

Public Utilities Revenue Bond Oversight Committee

AGENDA Regular Meeting

Monday, July 18, 2011
9:30 a.m.

1155 Market Street (between 7th & 8th Streets)
4th Floor Conference Room

Committee Members

Aimee Brown, Chair
Kevin Cheng, Vice-Chair
Brian Browne
Ian Hart
Ben Kutnick
Larry Liederman
John Ummel

1. Call to Order and Roll Call
2. Public Comment: Members of the public may address the Revenue Bond Oversight Committee (RBOC) on matters that are within the RBOC's jurisdiction that are not on today's agenda.
3. Chair's Report
 - a. San Francisco Public Utilities Commission (SFPUC) Staff Report: Update on the Water System Improvement Program (WSIP).
 - b. San Francisco Public Utilities Commission (SFPUC) Staff Report: Local Water System and Emergency Preparedness.
 - c. Discussion and Possible Action: Update on the funding of the RBOC account with the City Controller's Office.
 - d. City Attorney Staff Report: Summary of charges for City Attorney Services.
 - e. San Francisco Public Utilities Commission (SFPUC) Staff Report: Charges for City Services Auditor's services up to June 30, 2011.
4. RBOC Contracting Working Group-
 - a. Discussion and Possible Action: Recommended Task Areas for SFPUC Independent Review Panel Assignment. (*Attachment*)
 - b. Update: City Services Auditor project audit list. (*Attachment*)

5. Discussion and Possible Action: Motion directing the chair of the RBOC or her designee to review and select from a list of qualified candidates, an individual/firm to serve in the capacity as RBOC's Peer Reviewer for the SFPUC Independent Review's third review; and to authorize the SFPUC to administer the contract for the services of the Peer Reviewer.
(Attachments: a) Job Duties/Description for Peer Reviewer; b) Bios of Interested Peer Reviewers Received to Date.)
6. Discussion and Possible Action: Approval of the Minutes from the Revenue Bond Oversight Committee (RBOC) meeting of June 20, 2011.
7. Discussion and Possible Action: Revenue Bond Oversight Committee (RBOC) Member Information Requests Raised at Today's Meeting.
8. Discussion and Possible Action: Future Agenda Items.
9. Adjournment

Note: Each item on the Regular Agenda may include explanatory documents, including reports and public correspondence. These items are available for review at City Hall, Room 244, Reception Desk.

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 agendas, minutes and meeting information please contact:

Victor Young, Committee Clerk
City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
Victor.Young@sfgov.org
(415) 554-7723

For information concerning SFPUC reports and documents please contact:

bondoversight@sfgwater.org
(415) 487-5245

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Explanatory Documents: Copies of Explanatory Documents listed in this agenda, if any, and other related materials received by the Revenue Bond Oversight Committee after the posting of the agenda, are available for public inspection at 1155 Market Street, 5th Floor. Please call (415) 487-5245 to make arrangements for pick up or review.

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.

Disability Access

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The following services are available on request 48 hours prior to the meeting; except for Monday meetings, for which the deadline shall be 4:00 p.m. of the last business day of the preceding week: For American sign language interpreters or the use of a reader during a meeting, a sound enhancement system, and/or alternative formats of the agenda and minutes, please contact Mike Brown at (415) 487-5223 to make arrangements for the accommodation. Late requests will be honored, if possible.

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405, 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102 at telephone No.: (415) 554-7724; Fax (415) 554-7854; E-mail: sotf@sfgov.org. Copies of the Sunshine Ordinance can be obtained from the Clerk of the Sunshine Task Force, the San Francisco Public Library and on the City's website at www.sfgov.org.

Cell phones, pagers and similar sound-producing electronic devices

The ringing of and use of cell phones, pagers and similar sound-producing electronic devices are prohibited at this meeting. Please be advised that the Chair may order the removal from the meeting room of any person(s) responsible for the ringing or use of a cell phone, pager, or other similar sound-producing electronic devices.

