. In other words, "everybody." Historically, senior management needs to actively provide a neutral forum to retrieve these inputs. In the WSIP case this information should initially be sought on a quarterly basis until the volume of "suggestions" recedes, and perhaps semi-annually thereafter.

Management does have a challenge to deal with regarding the CMIS. That challenge is to ensure that the system does not grow to provide capabilities that are not essential to the proper management of the WSIP. Historically, when the basic program is so adaptable, the report-writing capabilities are so powerful, and the consultants are so expert, many large construction programs have suffered when the CMIS-type program kept expanding its output "just because we can." Then the system starts producing "information-overload". Managers get so much information that they have difficulty focusing on important issues. The CM Review Panel was satisfied that this syndrome has not been an issue for the WSIP management, but it is a possibility for which they need to be ever vigilant to prevent. Any time a manager, at any level, can present a justifiable case to senior management that the CMIS needs to be expanded, there should be no question that the system should be improved. But the bar should be set high for adding reports or more detail.

Question 7: *What are the greatest CM organizational challenges and risks that could impact program delivery?*

1. The WSIP, as a result of its basic mission, is constantly challenged by having to maintain a fully-functioning water supply to the San Francisco area while completing a massive system upgrade.
2. Successful completion of the WSIP requires combining the talents and skills of public and private sector staffs. The success of the teaming depends on careful selection of personnel, comprehensive training in WSIP processes and

procedures, and constant monitoring to ensure that smooth running teams are in place. As much as possible, distinguishing between City and consultant staff needs to be minimized so everyone feels part of the same team.

3. The WSIP requires the communication and interaction between WSIP staff at virtually every level with a myriad of external organizations numbering in the dozens. Maintaining effective, but controlled, communications and record-keeping thereof is a formidable challenge. When such activities are required in the relatively litigious world of construction, the challenges are even more intense.
4. The WSIP team has little or no control over the implementation of water supply projects. This could have direct impact on the team's ability to achieve its mission and WSIP completion goals.
5. WSIP has developed a tremendous data collection, management, and reporting system. Management will have to constantly guard against succumbing to pressures from the Information Technology professionals to constantly increase the number and focus of reports — "We have the system that can collect it and report on it, so let's do it". Also, the regular auditing of the inputs to the reports should be continued to make sure it is accurate and reliable.
6. Just as in every water distribution system upgrade program, one of management's biggest challenges is ensuring that shutdowns of portions of the system occur as planned. WSIP has established comprehensive shutdown plans and procedures. To date, performance has been nearly flawless. Constant vigilance and continuous improvement must continue to be applied to this critical facet of the work at every level of the organization. Potential resource constraints at SFPUC Operations also should be addressed.
7. The WSIP Deputy Director of Construction, Harvey Elwin, is a strong leader of the construction team. He also has other responsibilities within the City organization. A critical challenge for the WSIP Program Director will be to find ways to ensure that Mr. Elwin does not get pulled in so many different directions from outside the WSIP that this program is negatively impacted.
8. While the WSIP management group has a vital role in providing direction and resources necessary to complete the overall program, the Project level is where those resources get translated into physical reality. The needs of the individual projects must be addressed first and foremost, even at the expense of developing additional capabilities at the Program level.
9. The WSIP will have to maintain its strong support at the Commission and City levels. Such support is typically maintained by promoting the "successes" of the program. But since construction is a dynamic process with ever-changing

conditions, the definitions of “success” may properly need to be modified as a result of the ever-changing construction environment and society. Top management needs to ensure such understandings of the elected officials and policy drivers before such adjustments become necessary.

10. Customers will almost certainly experience fatigue with continued rate increases and long periods of disruption by the massive construction effort. An ongoing challenge will be how to continue to publicly convey the value this critical program will bring to the area.

Question 8: *What step or actions do you recommend the SFPUC Commission and/or Upper Management take to improve the organizational performance, promote accountability, minimize risks, and guarantee success?*

Organizational Performance Improvement

1. Dedicate Harvey Elwin to his WSIP Management responsibilities and consider having someone else temporarily assume responsibility for other Bureau activities.
2. Have other senior management visit the project sites as frequently as possible to share their enthusiasm for the work and provide overall program perspectives and acknowledgements of performance.
3. Look for possible streamlining of the organization as the WSIP progresses into a purely construction phase and as the volume of work varies.
4. Ensure that contract CM and City personnel take a unified approach to contractor negotiations.
5. Review the work breakdown structure proposed for future projects to determine if simplification could result in easier maintenance and greater accuracy.
6. Senior management should authorize an independent, external review of the CMIS reports and their utilization. The review could be conducted by one individual from either City or the private sector. Purpose of the review should be limited to identifying all reports being generated, recipients of each report, and recipients' judgment of the need and functionality of reports received.

Promotion of Accountability

1. Consistent with City regulations, assign accountability for management responsibilities based on individual's capabilities and experience, rather than public or private employment status.
2. Continue to promote the concept of "one team working for the project" between City and consultant staff.
3. Consultant staff has been placed in responsible positions working closely with their City counterparts. It may be possible to increase accountability of consultant managers if they could be given greater authority, especially regarding financial matters. But we realize that existing City regulations limit such delegation of authority.