Lobbyist Registration and Reporting Requirements

Individuals and entities that influence or attempt to influence local legislative or administrative action may be required by the San Francisco Lobbyist Ordinance [SF Campaign & Governmental Conduct Code §2.100, et. seq] to register and report lobbying activity. For more information about the Lobbyist Ordinance, please contact the Ethics Commission at: 30 Van Ness Avenue, Suite 3900, San Francisco, CA 94102; telephone (415) 581-2300; fax (415) 581-2317; web site www.sfgov.org/ethics.

Recommended Task Areas for the Independent Review Panel

Prepared for RBOC Meeting July 18, 2011

Introduction: On June 20, 2011, RBOC formally accepted an offer from WSIP Director, Julie Labonte, to direct the next task of the Independent Review Panel this fall provided RBOC could appoint a person of its own choosing to oversee the Panel's third assessment. This "peer reviewer" will help define the Panel's scope of work and participate in the Panel's review effort.

The Contract Workgroup (B. Kutnick, A. Brown, and J. Ummel) met on July 7 to discuss the potential task areas involving the SFPUC's Independent Review Panel and go over a draft job description and list of job duties for the yet-to-be named Peer Reviewer. Regarding the former, the Workgroup revisited the list of task areas that RBOC had previously discussed. That list included the following task areas:

- Examine allocation of program management costs (Note: being done by CSA)
- Reconnaissance review of most challenging projects
- Evaluate soft costs
- Evaluate projects savings, change orders and contingencies
- Perform selected construction audits or reconnaissance review of CSA
- Evaluate adherence to risk management procedures and/or assessments
- Evaluate construction management program/system (CMIS)
- Assess use of alternative delivery methods
- Review feasibility of Level of Service (LOS) goals
- Examine project expenditures and appropriations (Note: being done by CSA)
- Compare SFPUC's efforts with other large capital programs (BMPs)

In addition to the above, the Workgroup considered these other possible tasks:

- Assign no overall task but have the Panel develop a list of specific tasks that RBOC could then consider for review.
- Examine procedures and processes used in project close-outs
- Review the start-up of the Sewer System Improvement Program (SSIP); identify key organizational and management aspects that are in-place or contemplated for future success. What are the "lessons learned" from WSIP that carryover to SSIP?
- Identify the SFPUC's plans to transition (de-staff /reassign labor, consultants, or CMIS) out of WSIP to SSIP.
- Identify the SFPUC's operational needs in a post-WSIP environment.
- Examine the latest changes in WSIP cost and schedule with emphasis on increased costs for program delivery.
- Revisit the contracting processes to determine lessons learned.
- Examine program/project permitting.

Recommended Task Areas for Consideration

From the above list of 19 potential task assignments, the Workgroup recommended three broad areas of interest that would be the focus of a defined scope of work for the Panel.

1. Change Management
2. Risk Management
3. Increased Program Delivery Costs

Because the Panel is limited in the amount of time they have to complete the task(s), the challenge is in taking the three broad areas recommended above and defining the breadth of scope. In other words, what can be reasonably and effectively accomplished within a week? Rather than RBOC or the Workgroup attempting to prioritize or further define the scope among these three areas, it was recommended that a Peer Reviewer be hired to work with the Workgroup (with input from WSIP staff and the four Panel Members) to define the scope that the Panel will be tasked with completing. It is possible that only one of the three areas listed will be recommended for review. Or, it could be some combination of tasks among these three areas. In any event, a key deliverable regardless of the task(s) chosen will be for the Panel, or RBOC's Peer Reviewer separately, to recommend additional follow-up assignments that RBOC could then contract out for a more thorough review.

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Suggested Projects to be Audited by CSA Per MOU with Revenue Bond Oversight Committee – July 2011

Task 1a: Audit three projects to determine if bond proceeds were (are being) used in accordance with bond resolutions, authorization, legislation, intended use, and Commission action.

1. **Project CUW 368.2.** Bay Division Pipeline Reliability Upgrade - Pipeline
Project Cost: \$207M **Status:** 70% complete **Contact:** Joseph Ortiz, 415 551-4541
Description: Installation of a "5th" pipeline in two segments, East Bay and Peninsula, built parallel to BDPL 1 & 2 and linked with the Bay Tunnel; provides redundancy and seismic reliability.
2. **Project CUW 309.1.** Lake Merced Pump Station Essential Upgrade
Project Cost: \$47M **Status:** 75% complete **Contact:** Howard Fung, 415 551-4642
Description: Replacement of the city's major pumping station which was built in 1953 and has exceeded its useful life.
3. **Project WW-405.** Mission & Mt Vernon Sewer Improvement
Project Cost: \$16M **Status:** Complete **Contact:** Bessie Tam, 415-554-1519
Description: Improve sewer drainage for wastewater collected and transmitted on Mission, Mt. Vernon, Ellington, and Foote streets in SF.

Task 1b: Audit two projects to determine if program management costs were (are being) allocated per best practices.

1. **Project CUW 361.5.** Pulgas Balancing Reservoir: Modifications to Existing Dechlor Facility
Project Cost: \$5.8M **Status:** 65% Complete **Contact:** Husam Masri: 415 551-4563
Description: Improve the process control system of the existing plant so that chlorine and ammonia can be removed before water is discharged into Crystal Springs Reservoir; brings the plant into compliance with water quality regulations.
2. **Project CUW 367.1.** Harry Tracy Long Term Improvements
Project Cost: \$276M **Status:** 10% Complete **Contact:** Calvin Huey: 650 808-3877
Description: Treatment plant upgrades that will allow sustained 140 mgd capacity following a seismic event.

Alternate Project: If CSA deems PM expenditure detail-to-date for CUW 367.1 is too small, impedes its ability to conduct a thorough review.

Project CUW 381.1. Sunol Valley WTP Expansion & Treated Water Reservoir
Project Cost: \$126M **Status:** 40% Complete **Contact:** Ravi Krishnaiah: 415 554-0710
Description: Treatment plant upgrades that will allow sustained 160 mgd capacity during an outage and new treated water reservoir to maximize system operations.

Qualifications and Job Duties for RBOC Peer Reviewer

DRAFT

Introduction: The SFPUC, with assistance from Parsons, created an Independent Review Panel (currently comprised of four industry construction management (CM) professionals) to conduct reviews of the WSIP program, specifically construction management. Two reviews have taken place thus far and a third and final one is contemplated for fall, 2011. The first assessment (January 2010) looked at the WSIP organization, systems, reporting format, and risks to program delivery. The second assessment (January 2011) focused on various CM activities. A separate report by Parsons looked at schedule compression and execution issues raised by the Commission and the Bay Area Water Supply and Conservation Agency (BAWSCA). Generally speaking, though there were certain aspects of the program that were extremely challenging and could impact program delivery timelines, the two reports by the Panel and one by Parsons found no inherent weaknesses or serious red flags and gave the SFPUC's CM/PM organization high marks.

The Revenue Bond Oversight Committee (RBOC) has broad oversight responsibility to ensure that proceeds from bonds for improvements to the Water, Waste Water, and Power enterprises are expended in accordance with bond resolutions and intended purpose. RBOC has contracted for various audits in the past and recently engaged the Controller's Office to conduct another financial-type audit. RBOC has also been discussing the need to conduct a review of various aspects of the SFPUC's capital programs.

WSIP Director, Julie Labonte, offered RBOC the option of using the Panel to advance its own oversight responsibilities. On June 20, 2011, RBOC formally accepted this offer with the proviso that RBOC could appoint a person of its own choosing to be a peer reviewer of the Panel's third assessment. This person will help define the Panel's scope of work and participate in the Panel's review effort for one week in the fall.