Minimizing Risks

1. Ensure that the Risk Management System is being used at all levels of the organization.
2. Continue to involve the contractors in risk identification, monitoring, and mitigation of Project-level risks.
3. Deal with community issues, such as property impacts along construction easements, as quickly as possible to minimize risks of community dissatisfaction.

Guaranteeing Success

1. With regard to the progress of the WSIP to date, and current expectations for completion, WSIP senior management should:
 - a. Evaluate and document their current criteria for what they believe should constitute "success" of the WSIP.
 - b. Document the metrics that they believe should be used to evaluate success(es).
 - c. Continue to conduct individual discussions with SFPUC senior staff and Commissioners to ensure understanding of their definition of success.
 - d. Based on all of the above, develop a current "WSIP Roadmap for Success — the Final Four Years."

- e. Gather the Project, Regional, and Program Managers for a special meeting to review and discuss the SFPUC's expectations for WSIP performance.
2. WSIP senior management should conduct reviews with appropriate design, permitting, jurisdictional agencies, and operational and construction personnel on a project-by-project basis for all yet-to-start projects to examine and re-set (if appropriate) financial and schedule contingencies and adjust project completion strategies, if necessary.
3. Senior management should consider conducting semiannual Management Excellence Review Forums. Forums should include representatives of management at all levels and should focus on accomplishments in continuous improvement, development/maintenance of "best practices," lessons learned, and mid-course corrections of accountability and responsibility of managers when appropriate.

EXHIBIT A

**List of Interviews Conducted
Week of November 15, 2010**

Bjornsen, Todd	Program Safety Manager	AECOM
Bridge, Richard	WSIP MIS Manager	Parsons
Brown, Roger	Director	R. Brown Consulting
Buckman, Randy	Project Mgr, BDPL5 Project	Mountain Cascade
Carlin, Michael	Deputy GM and COO	City
Chaudari, Dinesh	Project QA/QC Manager	City
Clough, Russell	DRB Member	Consultant
Elwin, E. Harvey	Construction Mgmt Bureau	City
Fung, Howard	Regional Project Manager	City
Harrington, Ed	General Manager	SFPUC
Hatton, Roger	Bay Division Region	Jacobs Engineering
Hybl, Travis	Project Manager (LEED AP)	S.J. Amoroso
Jackson, Barry	Bay Tunnel Safety Manager	Michaels/JD/Coluccio
Kelly, Harlan, Jr.	Assist. GM, Infrastructure Div.	SFPUC
Kineen, John	Program Construction Manager.	AECOM
Kohgadai, Mohammad	Bay Division Regional Proj Engr.	City
Larkins, Anni	BDPL5 Peninsula Reaches	Jacobs Engineering
Labonte, Julie	WSIP Program Director	City
Larkins, Anni	BDPL5 Construction Manager	Jacobs Engineering
Leung, Ben	BDPL5 Peninsula Reaches	Jacobs Engineering

EXHIBIT A

**List of Interviews Conducted
Week of November 15, 2010
(continued)**

Manders, Heather	Engineering Mgt Bureau	City
Mansour, Emad	Construction Mgt. Operations Mgr.	AECOM
Marley, John	WSIP Project Controls	Parsons
McCulloch, Andy	BDPL5 Project Area Manager	Mountain Cascade
Merrell, Azalia	University Mound Project Engr.	ARA
Moran, Anson	Commissioner	SFPUC
Mues, R.N.(Bob)	Bay Tunnel Project Manager	Jacobs Engineering
Nicely, Robert (Bob)	Peninsula/Bay Regional Safety Mgr.	AECOM
Ortiz, Joseph	Project Management Bureau	City
Prete, John	Project Manager	City
Ritchie, Steven	Assist. GM, Water Enterprise	SFPUC
Soto-Rosa, Gustavo	Program Construction Controls	AECOM
Stevens, Jim	Bay Tunnel Project Manager	Michels/JD/Coluccio
Templeton, Charlie	BDPL5-Peninsula Reaches	Jacobs Engineering
Toloui, Saed	SF Region/Local Project Manager	City
Vietor, Francesca	Commission President	SFPUC
Wakefield, Rick	Regional Safety Manager	AECOM
Wong, Johanna	Bay Division Reg. Proj. Mgr.	City
Yoder, Jesse	WSIP Program Advisor	Parsons
Yousefkhan, Mojgan	Program Controls Engineer	City

Exhibit B

**List of Meetings Attended by Review Team Members
Week of November 15, 2010**

Monday

8:00-8:30 a.m. Administrative and Safety Orientation
8:30-11:00 a.m. WSIP Overview
4:00-5:30 P6 Dashboard Meeting

Tuesday

10:30-11:30 Team Leader meeting with Commissioners
2:00-3:30 Bay Tunnel Weekly Meeting (jobsite)
4:00-6:00 p.m. CMIS Presentation/Demo

Wednesday

9:30-11:00 a.m. BDPL No. 5 Peninsula Project Weekly Meeting (jobsite)
2:00-3:00 p.m. Team Leader meeting with SFPUC Management

Thursday

8:30-10:00 a.m. University Mound Quarterly Project Meeting (jobsite)
3:30-5:00 WSIP Regional CM Coordination Meeting

Friday

10:00-11:30 a.m. Review Team De-briefs SFPUC Management on finding
11:30a.m.-12:30 p.m. Lunch with SFPUC Management