Job Qualifications: RBOC desires to contract with an individual with the requisite engineering and project management background and experience in construction management and/or construction auditing, primarily dealing with large public projects. Ideally, this person would have recent project management oversight experience and be familiar with organizational frameworks, systems, concepts, or best practices used in the construction industry today. Prior experience may have been acquired through a combination of oversight or review of private or public infrastructure projects, either by way of direct management, consulting or academia research. As this person will be interfacing with four other highly qualified individuals, prior experience working in a group or peer review capacity is desirable.

Job Duties: The basic duties of the reviewer include, but are not limited to, assisting in the development of a scope of work for the Panel, reviewing reports or studies provided to the Panel in advance of the engagement, attending meetings with Panel members with SFPUC or WSIP staff during the course of the engagement, participating in any follow-up (end of the day) discussions with panel members, reviewing and commenting on the Panel's draft report and making separate, written comments regarding the Panel's findings and recommendations to RBOC, including any suggestions for further audits or reviews RBOC may wish to consider. It is expected that the reviewer would present his/her findings orally at a future meeting of the RBOC.

ROY W. BLOCK

Mr. Block has over 19 years experience in the construction industry in his current capacity as President of R W Block Consulting, Inc. previously as Director in PricewaterhouseCoopers LLP, and working as a project manager for Perini Corporation, for a top 30 ENR general contractor.

Mr. Block is experienced in many facets of the construction industry, including construction auditing, compliance reviews, project and program management, cost evaluation and litigation support, strategy, design, scheduling, manpower management, production analysis, cost reporting, estimating and as an industry specialist supporting systems implementation.

Mr. Block has specific infrastructure/water-sewer capital development experience working to provide program oversight, compliance reviews, construction audits and project management. In 1992, Mr. Block started his career in construction as a project manager on a \$190 million waste treatment facility in Deer Island, MA. Most recently Mr. Block completed a program management review of a \$300 million water / sewer improvement program in Seminole County, FL.

R W Block Consulting, Inc. (2002-Present)

As president of RWBC, Mr. Block has performed over 100 engagements in the US and abroad. Mr. Block oversees a wide range of engagements in various industries. Selected highlights are provided below:

- San Francisco Public Utilities Commission: part of team that performed a review of Sunset Reservoir – North Basin Project on behalf of the Revenue Bond Oversight Committee including processes, procedures, overhead, change orders and construction expenditures
- Seminole County, FL – Department of Environmental Services: engaged to review project and program management activities on a \$300 million capital improvement program funded by a bond issue. Analysis included review of staffing costs versus work accomplished, contract compliance, schedule reviews and benchmark of fees to industry standards.
- San Francisco International Airport – Terminal 2 Rehabilitation: performed independent financial and construction risk assessment on this \$383 million design/build project. Services included independent cost to complete estimates, schedule reviews, change order reviews, and construction contract negotiation support.
- Broward County Department of Public Works – compliance review and construction audit \$800+ million capital program

- San Diego County Regional Airport Authority – Greenbuild Program – construction auditor to \$864 million capital program which is funded by a combination of revenue bonds, grants and local funds. Services provided include compliance review of program expenditures, compliance review to bond documents and Federal financial regulatory requirements, review of construction progress including field inspections and schedule reviews.
- Port of Oakland – construction audit and compliance review of \$120 million airport terminal rehabilitation
- Greater Orlando Aviation Authority – in support of Authority’s on-going \$800+ million on-going and planned construction activity: audit of unit price, lump sum and cost reimbursable contracts. Disaster recovery review of reconstruction costs. Litigation support and expert witness services on various construction litigation matters. Compliance reviews of ARRA construction expenditure funds and DOT funds.
- Blue Cross Blue Shield of Florida – construction audit and owner representative services on \$30 million data center construction and \$110 million campus expansion including construction of elevated parking and conference center
- Citrus Hospital – construction audit of \$7 million open heart surgery wing expansion
- Palm Terrace of Clewiston – construction audit and litigation support services on \$10+ million of disaster recovery work after 2004-2006 hurricane seasons
- Broward County Department of Aviation – compliance reviews and risk assessment reviews of capital development function about to undertake \$1+ billion in capital development
- Biloxi Public School System – construction audit of \$70+ million school improvement and reconstruction program pre and post Katrina
- City of Milwaukee – audit of public works department’s pavement management program including verification of adequacy whether planned construction would meet street condition requirements of City.
- Mississippi Emergency Management Agency- state wide reviews of FEMA’s public assistance reconstruction program in the aftermath of hurricane Katrina. Reviews include over 800 applying public entities and \$2+ billion in reviewed costs
- Mississippi Development Agency – state wide review of HUD long term rental program including compliance reviews of construction costs on over \$300+ million of expenditures
- Louisiana Department of Administration – compliance and risk assessment review of departments ability to implement sound anti-fraud and compliance practices in reconstruction efforts post hurricane Katrina
- State of Pennsylvania Central Services – developed and delivered three day construction audit seminar for a class of 70 state auditors
- Phoenix SkyHarbor International Airport – compliance services on implementation of \$1.5 billion capital program

- Salt Lake City International Airport – developing compliance procedures and review of existing capital development activities on planned \$1+ billion capital program

PricewaterhouseCoopers LLP – (1996-2002)

As a Director in the Engineering and Construction Practice for PricewaterhouseCoopers, LLP, Mr. Block served as project manager for clients in the private and public sectors. He provided a variety of services, including project management oversight, evaluation and analysis of construction process, preparation of a detailed analysis of a regional construction market for a major developer. In 1996, he became project manager of construction related services provided to the Orlando International Airport, and participated in the development of improved processes and procedures, change order review and construction claim litigation.

Rollins College, Winter Park FL (1995-1996)

Attended graduate school and received Masters in Business Administration from the Crummer Graduate School of Business, Rollins College.

Perini Corporation (1992-1995)

While employed by Perini Corporation, a TOP 30 ENR construction company, Mr. Block was a project manager on a \$190 million water and sewer contract at Deer Island, MA, responsible for supervising crews, procuring materials, updating schedule/verify progress, as well as claims and change order preparation. This project was part of the Boston Harbor Cleanup Project aimed at improving water quality in the city.

Mr. Block was the utility engineer on a \$380 million cut-and-cover tunnel construction project in Boston, Massachusetts, where he planned and executed all facets of utility construction and relocation, including critical path analysis, manpower production targets, value engineering proposals, claims preparation, material procurement and crew supervision. Mr. Block was also a member of a team of engineers that organized and prepared the 1000+ activity CPM schedule for the entire project.

EDUCATION:

MS, IT Management, Ransselear Polytechnic Institute, Troy, New York

MBA, Rollins College, Winter Park Florida

MS, Civil Engineering, Columbia University, Fu School of Engineering (Candidate 2012)

BS Civil Engineering, Colorado School of Mines, Golden Colorado

CERTIFICATIONS:

Certified Construction Auditor (CCA), National Association of Construction Auditors

Construction Control Professional (CCP), National Association of Construction Auditors

BOOKS:

"Industry Best Practices for Assessing Construction Risk", ISBN-13: 978-0-9754041-1-9, Jan. 2007.

"Industry Best Practices for Managing Capital Investment", ISBN #0-9754041-2-1, to be published in April 2004.

ARTICLES & PRESENTATIONS:

"Change Order Management: The Right Approach Can Make Change for the Better", Owner's Perspective magazine, Fall 2003

"Impact of Implementing a Pre-Audit Change Order Review Process, 2000-2003", American Association of Cost Engineers (AACE).

"Auditing the Construction Project", New Perspectives: Journal of the Association of Healthcare Internal Auditors, Fall 1997

On-going column in "Owner's Perspectives" the national publication of the Construction Owners Association of America.

TRAINING:

State of Pennsylvania central services, construction auditing and risk assessment training, June 2008

Construction Auditing and Capital Project Risk Assessment, Association of Local Government Auditors, June 2007

Preparing for the Financial Aftermath of a Disaster, GFOA, Summer 2006, Montreal Canada

Construction Auditing for Emergency Recovery Projects, Florida Audit Forum August 12, 2005 in Tampa, FL

Auditing Change Order Labor Burden Rates on Construction Projects, Florida Institute of Public Accountants (FICPA), Spring 1998

Risk Assessment and Auditing Approaches to Construction Projects, FICPA, Summer 1998

Construction Auditing, Greater Orlando Aviation Authority, Spring 1999

Controls Over Airports' Capital Improvement Programs, Crummer Graduate School of Business-Rollins College, Spring 1999

Airport Improvement Program, Greater Orlando Aviation Authority, Winter 1999

Risk Assessment on Construction Projects, Florida Government Finance Officers Association (FGFOA), Spring 2000

Negotiating Change Orders on Construction Projects, Summer 2000

Airports Council International, Evaluating Construction Risk on Special Facility Revenue Bonds, Winter 2001

Forbes E-Business Conference, London, UK-Panelist "Project Collaboration for the 21st Century",
Fall 2001

Forbes Utilities E-Business Conference, San Francisco, "Addressing Collaboration Trends in the Power Generation Industry", Spring 2002.

Industry Best Practices for Construction Management Information Systems-eConstruction, Summary 2003.

LANGUAGE:

Native speaker-Spanish

REFERENCES:

Maureen S. Riley, Executive Director – Salt Lake City Department of Aviation
Tel (801) 575-2408, email: Maureen.riley@slcgov.com

Stan Thornton, Greater Orlando Aviation Authority
Tel (407) 825-7826, email: sthornton@goaa.org

TERRY E. ROBERTS

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President, Terry Roberts Consulting, Inc. (2006 to Present)

Provide project management services to public and private sector clients. **Bay Area Water Supply and Conservation Agency (BAWSCA):** Program/project management advisory services for San Francisco's \$4B Hetch Hetchy water system upgrade. Closely track project schedules, budgets, work scopes, change orders, and contingency funds. Review plans, reports, and other elements of project delivery. Evaluate and report findings to BAWSCA using best practices and my extensive PM experience. With BAWSCA, meet with top SFPUC managers to review program performance and recommend improvements to project delivery and CM policies. **Consultant to Aviation Director, San Jose International Airport (SJIA):** Leader of team that negotiated a complex \$650M design-build airport construction contract. Provide high-level expertise in contract negotiations, project management and cost control. **Gilbane Building Company:** Program/ project management services for new \$350M Terminal Concourse at SJIA.

Deputy City Manager, City of San Jose (2001-2006)

Responsible for implementing a \$3.5B, 5-year CIP including water, sewer, transportation, libraries, parks and community centers, police and fire facilities, \$1B in airport improvements, and a new \$350M city hall project. Reorganized and led capital project delivery teams to an on time/on budget culture. Developed nationally award-winning project management and tracking system. Completed over 800 projects in 5 years. Supervised the public works, environmental and utility services, transportation, and general services departments.

Director, Public Works Agency/ City Engineer, City of Oakland (1983-1999)

Director of agency with annual operating budget of \$100M and 700 employees. Managed citywide CIP. Established new on time/on budget CIP delivery unit. Projects included a \$170M city office building and plaza project, a \$100M post earthquake renovation and seismic upgrade of historic city hall, city lead in rebuilding the \$1B Cypress Freeway after its collapse in the 1989 earthquake, a \$90M airport roadway, a \$65M observatory and science center, and a \$400M sewer reconstruction program.

Other Positions

Director of Public Works, City of Daly City (1999-2001)
Assistant Public Works Director, City of Fresno (1980-1983)

PROFESSIONAL QUALIFICATIONS:

Bachelor's Degree - Civil Engineering, California State University, Fresno, CA
Master's Degree - Public Administration, Golden Gate University, San Francisco, CA
California Registered Professional Civil Engineer

AFFILIATIONS & AWARDS:

Received San Jose's 2006 award of excellence for capital project implementation
San Jose City Hall named best overall California construction project for 2005
National APWA 2004 innovation award for automated program management/project tracking system
Board of Directors, Chabot Space and Science Center, Oakland, CA, 1996-2001 (www.chabotspace.org)
Past President, Northern California Chapter - American Public Works Association
Caltrans award for Excellence in Transportation for my role in rebuilding the \$1B Cypress Freeway, 1999
Commendations from MTC, AC Transit and the Alameda County CMA for transportation advocacy, 1999
U.S. Army Commendation for Meritorious Service in Vietnam

PROFESSOR WILLIAM IBBS

William Ibbs is professor and group leader of the Construction Management program in the civil engineering department at the University of California at Berkeley. He teaches both undergraduate and graduate courses in construction management, including scheduling, construction cost management and accounting, and project management. He is a leading thinker, active researcher and writer on construction management subjects, including the management of large, complex public works projects.

As part of his research program he has studied hundreds of large projects around the world and benchmarked them to understand key success factors. This work has been supported by 100+ companies and now includes extensive data from 170 projects.

Dr. Ibbs has also been an active consultant on many projects, whether in a planning, an execution or a dispute resolution capacity. Planning work includes advising public agencies such as the Massachusetts Highway Department on Boston's Big Dig, the Panamanian Government on the Panama Canal restoration, and BAWSCA & SFPUC on the Hetch Hetchy WSIP. He studied project "soft costs" for a number of California water districts and Caltrans, in which he compared the indirect overhead costs that public agencies incur when performing design work in-house rather than with consulting firms.

His project execution work includes assisting owners on irrigation and pipeline projects in Illinois; and contractors on earthen dams, pipelines, reservoirs and treatment plants in California and Illinois. He worked with a large design firm on the risk management aspects of rebuilding a large water system.

In the construction dispute area Bill has served as both an expert witness and a project mediator. The expert witness work usually involves design, project management, cost and scheduling issues. He is a certified Dispute Review Board Foundation mediator and a certified AAA arbitrator. He was jointly retained by the City of San Francisco and Mitchell Engineers construction company to serve as a "project neutral" mediator on their 4th Street Bridge project dispute. Other clients include Bechtel, CH2M-Hill, the US Navy, EBMUD and utilities and agencies overseas.

One of his signature assignments was with the US Department of Energy on its \$12 Billion Hanford Waste Treatment Project. Because of his independence and communication skills he was selected to speak to a DOE administrative hearing on behalf of an independent review team. Dr. Ibbs has also testified about the SF-Oakland Bay Bridge to the California State Legislature.

Before starting his academic career in 1980, he worked in the private sector as a designer, an owner's project engineer (Kaiser Permanente) on hospital construction, and a construction contractor on water and wastewater treatment facilities.

In addition to his academic career Professor Ibbs is a very active consultant. He has served as an expert witness and project neutral, qualifying to testify in federal and state courts, and international arbitration. His work includes the impact project change has on labor productivity (both design and

construction labor), schedule, and cost. He has also testified on matters involving construction defect, personal injury, surety takeovers, standard of care, false claims and economic loss.

Professor Ibbs is active in and has received a number of awards various professional organizations such as AGC, ASCE, the Beavers and PMI. He has published 180+ journal and magazine articles and books.

Dr. Ibbs earned B.S. and M.S. degrees from Carnegie Mellon University and a Ph.D. from U.C. Berkeley, all in civil engineering with a construction management emphasis. He has minors in business and finance. He is a registered professional engineer.

More information and references can be provided upon request.